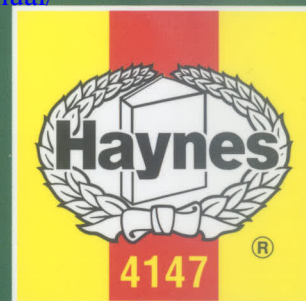


# PEUGEOT 307



2001 to 2004 (Y registration onwards) Petrol & Diesel

## Haynes **Service and Repair Manual**



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

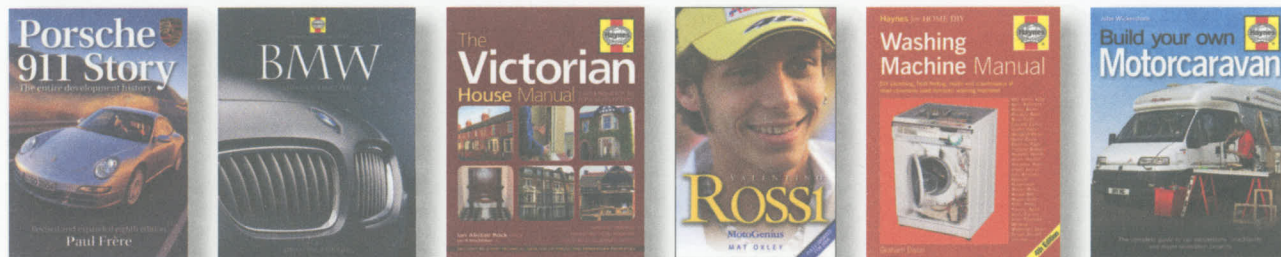


# and not forgetting...

We don't just publish car manuals, you know! In addition to the hundred and fifty million car and bike manuals we have sold worldwide, Haynes also produce a wide range of practical books and manuals on subjects such as home DIY, computing, caravanning, cycling and driving tuition – and there's our innovative and highly successful Family Series as well. No matter what the subject, our essential no-nonsense, easy-to-follow approach remains the same.



We also publish and distribute hundreds of books and DVDs covering general motoring and transport subjects, including all aspects of motorsport, classic cars, sports cars, motorcycling, military vehicles, aviation, model cars, cycling, golf, history and much, much more.



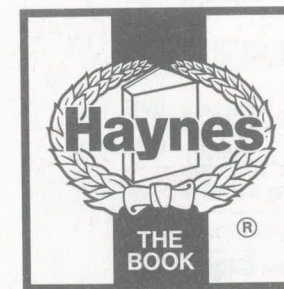
Check out our website at [www.haynes.co.uk](http://www.haynes.co.uk) to find your nearest stockist or to view or download our online catalogue. All Haynes publications are available variously through car accessory shops, book stores and mail order outlets.



Haynes Publishing, Sparkford, Yeovil, Somerset BA22 7JJ, England  
 Telephone 01963 442030 • E-mail [sales@haynes.co.uk](mailto:sales@haynes.co.uk) • Website [www.haynes.co.uk](http://www.haynes.co.uk)  
 Sweden 018 124016 • USA 805 498-6703 • Australia 613 9763-8100



**Illegal Copying** It is the policy of Haynes Publishing to actively protect its Copyrights and Trade Marks. Legal action will be taken against anyone who unlawfully copies the cover or contents of this Manual. This includes all forms of unauthorised copying including digital, mechanical, and electronic in any form. Authorisation from Haynes Publishing will only be provided expressly and in writing. Illegal copying will also be reported to the appropriate statutory authorities in whichever jurisdiction the offence takes place.



# Peugeot 307 Service and Repair Manual

Martynn Randall

## Models covered

Peugeot 307 Hatchback & Estate/SW models, including special/limited editions

Petrol engines: 1.4 litre (1360cc) SOHC, 1.6 litre (1587cc) & 2.0 litre (1997cc)  
 Turbo-Diesel engines: 1.4 litre (1398cc) SOHC & 2.0 litre (1997cc)

*Does NOT cover 307CC or Coupe models*

*Does NOT cover 1.4 litre DOHC 16-valve petrol & diesel engines introduced during 2004*

(4147 - 344)

© Haynes Publishing 2004

A book in the Haynes Service and Repair Manual Series

All rights reserved. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or by any information storage or retrieval system, without permission in writing from the copyright holder.

ISBN 1 84425 147 0

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library.

ABCDE  
 FGHIJ  
 KLMNO  
 PQ

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, Sverige



# Contents

## LIVING WITH YOUR PEUGEOT 307

Safety first!	Page 0•5
Introduction	Page 0•6

### Roadside repairs

Introduction	Page 0•7
If your car won't start	Page 0•7
Jump starting	Page 0•8
Identifying leaks	Page 0•9
Towing	Page 0•9
Wheel changing	Page 0•10

### Weekly checks

Introduction	Page 0•12
Underbonnet check points	Page 0•12
Engine oil level	Page 0•13
Coolant level	Page 0•13
Tyre condition and pressure	Page 0•14
Brake and clutch fluid level	Page 0•15
Power steering fluid level	Page 0•15
Screen washer fluid level	Page 0•16
Wiper blades	Page 0•16
Battery	Page 0•17
Bulbs and fuses	Page 0•17

Lubricants and fluids	Page 0•18
-----------------------	-----------

Tyre pressures	Page 0•18
----------------	-----------

## MAINTENANCE

### Routine maintenance and servicing

#### Petrol engine

Servicing specifications	Page 1A•2
Maintenance schedule	Page 1A•3
Maintenance procedures	Page 1A•5

#### Diesel engine

Servicing specifications	Page 1B•2
Maintenance schedule	Page 1B•3
Maintenance procedures	Page 1B•5

# Contents

## REPAIRS & OVERHAUL

### Engine and associated systems

1.4 and 1.6 litre petrol engines in-car repair procedures	Page <b>2A•1</b>
2.0 litre petrol engine in-car repair procedures	Page <b>2B•1</b>
Diesel engine in-car repair procedures	Page <b>2C•1</b>
Engine removal and overhaul procedures	Page <b>2D•1</b>
Cooling, heating and ventilation systems	Page <b>3•1</b>
Fuel and exhaust systems – petrol models	Page <b>4A•1</b>
Fuel and exhaust systems – diesel models	Page <b>4B•1</b>
Emission control systems	Page <b>4C•1</b>
Starting and charging systems	Page <b>5A•1</b>
Ignition system - petrol models	Page <b>5B•1</b>
Pre/post-heating system - diesel models	Page <b>5C•1</b>

### Transmission

Clutch	Page <b>6•1</b>
Manual transmission	Page <b>7A•1</b>
Automatic transmission	Page <b>7B•1</b>
Driveshafts	Page <b>8•1</b>

### Brakes and suspension

Braking system	Page <b>9•1</b>
Suspension and steering	Page <b>10•1</b>

### Body equipment

Bodywork and fittings	Page <b>11•1</b>
Body electrical system	Page <b>12•1</b>

### Wiring diagrams

Page **12•20**

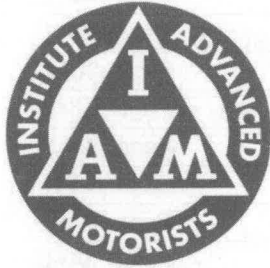
## REFERENCE

Dimensions and weights	Page <b>REF•1</b>
Conversion factors	Page <b>REF•2</b>
Buying spare parts	Page <b>REF•3</b>
Vehicle identification numbers	Page <b>REF•3</b>
General repair procedures	Page <b>REF•4</b>
Jacking and vehicle support	Page <b>REF•5</b>
Tools and working facilities	Page <b>REF•6</b>
MOT test checks	Page <b>REF•8</b>
Fault finding	Page <b>REF•12</b>
Glossary of technical terms	Page <b>REF•19</b>

### Index

Page **REF•23**





Many people see the words 'advanced driving' and believe that it won't interest them or that it is a style of driving beyond their own abilities. Nothing could be further from the truth. Advanced driving is straightforward safe, sensible driving - the sort of driving we should all do every time we get behind the wheel.

An average of 10 people are killed every day on UK roads and 870 more are injured, some seriously. Lives are ruined daily, usually because somebody did something stupid. Something like 95% of all accidents are due to human error, mostly driver failure. Sometimes we make genuine mistakes - everyone does. Sometimes we have lapses of concentration. Sometimes we deliberately take risks.

For many people, the process of 'learning to drive' doesn't go much further than learning how to pass the driving test because of a common belief that good drivers are made by 'experience'.

Learning to drive by 'experience' teaches three driving skills:

- Quick reactions. (Whoops, that was close!)
- Good handling skills. (Horn, swerve, brake, horn).
- Reliance on vehicle technology. (Great stuff this ABS, stop in no distance even in the wet...)

Drivers whose skills are 'experience based' generally have a lot of near misses and the odd accident. The results can be seen every day in our courts and our hospital casualty departments.

Advanced drivers have learnt to control the risks by controlling the position and speed of their vehicle. They avoid accidents and near misses, even if the drivers around them make mistakes.

The key skills of advanced driving are **concentration**, effective all-round **observation**, **anticipation** and **planning**. When **good vehicle handling** is added to

these skills, all driving situations can be approached and negotiated in a safe, methodical way, leaving nothing to chance.

**Concentration** means applying your mind to safe driving, completely excluding anything that's not relevant. Driving is usually the most dangerous activity that most of us undertake in our daily routines. It deserves our full attention.

**Observation** means not just looking, but seeing and seeking out the information found in the driving environment.

**Anticipation** means asking yourself what is happening, what you can reasonably expect to happen and what could happen unexpectedly. (One of the commonest words used in compiling accident reports is 'suddenly'.)

**Planning** is the link between seeing something and taking the appropriate action. For many drivers, planning is the missing link.

If you want to become a safer and more skilful driver and you want to enjoy your driving more, contact the Institute of Advanced Motorists at [www.iam.org.uk](http://www.iam.org.uk), phone 0208 996 9600, or write to IAM House, 510 Chiswick High Road, London W4 5RG for an information pack.

## Illegal Copying

*It is the policy of Haynes Publishing to actively protect its Copyrights and Trade Marks. Legal action will be taken against anyone who unlawfully copies the cover or contents of this Manual. This includes all forms of unauthorised copying including digital, mechanical, and electronic in any form. Authorisation from Haynes Publishing will only be provided expressly and in writing. Illegal copying will also be reported to the appropriate statutory authorities.*



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

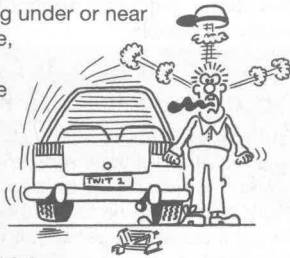
- Don't remove the radiator or expansion tank cap while the engine is hot.
- Engine oil, automatic transmission fluid or power steering fluid may also be dangerously hot if the engine has recently been running.

### 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.**



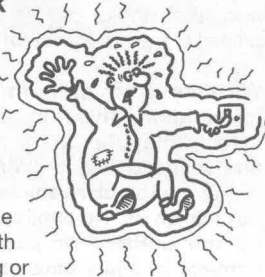
- Take care if loosening or tightening high-torque nuts when the vehicle is on stands. Initial loosening and final tightening should be done with the wheels on the ground.

### 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 fascia. 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 Peugeot 307 was introduced into the UK in early 2001. At its launch, the 307 was offered with a choice of 1.4 (1360cc), 1.6 (1587cc) and 2.0 litre (1997cc) petrol engines or 1.4 litre (1398cc), 2.0 litre (1997cc) turbo-diesel engines. It was available in two body styles – a 3/5-door Hatchback, or a 5-door Estate. In March 2002 the SW (Sports Wagon) model was released, with three rows of

passenger seats, and a full-length glass panel roof as the main distinguishing features.

The engines fitted to the 307 range are all versions of the well-proven units which have appeared in many Peugeot/Citroën vehicles over the years, with the exception of the 1.4 litre HDI engine, newly developed in a joint venture with the Ford Motor Co.

The engine is mounted transversely at the

front of vehicle, with the transmission mounted on its left-hand end. All engines are fitted with a manual transmission as standard (an automatic transmission is available on certain engines).

All models have fully-independent front suspension, incorporating shock absorbers, coil springs and an anti-roll bar. The rear beam axle has a built-in anti-roll bar, with separate shock absorbers and coil spring.

A wide range of standard and optional equipment is available within the range to suit most tastes, including central locking, electric windows and front, side and curtain airbags. An air conditioning system is available on all models.

Provided that regular servicing is carried out in accordance with the manufacturer's recommendations, the vehicle should prove reliable and very economical. The engine compartment is well-designed, and most of the items requiring frequent attention are easily accessible.

## Your Peugeot 307 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.

References to the 'left' and 'right' of the vehicle are in the sense of a person in the driver's seat facing forward.

## Acknowledgements

Thanks are 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.

**We take great pride in the accuracy of information given in this manual, but vehicle manufacturers make alterations and design changes during the production run of a particular vehicle of which they do not inform us. No liability can be accepted by the authors or publishers for loss, damage or injury caused by any errors in, or omissions from, the information given.**

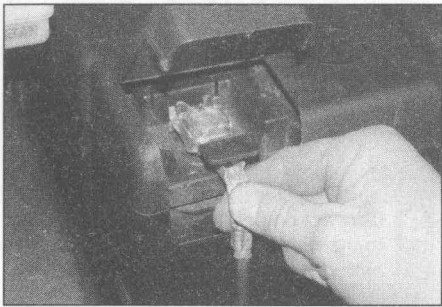




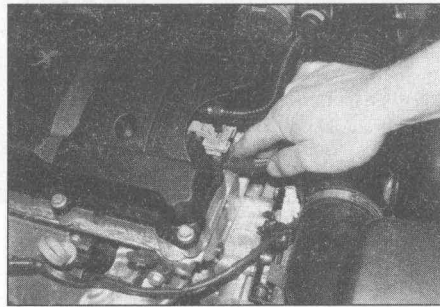
The following pages are intended to help in dealing with common roadside emergencies and breakdowns. You will find more detailed fault finding information at the back of the manual, and repair information in the main chapters.

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

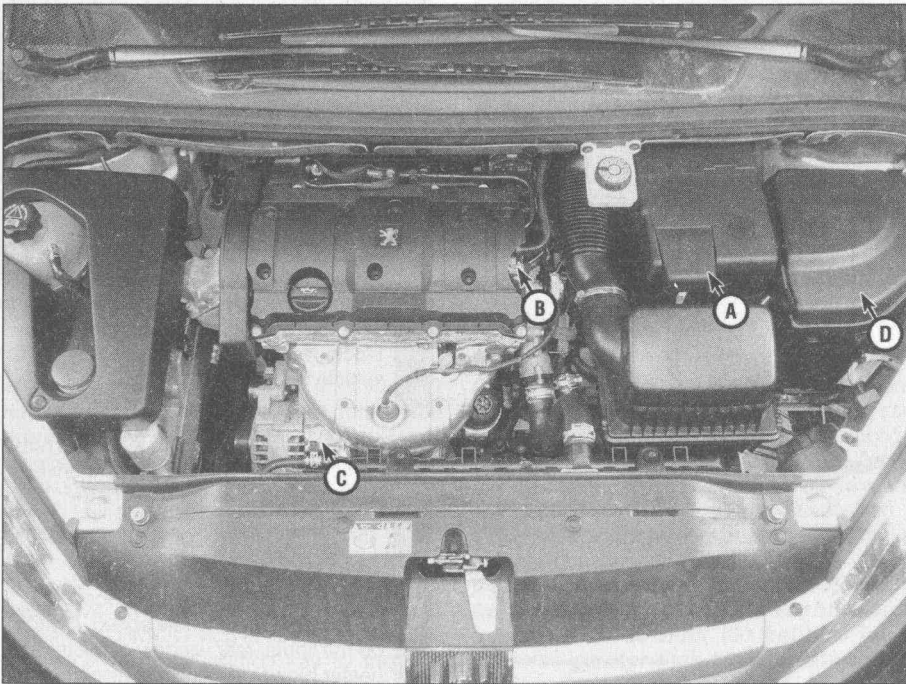
- If it's a model with automatic transmission, make sure the selector is in the P or N position.
- Open the bonnet and make sure that the battery terminals are clean and tight.
- Switch on the headlights and try to start the engine. If the headlights go very dim when you're trying to start, the battery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



**A** Remove the plastic cover and check the condition and security of the battery connections.



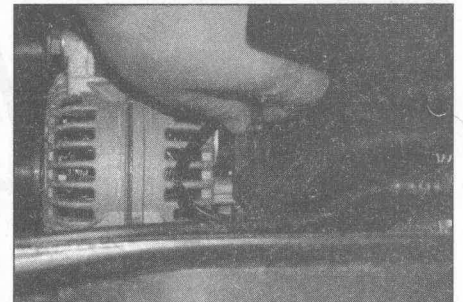
**B** Check that the fuel/ignition system (as applicable) wiring connectors are securely connected (1.6 litre petrol model shown).



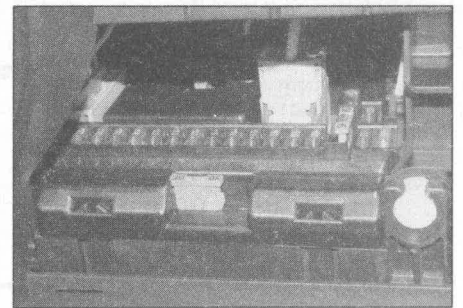
Check that electrical connections are secure (with the ignition switched off) and spray them with a water dispersant spray like WD-40 if you suspect a problem due to damp.

## 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 coils wiring connector. (Note that diesel engines don't normally suffer from damp.)



**C** Check that the alternator wiring connectors are securely connected.



**D** Check that all fuses are still in good condition and none have blown.

## Jump starting

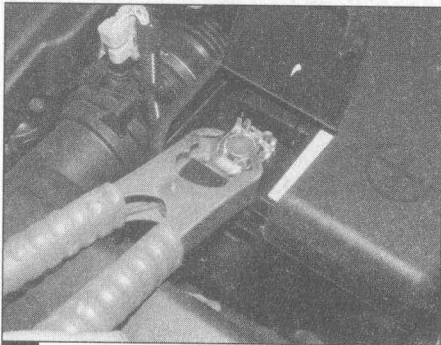
When jump-starting a car using a booster battery, observe the following precautions:

- ✓ 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).

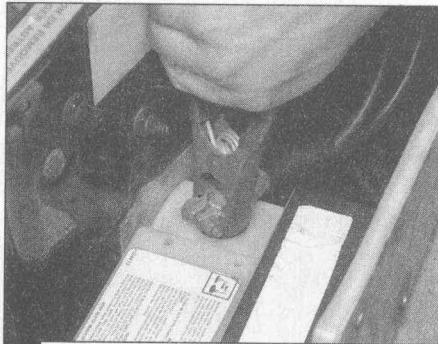


*Jump starting will get you out of trouble, but you must correct whatever made the battery go flat in the first place. There are three possibilities:*

- 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).



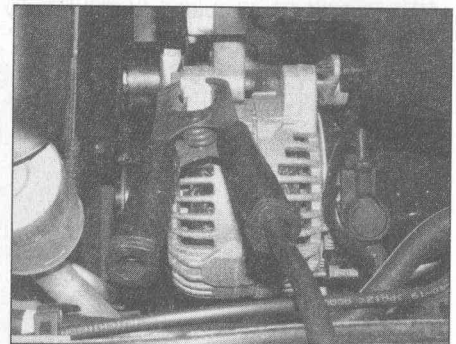
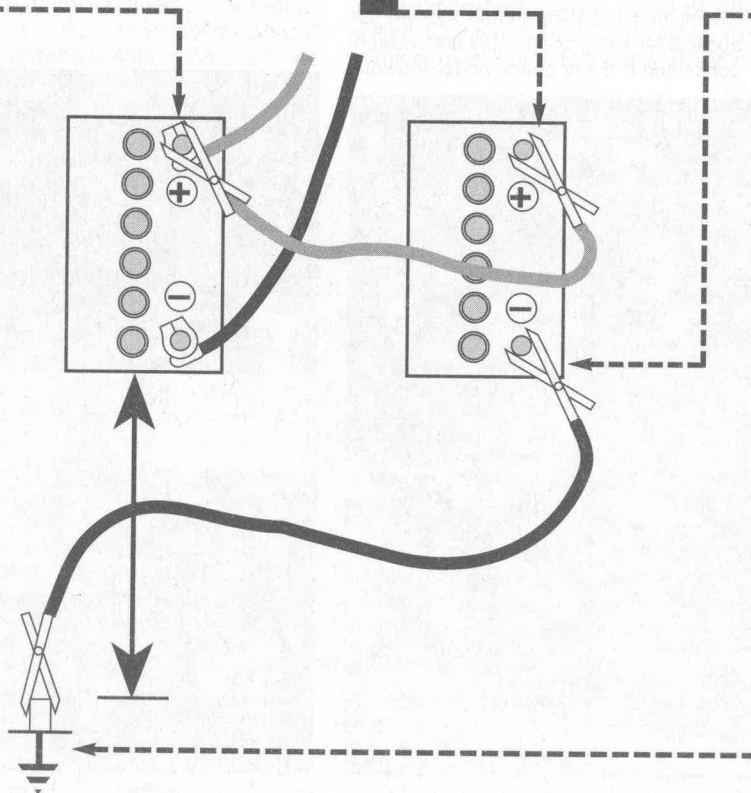
**1** Connect one end of the red jump lead to the positive (+) terminal of the flat battery



**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, drivebelts 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.



## 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.

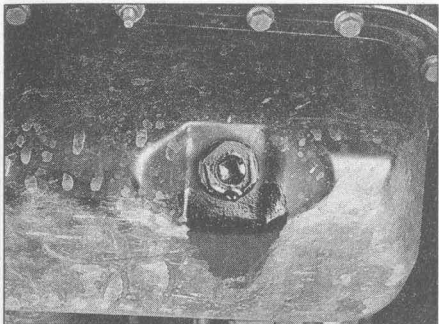
**HAYNES  
HiNT**

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.

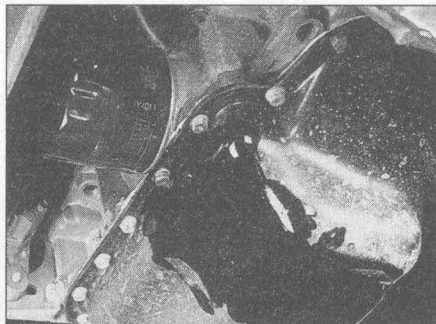
Remember that some leaks may only occur while the engine is running.

### Sump oil



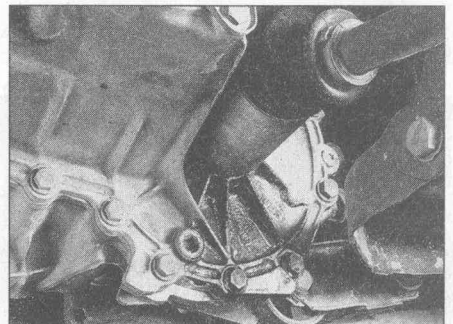
Engine oil may leak from the drain plug...

### Oil from filter



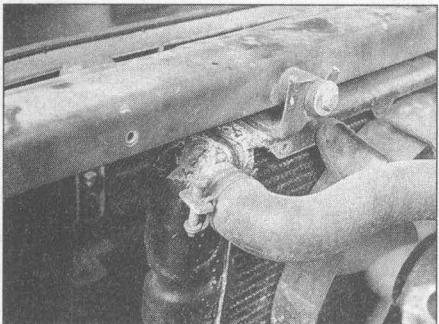
...or from the base of the oil filter.

### Gearbox oil



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

### Antifreeze



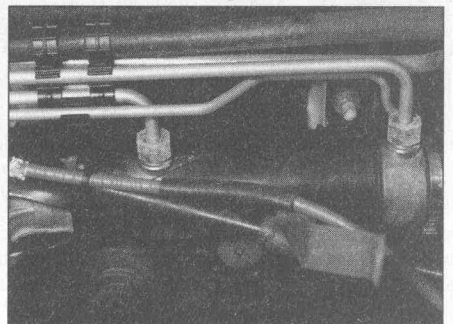
Leaking antifreeze often leaves a crystalline deposit like this.

### 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.

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 work.

- The towing eye is kept inside the spare wheel (see *Wheel changing*) on Hatchback models, and behind the right-hand side luggage compartment trim panel on Estates. To fit the eye, unclip the access cover from the relevant bumper and screw the eye firmly into position.
- Before being towed, release the handbrake and select neutral on the transmission.

**Caution:** On models with automatic transmission, do not tow the car at speeds in excess of 30 mph (50 kph) or for a distance greater than 30 miles (50 km). If towing speeds/distances are to exceed these limits, then the car must be towed with its front wheels off the ground.

- 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.

## Towing

## Wheel changing

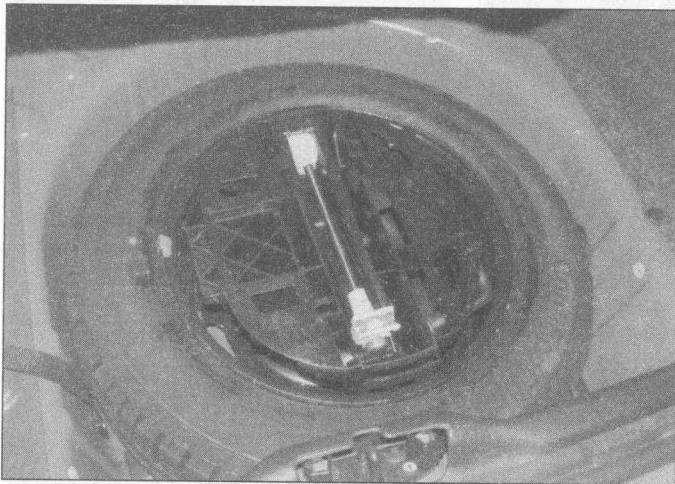


**Warning:** Do not change a wheel in a situation where you risk being hit by another vehicle. On busy roads, try to stop in a lay-by or a gateway. Be wary of passing traffic while changing the wheel - it is easy to become distracted by the job in hand.

### 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).
- If the ground is soft, use a flat piece of wood to spread the load under the foot of the jack.

### Changing the wheel



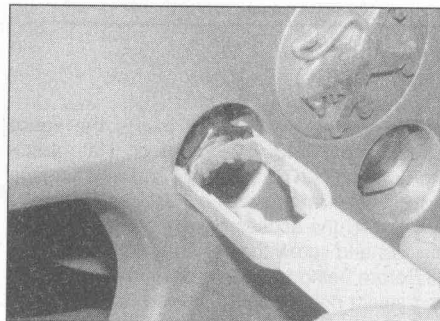
**1** The spare wheel and tools are stored in the luggage compartment on Hatchback models. Lift up the carpet/rear family seat (as applicable), release the retaining strap and remove the tool kit and jack from the centre of the spare wheel. Remove the spare wheel.



**2** On Estate models, the spare wheel and some tools are stored beneath the rear of the vehicle, whilst the remaining tools are stored behind the right-hand plastic trim in the luggage compartment. Pull up the cover in the luggage compartment floor, swivel the cover around and, using the tool supplied in the tool kit behind the plastic trim, rotate the winch bolt anti-clockwise to lower the spare wheel and jack/tool box.



**3** Remove the wheel trim/hub cap (as applicable).

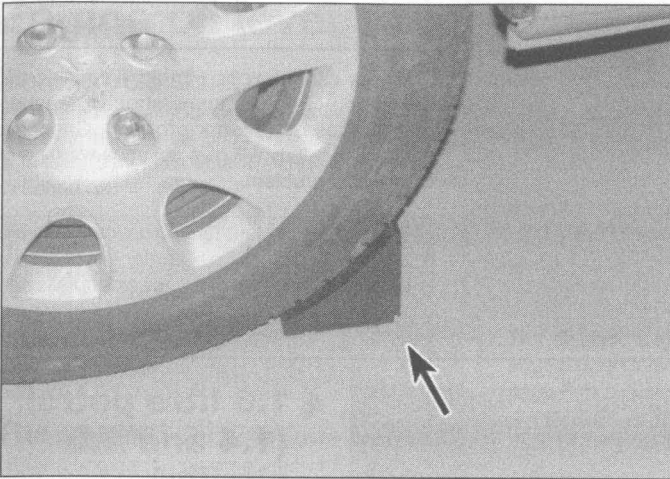


**4** On models where anti-theft wheel bolts are fitted, pull off the plastic cover using the yellow plastic tool in the tool kit . . .

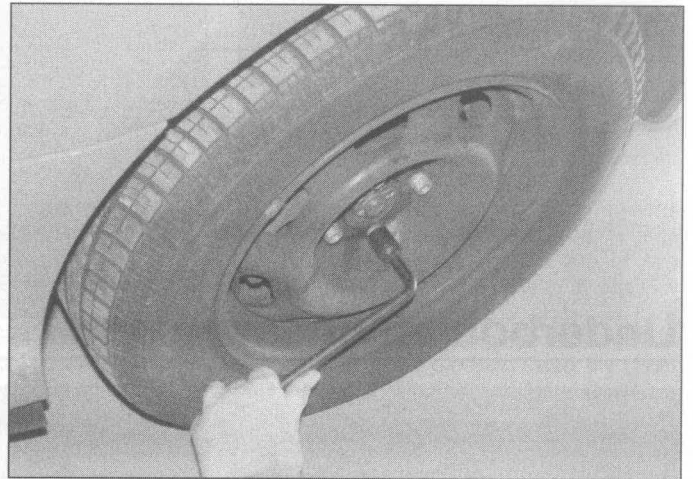


**5** . . . then unscrew the anti-theft bolt using the special tool provided - normally stored in the passenger glovebox or toolkit.

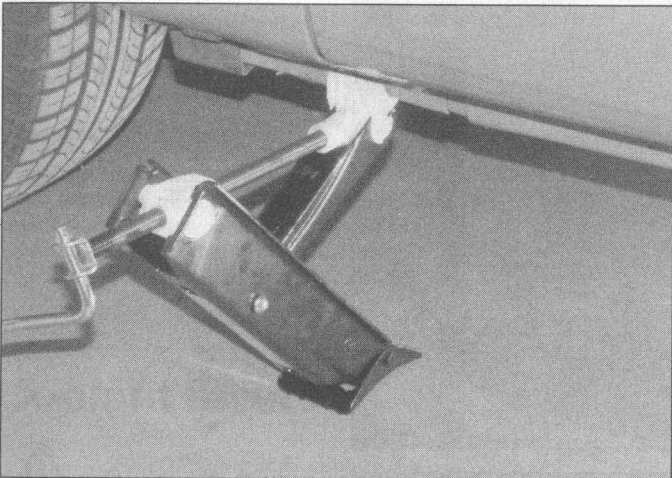




**6** Place the chock (arrowed) provided in the vehicle tool kit against the wheel diagonally opposite the wheel to be removed, or use a stone to stop the car rolling.



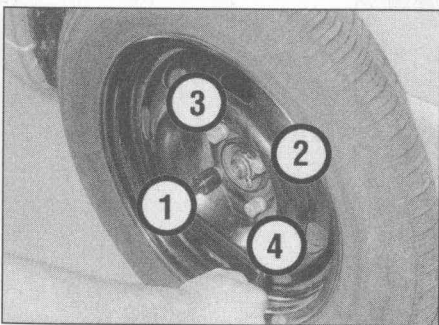
**7** Using the tool provided, slacken each wheel bolt by half a turn. On models with alloy wheels, use the special tool to undo the locking wheel nuts.



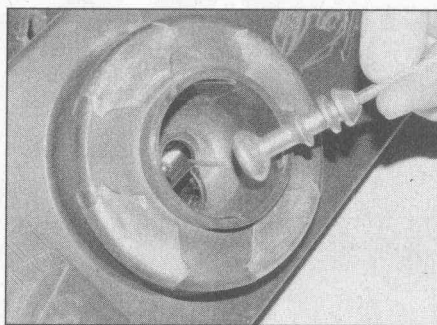
**8** Make sure the jack is located on firm ground, and engage the jack head correctly with the sill. Then raise the jack until the wheel is raised clear of the ground.



**9** Unscrew the wheel bolts and remove the wheel. Place the wheel under the vehicle sill in case the jack fails. Fit the spare wheel and screw in the bolts. Lightly tighten the bolts with the wheelbrace then lower the car to the ground.



**10** Securely tighten the wheel bolts in a diagonal sequence then refit the wheel trim/hub cap/wheel bolt covers (as applicable). Stow the punctured wheel and tools back in the boot, and secure them in position (Hatchback models) . . .



**11** . . . on Estate models feed the winch cable through the wheel, locate the cable end in the lid of the tool/jack box, and use the brace to retract the winch cable.

## Finally...

- Remove the wheel chock.
- Check the tyre pressure on the wheel 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.
- The wheel bolts should be slackened and retightened to the specified torque at the earliest possible opportunity (see Chapter 1A or 1B).
- Have the damaged tyre or wheel repaired as soon as possible, or another puncture will leave you stranded.

## 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;

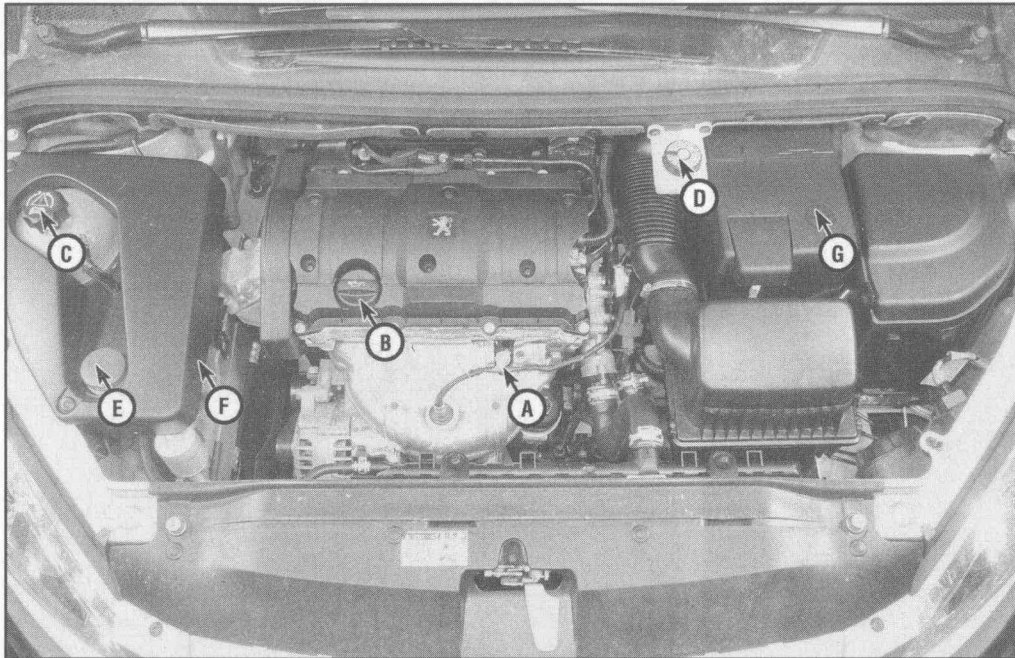
Keeping an eye on tyre condition and pressures, will not only help to stop them wearing out prematurely, but could also save your life.

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.

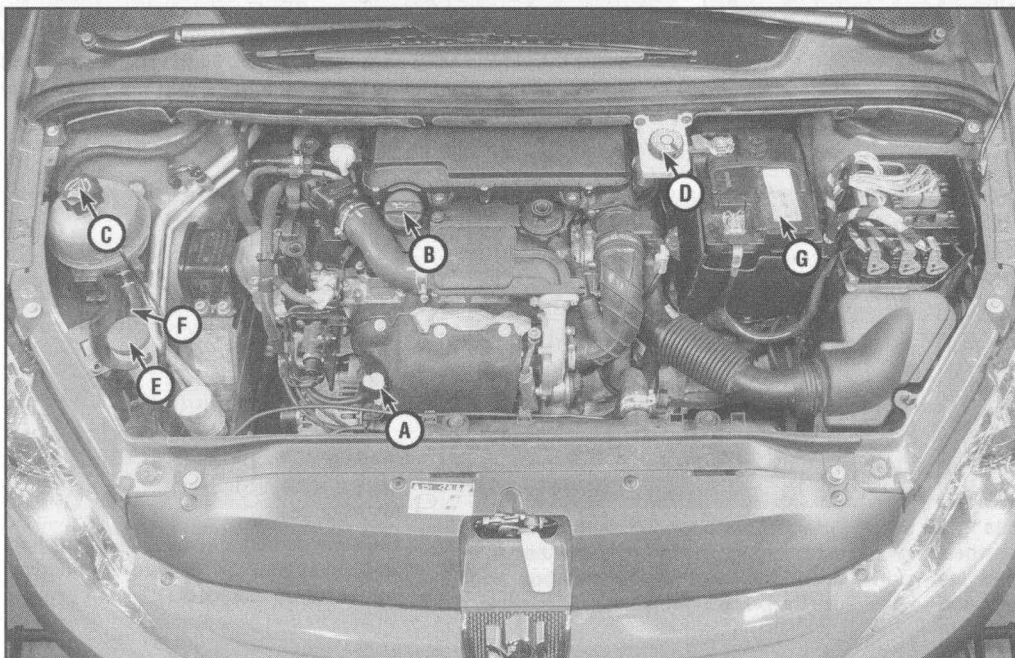
If the oil or coolant levels run low, the cost of repairing any engine damage will be far greater than fixing the leak, for example.

## Underbonnet check points



### ◀ 1.6 litre petrol (1.4 and 2.0 similar)

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



### ◀ 1.6 litre diesel (2.0 similar)

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



*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.*

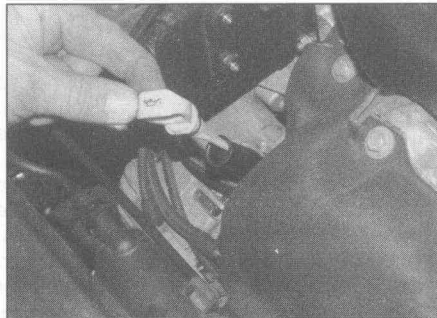
### The correct oil

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').

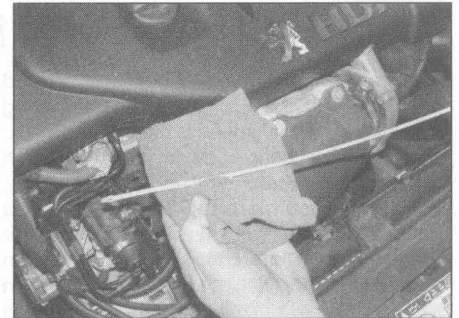
### Car Care

● 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.

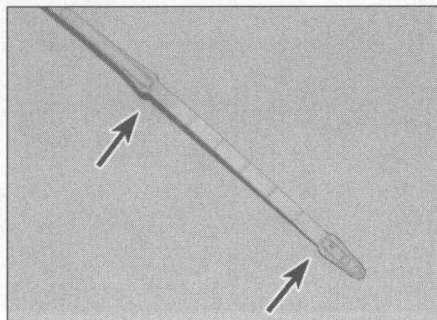
● Always maintain the level between the upper and lower dipstick marks (see photo 3). If the level is too low severe engine damage may occur. Oil seal failure may result if the engine is overfilled by adding too much oil.



**1** The dipstick is located at the front of the engine (see *Underbonnet check points* on page 0•12); The dipstick is often brightly-coloured or has a picture of an oil can on the top for identification. 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 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*).

## Coolant level

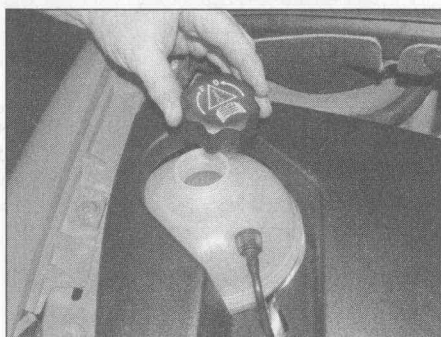


**Warning:**  
*DO NOT attempt to remove the expansion tank pressure cap when the engine is hot, as there is a very great risk of scalding. Do not leave open containers of coolant about, as it is poisonous.*

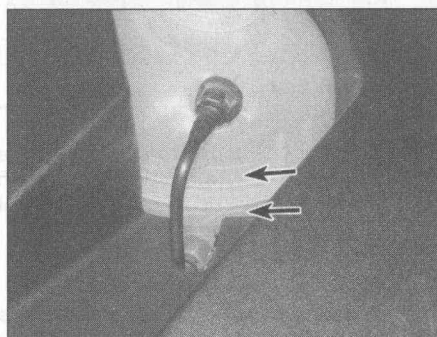
### Car Care

● 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.

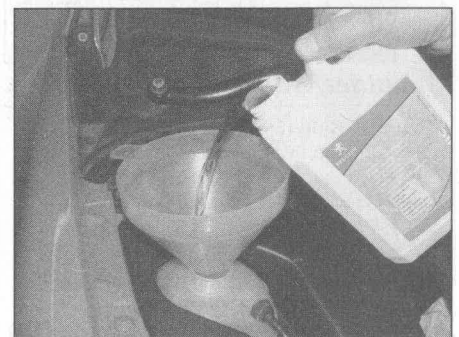
● It is important that antifreeze is used in the cooling system all year round, not just during the winter months. Don't top-up with water alone, as the antifreeze will become too diluted.



**1** The coolant level must be checked with the engine cold. Remove the pressure cap (see *Warning*) from the expansion tank which is located on the right-hand side of the engine compartment.



**2** The coolant level should be between the MAX and MIN marks on the expansion tank.



**3** If topping-up is necessary, add a mixture of water and antifreeze to the expansion tank until the coolant level is between the level marks. Once the level is correct, securely refit the cap.

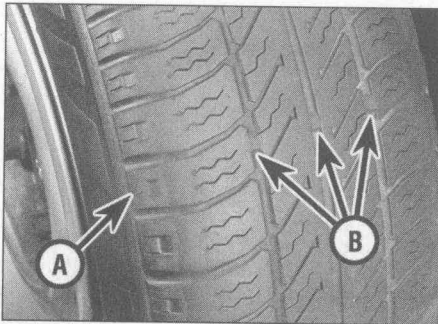
## Tyre condition and pressure

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.

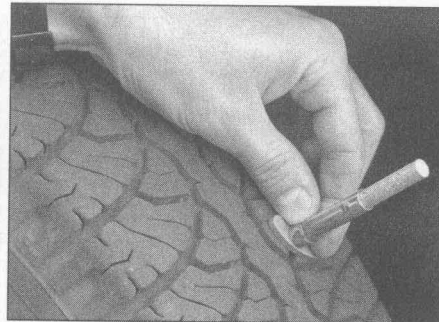
Regularly check the tyres for damage in the form of cuts or bulges, especially in the sidewalls. Periodically remove the wheels, and clean any dirt or mud from the inside and outside surfaces. Examine the wheel rims for signs of rusting, corrosion or other damage. Light alloy wheels are easily damaged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



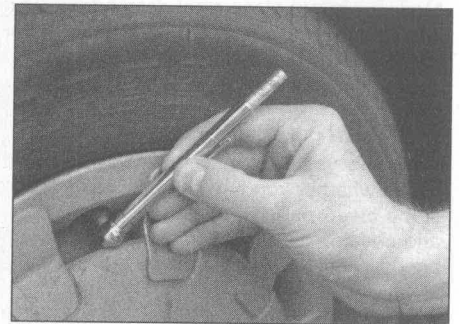
### 1 Tread Depth - visual check

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

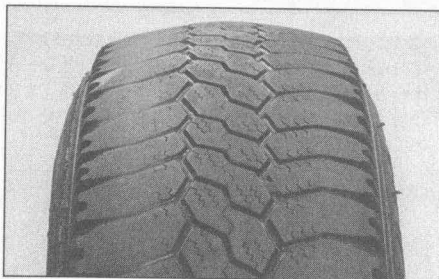
Alternatively, tread wear can be monitored with a simple, inexpensive device known as a tread depth indicator gauge.



### 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 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.



## Brake and clutch fluid level



**Warning:**

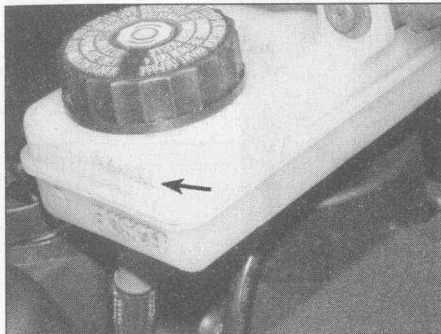
- Brake fluid can harm your eyes and damage painted surfaces, so use extreme caution when handling and pouring it.
- Do not use fluid that has been standing open for some time, as it absorbs moisture from the air, which can cause a dangerous loss of braking effectiveness.



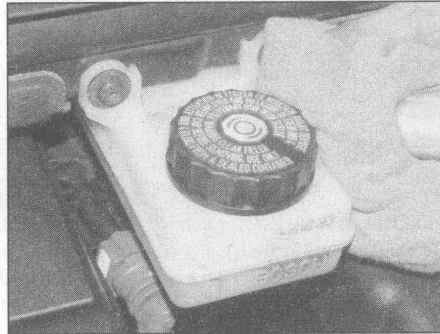
The fluid level in the reservoir will drop slightly as the brake pads wear down, but the fluid level must never be allowed to drop below the MIN mark.

### Before you start

- ✓ Make sure that your car is on level ground.



**1** The upper (MAX) fluid level marking is on the side of the reservoir, which is located in the left-hand rear corner of the engine compartment.

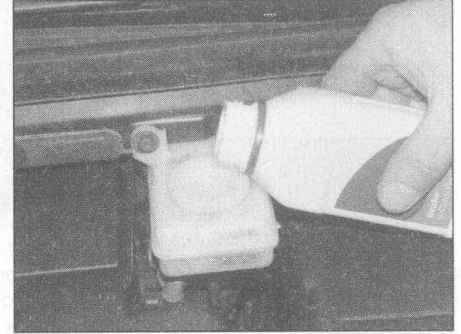


**2** If topping-up is necessary, first wipe clean the area around the filler cap with a clean cloth, then unscrew the cap and remove it along with the rubber diaphragm.

### 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.



**3** Carefully add fluid, avoiding spilling it on the surrounding paintwork. Use only the specified hydraulic fluid. After filling to the correct level, refit the cap and diaphragm and tighten it securely. Wipe off any spilt fluid.

## Power steering fluid level

### Before you start

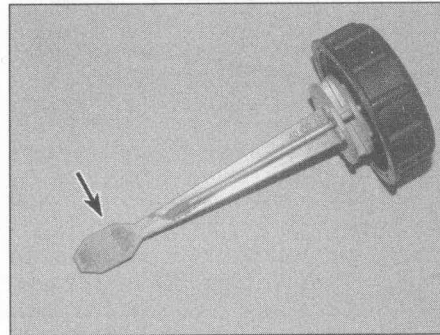
- ✓ Park the vehicle on level ground.
- ✓ Set the steering wheel straight ahead.
- ✓ The engine should be at ambient temperature and turned off.

### Safety First!

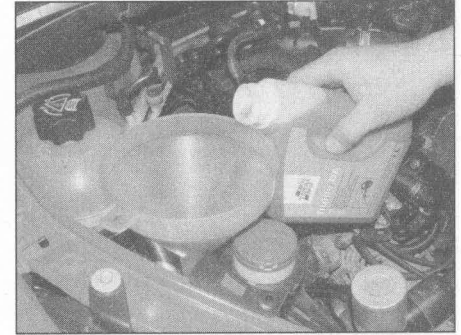
● The need for frequent topping-up indicates a leak, which should be investigated immediately.



**1** The fluid reservoir is on the right-hand side of the engine compartment. Push down the centre pins a little, prise out the complete plastic expanding rivets, release the side clip, and remove the plastic cover from the coolant and washer fluid reservoirs. Clean the area around the reservoir cap (arrowed).



**2** Unscrew the reservoir cap, and check the fluid level is up to the upper (MAX) level indicator on the dipstick.



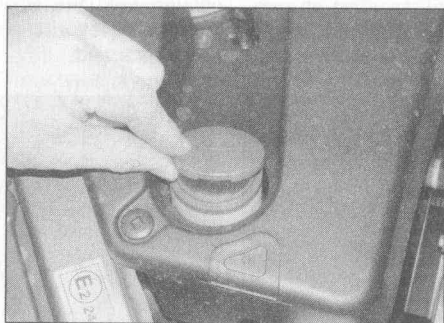
**3** Top-up the reservoir with the specified type of the fluid, using a funnel. Once the level is between the level marks, securely refit the reservoir cap. Do not overfill the reservoir.

## Screen washer fluid level

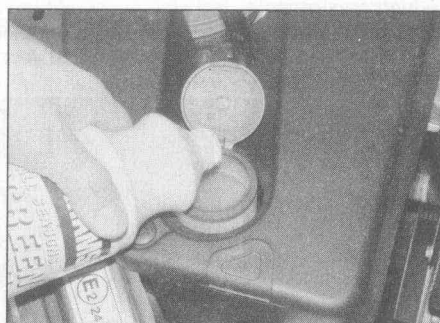
● Screenwash additives not only keep the windscreen clean during foul weather, they also prevent the washer system freezing in cold weather - which is when you are likely

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.**

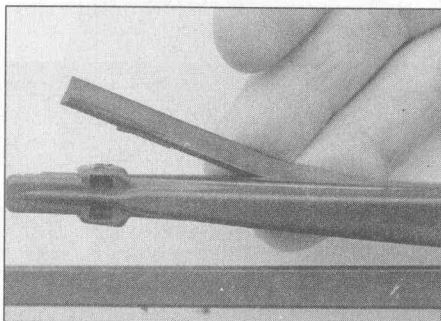


**1** The washer fluid reservoir is located in the right-hand front corner of the engine compartment. To check the fluid level, open the cap and look down the filler neck.

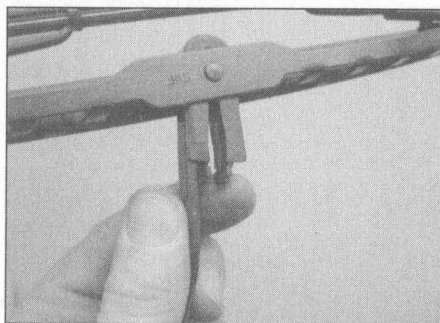


**2** If topping-up is necessary, add water and a screenwash additive in the quantities recommended on the bottle.

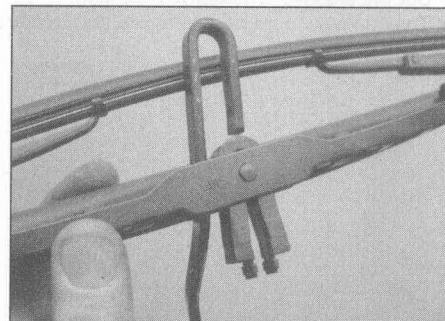
## Wiper blades



**1** Check the condition of the wiper blades: if they are cracked or show signs of deterioration, or if the glass swept area is smeared, renew them. For maximum clarity of vision, wiper blades should be renewed annually.



**2** To remove a windscreen wiper blade, turn the ignition on, then turn the ignition off, and press the wiper switch stalk down once. This places the arms in the 'service' position. Lift the wiper arm, rotate the blade on the arm and squeeze together the ends of the plastic insert.



**3** Disengage the blade from the wiper arm and remove it from the vehicle, taking care not to allow the arm to damage the windscreen. To return the blades to the park position, press the wiper switch stalk again.



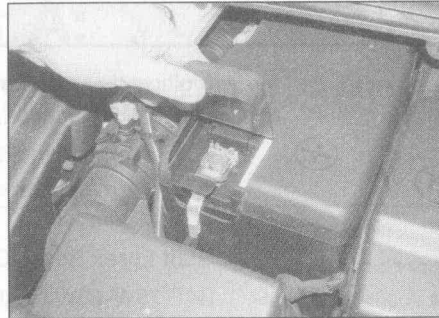
## Battery

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

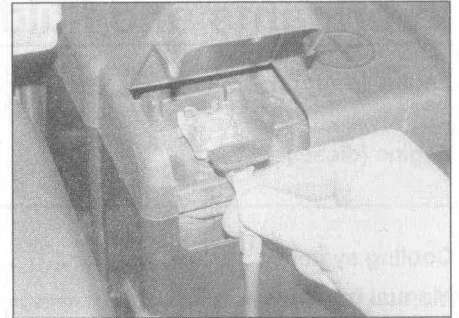
✓ Make sure that the battery tray is in good condition, and that the clamp is tight. Corrosion on the tray, retaining clamp and the battery itself can be removed with a solution of water and baking soda. Thoroughly rinse all cleaned areas with water. Any metal parts damaged by corrosion should be covered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

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

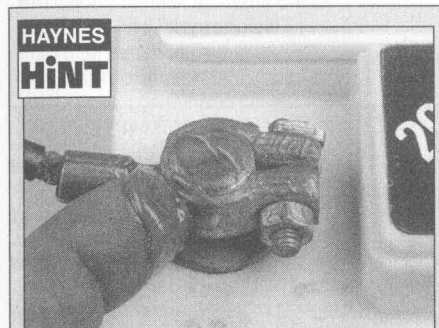
✓ If the battery is flat, and you need to jump start your vehicle, see *Roadside Repairs*.



**1** Lift the plastic cover to gain access to the battery positive terminal, which is located on the left-hand side of the engine compartment. The exterior of the battery should be inspected periodically for damage such as a cracked case or cover.



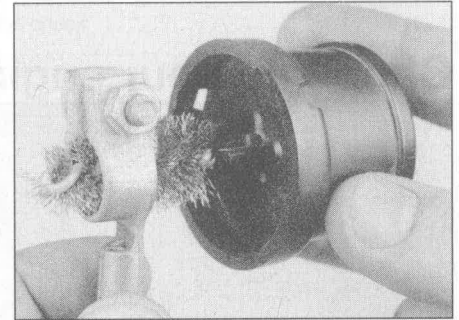
**2** Check the battery lead clamps for tightness to ensure good electrical connections, and check the leads for signs of damage.



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



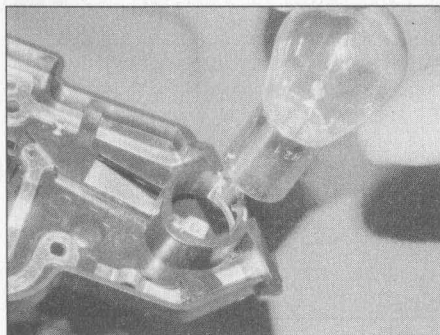
**3** If corrosion (white, fluffy deposits) is evident, remove the cables from the battery terminals, clean them with a small wire brush, then refit them. Automotive stores sell a tool for cleaning the battery post . . .



**4** . . . as well as the battery cable clamps.

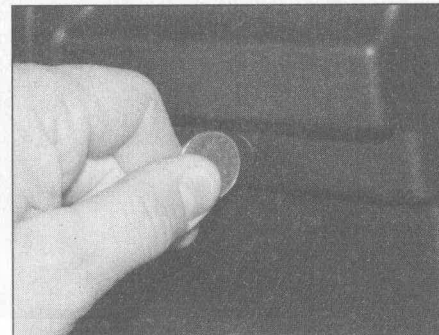
## Bulbs and fuses

✓ 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.



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

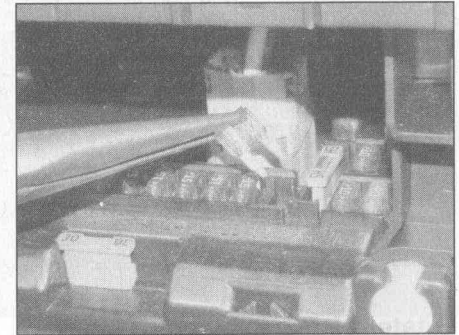
✓ Visually check all accessible wiring connectors, harnesses and retaining clips for security, and for signs of chafing or damage.



**2** If more than one indicator or tail light has failed, it is likely that either a fuse has blown or that there is a fault in the circuit. Fuses are located behind a cover in the glovebox. Open the glovebox, rotate the screw fastener anti-clockwise to lower the cover. Additional fuses and relays are located in the left-hand side of the engine compartment fusebox.

**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.**



**3** To renew a blown fuse, simply pull it out and fit a new fuse of the correct 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.

## Lubricants and fluids

<b>Engine (petrol)</b> .....	Multigrade engine oil 5W30 to 10W40 to ACEA A3 or API SH/SJ specification: Total Quartz or Esso Ultra/Ultron
<b>Engine (diesel)</b> .....	Fully-synthetic multigrade engine oil 5W30 to 10W40 to ACEA B3 or API CFB3 specification: Esso Ultron diesel or Total Activa/Quartz 9000
<b>Cooling system</b> .....	Gurit Essex Revko Gel2000 or BASF Glysantin G33-23F
<b>Manual transmission</b> .....	SAE 75W-80W to API GL5 specification: ESSO gear oil BV or Total Transmission BV
<b>Automatic transmission</b> .....	ESSO 4HP20-AL4 Automatic Transmission Fluid
<b>Braking and clutch system</b> .....	Hydraulic fluid to DOT 4
<b>Power steering</b> .....	Total Fluide DA

## 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.

### 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 BANK LINE  
0800 66 33 66  
www.oilbankline.org.uk

- **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.**

## Tyre pressures (cold)

**Note 1:** The make of tyres, the sizes and the pressures for each specific vehicle are given on a label attached to the driver's door A-pillar. On models with a space-saver spare wheel (family Estates), a separate pressure is given for the spare tyre, and care must be taken not to misread the sticker; the space-saver wheel is inflated to a lot higher pressure than the standard tyres (typically 60 psi). On models with a space-saver spare wheel, note that the spare is for temporary use only; whilst the spare is fitted, the vehicle should not be driven at speeds in excess of 50 mph (80 kmh).

**Note 2:** Pressures on the label apply to original-equipment tyres listed, and may vary if any other make or type of tyre is fitted; check with the tyre manufacturer or supplier for correct pressures if necessary.

**Note 3:** Tyre pressures must always be checked with the tyres cold to ensure accuracy.

### Hatchback models (typical)

	Front (psi)	Rear (psi)
195/65 R15 tyres .....	33	33
205/55 R16 tyres .....	35	35

### Estate models (typical)

195/65 R15 tyres .....	33	35
205/55 R16 tyres .....	35	35

### SW (Sports Wagon) models (typical)

195/65 R15 tyres .....	33	35
205/55 R16 tyres .....	35	35

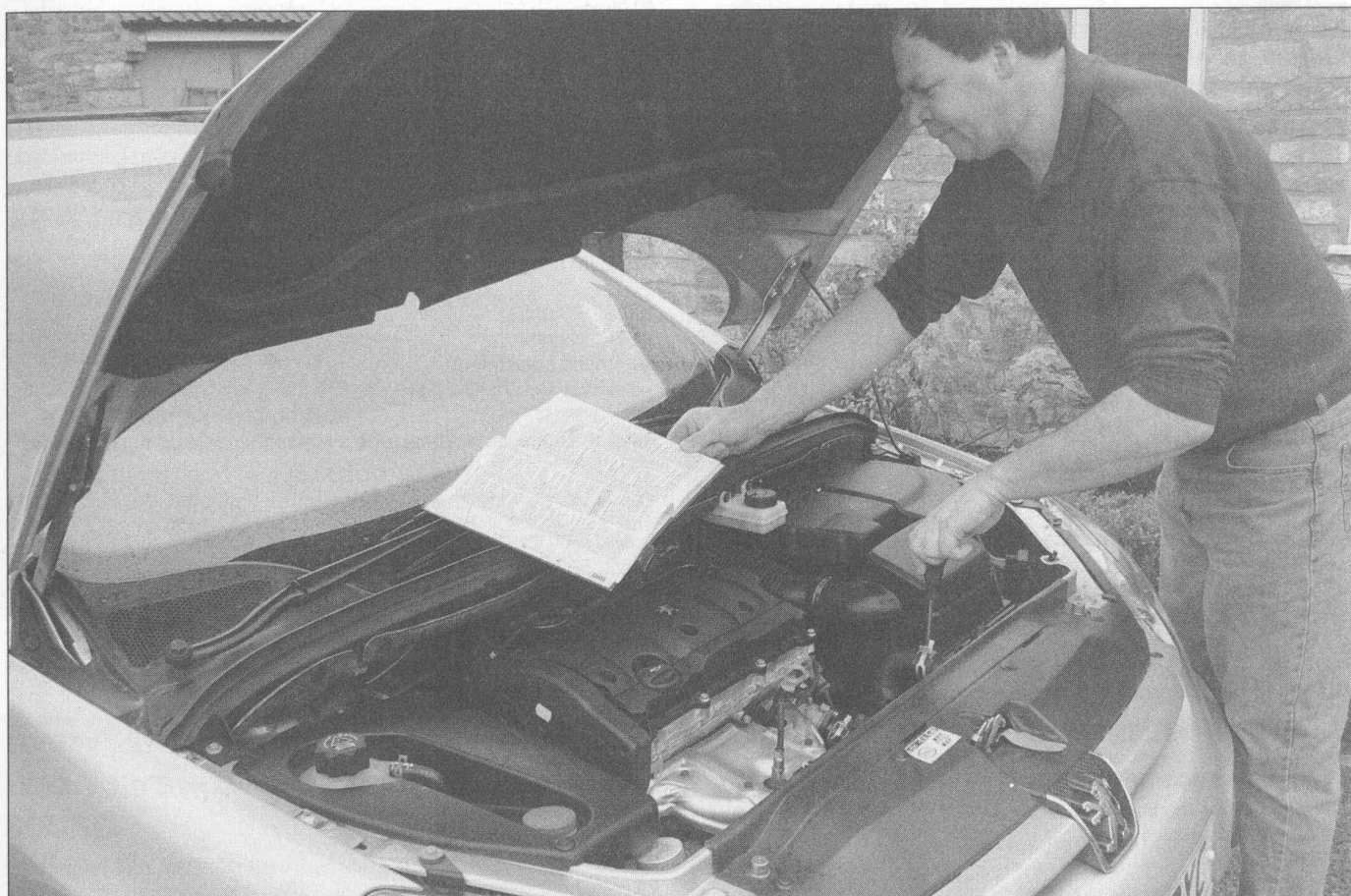


# Chapter 1 Part A:






## Routine maintenance and servicing – petrol models

### Contents

Airbags and seat belt pretensioners renewal .....	23	Handbrake check and adjustment .....	12
Air cleaner filter element renewal .....	18	Hinge and lock lubrication .....	6
Automatic transmission fluid level check .....	20	Hose and fluid leak check .....	4
Auxiliary drivebelt check and renewal .....	10	Manual transmission oil level check .....	19
Brake fluid renewal .....	15	Pollen filter check .....	9
Brake pad check .....	11	Resetting the service indicator .....	8
Coolant renewal .....	22	Road test .....	7
Driveshaft gaiter and CV joints check .....	5	Routine maintenance .....	2
Emissions control systems check .....	21	Spark plug renewal .....	16
Engine oil and filter renewal .....	3	Steering and suspension check .....	13
Fuel filter renewal .....	17	Timing belt renewal .....	14
General information .....	1		



### Degrees of difficulty

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