

Peugeot 405 (petrol) Service and Repair Manual

Steve Rendle and A K Legg LAE MIMI

Models covered

(1559-336)

Saloon and Estate models with 4-cylinder SOHC and DOHC petrol engines, including Mi-16 and special/limited editions; 1.4 (1360 cc), 1.6 (1580 cc), 1.8 (1761 cc), 1.9 (1905 cc) and 2.0 (1998 cc)

*For Diesel engine models, see OWM 3198
Does not cover four-wheel-drive models*

© Haynes Publishing 1996

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 85960 174 X

British Library Cataloguing in Publication Data

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

ABCDE
FGHIJ
KLMNO
PQRST

Printed by J H Haynes & Co. Ltd, Sparkford, Nr Yeovil,
Somerset BA22 7JJ

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

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

Editions Haynes S.A.
147/149, rue Saint Honoré, 75001 PARIS, France

Contents

LIVING WITH YOUR PEUGEOT 405

Introduction to the Peugeot 405	Page	0•4
Safety first!	Page	0•5

Roadside Repairs

If your car won't start	Page	0•6
Jump starting	Page	0•7
Wheel changing	Page	0•8
Identifying leaks	Page	0•9
Towing	Page	0•9

Weekly Checks

Introduction	Page	0•10
Underbonnet check points	Page	0•10
Engine oil level	Page	0•12
Coolant level	Page	0•12
Brake fluid level	Page	0•13
Power steering fluid level	Page	0•13
Tyre condition and pressure	Page	0•14
Screen washer fluid level	Page	0•15
Wiper blades	Page	0•15
Battery	Page	0•16
Bulbs and fuses	Page	0•16

Lubricants, fluids and tyre pressures	Page	0•17
---------------------------------------	------	------

MAINTENANCE

Routine Maintenance and Servicing

Peugeot 405 petrol models	Page	1•1
Maintenance schedule - models up to 1993	Page	1•3
Maintenance schedule - models from 1994	Page	1•4
Maintenance procedures	Page	1•8

Contents

REPAIRS AND OVERHAUL

Engine and Associated Systems

TU petrol engine in-car repair procedures	Page 2A•1
XU petrol engine in-car repair procedures	Page 2B•1
Engine removal and overhaul procedures	Page 2C•1
Cooling, heating and ventilation systems	Page 3•1
Fuel/exhaust systems - carburettor models	Page 4A•1
Fuel/exhaust systems - single-point fuel injection models	Page 4B•1
Fuel/exhaust systems - multi-point fuel injection models	Page 4C•1
Emission control systems	Page 4D•1
Starting and charging systems	Page 5A•1
Ignition system	Page 5B•1

Transmission

Clutch	Page 6•1
Manual transmission	Page 7A•1
Automatic transmission	Page 7B•1
Driveshafts	Page 8•1

Brakes and Suspension

Braking system	Page 9•1
Suspension and steering	Page 10•1

Body equipment

Bodywork and fittings	Page 11•1
Body electrical systems	Page 12•1

Wiring Diagrams

Page 12•22

REFERENCE

Dimensions and weights	Page REF•1
Conversion factors	Page REF•2
Buying spare parts and vehicle identification	Page REF•3
General repair procedures	Page REF•4
Jacking and vehicle support	Page REF•5
Radio/cassette unit anti-theft system - precaution	Page REF•5
Tools and working facilities	Page REF•6
MOT test checks	Page REF•8
Fault finding	Page REF•12
Glossary of technical terms	Page REF•20

Index

Page REF•25

0•4 Introduction

The Peugeot 405 model range was introduced into the UK in January 1988 in Saloon form only.

Available with 1.6, 1.8, 1.9 and 2.0 engines, all models have front-wheel-drive with all round independent suspension.

Automatic transmission models were introduced in April 1988.

In July 1988 came the sporty Mi 16 version with its 1.9 litre double overhead cam, 16-valve engine, uprated gearbox, suspension and an ABS braking system to match its power.

Estate car versions were introduced in October 1988.

From 1991, engines equipped with catalytic converters were progressively introduced, to meet the more stringent exhaust gas emission regulations.

Since its introduction, the 405 range has continually been developed. All models have a high trim level, which is very comprehensive in the upper model range.

For the home mechanic, the Peugeot 405 is a straightforward vehicle to maintain and repair since design features have been incorporated to reduce the actual cost of ownership to a minimum, and most of the items requiring frequent attention are easily accessible.



Peugeot 405 SRi Saloon

Your Peugeot 405 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), 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. Then the tasks are described and photographed in a clear step-by-step sequence.



Peugeot 405 GL Estate

The Peugeot 405 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	Steve Rendle Andy Legg
Sub-editor	Carole Turk
Editor & Page Make-up	Bob Jex
Workshop manager	Paul Buckland
Photo Scans	John Martin Paul Tanswell
Cover illustration & Line Art	Roger Healing
Wiring diagrams	Matthew Marke

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.

Acknowledgements

Thanks are due to Champion Spark Plug who supplied the illustrations showing spark plug conditions. Certain other illustrations are the copyright of the Peugeot Talbot Motor Company Limited, and are used with their permission. Special thanks to Gliddons of Taunton who provided several of the project vehicles used in the origination of this manual. Thanks are also due to Sykes-Pickavant 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.

Project vehicles

The vehicles used in the preparation of this manual, and which appear in many of the photographic sequences, were a Peugeot 405 GL Saloon, a Peugeot 405 GTX Estate, a Peugeot 405 GR Saloon, and a Peugeot GTX Saloon.

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

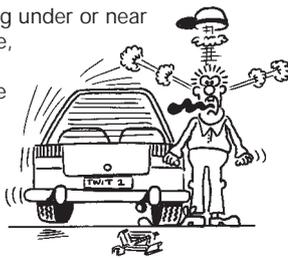
- Don't remove the radiator or expansion tank cap while the engine is hot.
- Engine oil, automatic transmission fluid or power steering fluid may also be dangerously hot if the engine has recently been running.

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.**



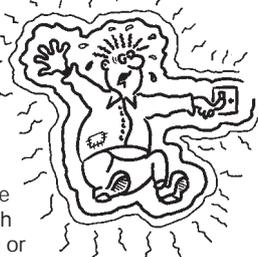
- Take care if loosening or tightening high-torque nuts when the vehicle is on stands. Initial loosening and final tightening should be done with the wheels on the ground.

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

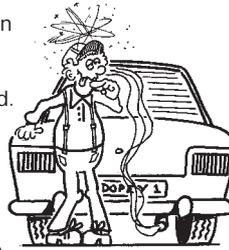
- Ignition HT voltage can be dangerous, especially to people with heart problems or a pacemaker. Don't work on or near the ignition system with the engine running or the ignition switched on.



- 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.

0.6 Roadside Repairs

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.



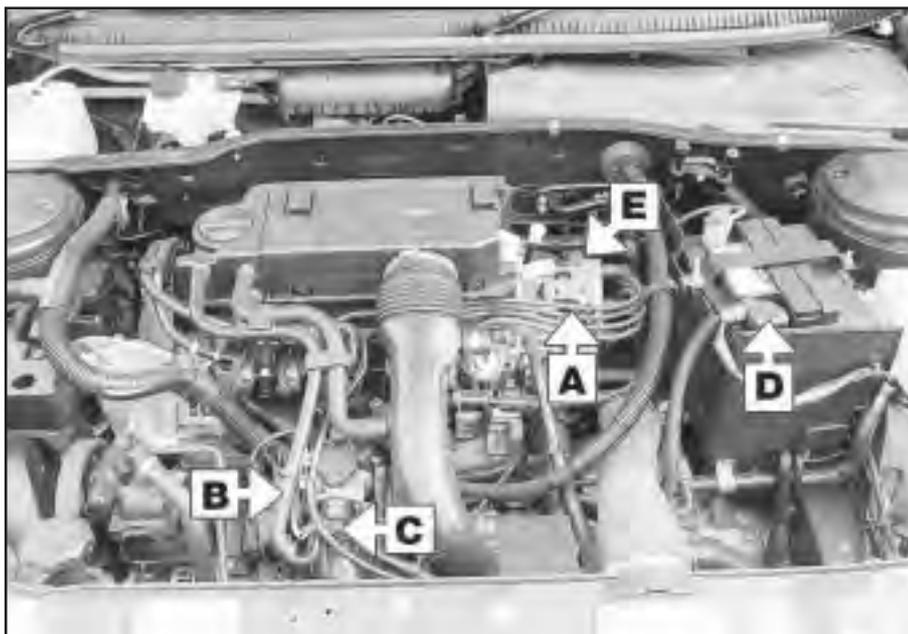
A Check that the spark plug HT leads (where applicable) are securely connected by pushing them home.



B The throttle potentiometer wiring plug may cause problems if not connected securely.



C Check the idle speed stepper motor wiring plug for security.



Check that electrical connections are secure (with the ignition switched off) and spray them with a water dispersant spray like WD40 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 coil wiring connector and HT leads. (Note that Diesel engines don't normally suffer from damp.)



D Check the security and condition of the battery connections.



E Check that the ignition coil wiring plug is secure, and spray with water-dispersant if necessary.



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).

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.

Jump starting

- ✓ 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).



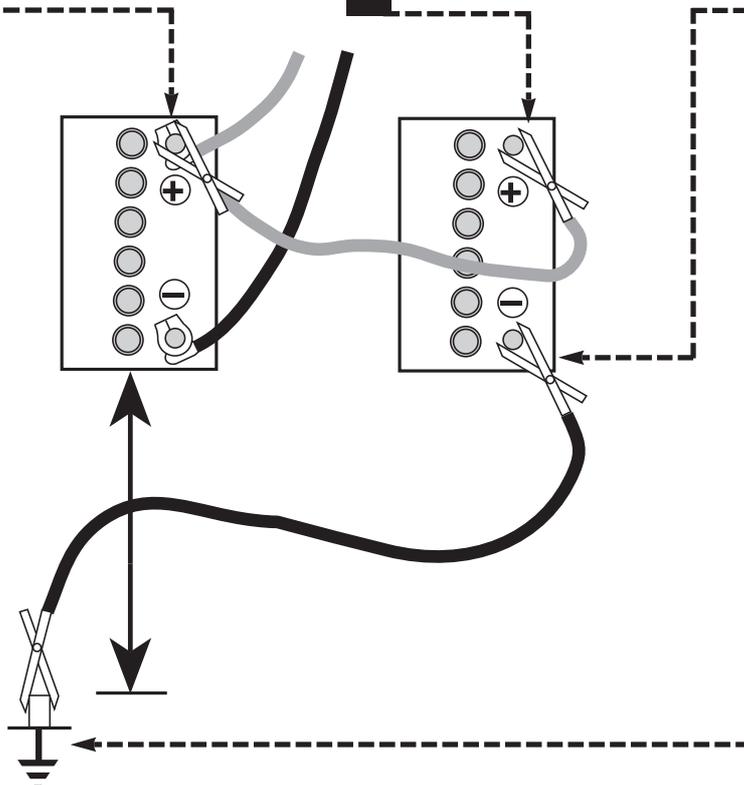
1 Connect one end of the red jump lead to the positive (+) terminal of the flat battery



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, drivebelts or other moving parts of the engine.

6 Start the engine using the booster battery, then with the engine running at idle speed, disconnect the jump leads in the reverse order of connection.

Wheel changing

Some of the details shown here will vary according to model. For instance, the location of the spare wheel and jack is not the same on all cars. However, the basic principles apply to all vehicles.



Warning: Do not change a wheel in a situation where you risk being hit by other traffic. 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.
- Chock the wheel diagonally opposite the

one being removed – a couple of large stones will do this.

- 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 In the boot, use the wheel brace to loosen the spare wheel cradle bolt.



2 Remove the spare wheel from the cradle.



3 Use the wheel brace to remove the wheel trim.



4 Before raising the car, loosen the wheel bolts slightly using the wheelbrace.



5 Locate the jack head in the jacking point and use the brace to raise the car until the wheel is clear of the ground.



6 Temporarily place the spare wheel under the sill as a precaution should the jack topple.



7 Remove the bolts and remove the wheel. Fit the spare wheel and hand-tighten the bolts. Lower the car, then tighten the wheel bolts firmly. Have the bolts tightened to the correct torque at the earliest opportunity.

Finally...

- Remove the wheel chocks.
- Stow the jack and tools in the correct locations in the car.
- Make sure that the spare wheel cradle is properly secured, or it could drop onto the road while driving.
- 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 nearest garage and inflate the tyre to the right pressure.
- Have the damaged tyre or wheel repaired as soon as possible.

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.

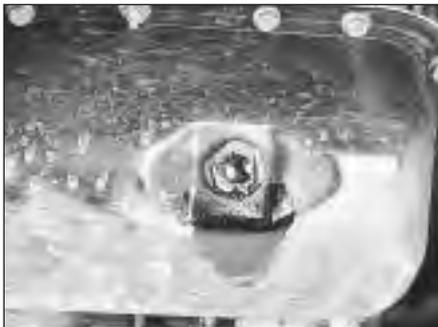


The smell of a fluid leaking from the car may provide a clue to what's leaking. Some fluids are distinctively

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.

- Only attach the tow-rope to the towing eyes provided.
- 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, special precautions apply. If in doubt, do not tow, 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.

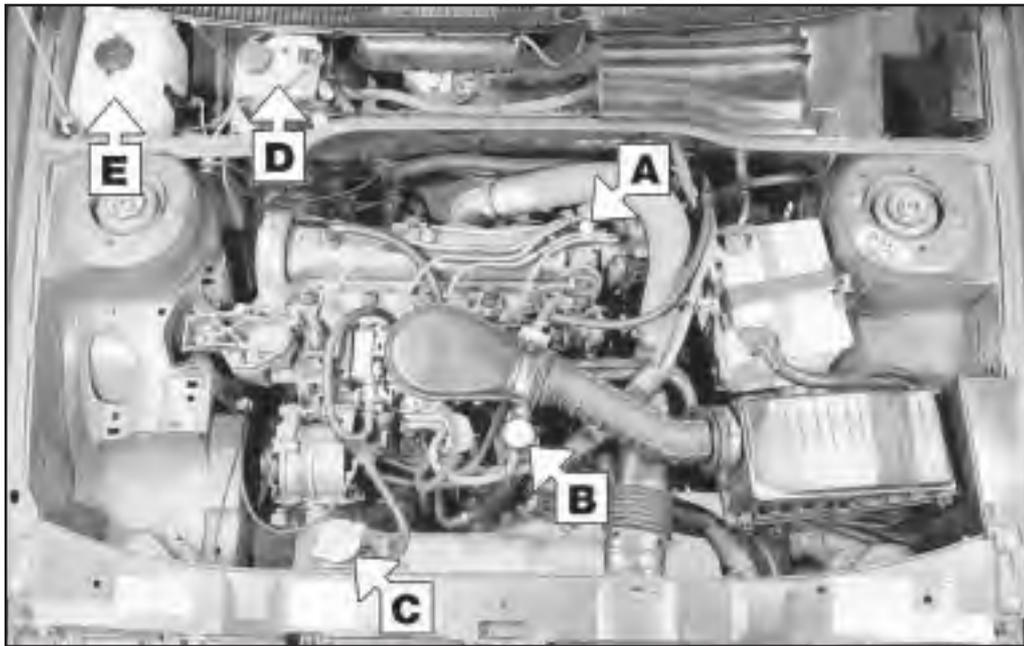
□ Keeping an eye on tyre condition and pressures, will not only help to stop them wearing out prematurely, but could also save your life.

□ 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.

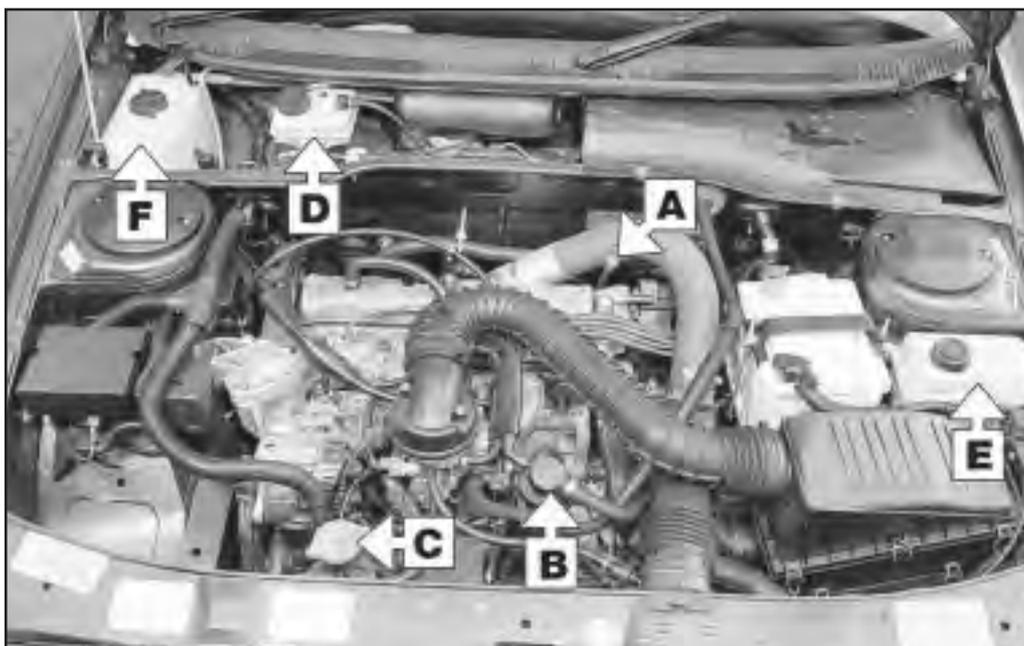
□ If the oil or coolant levels run low, the cost of repairing any engine damage will be far greater than fixing the leak, for example.

Underbonnet check points



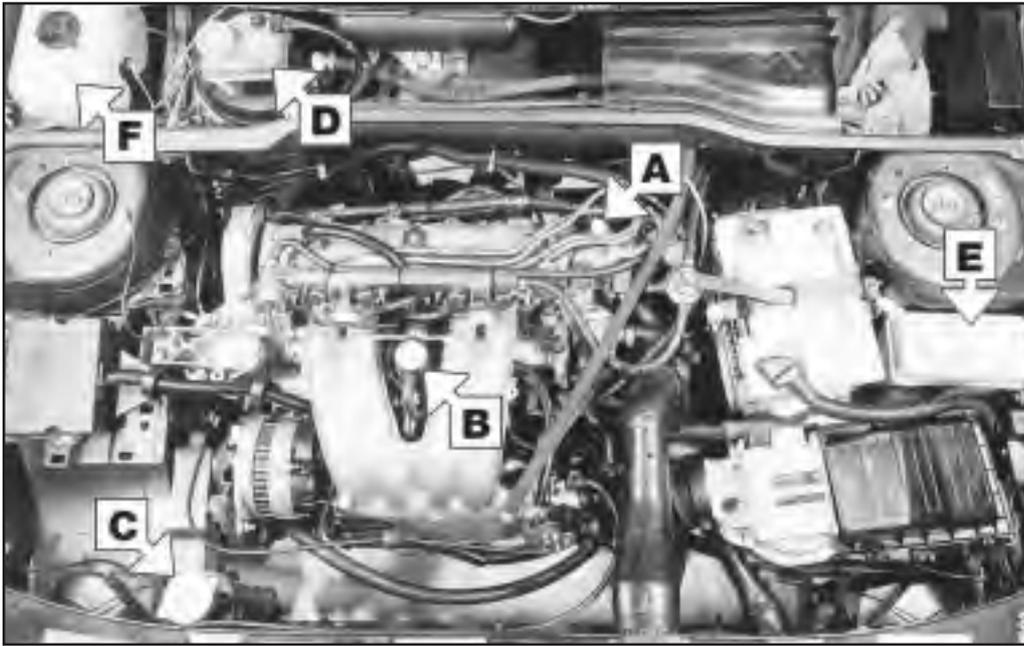
◀ 1.6 litre carburettor

- A** Engine oil level dipstick
- B** Engine oil filler cap
- C** Coolant filler cap
- D** Brake fluid reservoir
- E** Screen washer fluid reservoir



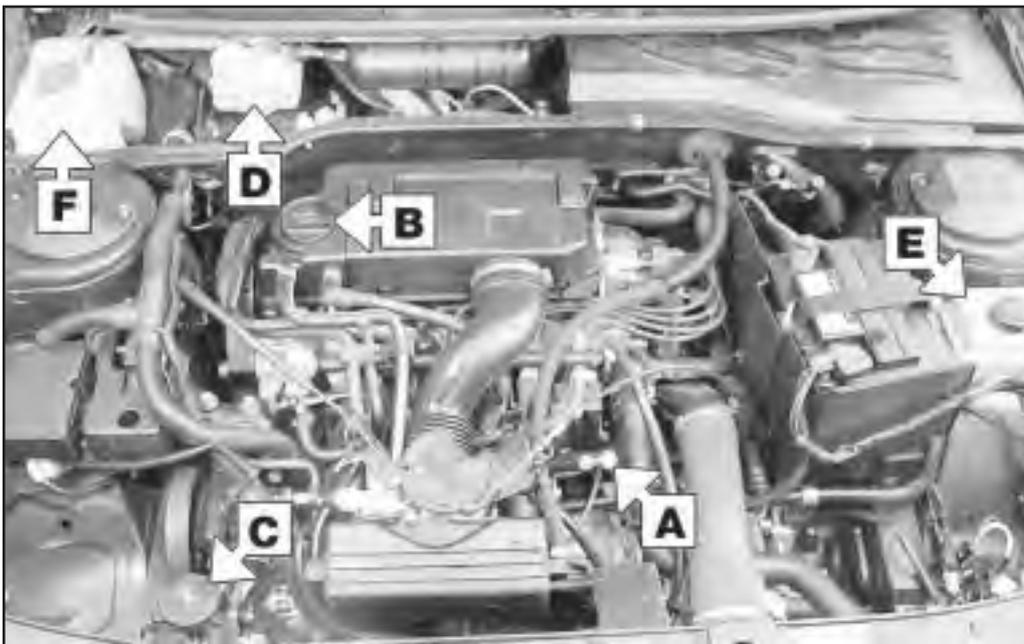
◀ 1.6 litre fuel injection

- A** Engine oil level dipstick
- B** Engine oil filler cap
- C** Coolant filler cap
- D** Brake fluid reservoir
- E** Power steering fluid reservoir
- F** Screen washer fluid reservoir



◀ 1.9 litre

- A** Engine oil level dipstick
- B** Engine oil filler cap
- C** Coolant filler cap
- D** Brake fluid reservoir
- E** Power steering fluid reservoir
- F** Screen washer fluid reservoir



◀ 2.0 litre

- A** Engine oil level dipstick
- B** Engine oil filler cap
- C** Coolant filler cap
- D** Brake fluid reservoir
- E** Power steering fluid reservoir
- F** Screen washer fluid reservoir