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## Introduction to the Peugeot 309

The Peugeot 309 model range was introduced in the UK in February of 1986. It has a three- or five-door hatchback body type of steel unit construction.

The engine and transmission are transversely mounted; drive being to the front roadwheels. The suspension is independent at the front and rear. The front suspension has MacPherson struts whilst the rear suspension has trailing arms and transverse torsion bars. All models have an anti-roll bar at the front.

Three engine sizes were originally available, the 1.1 and 1.3 litre engines being of overhead valve (OHV) design and the 1.6 litre being of overhead camshaft (OHC) design. In April 1987, a GTI version was introduced, powered by a 1.9 litre engine. Details of this model are included in the Supplement at the back of this manual.

The car is generally well built and economical. The wide range of models and options available should meet the needs of most purchasers looking for a practical car in this section of the market.



Peugeot 309 1.3 GL

## Acknowledgements

Thanks are due to Champion Spark Plug who supplied the illustrations showing spark plug conditions. Certain other illustrations are the copyright of Peugeot Talbot Motor Company Limited, and are used with their permission. Thanks are also due to Sykes-Pickavant, who supplied some of the workshop tools, and to all the staff at Sparkford who assisted 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 errors in, or omissions from, the information given.**

## Project vehicles

The vehicles used in the preparation of this manual, and appearing in many photographic sequences, were a Peugeot 309 1.3 GL and an SR Injection.



Peugeot 309 SR Injection

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.**

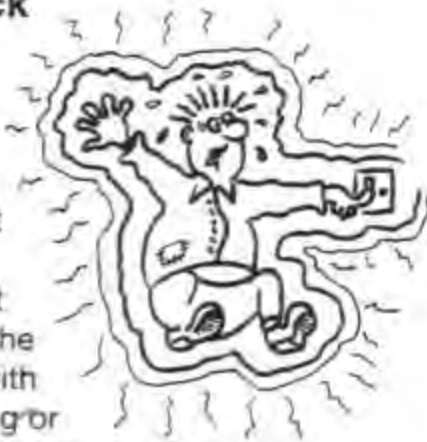
- Take care if loosening or tightening high-torque nuts when the vehicle is on stands. Initial loosening and final tightening should be done with the wheels on the ground.

### 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.

## Dimensions

Overall length .....	4051 mm (159.5 in)
Overall width (excluding mirrors) .....	1628 mm (64.1 in)
Overall height .....	1376 to 1395 mm (54.2 to 54.9 in)
Wheelbase .....	2469 mm (97.2 in)

## Weights

Kerb weight:	
1.1, 1.3 and 1.4 litre 3-door models .....	835 to 870 kg (1841 to 1918 lb)
1.1, 1.3 and 1.4 litre 5-door models .....	850 to 910 kg (1874 to 2006 lb)
1.6 litre automatic transmission models, 1.6 XSI .....	910 to 930 kg (2006 to 2050 lb)
SRI, GRI and GTI models .....	930 to 950 kg (2050 to 2094 lb)
All other 1.6 litre models .....	870 to 890 kg (1918 to 1962 lb)
Towing weights .....	Differ according to model and year - refer either to vehicle's Owner's Handbook or to Peugeot dealer
Maximum tow hitch load .....	50 kg (110 lb)
Maximum roof rack load .....	75 kg (165 lb)

## Capacities

Engine oil (including filter):	
1.1 and 1.3 litre models (E1A and G1A engines) .....	3.3 litres (5.8 pints)
1.1 and 1.4 litre models (TU engines) .....	3.5 litres (6.2 pints)
1.6 and 1.9 litre models (XU engines) .....	5.0 litres (8.8 pints)
Cooling system:	
1.1 and 1.3 litre models (E1A and G1A engines) .....	6.6 litres (11.6 pints)
1.1 litre models (TU1 engines) .....	5.7 litres (10.0 pints)
1.4 litre models (TU3 engines) .....	7.5 litres (13.2 pints)
1992-on 1.6 GL Automatic (XU5M3/Z and XU5M3/L engines) .....	6.1 litres (10.7 pints)
All other 1.6 and 1.9 litre models (XU engines) .....	7.5 to 8.0 litres (13.2 to 14.1 pints)
Fuel tank (approximate) .....	55 litres (12.1 gallons)
Transmission:	
Manual - all types .....	2.0 litres (3.5 pints)
Automatic - at fluid change .....	2.4 litres (4.2 pints)
Automatic - at overhaul .....	6.2 litres (10.9 pints)
Power-assisted steering system (approximate) .....	0.65 litre (1.1 pints)
Washer reservoir (approximate):	
Front - with headlamp washers .....	6.6 litres (11.6 pints)
Front - without headlamp washers .....	1.8 litres (3.2 pints)

**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).

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

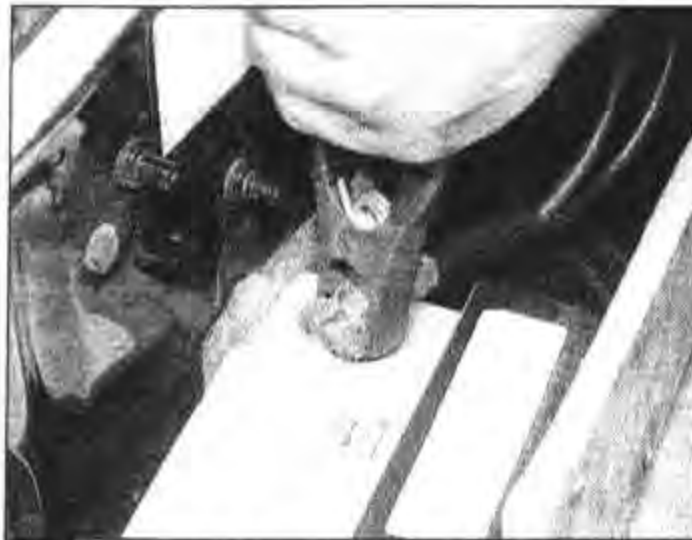
- ✓ Before connecting the booster battery, make sure that the ignition is switched off.
- ✓ Ensure that all electrical equipment (lights, heater, wipers, etc) is switched off.

**Jump starting**

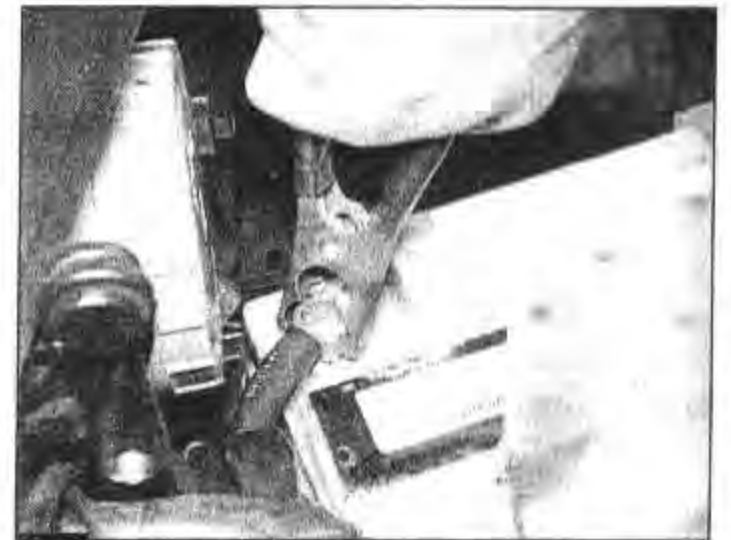
- ✓ Make sure that the booster battery is the same voltage as the discharged one in the vehicle.
- ✓ If the battery is being jump-started from the battery in another vehicle, the two vehicles **MUST NOT TOUCH** each other.
- ✓ Make sure that the transmission is in neutral (or PARK, in the case of automatic transmission).



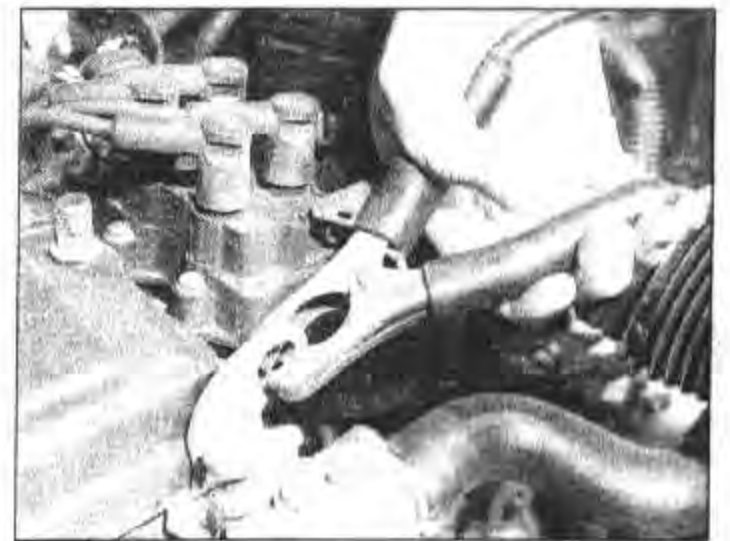
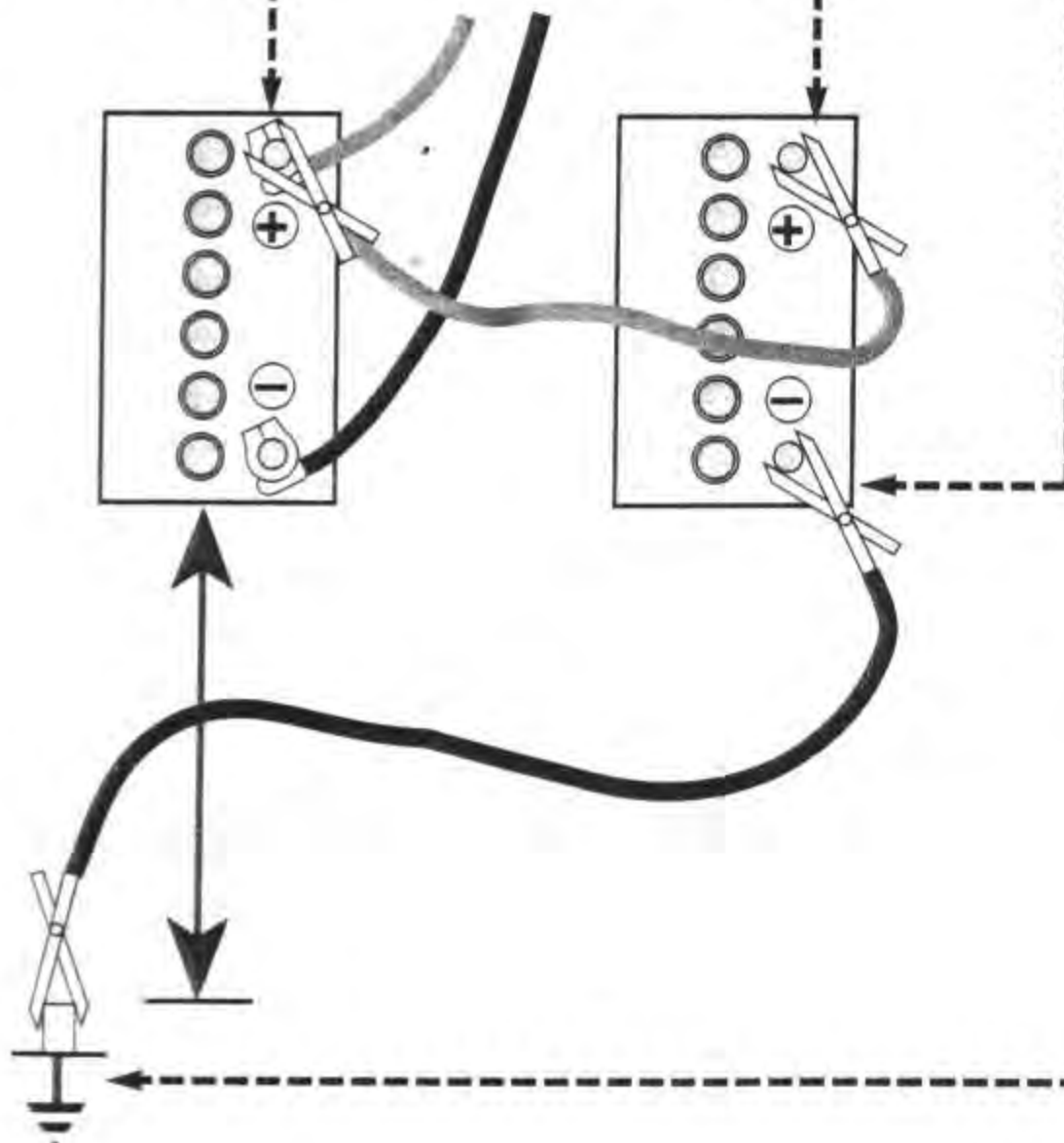
- 1** Connect one end of the red jump lead to the positive (+) terminal of the flat battery



- 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.

## 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.

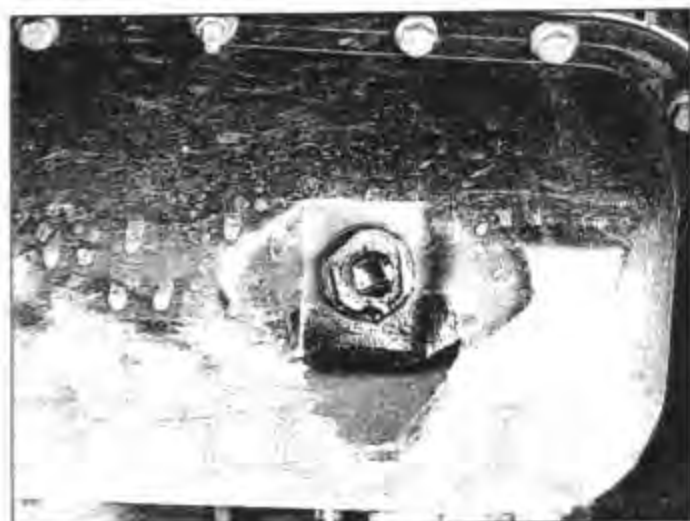


**Warning:** Most automotive oils and fluids are poisonous. Wash them off skin, and change out of contaminated clothing, without delay.



**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



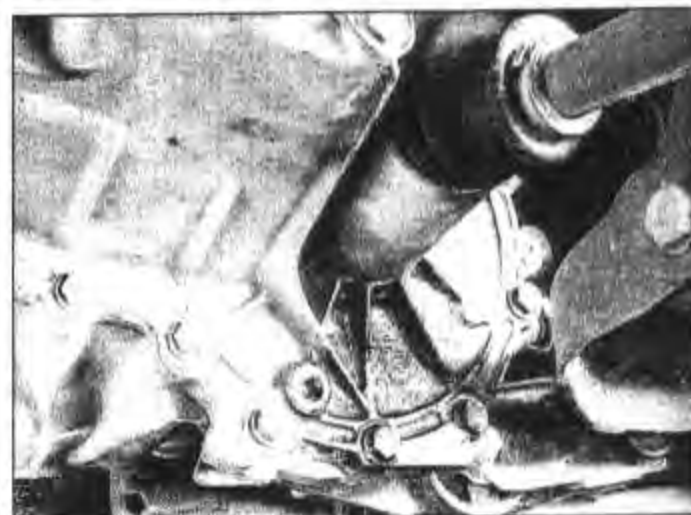
Engine oil may leak from the drain plug...

### 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



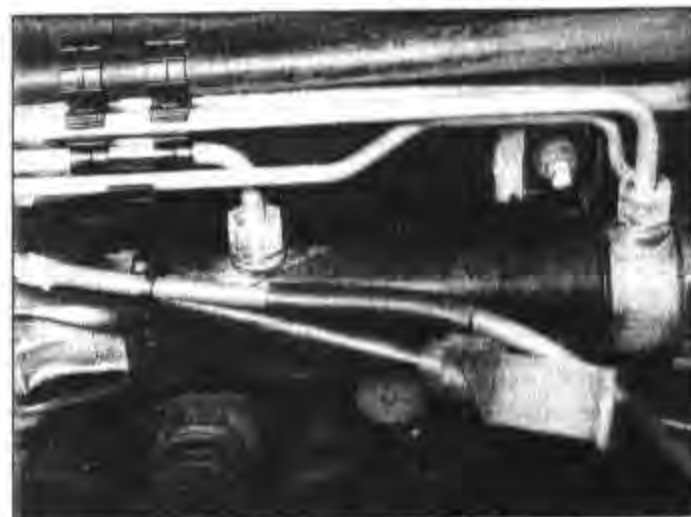
Leaking antifreeze often leaves a crystalline deposit like this.

### Brake fluid



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

### Power steering fluid



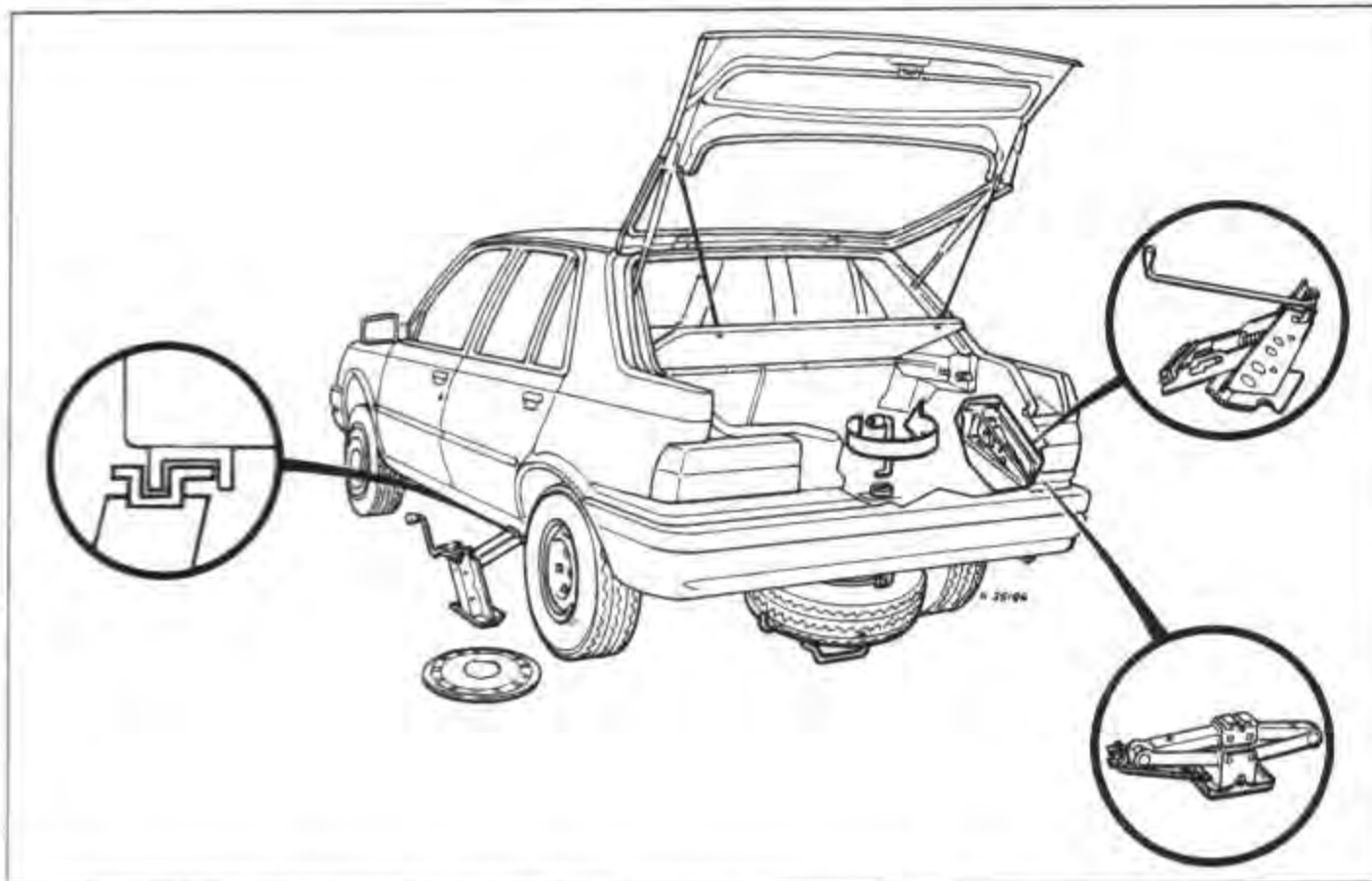
Power steering fluid may leak from the pipe connectors on the steering rack.

## Jacking and towing

The jack supplied with the car by the manufacturer is designed for use only when changing a roadwheel. The jack locates under the body sill on the side concerned at the jack point to the rear of the front wheel arch or to the front of the rear wheel arch as applicable.

Before jacking up the car to change the roadwheel, loosen the roadwheel retaining bolts first. Ensure that the jack is securely located and standing on firm level ground. The car should be in gear and the handbrake fully applied.

If you are going to carry out work under the car it is preferable to position the car over an inspection pit. If this is not available use a workshop trolley jack or substantial screw or bottle type hydraulic jack. *Always supplement a jack with axle stands.* The sill jacking points or their adjacent reinforced areas should be used as jacking points for raising the car. A beam may be placed under the front subframe and the front end jacked up under that. The side-members of the front subframe should be used as axle stand support points. The rear side-members may be used in a similar way.



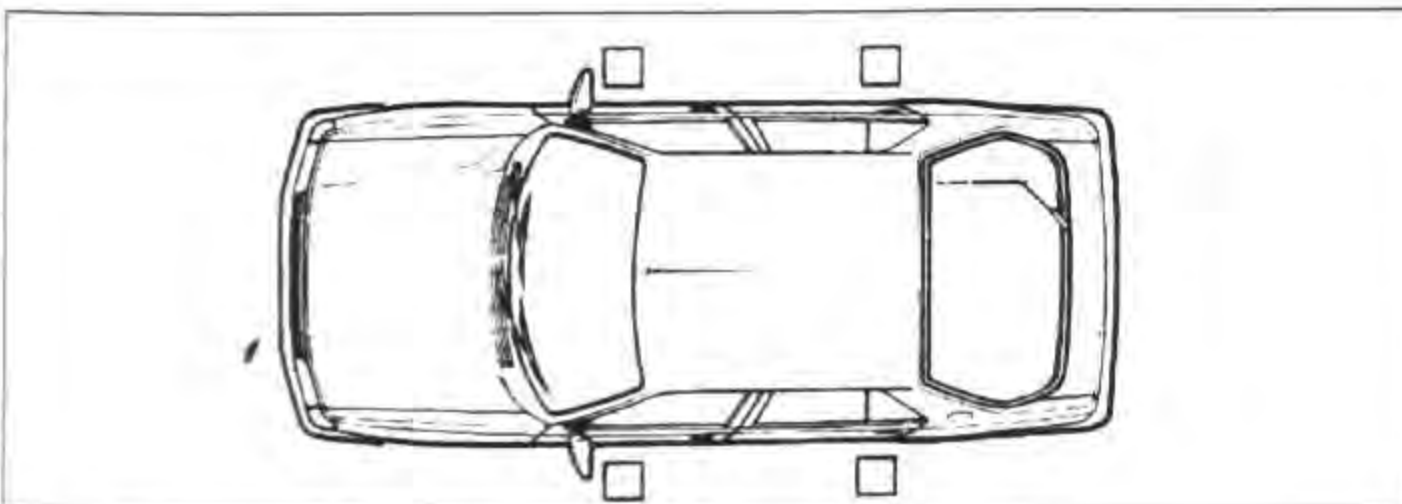
View showing jack storage location and fitting position on the body sill. Note alternative jack types supplied – according to model

## Towing and being towed

Front and rear anchorage points are provided for securing the car during transportation on a car transporter, boat, train and so on (photo). These points can also be used for towing the car or for towing another in an emergency. For permanent towing requirements a tow-bar is necessary, properly attached to the vehicle.

Ensure that the ignition key is in the steering unlocked position (A or M as required).

On some models the blanking plate in the front bumper will need removal for access to the towing eye.



Jack location points



Front towing eye



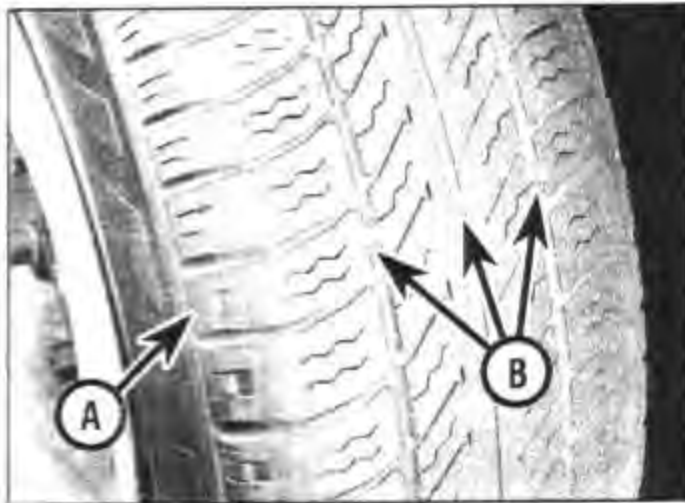
## Tyre condition and pressure

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.*

For information applicable to later models, see Supplement at end of manual

## Every 250 miles (400 km) or weekly - whichever comes first

- Check the engine oil level using the dipstick. The oil level must be maintained between the high and low markings at all times. Top up when necessary but do not overfill
- Check the coolant level. Top up if necessary
- Check for signs of leaks, and hose/pipe security
- Check the level of brake fluid in the fluid reservoir. The level must be kept between the high and low markings on the reservoir wall. Top up if necessary
- Check the tyre pressures, and examine them for wear and damage
- Check and if necessary top up the fluid level in the windscreen and tailgate washer reservoirs, adding a screen wash

## Every 6000 miles (9500 km) or six months - whichever comes first

- Renew the engine oil and filter
- Check the brake pads for wear. Renew if necessary
- Check the battery electrolyte level. Top up if necessary (not usually required on low maintenance type)

## Every 12 000 miles (19 000 km) or 12 months - whichever comes first

*In addition to the 6000 miles service*

- Clean the engine oil filler cap filter mesh (if applicable)
- Adjust and lubricate the throttle and choke cables (if applicable)
- Renew the spark plugs
- Lubricate the distributor
- Check for ignition system cable security
- Adjust the clutch pedal/cable
- Check brake shoes for wear. Renew if necessary
- Adjust the handbrake
- Check the power steering fluid level (if applicable)
- Adjust the power steering pump drivebelt (if applicable)
- Check the bodywork condition. Repair as necessary
- Adjust alternator/coolant pump drivebelt tension

Maintenance is essential for ensuring safety and is desirable for the purpose of getting the best in terms of performance and economy from the car. Over the years the need for periodic lubrication - oiling and greasing has been drastically reduced, if not totally eliminated. This has unfortunately tended to lead some owners to think that because no such action is required the components either no longer exist or will last for ever. This is a serious delusion. If anything, there are now more places, particularly in the steering and suspension, where joints and pivots are fitted. Although you do not grease them any more you still have to look at them - and look at them just as often as you may previously have had to grease them. The largest initial element of maintenance is visual examination. This may lead to repairs or renewal.

## Every 24 000 miles (38 000 km) or 2 years - whichever comes first

*In addition to the 12 000 miles service*

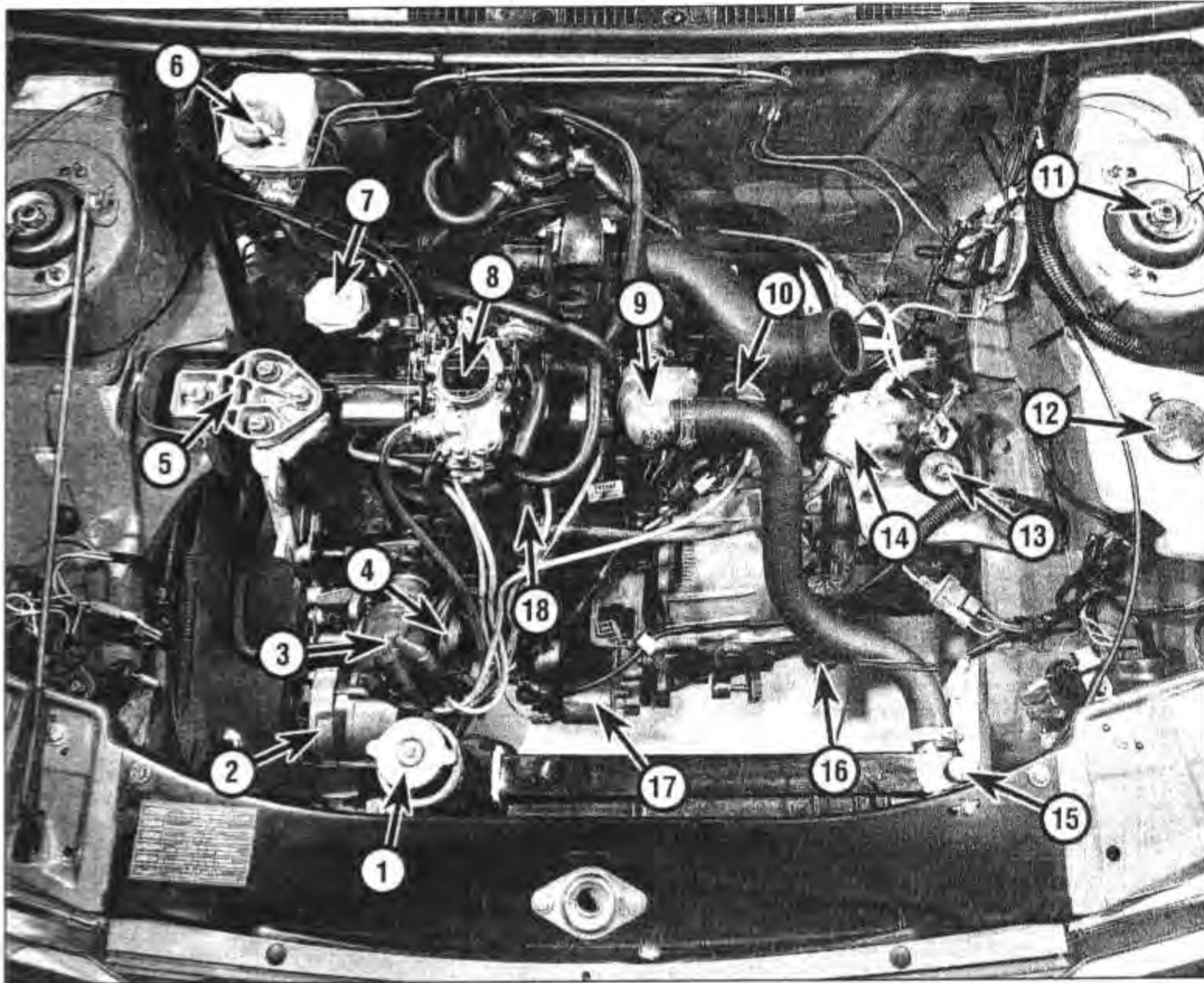
- Renew the coolant
- Renew the air cleaner element
- Clean the fuel pump filter (if applicable)
- Renew the in-line filter-carburettor models (if applicable)
- Adjust the ignition timing
- Renew the gearbox oil
- Check for driveshaft damage and wear
- Renew the brake fluid
- Check the wheel bearings for wear and damage
- Check the steering and suspension balljoints for wear and damage
- Check the shock absorbers for operation and leaks
- Renew the automatic transmission fluid

## Every 36 000 miles (57 000 km)

- Renew the camshaft (timing) drivebelt (if applicable)

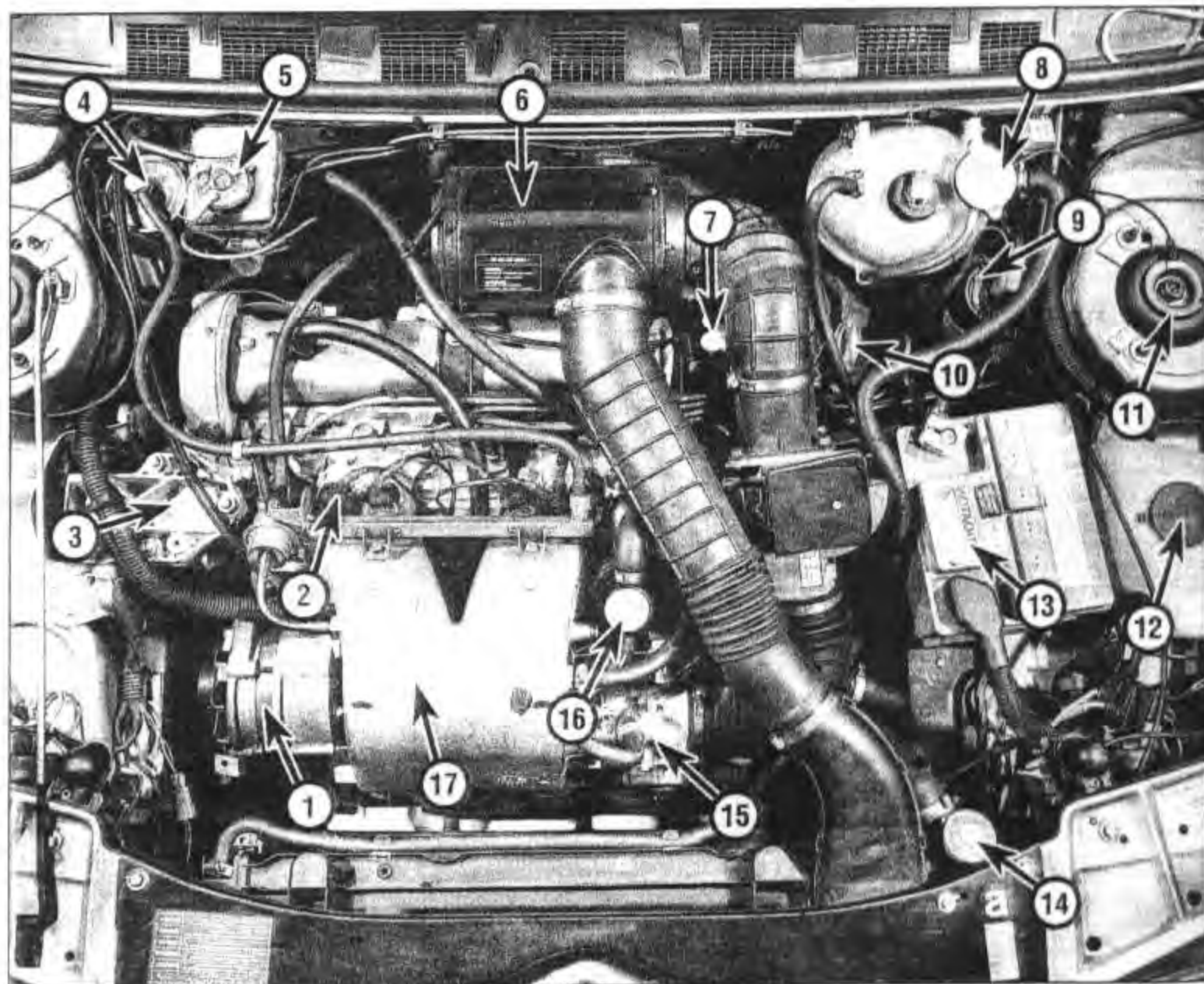
## Every 60 000 miles (95 000 km) or 5 years - whichever comes first

- Renew the fuel filter - fuel injection models



**Under bonnet view – 1.3 litre engine**

- 1 Radiator filler cap
- 2 Alternator
- 3 Distributor
- 4 Engine oil dipstick
- 5 Right-hand engine mounting
- 6 Brake hydraulic system master cylinder
- 7 Engine oil filler cap
- 8 Carburettor (air filter removed)
- 9 Cooling system thermostat housing
- 10 Ignition coil
- 11 Front suspension strut top mounting (left-hand side)
- 12 Washer system reservoir
- 13 Engine/transmission mounting (shown with battery removed)
- 14 Fuel filter (in-line)
- 15 Cooling system bleed screw
- 16 Clutch adjuster
- 17 Starter motor
- 18 Fuel pump

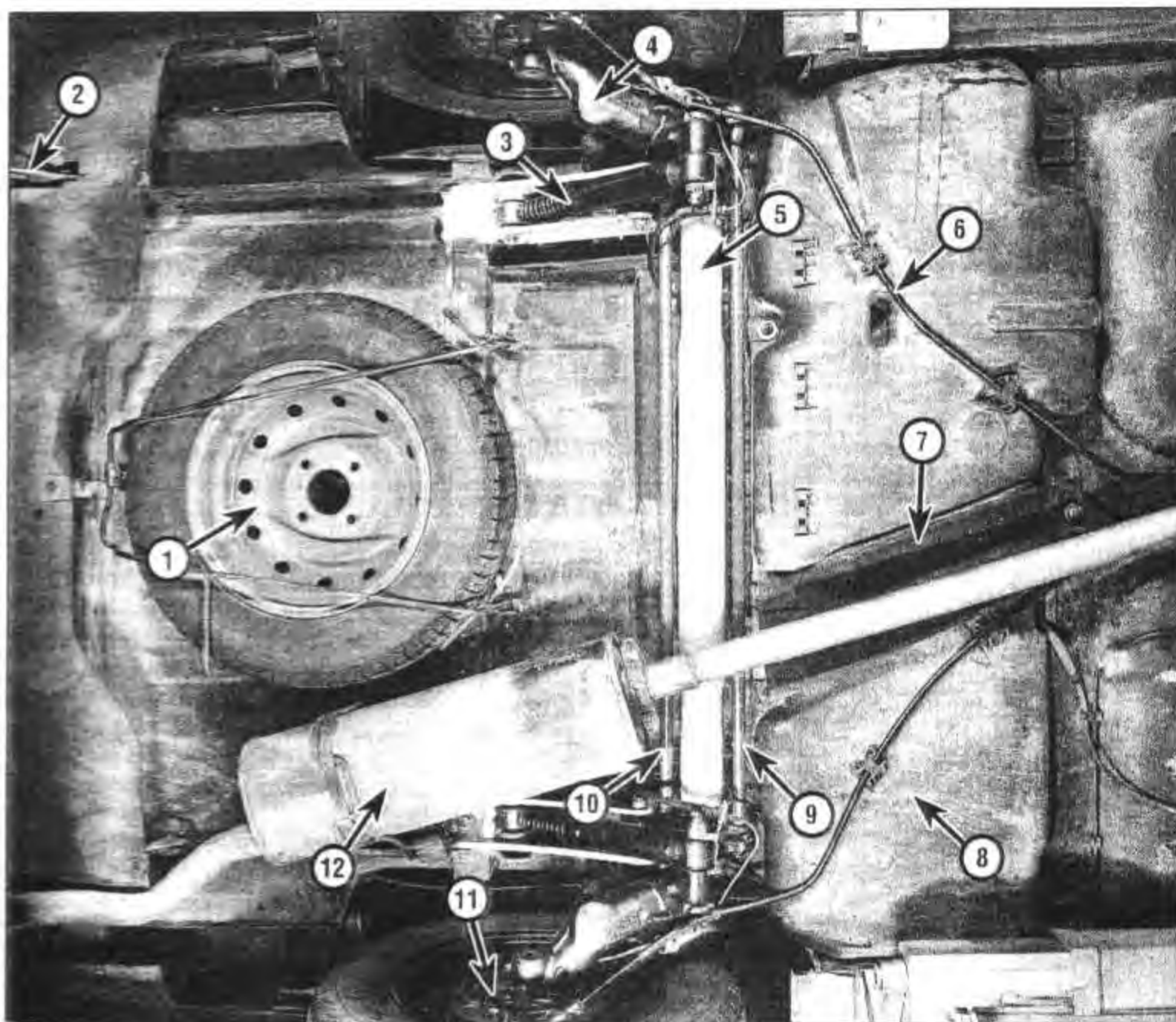
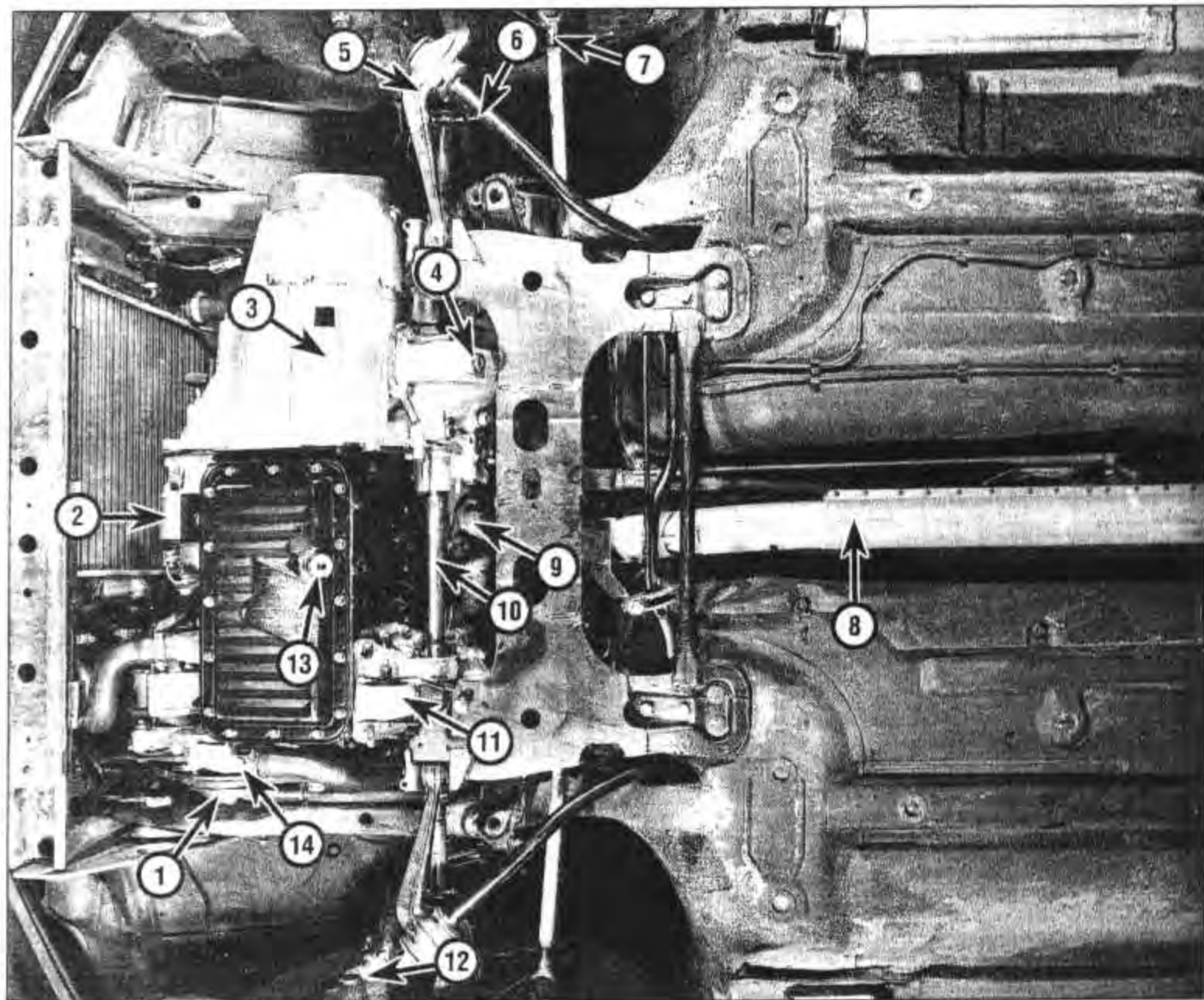


**Under bonnet view – 1.6 litre SR Injection engine**

- 1 Alternator
- 2 Injectors
- 3 Engine mounting (right-hand)
- 4 Fuel filter
- 5 Brake hydraulic system master cylinder
- 6 Air filter
- 7 Engine oil dipstick
- 8 Cooling system expansion tank and filler cap
- 9 Ignition coil
- 10 Ignition distributor
- 11 Front suspension strut top mounting (left-hand side)
- 12 Washer system reservoir
- 13 Battery
- 14 Radiator cap
- 15 Throttle housing
- 16 Engine oil filler
- 17 Inlet manifold

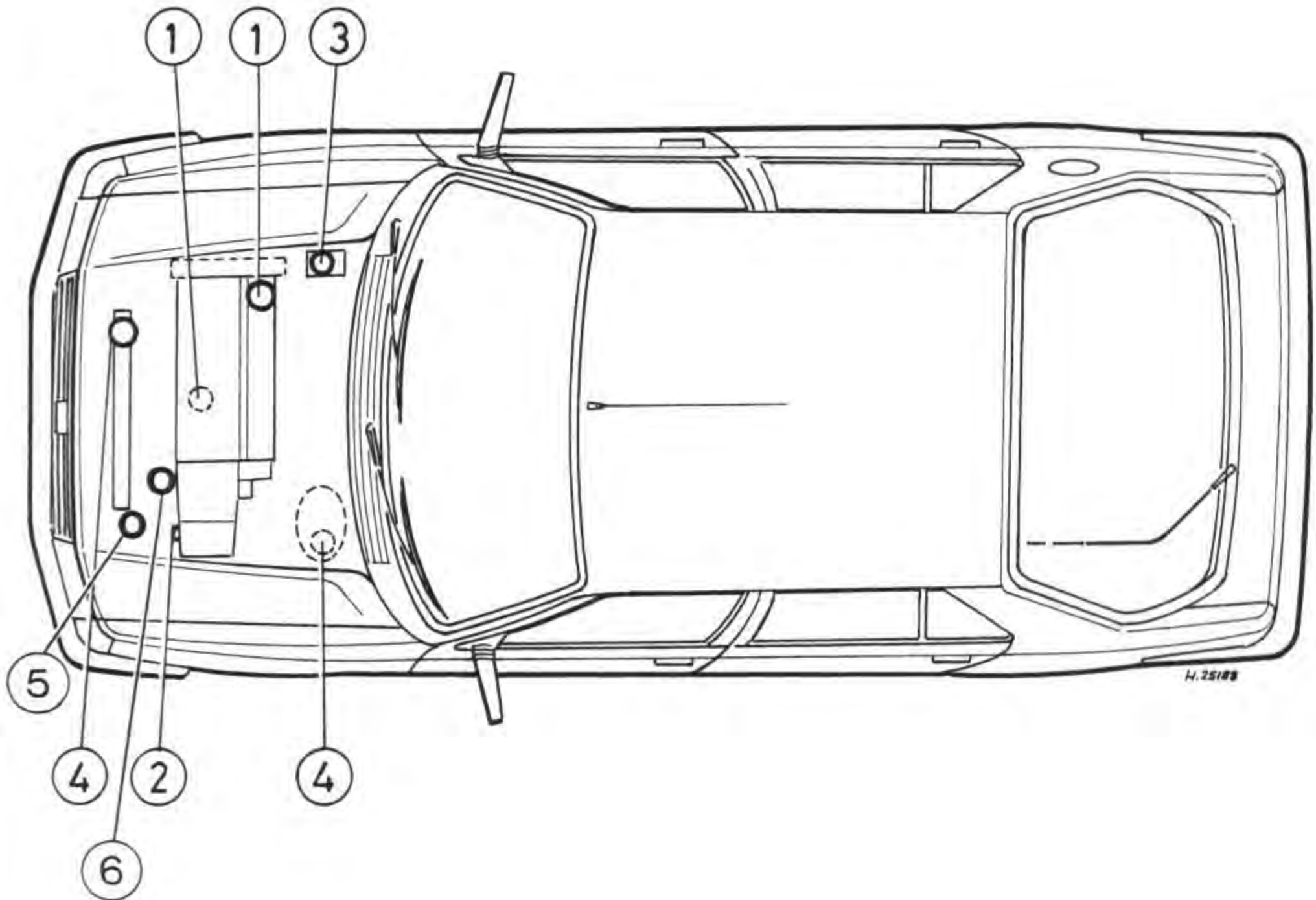
**View of front underside of car with engine undershield removed - 1.3 litre engine**

- 1 Alternator/coolant pump drivebelt
- 2 Starter motor
- 3 Gearbox
- 4 Differential housing
- 5 Suspension arm
- 6 Anti-roll bar
- 7 Track rod
- 8 Exhaust pipe
- 9 Exhaust manifold
- 10 Driveshaft
- 11 Torque reaction link
- 12 Brake caliper
- 13 Sump drain plug
- 14 Engine coolant drain plug (OHV engines only)



**View of rear underside of car - 1.3 litre model**

- 1 Spare wheel
- 2 Towing eye
- 3 Shock absorber
- 4 Suspension arm
- 5 Suspension cross tube
- 6 Handbrake cable
- 7 Heat shield
- 8 Fuel tank
- 9 Torsion bar (right-hand)
- 10 Torsion bar (left-hand)
- 11 Brake backplate
- 12 Exhaust rear silencer



**Component or system**

**Lubricant type/specification**

**1 Engine**

Multigrade engine oil, viscosity SAE 10W/40 or 15W/40

**2 Manual gearbox\***

Up to October 1987  
October 1987 on

Multigrade engine oil, viscosity SAE 10W/40 or 15W/40  
Gear oil, viscosity SAE 75W/80

**3 Braking system**

Hydraulic fluid to SAE J1703C

**4 Cooling system**

Ethylene glycol based antifreeze coolant mixture

**5 Power steering**

Dexron II type ATF

**6 Automatic transmission**

Dexron II type ATF

*\*On cars manufactured after October 1987, the manual gearbox is 'sealed for life', and renewing the oil is no longer required. It is essential to use only the specified type of oil when topping-up.*