FIAT BRAVO & BRAVA

Haynes 3572

1995 to 2000 (**N** to **W** registration) 4-cyl Petrol

Haynes **Service and Repair Manual**

Includes **Roadside Repairs** and **MOT Test Checks**

FIAT Bravo & Brava

Service and Repair Manual

AK Legg LAE MIMi, Spencer Drayton & RM Jex

Models covered

(3572 - 336)

FIAT Bravo and Brava models with 4-cylinder petrol engines, including special/limited editions
1.2 litre (1242 cc), 1.4 litre (1370 cc), 1.6 litre (1581 cc) and 1.8 litre (1747 cc)

Covers major mechanical features of 1.6 and 1.8 litre Marea/Weekend models
Does not cover 2.0 litre (HGT) models, or Diesel engine versions

ABCDE
FGHIJ
KLMNO
PQ

A book in the **Haynes Service and Repair Manual Series**

ISBN 1 **85960 572 9**

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library.

Printed in the USA

Haynes Publishing
Sparkford, Yeovil, Somerset BA22 7JJ, England

Haynes North America, Inc
861 Lawrence Drive, Newbury Park, California 91320, USA

Editions Haynes
4, Rue de l'Abreuvoir
92415 COURBEVOIE CEDEX, France

Haynes Publishing Nordiska AB
Box 1504, 751 45 UPPSALA, Sweden

Contents

LIVING WITH YOUR FIAT BRAVO/BRAVA

Roadside repairs

Weekly checks

Lubricants and fluids

Tyre pressures

MAINTENANCE

Routine maintenance and servicing

Contents

REPAIRS & OVERHAUL

Engine and associated systems

Transmission

Brakes and suspension

Body equipment

Wiring diagrams

REFERENCE

Index

The 3-door FIAT Bravo and 5-door Brava models were introduced at the end of 1995, as part of a new range of FIAT models which began with the successful Punto a year earlier. The elegant all-new design won the coveted Car of the Year award in 1996.

The engines are all fuel-injected, in-line, multi-valve four-cylinder units of 1370 cc, 1581 cc or 1747 cc displacement, and all feature a comprehensive engine management system with extensive emission control equipment. In early 1999, the range received a minor facelift, and the 1370 cc 12-valve engine was replaced by the 1242 cc 16-valve engine from the FIAT Punto.

The 3- and 5-door bodyshells are extensively galvanised and particularly rigid, and offer spacious accommodation. The cars have many crash safety measures, such as a driver's airbag, side impact bars, anti-submarine seats, and front seat belt pre-tensioners.

Transmissions are either 5-speed manual, or 4-speed automatic with computer control. The automatic transmission features mode control selection, allowing the driver to alter the transmission characteristics to suit normal, sport or winter driving requirements.

Braking is by discs at the front, and drums at the rear, with the handbrake acting on the rear drums. Anti-lock braking (ABS) is available as an option. The suspension is conventional, with struts and wishbones at the front, and a torsion beam rear axle. Power-assisted rack and pinion steering is standard on all models.

A high level of standard equipment, and a wide range of optional equipment, is available within the range to suit virtually all tastes. All models have a driver's airbag, tinted glass, high-level brake light and central locking, with several featuring electric windows, electric sunroof and alloy wheels.

Provided that regular servicing is carried out in accordance with the manufacturer's recommendations, the FIAT Bravo and Brava will provide reliable and economical family motoring. The engine compartment is relatively spacious, and most of the items requiring frequent attention are easily accessible.

FIAT Bravo 1.4 SX

FIAT Brava 1.8 ELX

The Fiat Bravo/Brava Team

Haynes manuals are produced by dedicated and enthusiastic people working in close co-operation. The team responsible for the creation of this book included:

Authors	AK Legg LAE MIMI
	Spencer Drayton
	RM Jex
Page Make-up	Steve Churchill
	James Robertson
Workshop manager	Paul Buckland
Photo Scans	John Martin
Cover illustration & Line Art	Roger Healing
Wiring diagrams	Steve Tanswell

We hope the book will help you to get the maximum enjoyment from your car. By carrying out routine maintenance as described you will ensure your car's reliability and preserve its resale value.

Your FIAT Bravo/Brava manual

The aim of this manual is to help you get the best value from your vehicle. It can do so in several ways. It can help you decide what work must be done (even should you choose to get it done by a garage). It will also provide information on routine maintenance and servicing, and give a logical course of action and diagnosis when random faults occur. However, it is hoped that you will use the manual by tackling the work yourself. On simpler jobs it may even be quicker than booking the car into a garage and going there twice, to leave and collect it. Perhaps most important, a lot of money can be saved by avoiding the costs a garage must charge to cover its labour and overheads.

The manual has drawings and descriptions to show the function of the various components so that their layout can be understood. Tasks are described and photographed in a clear step-by-step sequence. The illustrations are numbered by the Section number and paragraph number to which they relate - if there is more than one illustration per paragraph, the sequence is denoted alphabetically.

References to the 'left' or 'right' of the vehicle are in the sense of a person in the driver's seat, facing forwards.

Acknowledgements

Thanks are due to Champion Spark Plug, who supplied the illustrations showing spark plug conditions, and to Duckhams Oils, who provided lubrication data. Thanks are also due to Draper Tools Limited, who provided some of the workshop tools, and to all those people at Sparkford who helped in the production of this manual.

Working on your car can be dangerous. This page shows just some of the potential risks and hazards, with the aim of creating a safety-conscious attitude.

General hazards

Scalding

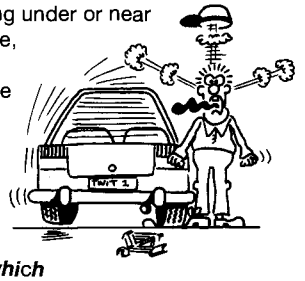
• Don't remove the radiator or expansion tank cap while the engine is hot.
• Engine oil, automatic transmission fluid or power steering fluid may also be dangerously hot if the engine has recently been running.

Burning

• Beware of burns from the exhaust system and from any part of the engine. Brake discs and drums can also be extremely hot immediately after use.

Crushing

• When working under or near a raised vehicle, always supplement the jack with axle stands, or use drive-on ramps. ***Never venture under*** a car ***which is only supported by*** a ***jack.***



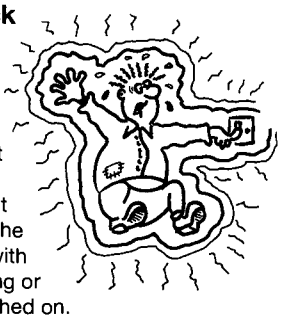
• Take care if loosening or tightening high-torque nuts when the vehicle is on stands. Initial loosening and final tightening should be done with the wheels on the ground.

Fire

• Fuel is highly flammable; fuel vapour is explosive.
• Don't let fuel spill onto a hot engine.
• Do not smoke or allow naked lights (including pilot lights) anywhere near a vehicle being worked on. Also beware of creating sparks (electrically or by use of tools).
• Fuel vapour is heavier than air, so don't work on the fuel system with the vehicle over an inspection pit.
• Another cause of fire is an electrical overload or short-circuit. Take care when repairing or modifying the vehicle wiring.
• Keep a fire extinguisher handy, of a type suitable for use on fuel and electrical fires.

Electric shock

• Ignition HT voltage can be dangerous, especially to people with heart problems or a pacemaker. Don't work on or near the ignition system with the engine running or the ignition switched on.



• Mains voltage is also dangerous. Make sure that any mains-operated equipment is correctly earthed. Mains power points should be protected by a residual current device (RCD) circuit breaker.

Fume or gas intoxication

• Exhaust fumes are poisonous; they often contain carbon monoxide, which is rapidly fatal if inhaled. Never run the engine in a confined space such as a garage with the doors shut.

• Fuel vapour is also poisonous, as are the vapours from some cleaning solvents and paint thinners.

Poisonous or irritant substances

• Avoid skin contact with battery acid and with any fuel, fluid or lubricant, especially antifreeze, brake hydraulic fluid and Diesel fuel. Don't syphon them by mouth. If such a substance is swallowed or gets into the eyes, seek medical advice.
• Prolonged contact with used engine oil can cause skin cancer. Wear gloves or use a barrier cream if necessary. Change out of oil-soaked clothes and do not keep oily rags in your pocket.
• Air conditioning refrigerant forms a poisonous gas if exposed to a naked flame (including a cigarette). It can also cause skin burns on contact.

Asbestos

• Asbestos dust can cause cancer if inhaled or swallowed. Asbestos may be found in gaskets and in brake and clutch linings. When dealing with such components it is safest to assume that they contain asbestos.

Special hazards

Hydrofluoric acid

• This extremely corrosive acid is formed when certain types of synthetic rubber, found in some O-rings, oil seals, fuel hoses etc, are exposed to temperatures above 400°C. The rubber changes into a charred or sticky substance containing the acid. Once formed, the acid remains dangerous for years. If it gets onto the skin, it may be necessary to amputate the limb concerned.
• When dealing with a vehicle which has suffered a fire, or with components salvaged from such a vehicle, wear protective gloves and discard them after use.

The battery

• Batteries contain sulphuric acid, which attacks clothing, eyes and skin. Take care when topping-up or carrying the battery.
• The hydrogen gas given off by the battery is highly explosive. Never cause a spark or allow a naked light nearby. Be careful when connecting and disconnecting battery chargers or jump leads.

Air bags

• Air bags can cause injury if they go off accidentally. Take care when removing the steering wheel and/or facia. Special storage instructions may apply.

Diesel injection equipment

• Diesel injection pumps supply fuel at very high pressure. Take care when working on the fuel injectors and fuel pipes.

Warning: Never expose the hands, face or any other part of the body to injector spray; the fuel can penetrate the skin with potentially fatal results.

Remember...

DO

• Do use eye protection when using power tools, and when working under the vehicle.
• Do wear gloves or use barrier cream to protect your hands when necessary.
• Do get someone to check periodically that all is well when working alone on the vehicle.
• Do keep loose clothing and long hair well out of the way of moving mechanical parts.
• Do remove rings, wristwatch etc, before working on the vehicle – especially the electrical system.
• Do ensure that any lifting or jacking equipment has a safe working load rating adequate for the job.

DON'T

• Don't attempt to lift a heavy component which may be beyond your capability – get assistance.
• Don't rush to finish a job, or take unverified short cuts.
• Don't use ill-fitting tools which may slip and cause injury.
• Don't leave tools or parts lying around where someone can trip over them. Mop up oil and fuel spills at once.
• Don't allow children or pets to play in or near a vehicle being worked on.

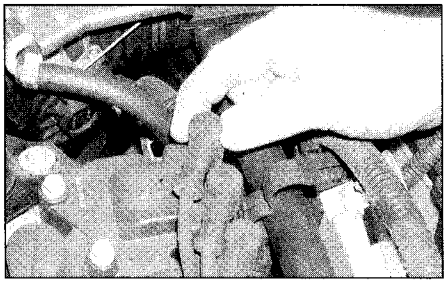
The following pages are intended to help in dealing with common roadside emergencies and breakdowns. You will find more detailed fault finding information at the back of the manual, and repair information in the main chapters.

If your car won't start and the starter motor doesn't turn

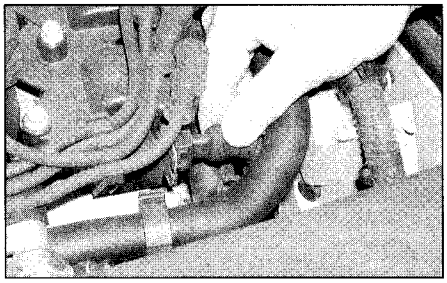
- ☐ If it's a model with automatic transmission, make sure the selector is in P or N.
- ☐ Open the bonnet and make sure that the battery terminals are clean and tight.
- ☐ Switch on the headlights and try to start the engine. If the headlights go very dim when you're trying to start, the battery is probably flat. Get out of trouble by jump starting (see next page) using a friend's car.

If your car won't start even though the starter motor turns as normal

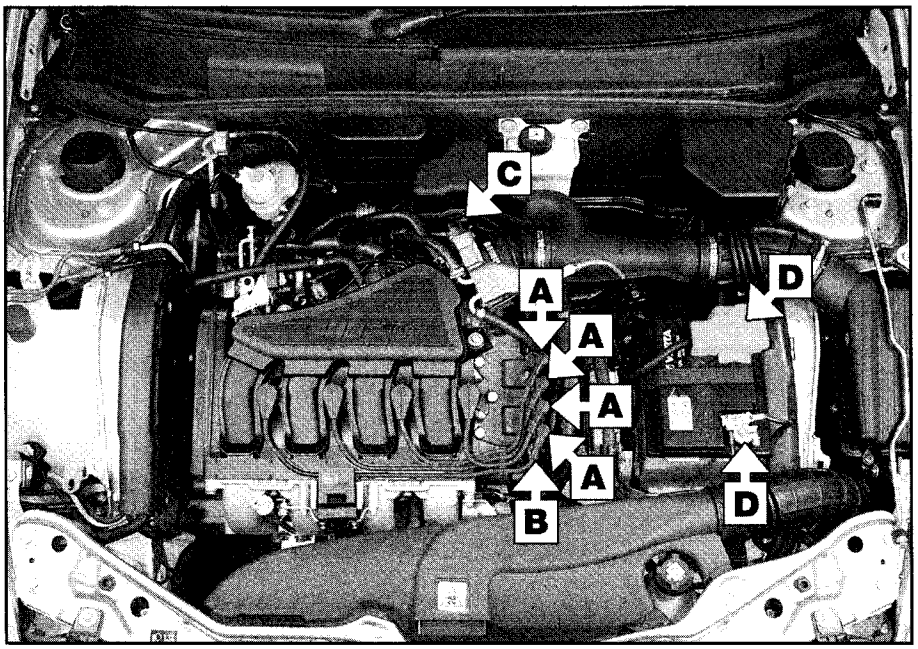
- ☐ Is there fuel in the tank?
- ☐ Is there moisture on electrical components under the bonnet? Switch off the ignition, then wipe off any obvious dampness with a dry cloth. Spray a water-repellent aerosol product (WD-40 or equivalent) on ignition and fuel system electrical connectors like those shown in the photos. Pay special attention to the ignition coil wiring connector and HT leads.



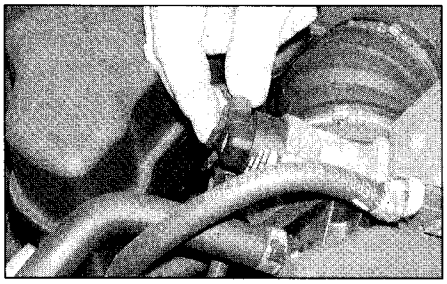
A Check that the HT leads are securely connected to the spark plugs and ignition coil pack, where applicable.
1.8 litre models do not have conventional HT leads.



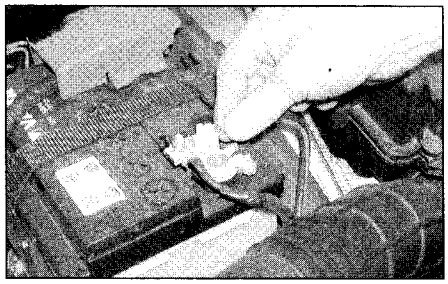
B Check that the LT wiring plug is securely attached to the ignition coil.
On some models, the HT leads and ignition coil are concealed under a plastic cover, secured by a number of screws.



Check that electrical connections are secure (with the ignition switched off) and spray them with a water dispersant spray like WD-40 if you suspect a problem due to damp



C Check the airflow meter and/or inlet air temperature sensor wiring connector for security.



D Check the security and condition of the battery terminals.

HAYNES HiNT *Jump starting will get you out of trouble, but you must correct whatever made the battery go flat in the first place. There are three possibilities:*

***1** The battery has been drained by repeated attempts to start, or by leaving the lights on.*

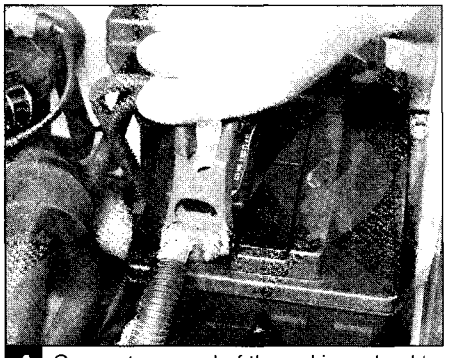
***2** The charging system is not working properly (alternator drivebelt slack or broken, alternator wiring fault or alternator itself faulty).*

***3** The battery itself is at fault (electrolyte low, or battery worn out).*

Jump starting

When jump-starting a car using a booster battery, observe the following precautions:

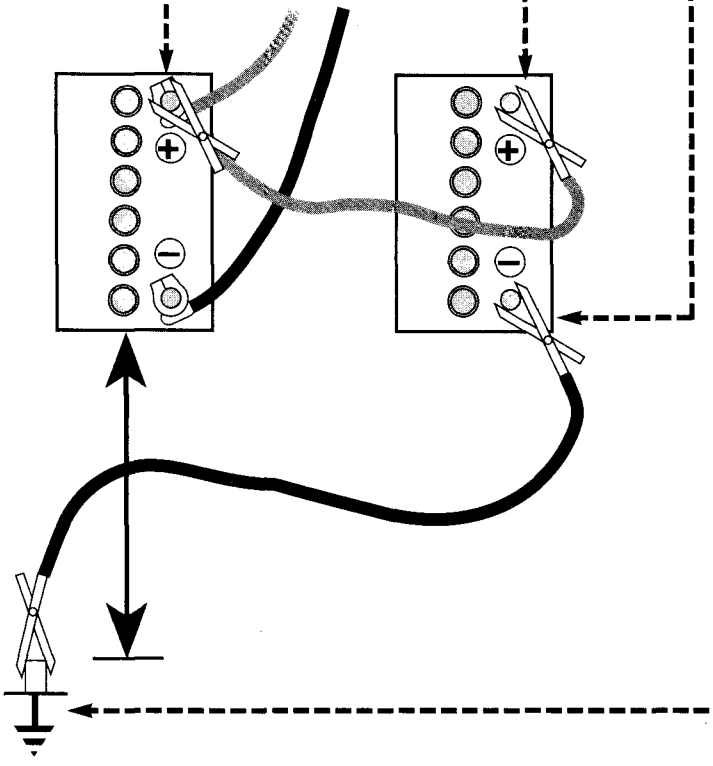
- ✔ Before connecting the booster battery, make sure that the ignition is switched off.
- ✔ Ensure that all electrical equipment (lights, heater, wipers, etc) is switched off.
- ✔ Take note of any special precautions printed on the battery case.
- ✔ Make sure that the booster battery is the same voltage as the discharged one in the vehicle.
- ✔ If the battery is being jump-started from the battery in another vehicle, the two vehicles MUST NOT TOUCH each other.
- ✔ Make sure that the transmission is in neutral (or PARK, in the case of automatic transmission).

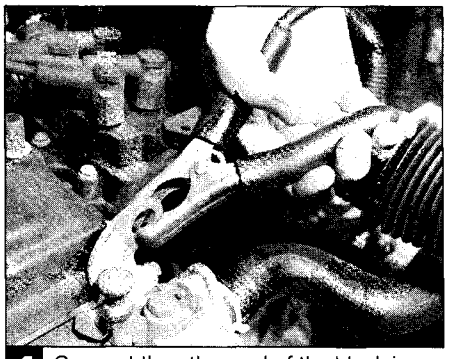


1 Connect one end of the red jump lead to the positive (+) terminal of the flat battery

2 Connect the other end of the red lead to the positive (+) terminal of the booster battery.

3 Connect one end of the black jump lead to the negative (-) terminal of the booster battery





4 Connect the other end of the black jump lead to a bolt or bracket on the engine block, well away from the battery, on the vehicle to be started.

5 Make sure that the jump leads will not come into contact with the fan, drive-belts or other moving parts of the engine.

6 Start the engine using the booster battery and run it at idle speed. Switch on the lights, rear window demister and heater blower motor, then disconnect the jump leads in the reverse order of connection. Turn off the lights etc.

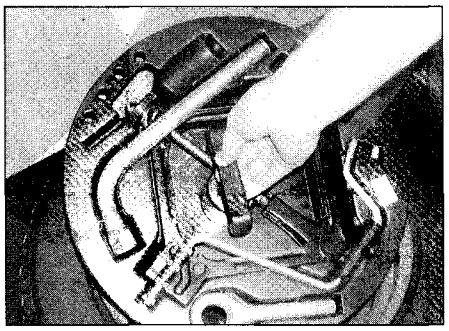
Wheel changing

Warning: Do not change a wheel in a situation where you risk being hit by another vehicle. On busy roads, try to stop in a lay-by or a gateway. Be wary of passing traffic while changing the wheel - it is easy to become distracted by the job in hand.

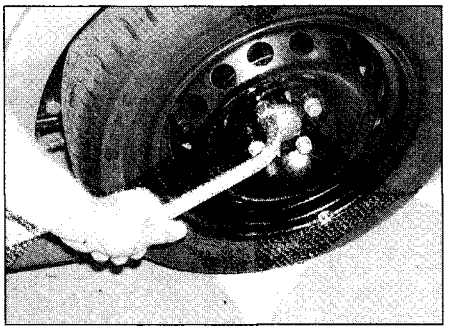
Preparation

- ☐ When a puncture occurs, stop as soon as it is safe to do so.
- ☐ Park on firm level ground, if possible, and well out of the way of other traffic.
- ☐ Use hazard warning lights if necessary.
- ☐ If you have one, use a warning triangle to alert other drivers of your presence.
- ☐ Apply the handbrake and engage first or reverse gear (or Park on models with automatic transmission).
- ☐ Chock the wheel diagonally opposite the one being removed – a couple of large stones will do for this.
- ☐ If the ground is soft, use a flat piece of wood to spread the load under the jack.

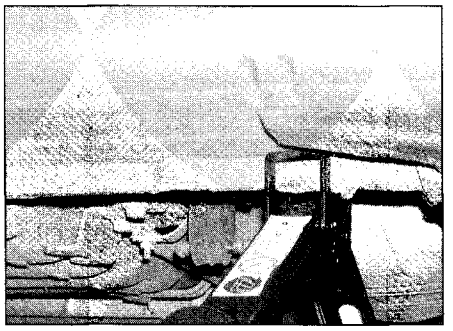
Changing the wheel



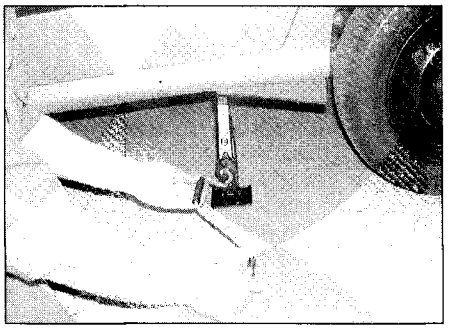
1 The spare wheel and tools are stored in the luggage compartment under the carpet. Unscrew the handle and lift out the tool tray, then take out the jack and spare wheel.



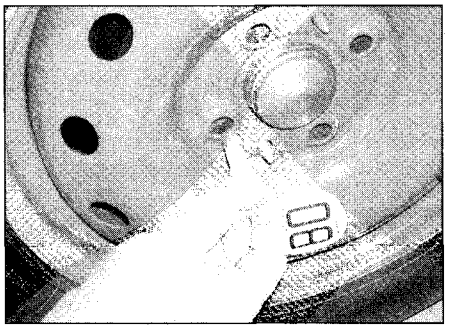
2 Remove the wheel trim (where fitted) by prising up the edges and pulling it straight off. Slacken each wheel bolt by a half turn, using the wheelbrace. If the bolts are too tight, DON'T stand on the wheelbrace to undo them - call for assistance.



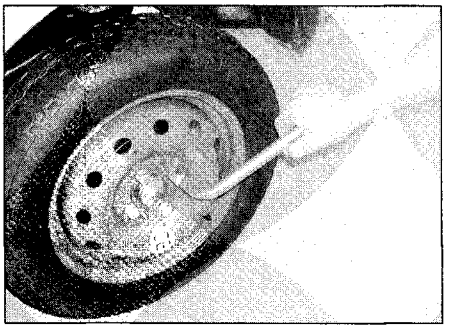
3 The jack head engages with the bottom lip on the side sills. If a front wheel is being changed, position the jack head approximately 30 cm back from the front wheel arch. If a rear wheel is being changed, the jack head should be 20 cm forward of the rear wheel arch. Don't jack the vehicle at any other point of the sill.



4 Turn the handle clockwise until the wheel is raised clear of the ground. Unscrew the wheel bolts and remove the wheel.



5 Fit the spare wheel, noting that there are two locating pegs on the wheel hub, which must fit through the holes in the spare wheel. Fit and screw in the bolts.



6 Lightly tighten the bolts with the wheelbrace, then lower the vehicle to the ground. Securely tighten the wheel bolts. Note that the wheel trim will not fit the spare wheel. The wheel bolts should be slackened and retightened to the specified torque at the earliest possible opportunity.

Note: *Some models are supplied with a special lightweight 'space-saver' spare wheel, the tyre being narrower than standard. The space-saver spare wheel is intended only for temporary use, and* ***must*** *be replaced with a standard wheel as soon as possible. Drive with particular care with this wheel fitted, especially through corners and when braking - FIAT recommend a maximum speed of 50 mph (80 km/h) when the special spare wheel is in use. The temporary spare also has a maximum recommended life of 1800 miles.*

Finally...

- ☐ Remove the wheel chocks.
- ☐ Stow the punctured wheel and tools in the correct locations in the car.
- ☐ Check the tyre pressure on the tyre just fitted. If it is low, or if you don't have a pressure gauge with you, drive slowly to the next garage and inflate the tyre to the correct pressure. Particularly in the case of the narrow space-saver spare wheel, this pressure is much higher than for a normal tyre.
- ☐ Have the punctured wheel repaired as soon as possible, or another puncture will leave you stranded.

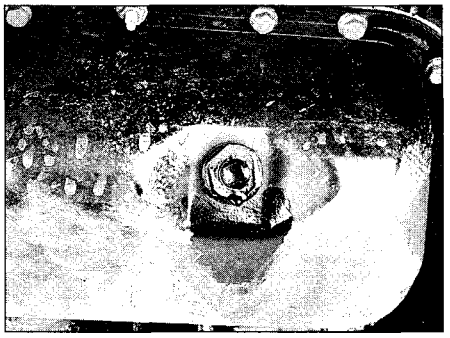
Identifying leaks

Puddles on the garage floor or drive, or obvious wetness under the bonnet or underneath the car, suggest a leak that needs investigating. It can sometimes be difficult to decide where the leak is coming from, especially if the engine bay is very dirty already. Leaking oil or fluid can also be blown rearwards by the passage of air under the car, giving a false impression of where the problem lies.

Warning: Most automotive oils and fluids are poisonous. Wash them off skin, and change out of contaminated clothing, without delay.

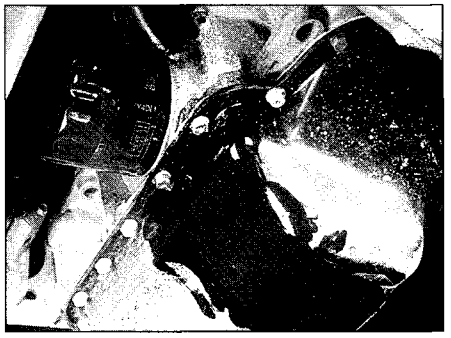
HAYNES HiNT ***The smell of a fluid leaking from the car may provide a clue to what's leaking. Some fluids are distinctively coloured. It may help to clean the car carefully and to park it over some clean paper overnight as an aid to locating the source of the leak.***
Remember that some leaks may only occur while the engine is running.

Sump oil



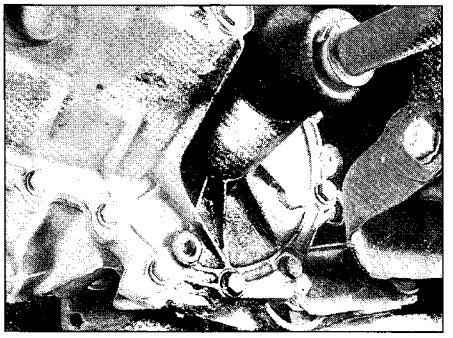
Engine oil may leak from the drain plug...

Oil from filter



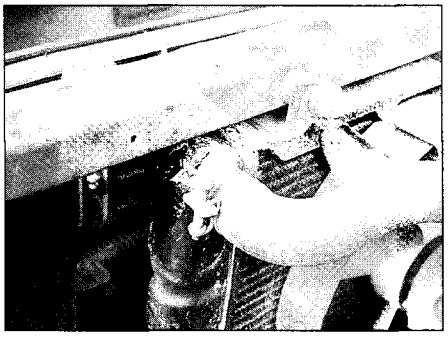
...or from the base of the oil filter.

Gearbox oil



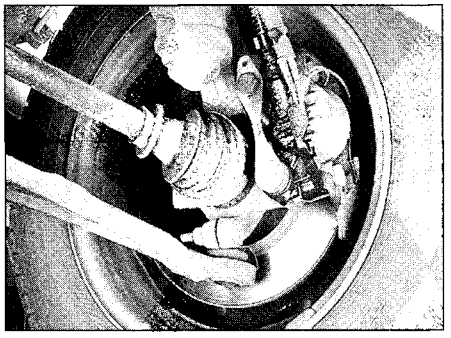
Gearbox oil can leak from the seals at the inboard ends of the driveshafts.

Antifreeze



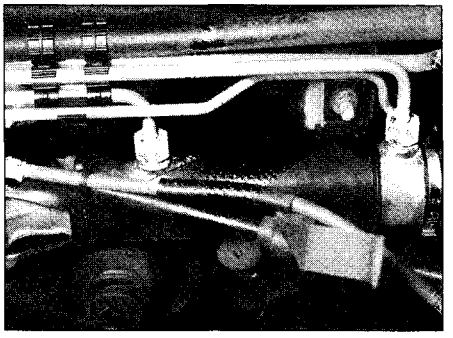
Leaking antifreeze often leaves a crystalline deposit like this.

Brake fluid



A leak occurring at a wheel is almost certainly brake fluid.

Power steering fluid



Power steering fluid may leak from the pipe connectors on the steering rack.

Towing

When all else fails, you may find yourself having to get a tow home – or of course you may be helping somebody else. Long-distance recovery should only be done by a garage or breakdown service. For shorter distances, DIY towing using another car is easy enough, but observe the following points:

☐ Use a proper tow-rope – they are not expensive. The vehicle being towed must display an ON TOW sign in its rear window.
☐ Always turn the ignition key to the 'on' position when the vehicle is being towed, so that the steering lock is released, and that the direction indicator and brake lights will work.
☐ The screw-in towing eye is provided with the wheel changing tools in the boot. The towing eye is screwed into the threaded hole in the front bumper, below the right-hand headlight, or into the right-hand side of the rear bumper after prising out the trim cover.
☐ Before being towed, release the handbrake and select neutral on the transmission.
☐ Note that greater-than-usual pedal pressure will be required to operate the brakes, since the vacuum servo unit is only operational with the engine running.
☐ On models with power steering, greater-than-usual steering effort will also be required.
☐ The driver of the car being towed must keep the tow-rope taut at all times to avoid snatching.
☐ Make sure that both drivers know the route before setting off.
☐ Only drive at moderate speeds and keep the distance towed to a minimum. Drive smoothly and allow plenty of time for slowing down at junctions.
☐ On models with automatic transmission, the car must not be towed (with the front wheels on the ground) further than 12 miles (20 km), or faster than 18 mph (30 km/h). If in doubt, do not tow with the driven wheels on the ground, or transmission damage may result.

Introduction

There are some very simple checks which need only take a few minutes to carry out, but which could save you a lot of inconvenience and expense.

These "Weekly checks" require no great skill or special tools, and the small amount of time they take to perform could prove to be very well spent, for example;

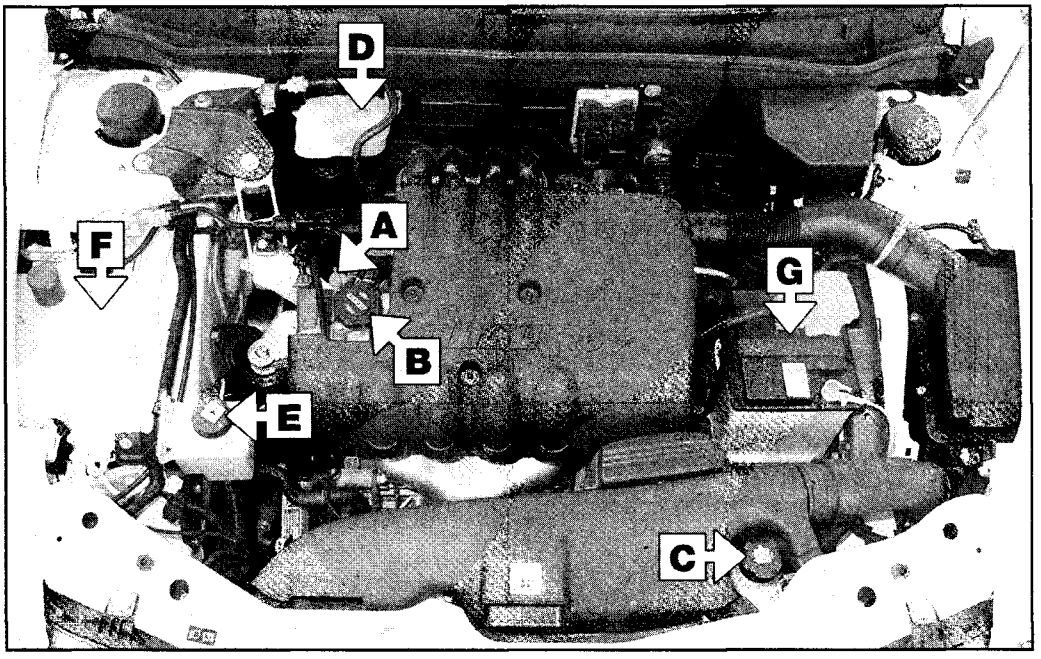
☐ Keeping an eye on tyre condition and pressures, will not only help to stop them wearing out prematurely, but could also save your life.

☐ Many breakdowns are caused by electrical problems. Battery-related faults are particularly common, and a quick check on a regular basis will often prevent the majority of these.

☐ If your car develops a brake fluid leak, the first time you might know about it is when your brakes don't work properly. Checking the level regularly will give advance warning of this kind of problem.

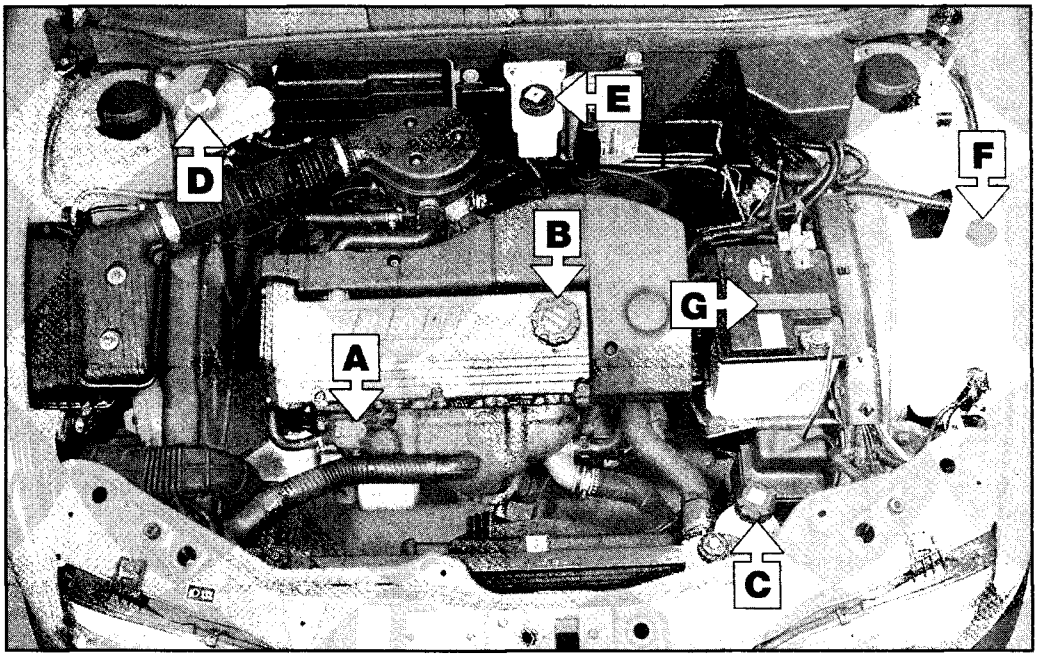
☐ If the oil or coolant levels run low, the cost of repairing any engine damage will be far greater than fixing the leak, for example.

Underbonnet check points



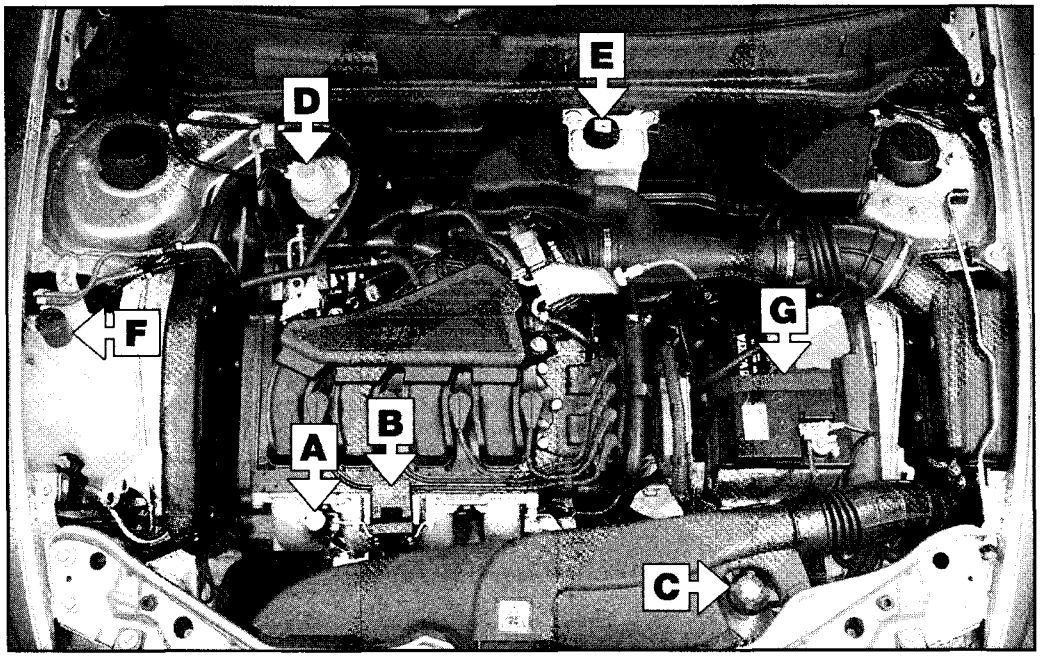
◀ 1.2 litre engine

A *Engine oil level dipstick*
B *Engine oil filler cap*
C *Coolant expansion tank*
D *Brake and clutch fluid reservoir*
E *Power steering fluid reservoir*
F *Screen washer fluid reservoir*
G *Battery*



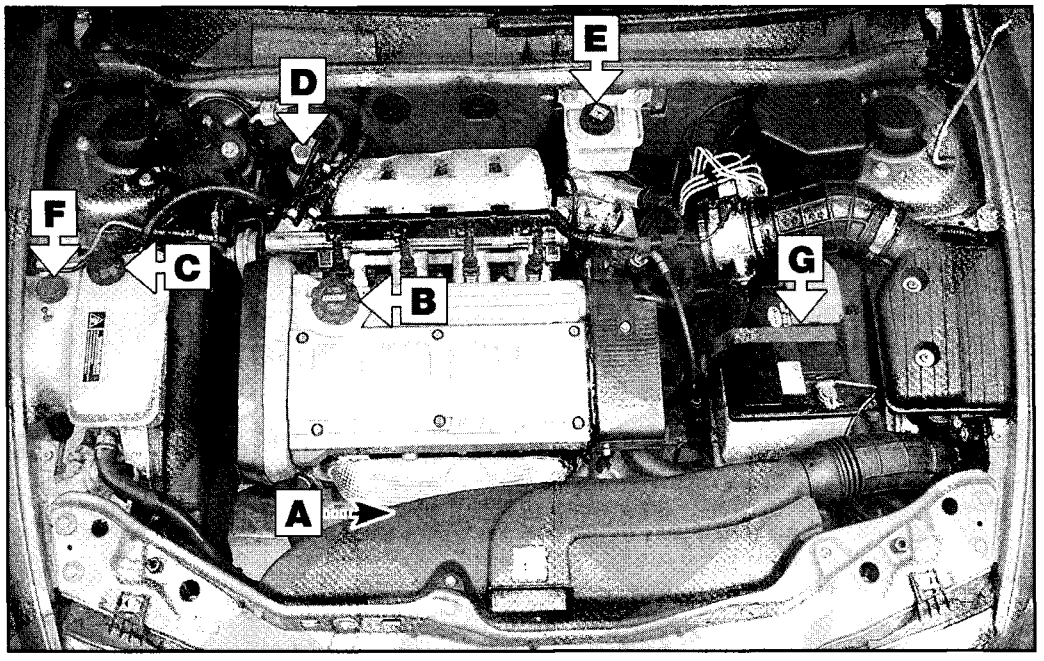
◀ 1.4 litre engine

A *Engine oil level dipstick*
B *Engine oil filler cap*
C *Coolant expansion tank*
D *Brake and clutch fluid reservoir*
E *Power steering fluid reservoir*
F *Screen washer fluid reservoir*
G *Battery*



◀ 1.6 litre engine

A *Engine oil level dipstick*
B *Engine oil filler cap*
C *Coolant expansion tank*
D *Brake and clutch fluid reservoir*
E *Power steering fluid reservoir*
F *Screen washer fluid reservoir*
G *Battery*



◀ 1.8 litre engine

A *Engine oil level dipstick*
B *Engine oil filler cap*
C *Coolant expansion tank*
D *Brake and clutch fluid reservoir*
E *Power steering fluid reservoir*
F *Screen washer fluid reservoir*
G *Battery*

Engine oil level

Before you start

✔ Make sure that your car is on level ground.
✔ Check the oil level before the car is driven, or at least 5 minutes after the engine has been switched off.

> **HAYNES HiNT** ***If the oil is checked immediately after driving the vehicle, some of the oil will remain in the upper engine components, resulting in an inaccurate reading on the dipstick!***

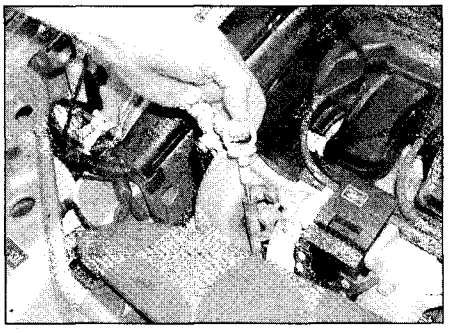
The correct oil

Modern engines place great demands on their oil. It is very important that the correct oil for your car is used (See Lubricants and fluids on page 0•17).

Car Care

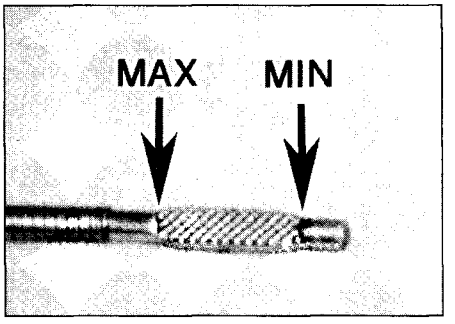
● If you have to add oil frequently, you should check whether you have any oil leaks. Place some clean paper under the car overnight, and check for stains in the morning. If there are no leaks, the engine may be burning oil.

● Always maintain the level between the upper and lower dipstick marks (see photo 3). If the level is too low severe engine damage may occur. Oil seal failure may result if the engine is overfilled by adding too much oil.

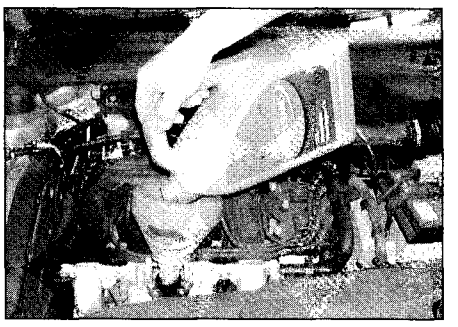


1 The dipstick top is brightly coloured for easy identification, and is situated at the front of the engine compartment (see *Underbonnet check points* on pages 0•10 and 0•11). Withdraw the dipstick

2 Using a clean rag or paper towel remove all oil from the dipstick. Insert the clean dipstick into the tube as far as it will go, then withdraw it again.



3 Note the oil level on the end of the dipstick, which should be in the hatched area between the upper (MAX) mark and lower (MIN) mark. Approximately 1.0 litre of oil will raise the level from the lower mark to the upper mark.



4 Oil is added through the filler cap. Unscrew the cap and top-up the level; a funnel may help to reduce spillage. Add the oil slowly, checking the level on the dipstick often. Don't overfill (see *'Car Care'* left).

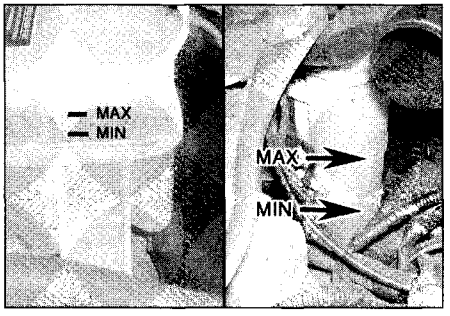
Coolant level

> ⚠ ***Warning: DO NOT attempt to remove the expansion tank pressure cap when the engine is hot, as there is a very great risk of scalding. Do not leave open containers of coolant about, as it is poisonous.***

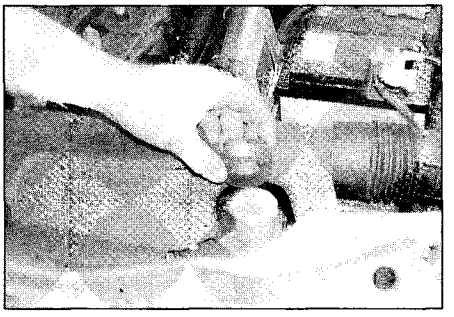
Car Care

● With a sealed-type cooling system, adding coolant should not be necessary on a regular basis. If frequent topping-up is required, it is likely there is a leak. Check the radiator, all hoses and joint faces for signs of staining or wetness, and rectify as necessary.

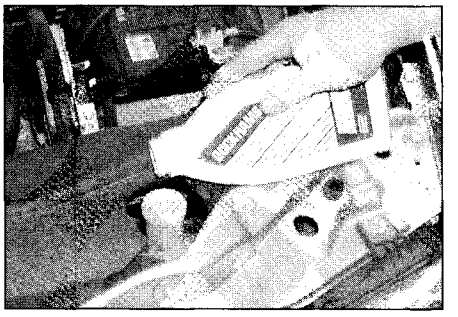
● It is important that antifreeze is used in the cooling system all year round; not just during the winter months. Don't top-up with water alone, as the antifreeze will become too diluted.



1 The coolant expansion tank is located in one of two places (see *Underbonnet check points* on pages 0•10 and 0•11). The coolant level can vary with engine temperature. When cold, it should be between the MAX and MIN marks. When the engine is hot, the level may rise slightly above the MAX mark.



2 If topping up is necessary, ***wait until the engine is cold***. Slowly unscrew the expansion tank cap, to release any pressure present in the cooling system, and remove it.



3 Add a mixture of water and antifreeze to the expansion tank until the coolant level is halfway between the level marks. Refit the cap and tighten it securely.

Brake (and clutch*) fluid level

**On models with a hydraulically-operated clutch, this information is also applicable to the clutch fluid level.*

Warning:

- ***Brake 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, which can cause a dangerous loss of braking effectiveness.***

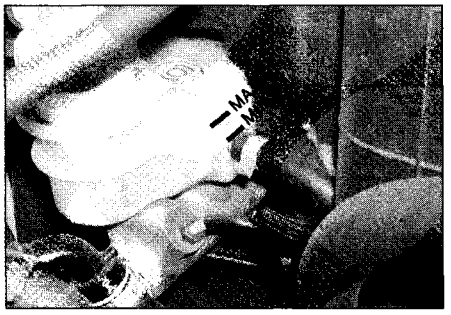
HAYNES HiNT

- ***Make sure that your car is on level ground.***
- ***The fluid level in the reservoir will drop slightly as the brake pads wear down, but the fluid level must never be allowed to drop below the MIN mark.***

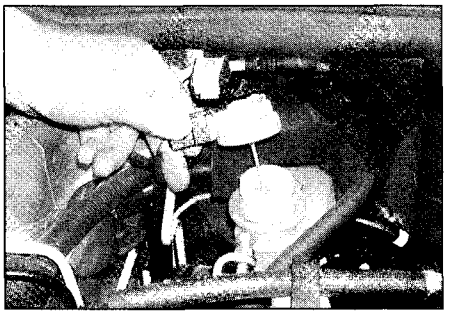
Safety First!

- If the reservoir requires repeated topping-up this is an indication of a fluid leak somewhere in the system, which should be investigated immediately.

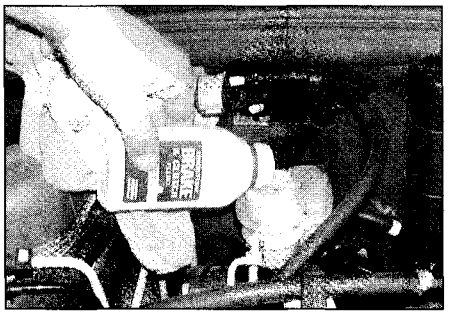
- If a leak is suspected, the car should not be driven until the braking system has been checked. Never take any risks where brakes are concerned.



1 The MAX and MIN marks are indicated on the reservoir. The fluid level must be kept between the marks at all times



2 If topping-up is necessary, first wipe clean the area around the filler cap to prevent dirt entering the hydraulic system. Unscrew the reservoir cap and carefully lift it out of position, holding the wiring connector plug and taking care not to damage the level sender float. Inspect the reservoir; if the fluid is dirty, the hydraulic system should be bled through (see Chapter 1).



3 Carefully add fluid, taking care not to spill it onto the surrounding components. Use only the specified fluid; mixing different types can cause damage to the system. After topping-up to the correct level, securely refit the cap and wipe off any spilt fluid. Reconnect the fluid level wiring connector.

Power steering fluid level

Before you start:

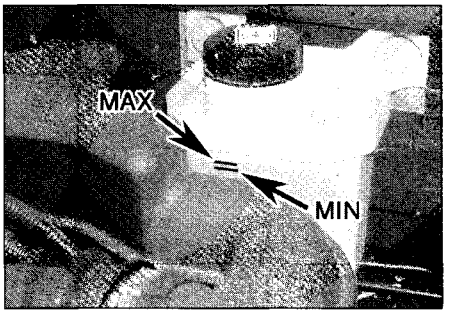
- ✔ Park the vehicle on level ground.
- ✔ Set the steering wheel straight-ahead.
- ✔ The engine should be turned off.

HAYNES HiNT

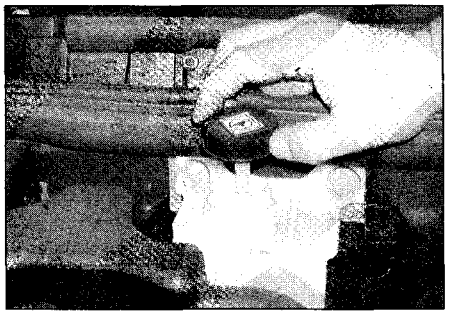
For the check to be accurate, the steering must not be turned once the engine has been stopped.

Safety First!

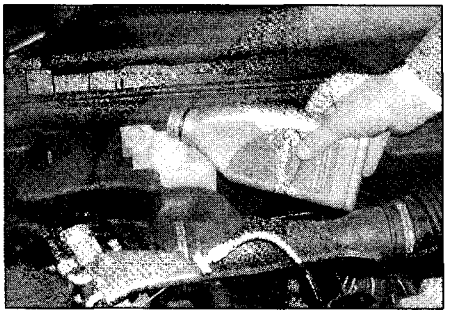
- The need for frequent topping-up indicates a leak, which should be investigated immediately.



1 On most models, the reservoir is mounted at the rear of the engine, next to the brake fluid reservoir; 1.2 litre models have the reservoir by the engine (see *Underbonnet check points* on page 0•10). The fluid level can be viewed through the reservoir body, and should be between the MIN and MAX marks; if not, a dipstick is incorporated in the filler cap.



2 If topping-up is necessary, use the specified type of fluid - do not overfill the reservoir. When the level is correct, securely refit the cap.



3 Start the engine and wait for the fluid level in the reservoir to stabilise before proceeding. With the engine running, turn the steering wheel fully left and right several times, returning to the straight-ahead position. Wait for the level to stabilise, then check the fluid level once more, and top-up if necessary. Switch off the engine on completion.

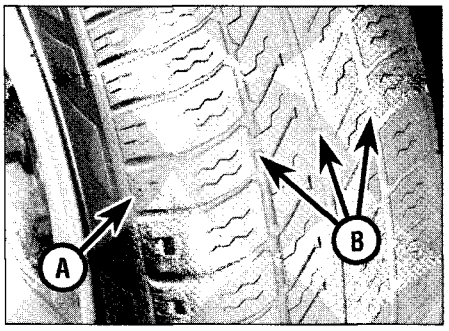
Tyre condition and pressure

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.

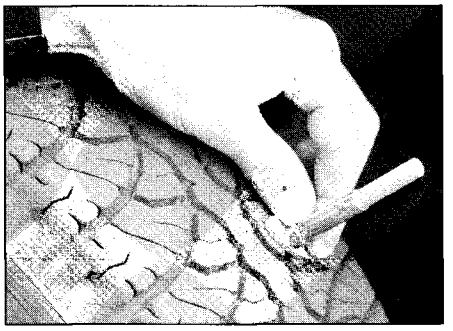
Regularly check the tyres for damage in the form of cuts or bulges, especially in the sidewalls. Periodically remove the wheels, and clean any dirt or mud from the inside and outside surfaces. Examine the wheel rims for signs of rusting, corrosion or other damage. Light alloy wheels are easily damaged 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.



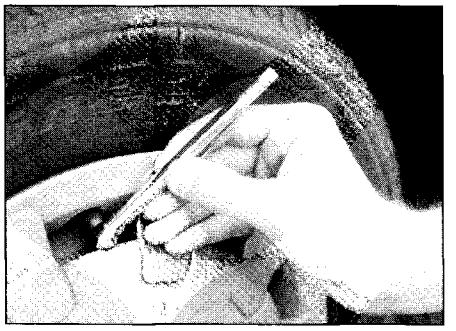
1 *Tread Depth - visual check*

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*

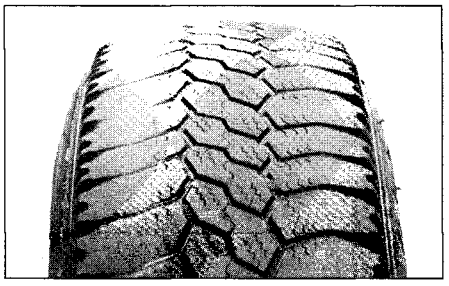
Alternatively, tread wear can be monitored with a simple, inexpensive device known as a tread depth indicator gauge.



3 *Tyre Pressure Check*

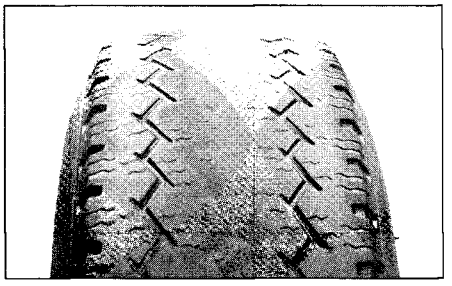
Check the tyre pressures regularly with the tyres cold. Do not adjust the tyre pressures immediately after the vehicle has been used, or an inaccurate setting will result. Tyre pressures are shown on page 0•17.

Tyre tread wear patterns



Shoulder Wear

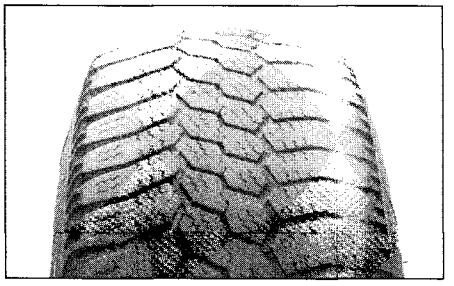
Underinflation (wear on both sides)
Under-inflation will cause overheating of the tyre, because the tyre will flex too much, and the tread will not sit correctly on the road surface. This will cause a loss of grip and excessive wear, not to mention the danger of sudden tyre failure due to heat build-up.
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.

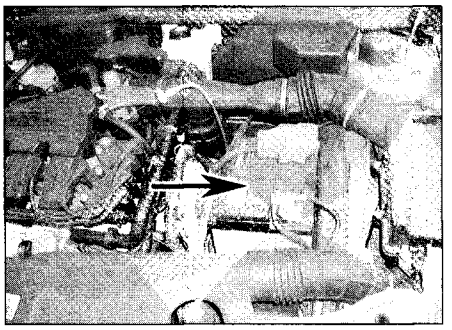
✔ Make sure that the battery tray is in good condition, and that the clamp is tight. Corrosion on the tray, retaining clamp and the battery itself can be removed with a solution of water and baking soda. Thoroughly rinse all cleaned areas with water. Any metal parts damaged by corrosion should be covered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

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

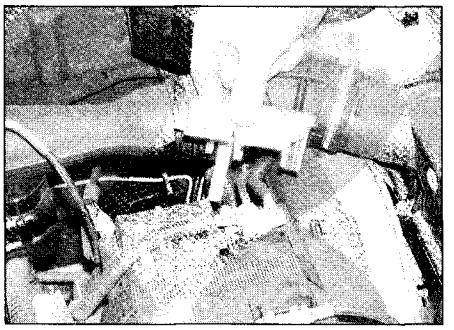
✔ On batteries which are not of the maintenance-free type, periodically check the electrolyte level in the battery - see Chapter 1.

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

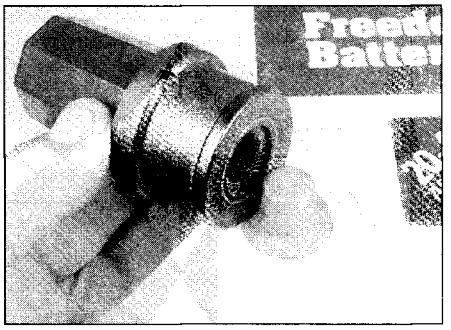
Battery corrosion can be kept to a minimum by applying a layer of petroleum jelly to the clamps and terminals after they are reconnected.



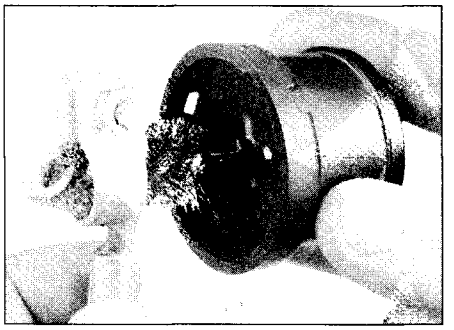
1 The battery is located at the front of the engine compartment on the left-hand side. The exterior of the battery should be inspected periodically for damage such as a cracked case or cover



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.



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

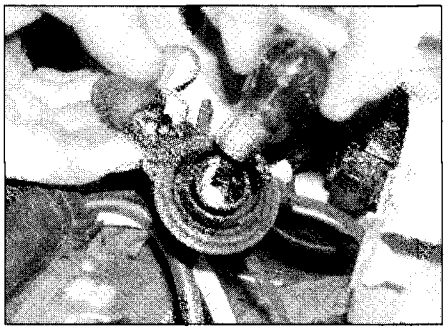
Bulbs and fuses

✔ 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.

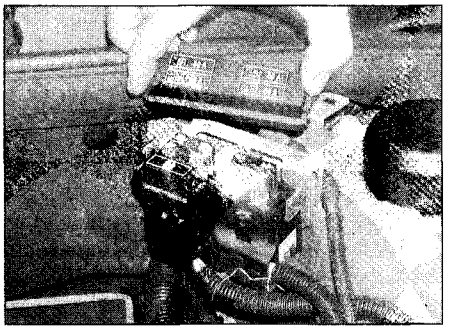
✔ Visually check all accessible wiring connectors, harnesses and retaining clips for security, and for signs of chafing or damage.

HAYNES HiNT

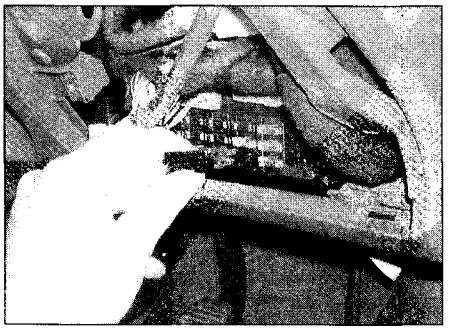
If you need to check your brake lights and indicators unaided, back up to a wall or garage door and operate the lights. The reflected light should show if they are working properly.



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.

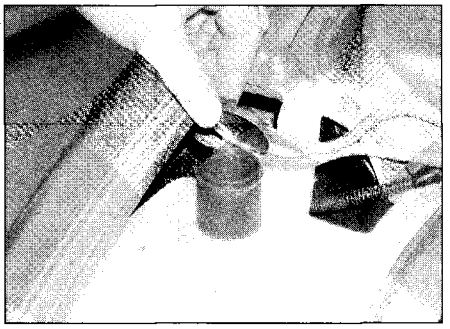


3 To replace a blown fuse, simply pull it out using the plastic tweezers provided. Fit a new fuse of the same rating (see Chapter 12). If the fuse blows again, it is important that you find out why - a complete checking procedure is given in Chapter 12.

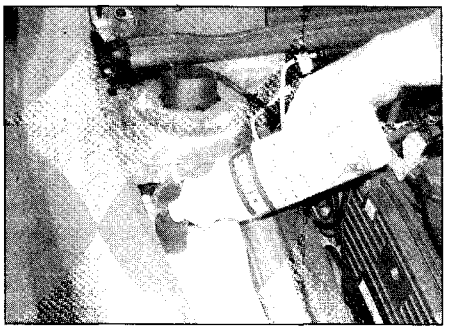
Washer fluid level

● 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.

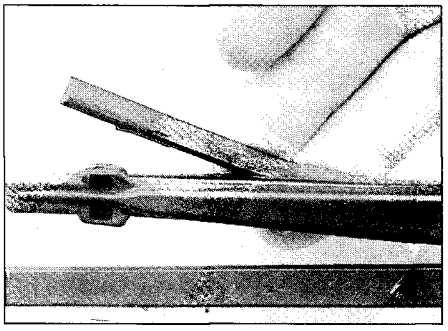


2 To top-up the level, pull the filter inside the filler neck upwards until it clicks - this can now be used as a funnel. When topping-up the reservoir, a screenwash additive should be added in the quantities recommended on the bottle.

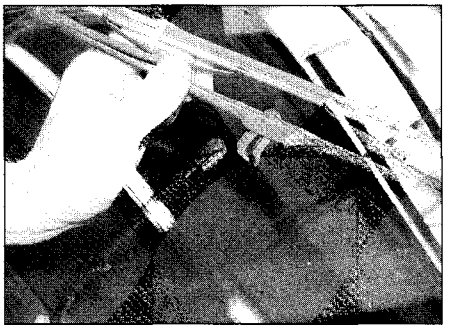
Wiper blades

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

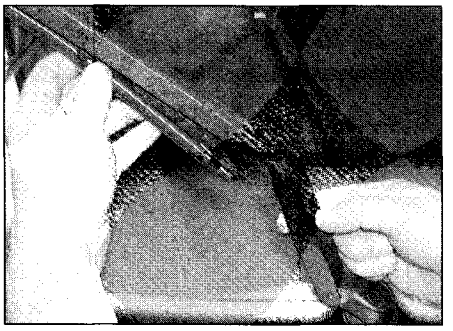
Note: *Fitting details for wiper blades vary according to model, and according to whether genuine FIAT wiper blades have been fitted. Use the procedures and illustrations shown as a guide for your car.*



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

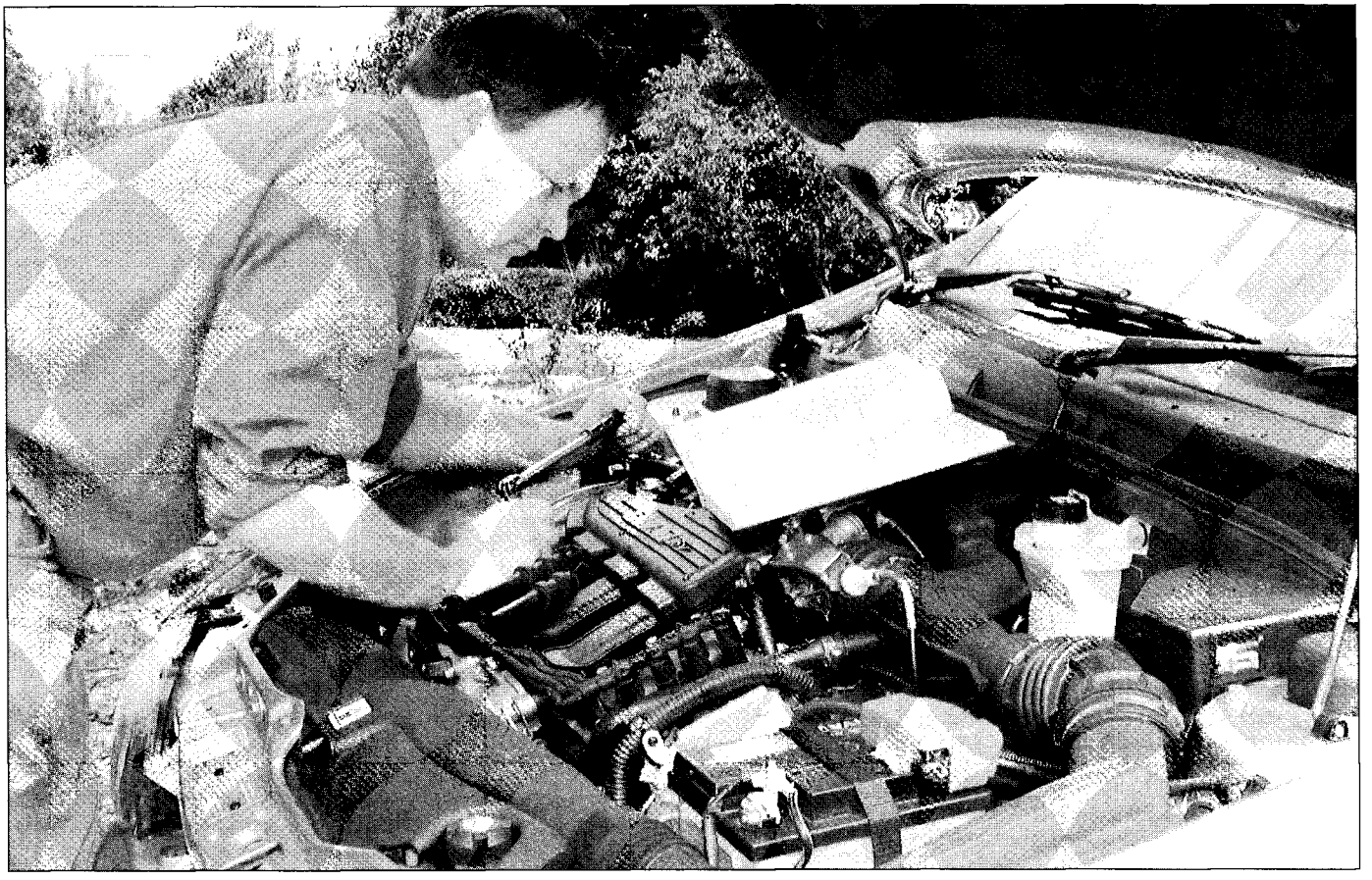
Tyre pressures (cold)

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



1

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

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