

Rover 820, 825 & 827 Service and Repair Manual

J. S. Mead

Models covered

Rover 820, 825, 827 and Sterling models with 4-cylinder and V6 petrol engines,
including special/limited editions
1994 cc, 2494 cc & 2675 cc

Does not cover 8-valve carburettor (petrol) engine or Diesel-engined models

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Introduction to the Rover 800 Series

Designed in conjunction with the Honda Motor Company of Japan, the Rover 800 series was launched in the UK in July 1986 as a replacement for the ageing Rover SD1. Initially available in four-door Saloon guise, a Fastback version was added to the range in mid-1988. Minor styling revisions were applied to various models in the intervening years, culminating in a major facelift to all models for the 1992 model year. This saw the introduction of the "second generation" Rover 800 series with significant styling and engineering revisions, together with the launch of the Coupe model later in the same year.

Three different engines are used in the Rover models covered by this manual. 820 models are powered by a 2.0 litre, 4-cylinder, sixteen valve engine with single-point or multi-point fuel injection. The early version of this power unit is based on the proven O-series engine used previously in the Montego and earlier Austin Rover vehicles, but with an all new cylinder head and valve train. For the 1992 model year the T-series version was announced which shared many of the O-series components but with significant revisions in many areas. Both these engines

are available in normally aspirated or turbocharged versions.

825, 827 and Sterling models are powered by a 2.5 or 2.7 litre V6 twenty four valve engine with programmed fuel injection. Both versions of this engine are virtually identical apart from an increase in cylinder bore diameter to provide the larger capacity of the 2.7 litre unit.

On all models, the engine is mounted transversely at the front of the car and drives the front wheels through a five-speed manual, or four speed automatic transmission.

Suspension is independent at the front by double wishbones and coil springs, and at the rear by transverse links and coil springs. Power-assisted steering is standard on all models.

A comprehensive range of electrical and interior features are offered as standard equipment, including electric front windows, central locking and stereo radio cassette player. Anti-lock braking, air conditioning, headlight wash, electric rear windows, driver and passenger airbags and many other features and accessories are also available as optional or standard equipment according to model.

Acknowledgements

Thanks are due to Champion Spark Plug, who supplied the illustrations showing spark plug conditions. 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 main project vehicle used in the preparation of this manual, and appearing in many of the photographic sequences was a 1986 Rover 820 Se Saloon. Additional work was carried out and photographed on a 1988 Rover 820 Si Fastback and a 1992 Rover Sterling.



Rover 820i Saloon



Rover 800 Coupe

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

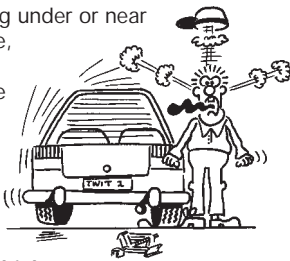
- Beware of burns from the exhaust system and from any part of the engine. Brake discs and drums can also be extremely hot immediately after use.

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.

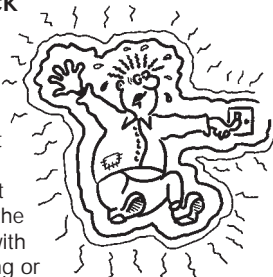


Fire

- 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

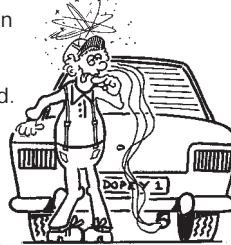
- Ignition HT voltage can be dangerous, especially to people with heart problems or a pacemaker. Don't work on or near the ignition system with the engine running or the ignition switched on.



- 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.



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 General dimensions and weights

Dimensions

Overall length:	
Pre-1992 model year	4694.0 mm
1992 model year onwards	4882.0 mm
Overall width - including mirrors:	
Pre-1992 model year	1946.0 mm
1992 model year onwards:	
Saloon and Fastback models	1965.0 mm
Coupe models	1900.0 mm
Overall height (unladen):	
Pre-1992 model year	1398.0 mm
1992 model year onwards:	
Saloon and Fastback models	1363.0 mm
Coupe models	1400.0 mm
Wheelbase	2760.0 mm
Front track	1490.0 mm
Rear track	1450.0 mm
Ground clearance	145.0 mm

Weights

Kerb weight*:	
820 Saloon models	1305 to 1405 kg
820 Fastback models	1335 to 1435 kg
820 Coupe models	1420 kg
825 and Sterling Saloon models	1360 to 1400 kg
827 and Sterling Saloon models	1400 to 1470 kg
827 and Sterling Fastback models	1410 to 1510 kg
827 Coupe models	1450 kg
Maximum roof rack load:	
Saloon and Fastback models	70 kg
Coupe models	50 kg
Maximum towing weight:	
820 models with manual transmission:	
Braked trailer (all models except Turbo)	1550 kg
Braked trailer (Turbo models)	1025 kg
Unbraked trailer	500 kg
820 models with automatic transmission:	
Braked trailer	1025 kg
Unbraked trailer	500 kg
825, 827 and Sterling models:	
Braked trailer**	1550 kg
Unbraked trailer	500 kg
Maximum towing hitch downward load	70 kg

*Depending on model and specification - refer to Rover dealer for exact recommendations.

**On automatic transmission models, an auxiliary fluid cooler must be fitted if the towing weight is to exceed 1000 kg.

Jacking, towing and wheel changing

Jacking

The jack supplied with the vehicle tool kit should only be used for changing the roadwheels - see *"Wheel changing"* later in this Section. When carrying out any other kind of work, raise the vehicle using a hydraulic (or "trolley") jack, and always supplement the jack with axle stands positioned under the vehicle jacking points (**see illustration**).

When using a hydraulic jack or axle stands, always position the jack head or axle stand

head under one of the relevant jacking points.

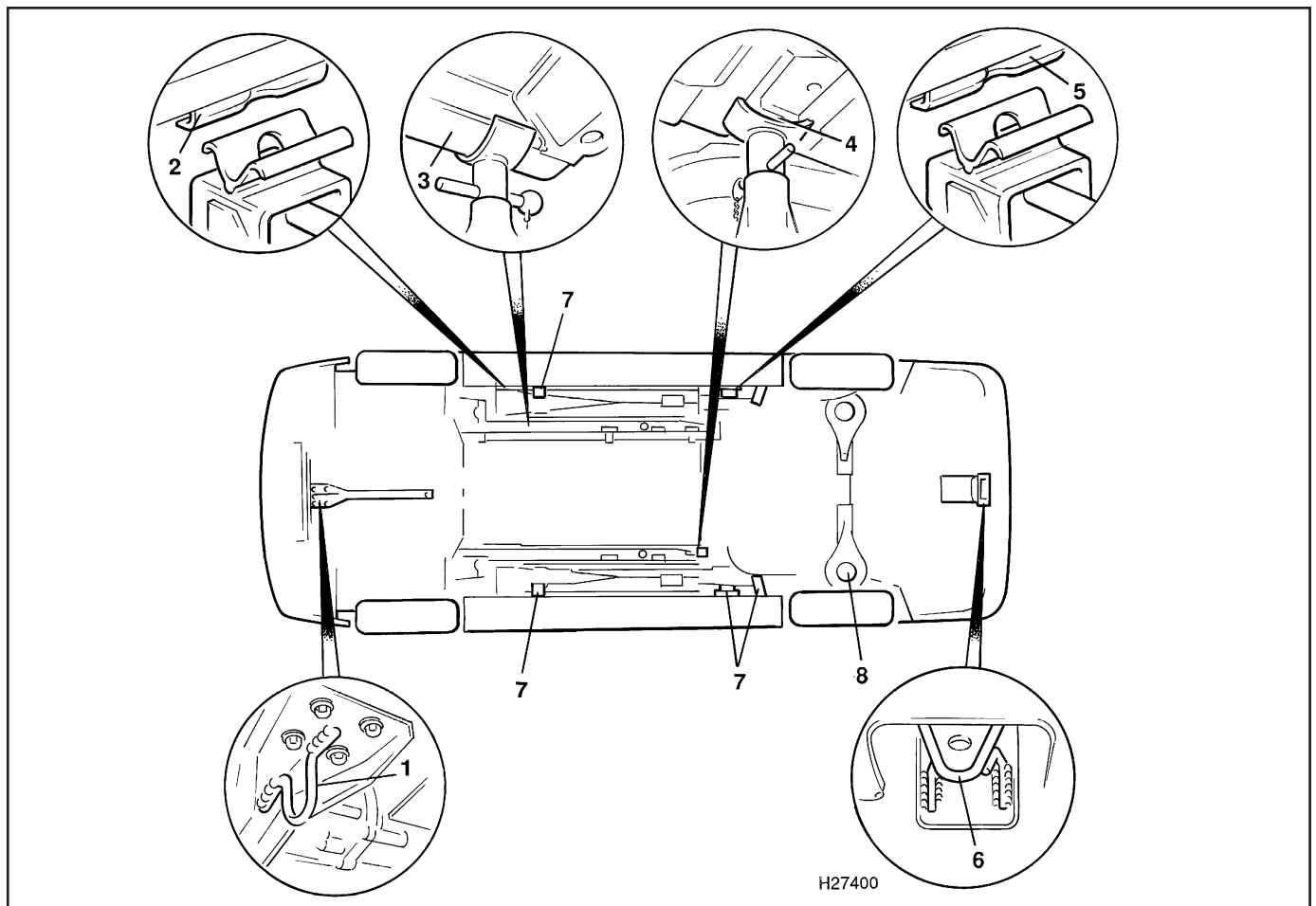
To raise the front of the vehicle, position the jack head under the front towing eye which is welded to the longitudinal support member running under the engine. Do not position the jack under the longitudinal member itself, or under the sump or any of the steering or suspension components.

To raise the rear of the vehicle, position the jack head under the rear towing eye which is welded to the reinforcement panel under the spare wheel carrier.

If the side of the vehicle is to be raised, position the jack head under the reinforced areas at the front or rear of the side sills.

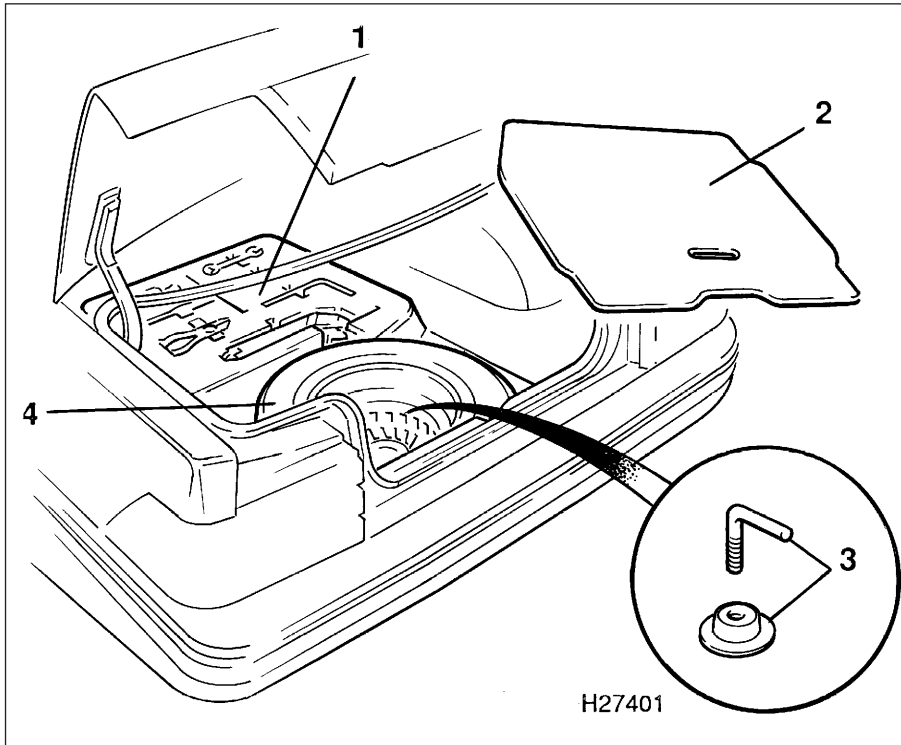
The jack supplied with the vehicle also locates in the reinforced areas of the side sills. Ensure that the jack head is correctly engaged before attempting to raise the vehicle.

Never work under, around or near a raised vehicle unless it is adequately supported in at least two places.



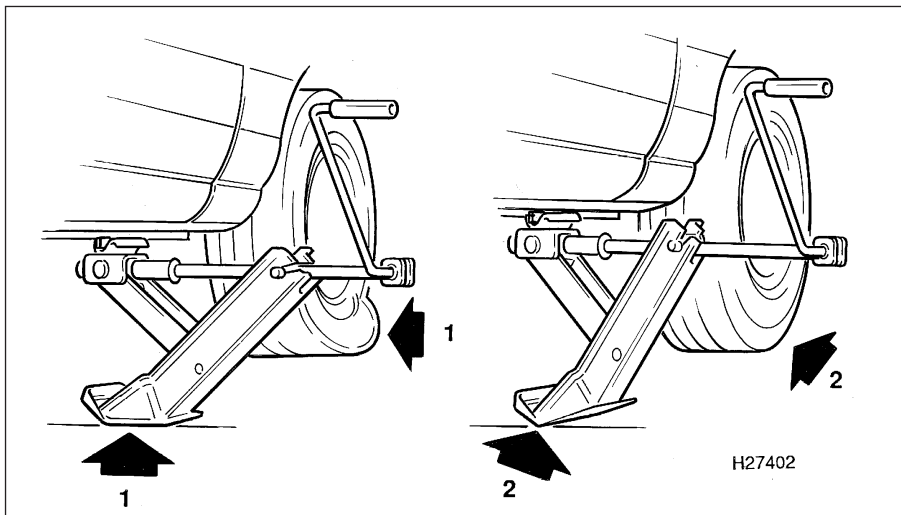
Jacking points and axle stand locations

- | | |
|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| 1 Front towing eye - used for raising the front of the car | 5 Reinforced sill area - used for raising the side of the car, or supporting on axle stands |
| 2 Reinforced sill area - used for raising the side of the car, or supporting on axle stands | 6 Rear towing eye - used for raising the rear of the car |
| 3 Front chassis member - used for supporting the car on axle stands | 7 Square tubular chassis sections - Not suitable for jacking or supporting |
| 4 Rear chassis member - used for supporting the car on axle stands | 8 Suspension components - Not suitable for jacking or supporting |



Spare wheel and tool locations

- | | |
|---------------|---------------------|
| 1 Tool kit | 3 Spare wheel clamp |
| 2 Floor panel | 4 Spare wheel |



Using the vehicle tool kit jack

- 1 Jack base positioned flat on the ground (deflated tyre)
- 2 Jack positioned with base elbow on the ground, and base just clear (inflated tyre)

Towing

Towing eyes are fitted to the front and rear of the vehicle for attachment of a tow rope. The front towing eye is situated under the centre of the front bumper and the rear towing eye is located under the centre of the rear bumper behind a detachable trim plate.

Always turn the ignition key to position II to ensure that the steering is unlocked and that the various switches (indicators and lights) are functional. It should also be noted that the brake servo and power-assisted steering will not be operating with the engine switched off and therefore an allowance will need to be made for reduced braking efficiency and increased steering effort.

Before being towed, release the handbrake and place the gear lever in neutral. Do not tow at a speed greater than 30 mph. On no account may the car be towed with the front wheels on the ground if the transmission is faulty, if the transmission oil or fluid is low or if the towing distance is greater than 30 miles.

Wheel changing

To change a roadwheel, first remove the spare wheel and jack which are located under the luggage compartment floor (see illustration). Firmly apply the handbrake and engage first gear on manual transmission models or PARK on automatic transmission models. Place chocks at the front and rear of the wheel diagonally opposite the one to be changed.

Remove the wheel trim and slacken the wheel nuts with the tools provided in the tool kit. Position the jack head in the reinforced jacking point, at the base of the sill nearest to the wheel to be changed. Raise the jack to just take the weight of the car. If the tyre is flat, position the base of the jack so that it is flat on the ground. If the tyre is not flat, position the jack so that the base elbow is resting on the ground and the base is just clear (see illustration). Raise the vehicle until the wheel is just clear of the ground, then remove the wheel nuts and the wheel. Fit the spare wheel and screw on the wheel nuts. Lower the jack until the tyre is just touching the ground, and tighten the wheel nuts moderately tight. Now lower the jack fully and tighten the wheel nuts securely in a diagonal sequence. Refit the wheel trim, then remove the jack and stow it together with the wheel and tools in the luggage compartment. *Remember to check the tightness of the wheel nuts using a torque wrench at the earliest opportunity.*

Jump starting

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.

- ✓ 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).



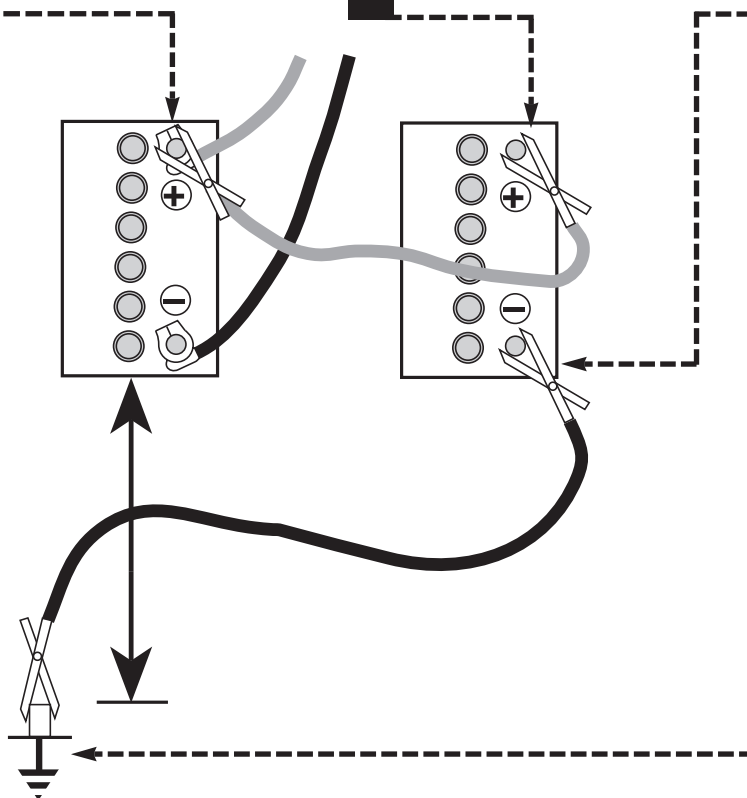
- 1** Connect one end of the red jump lead to the positive (+) terminal of the flat battery



- 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



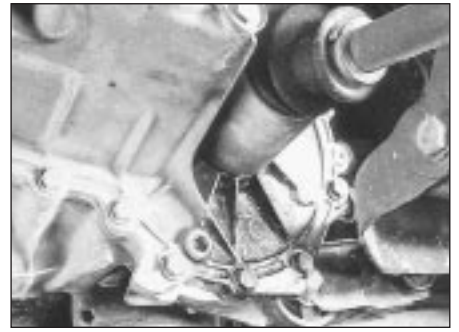
Engine oil may leak from the drain plug...

Oil from filter



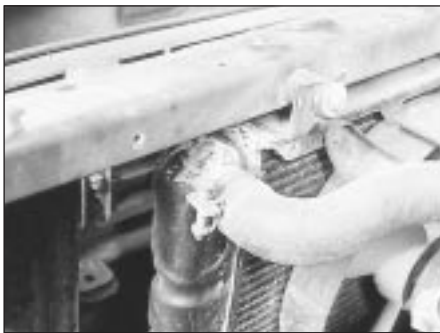
...or from the base of the oil filter.

Gearbox oil



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

Antifreeze



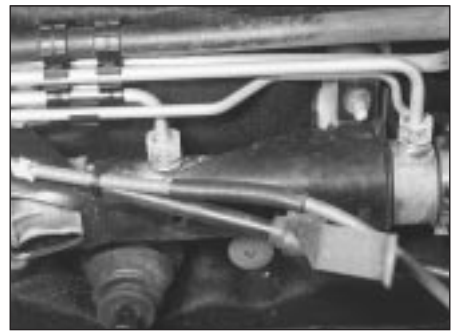
Leaking antifreeze often leaves a crystalline deposit like this.

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.

Radio/cassette unit anti-theft system - precaution

The radio/cassette unit fitted as standard equipment by Rover is equipped with a built-in security code, to deter thieves. If the power source to the unit is cut, the anti-theft system will activate. Even if the power source is immediately reconnected, the radio/cassette unit will not function until the correct security

code has been entered. Therefore, if you do not know the correct security code for the radio/cassette unit **do not** disconnect either of the battery terminals, or remove the radio/cassette unit from the vehicle.

To enter the correct security code, follow

the instructions provided with the radio/cassette player handbook.

If an incorrect code is entered, the unit will become locked, and cannot be operated.

If this happens, or if the security code is lost or forgotten, seek the advice of your Rover dealer.

Length (distance)

Inches (in)	x 25.4 = Millimetres (mm)	x 0.0394 = Inches (in)
Feet (ft)	x 0.305 = Metres (m)	x 3.281 = Feet (ft)
Miles	x 1.609 = Kilometres (km)	x 0.621 = Miles

Volume (capacity)

Cubic inches (cu in; in ³)	x 16.387 = Cubic centimetres (cc; cm ³)	x 0.061 = Cubic inches (cu in; in ³)
Imperial pints (Imp pt)	x 0.568 = Litres (l)	x 1.76 = Imperial pints (Imp pt)
Imperial quarts (Imp qt)	x 1.137 = Litres (l)	x 0.88 = Imperial quarts (Imp qt)
Imperial quarts (Imp qt)	x 1.201 = US quarts (US qt)	x 0.833 = Imperial quarts (Imp qt)
US quarts (US qt)	x 0.946 = Litres (l)	x 1.057 = US quarts (US qt)
Imperial gallons (Imp gal)	x 4.546 = Litres (l)	x 0.22 = Imperial gallons (Imp gal)
Imperial gallons (Imp gal)	x 1.201 = US gallons (US gal)	x 0.833 = Imperial gallons (Imp gal)
US gallons (US gal)	x 3.785 = Litres (l)	x 0.264 = US gallons (US gal)

Mass (weight)

Ounces (oz)	x 28.35 = Grams (g)	x 0.035 = Ounces (oz)
Pounds (lb)	x 0.454 = Kilograms (kg)	x 2.205 = Pounds (lb)

Force

Ounces-force (ozf; oz)	x 0.278 = Newtons (N)	x 3.6 = Ounces-force (ozf; oz)
Pounds-force (lbf; lb)	x 4.448 = Newtons (N)	x 0.225 = Pounds-force (lbf; lb)
Newton (N)	x 0.1 = Kilograms-force (kgf; kg)	x 9.81 = Newtons (N)

Pressure

Pounds-force per square inch (psi; lbf/in ² ; lb/in ²)	x 0.070 = Kilograms-force per square centimetre (kgf/cm ² ; kg/cm ²)	x 14.223 = Pounds-force per square inch (psi; lbf/in ² ; lb/in ²)
Pounds-force per square inch (psi; lbf/in ² ; lb/in ²)	x 0.068 = Atmospheres (atm)	x 14.696 = Pounds-force per square inch (psi; lbf/in ² ; lb/in ²)
Pounds-force per square inch (psi; lbf/in ² ; lb/in ²)	x 0.069 = Bars	x 14.5 = Pounds-force per square inch (psi; lbf/in ² ; lb/in ²)
Pounds-force per square inch (psi; lbf/in ² ; lb/in ²)	x 6.895 = Kilopascals (kPa)	x 0.145 = Pounds-force per square inch (psi; lbf/in ² ; lb/in ²)
Kilopascals (kPa)	x 0.01 = Kilograms-force per square centimetre (kgf/cm ² ; kg/cm ²)	x 98.1 = Kilopascals (kPa)
Millibar (mbar)	x 100 = Pascals (Pa)	x 0.01 = Millibar (mbar)
Millibar (mbar)	x 0.0145 = Pounds-force per square inch (psi; lbf/in ² ; lb/in ²)	x 68.947 = Millibar (mbar)
Millibar (mbar)	x 0.75 = Millimetres of mercury (mmHg)	x 1.333 = Millibar (mbar)
Millibar (mbar)	x 0.401 = Inches of water (inH ₂ O)	x 2.491 = Millibar (mbar)
Millimetres of mercury (mmHg)	x 0.535 = Inches of water (inH ₂ O)	x 1.868 = Millimetres of mercury (mmHg)
Inches of water (inH ₂ O)	x 0.036 = Pounds-force per square inch (psi; lbf/in ² ; lb/in ²)	x 27.68 = Inches of water (inH ₂ O)

Torque (moment of force)

Pounds-force inches (lbf in; lb in)	x 1.152 = Kilograms-force centimetre (kgf cm; kg cm)	x 0.868 = Pounds-force inches (lbf in; lb in)
Pounds-force inches (lbf in; lb in)	x 0.113 = Newton metres (Nm)	x 8.85 = Pounds-force inches (lbf in; lb in)
Pounds-force inches (lbf in; lb in)	x 0.083 = Pounds-force feet (lbf ft; lb ft)	x 12 = Pounds-force inches (lbf in; lb in)
Pounds-force feet (lbf ft; lb ft)	x 0.138 = Kilograms-force metres (kgf m; kg m)	x 7.233 = Pounds-force feet (lbf ft; lb ft)
Pounds-force feet (lbf ft; lb ft)	x 1.356 = Newton metres (Nm)	x 0.738 = Pounds-force feet (lbf ft; lb ft)
Newton metres (Nm)	x 0.102 = Kilograms-force metres (kgf m; kg m)	x 9.804 = Newton metres (Nm)

Power

Horsepower (hp)	x 745.7 = Watts (W)	x 0.0013 = Horsepower (hp)
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Velocity (speed)

Miles per hour (miles/hr; mph)	x 1.609 = Kilometres per hour (km/hr; kph)	x 0.621 = Miles per hour (miles/hr; mph)
--------------------------------	--------------------------------------------	------------------------------------------

Fuel consumption*

Miles per gallon (mpg)	x 0.354 = Kilometres per litre (km/l)	x 2.825 = Miles per gallon (mpg)
------------------------	---------------------------------------	----------------------------------

Temperature

Degrees Fahrenheit = (°C x 1.8) + 32 Degrees Celsius (Degrees Centigrade; °C) = (°F - 32) x 0.56

* It is common practice to convert from miles per gallon (mpg) to litres/100 kilometres (l/100km), where mpg x l/100 km = 282