

Maintenance

ROUTINE MAINTENANCE

Regular systematic maintenance is the key to ensuring the continued reliability and efficiency of your vehicle.

Maintenance is the owner's responsibility and you must ensure that owner maintenance operations, brake fluid and coolant changes are carried out when required and according to the manufacturer's recommendations.

The routine maintenance requirements for your vehicle are shown in the Service Portfolio book. Most of this necessary workshop maintenance requires specialised knowledge and equipment, and should preferably be entrusted to a Land Rover dealer.

Service Portfolio

The Service Portfolio book includes a Service Record section, which enables a record to be kept of all services that are carried out on the vehicle. This section of the book also provides a facility for the dealer to record brake fluid and camshaft drive belt changes, as well as the fitting of replacement airbag modules.

Ensure your dealer signs and stamps the book after each service.

Brake fluid and coolant replacement

The brake fluid and engine coolant (anti-freeze and water solution) needs to be replaced every 36,000 miles (60,000 km) or 36 months, whichever is the sooner. Your dealer will replace the brake fluid and coolant at the scheduled services.

Maintenance

OWNER MAINTENANCE

In addition to the routine services referred to previously, a number of simple checks must be carried out more frequently. You can carry out these checks yourself and advice is given on the pages that follow.

Any significant or sudden drop in fluid levels, or uneven tyre wear, should be reported to a dealer without delay.

Daily checks

- Operation of lights, horn, direction indicators, wipers, washers and warning lights.
- Operation of seat belts and brakes.
- Look for fluid deposits underneath the vehicle that might indicate a leak.

Weekly checks (or every 250 miles/400 km)

- Engine oil level.

NOTE: *The engine oil level should be checked more frequently if the vehicle is driven for prolonged periods at high speeds.*

- Coolant level.
- Screen washer fluid level.
- Tyre pressures and condition.
- Operate air conditioning*.

Monthly checks

- Brake fluid level.
- Power steering fluid level.

IMPORTANT
Special operation conditions When a vehicle is operated in extremely arduous conditions or a dusty, wet or muddy terrain, more frequent attention must be paid to servicing requirements. For example: if your vehicle experiences deep wading conditions, even DAILY servicing could be necessary to ensure the continued safe and reliable operation of the vehicle. Contact a Land Rover dealer for advice.

Maintenance

SAFETY IN THE GARAGE



Cooling fans may continue to operate after the engine is switched off. When the engine is hot, the cooling fans may also COMMENCE operating after the engine is switched off and continue operating for up to 8 minutes. Keep clear of all fans while working in the engine compartment.

If you need to carry out maintenance, observe the following safety precautions at all times:

- Keep your hands and clothing away from drive belts and pulleys.
- If the vehicle has been driven recently, DO NOT TOUCH exhaust and cooling system components until the engine has cooled.
- DO NOT TOUCH electrical leads or components while the engine is running, or with the starter switch turned on.
- NEVER leave the engine running in an unventilated area - exhaust gases are poisonous and extremely dangerous.
- DO NOT work beneath the vehicle with the wheel changing jack as the only means of support.
- Ensure sparks and naked lights are kept away from the engine compartment.
- Wear protective clothing, including, where practicable, gloves made from an impervious material.
- Remove metal wrist bands and jewellery before working in the engine compartment.
- DO NOT allow tools or metal parts of the car to make contact with the battery leads or terminals.

Poisonous fluids

Fluids used in motor vehicles are poisonous and should not be consumed or brought into contact with open wounds. These include; battery acid, anti-freeze, brake and power steering fluid, petrol, diesel, engine oil and windscreen washer additives.

For your own safety, ALWAYS read and obey all instructions printed on labels and containers.

Used engine oil

Prolonged contact with engine oil may cause serious skin disorders, including dermatitis and cancer of the skin. ALWAYS wash thoroughly after contact.




It is illegal to pollute drains, water courses or soil. Use authorised waste disposal sites to dispose of used oil and toxic chemicals.

Maintenance

EMISSION CONTROL

Your vehicle is fitted with various items of emission and evaporative control equipment designed to meet specific territorial requirements. You should be aware that unauthorised replacement, modification or tampering with this equipment by an owner or repair shop may be unlawful and subject to legal penalties.

In addition, engine settings must not be tampered with. These have been established to ensure that your vehicle complies with stringent exhaust emission regulations. Incorrect engine settings may adversely affect exhaust emissions, engine performance and fuel consumption, as well as causing high temperatures, which will result in damage to the catalytic converter and the vehicle.

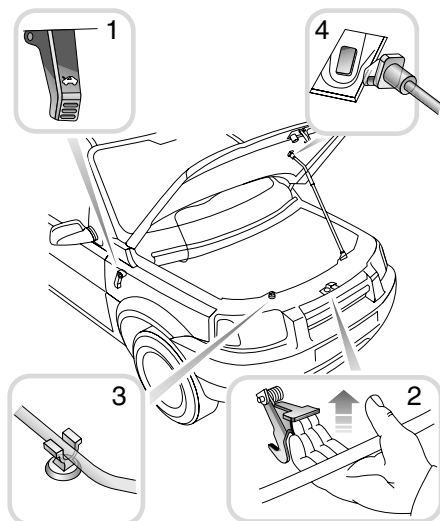
 ***Under no circumstances should any part of the fuel system be dismantled or replaced by anyone other than a suitably qualified motor vehicle technician. Failure to comply with this instruction may result in fuel spillage with a consequent serious risk of fire.***

ROAD TESTING DYNAMOMETERS (‘rolling roads’)

Because your vehicle is equipped with anti-lock brakes and permanent four-wheel drive, it is essential that any dynamometer testing is carried out **ONLY** by a qualified person familiar with the dynamometer testing and safety procedures practiced by Land Rover dealers. Contact your Land Rover dealer for further information.

Bonnet Opening

BONNET OPENING



H3450

1. From inside the vehicle on the right hand side, pull the bonnet release handle (see illustration).
2. Lift the bonnet safety catch lever and raise the bonnet.
3. Unclip the bonnet support stay.
4. Fit the support stay into the cut-out in the underside of the bonnet.

Closing the bonnet

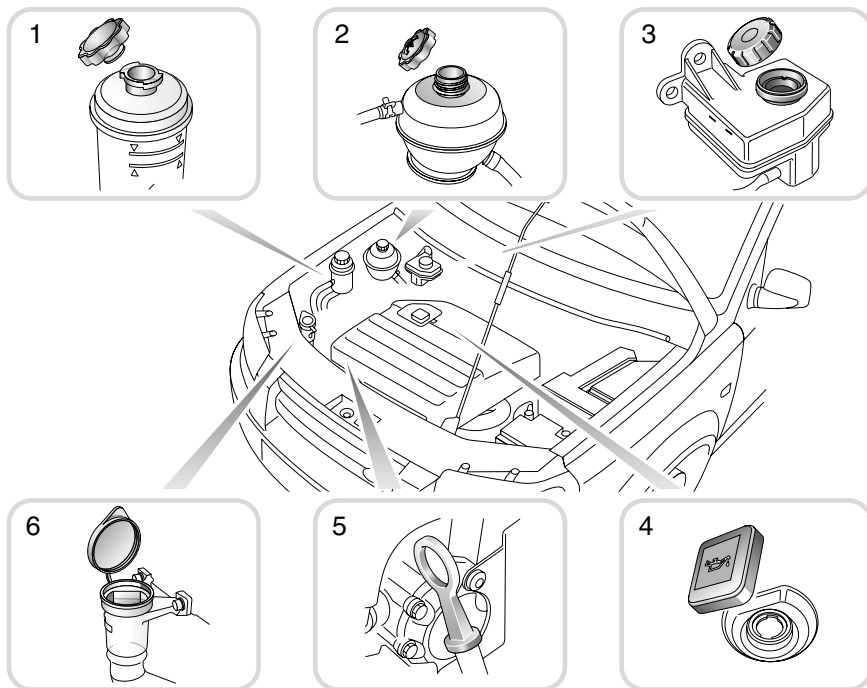
! ***DO NOT drive with the bonnet retained by the safety catch alone.***

Replace the support stay in its retaining clip, then lower the bonnet, allowing it to drop for the last 12 inches (30 cm) approx.

After closing the bonnet, check that the lock is fully engaged by attempting to lift the front edge of the bonnet. This should be free from all movement.

Engine Compartment

2.0 DIESEL ENGINE



H3451

1. Power steering reservoir.
2. Cooling system reservoir.
3. Brake fluid reservoir.

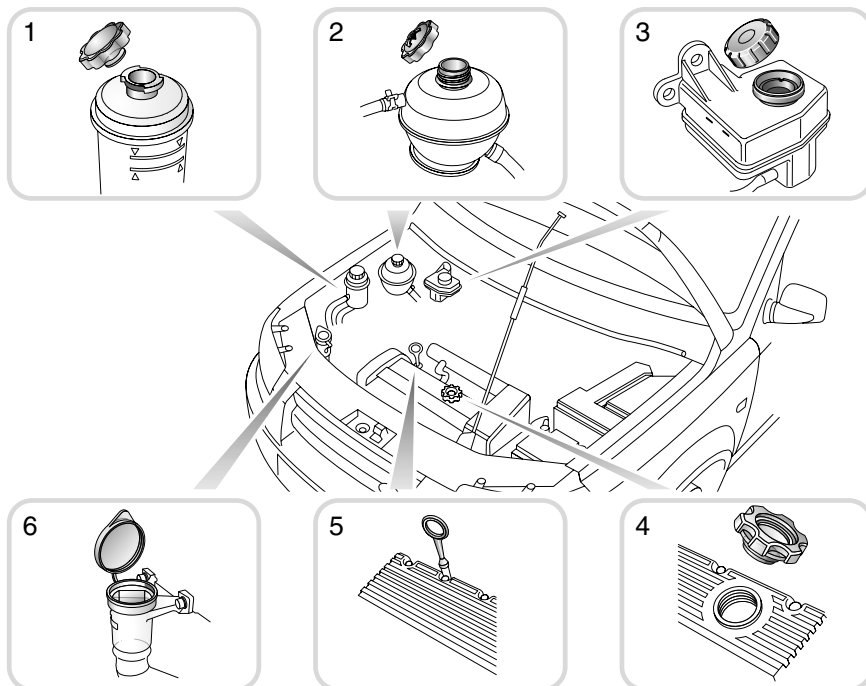
4. Engine oil filler cap.
5. Engine oil dipstick (yellow).
6. Washer reservoir.



While working in the engine compartment, ALWAYS observe the safety precautions listed under 'SAFETY IN THE GARAGE', page 139.

Engine Compartment

1.8 PETROL ENGINE



H3452

1. Power steering reservoir.
2. Cooling system reservoir.
3. Brake fluid reservoir.

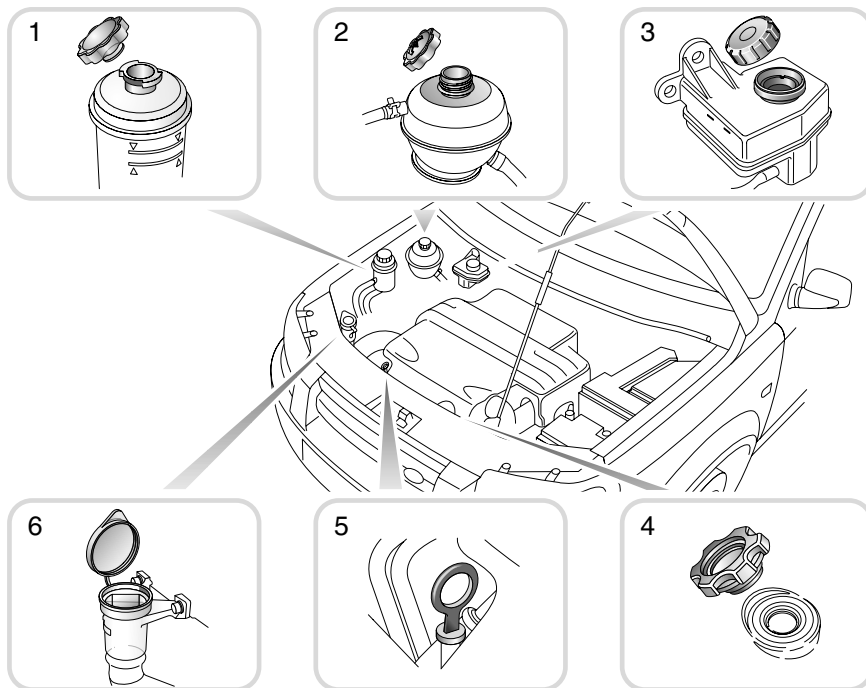
4. Engine oil filler cap.
5. Engine oil dipstick.
6. Washer reservoir.



While working in the engine compartment, ALWAYS observe the safety precautions listed under 'SAFETY IN THE GARAGE', page 139'.

Engine Compartment

2.5 PETROL ENGINE



H3453

1. Power steering reservoir.
2. Cooling system reservoir.
3. Brake fluid reservoir.

4. Engine oil filler cap.
5. Engine oil dipstick.
6. Washer reservoir.



While working in the engine compartment, ALWAYS observe the safety precautions listed under 'SAFETY IN THE GARAGE', page 139.

Engine

ENGINE OIL

Check the oil level weekly, or every 250 miles (400 km). Ideally the oil level should be checked with the engine cold and the vehicle resting on level ground. If the engine is already warm, then wait for at least two minutes after switching off before checking the level.

NOTE: *Check the engine oil more frequently if the vehicle is driven at high speeds for prolonged periods.*

Oil specification

Petrol engines: 10W/40 engine oil meeting ACEA A2.

Diesel engines: 10W/40 or 15W/40 engine oil meeting both ACEA A3 and ACEA B3 specifications.

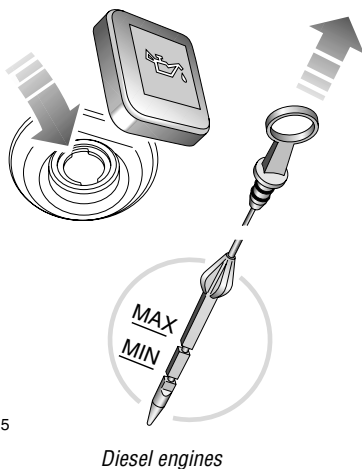
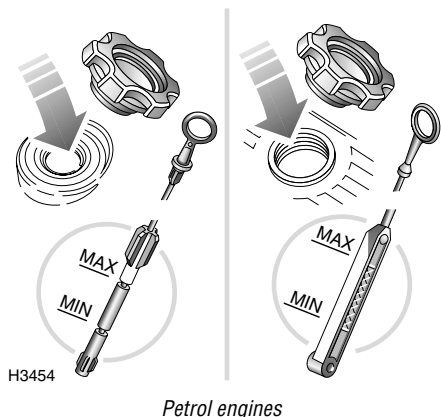
NOTE: *Mixing oil additives with the engine oil is not recommended and could damage the engine.*

Oils manufactured to the above specifications are suitable for use in temperatures between -20°C to +30°C (if ambient temperature falls outside these limits, seek advice from your dealer).

Engine

Oil level check & top-up

! *Take care to avoid spilling engine oil onto a hot engine - a fire may result!*



3. To top-up, remove the oil filler cap and add oil to maintain a level between the upper and lower marks on the dipstick. As a general guide, if the level on the dipstick is:

- nearer to the upper mark than the lower, add no oil.
- nearer to the lower mark than the upper, add half a litre of oil.
- at or below the lower mark, add one litre of oil.

! *Driving the vehicle with the engine oil level ABOVE the upper mark, or BELOW the lower mark on the dipstick, will damage the engine.*

4. Wait for five minutes and then recheck the level, adding more oil if necessary - DO NOT OVERFILL!
5. Finally, ensure the dipstick and filler cap are replaced.

NOTE: *If oil consumption seems excessive, check the system for leaks and contact your dealer.*

1. Withdraw the dipstick and wipe the blade clean.
2. Slowly insert the dipstick and withdraw again to check the level, which should NEVER be allowed to fall below the lower mark on the dipstick.

Cooling System

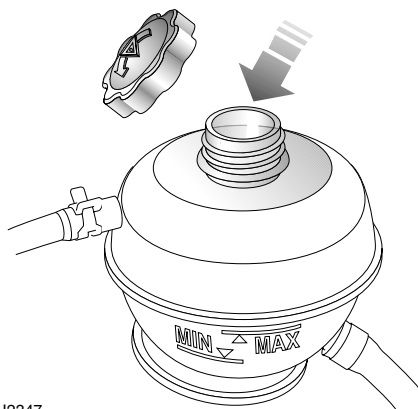
COOLANT CHECK & TOP-UP

The coolant level in the expansion tank should be checked at least weekly (more frequently in high mileage or arduous operating conditions). Always check the level WHEN THE SYSTEM IS COLD and with the vehicle resting on level ground.

! NEVER remove the filler cap when the engine is hot - escaping steam or scalding water could cause serious personal injury.

If it is necessary to remove the filler cap before the system has fully cooled, loosen the cap slowly, allowing the air pressure to escape gradually.

NOTE: Anti-freeze will damage painted surfaces: Soak up any spillage with an absorbent cloth immediately and wash the area with a mixture of car shampoo and water.



H2347

Top-up with a 50% mixture of anti-freeze and water (see 'Coolant specification', page 148) so that the surface of the coolant is level with the 'MAX' indicator on the side of the tank.

! Take care not to spill anti-freeze onto a hot engine - a fire may result.

NOTE: DO NOT add rust inhibitors or other additives to the coolant - these may not be compatible with the coolant or engine components.

If the coolant level has fallen appreciably, suspect leakage or overheating and arrange for your dealer to examine the vehicle.

! DO NOT overfill the reservoir and NEVER run the engine without coolant.

If the cooling system is to be topped-up before the vehicle is to be left undriven over the winter, mix the anti-freeze and water together thoroughly BEFORE adding it to the cooling system.

Ensure the cap is tightened fully after top-up is completed.

Cooling System

ANTI-FREEZE

⚠ *Anti-freeze is poisonous and can be fatal if swallowed - keep containers sealed and out of the reach of children. If accidental consumption is suspected, seek medical attention immediately.*

⚠ *Prevent anti-freeze coming in contact with the skin or eyes. If this occurs, rinse immediately with plenty of water.*

Anti-freeze contains important corrosion inhibitors. The anti-freeze content of the coolant must be maintained between 50% and 60% all year round (not just in cold conditions). To ensure that the anti-corrosion properties of the coolant are retained, the anti-freeze content should be checked once a year (regardless of mileage) and completely renewed every 3 years or 36,000 miles (60,000 km), whichever is the sooner. Failure to do so may cause corrosion of the radiator and engine components.

The specific gravity of a 50% anti-freeze solution at 20°C (68°F) is 1.075 and protects against frost down to -36°C (-33°F).

Coolant specification

Use ONLY Havolene Extended Life Coolant (XLC) or any ethylene glycol based anti-freeze (containing no methanol) with only Organic Acid Technology (OAT) corrosion inhibitors.

In an emergency - and only if this type of anti-freeze is unavailable - top-up the cooling system with clean water, but be aware of the resultant reduction in frost protection. DO NOT top-up or refill with conventional anti-freeze formulations. If in doubt consult a Land Rover dealer.

Brakes

BRAKE FLUID

! *Brake fluid is highly toxic - keep containers sealed and out of the reach of children. If accidental consumption of fluid is suspected, seek medical attention immediately.*

! *If brake fluid should come into contact with the skin or eyes, rinse immediately with plenty of water.*

IMPORTANT

Brake fluid must be completely renewed every 36,000 miles (60,000 km) or 36 months, whichever is the sooner.

Check

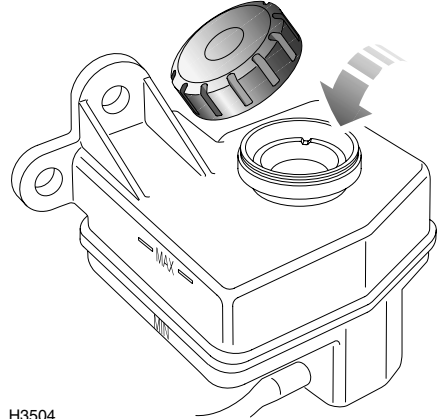
The fluid level may fall slightly during normal use as a result of brake pad wear but should not be allowed to fall below the 'MIN' mark. If there is any appreciable drop in level over a short period, consult your dealer. **DO NOT drive if the fluid level is below the minimum mark on the reservoir.**

! *Contact your dealer immediately if brake pedal travel is unusually long or if there is any appreciable drop in brake fluid level.*

With the vehicle on level ground, check the fluid level at least every week (more frequently in high mileage or arduous operating conditions). Check the level visually through the side of the transparent reservoir without removing the filler cap.

Top-up

! *Take care not to spill fluid onto a hot engine - a fire may result.*



H3504

Wipe the filler cap clean before removing, to prevent dirt from entering the reservoir. Unscrew the cap and top-up the reservoir to the 'MAX' mark using a recommended fluid.

Use only new fluid from an airtight container (old fluid from opened containers or fluid previously bled from the system will have absorbed moisture, which will adversely affect performance, and must NOT be used). **DO NOT OVERFILL!**

NOTE: *Brake fluid will damage painted surfaces: Soak up any spillage with an absorbent cloth immediately and wash the area with a mixture of car shampoo and water.*

Brake fluid specification

Only use Shell Donax YB DOT 4 brake fluid or, if this is unavailable, use a brake fluid of the same specification.

Power Steering

POWER STEERING FLUID

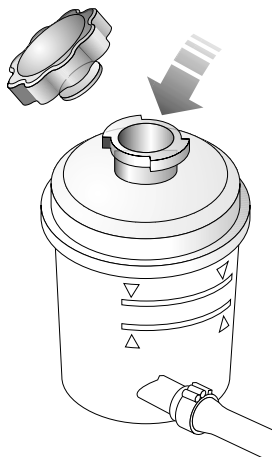
! *Power steering fluid is highly toxic - keep containers sealed and out of reach of children. If accidental consumption of fluid is suspected, seek medical attention immediately.*

! *If power steering fluid should come into contact with the skin or eyes, rinse immediately with plenty of water.*

Check and Top-up

Check and top-up the fluid level **ONLY** when the engine is cold. You should also ensure that the front wheels are in the straight ahead position before stopping the engine and checking the fluid level.

! *Take care not to spill power steering fluid onto a hot engine - a fire may result.*



H2346

Check the fluid level against the marks on the side of the reservoir.

If more fluid is needed, first wipe the filler cap clean to prevent dirt from entering the reservoir, then twist the cap a quarter turn anti-clockwise and pull to remove.

Top up the reservoir to the upper level mark using a recommended fluid. **DO NOT OVERFILL!**

NOTE: *Power steering fluid will damage painted surfaces: Soak up any spillage with an absorbent cloth immediately and wash the area with a mixture of car shampoo and water.*

Emergency operation

Any large or sudden drop in the fluid level must be investigated by a qualified dealer.

If it can be established that fluid loss is slow, then the reservoir may be topped-up to the upper level mark to enable the vehicle to be driven to the nearest qualified dealer for examination.

If the fluid level has dropped below the lower level mark, top-up the reservoir before starting the engine, or damage to the steering pump could result.

Fluid specification

Only use fluids to Dexron IID or III specification.

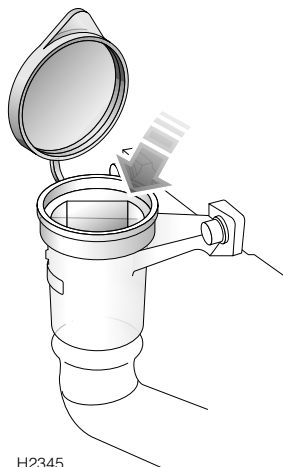
Oils manufactured to the above specifications are suitable for use in temperatures between -20°C to +30°C (if climatic temperature falls outside these limits, seek advice from your dealer).

NOTE: *The colour of commercially available fluids may differ from that of the power steering fluid used to fill the system during manufacture. This is not cause for concern.*

Washers

WINDSCREEN WASHERS

Fluid top-up



H2345

The windscreen washer reservoir supplies both front and rear screen washer jets.

Check the reservoir level at least every week and to prevent freezing in cold weather, top-up with a mixture of water and a recommended screenwash.

Preferably mix the recommended quantities of water and screenwash in a separate container before topping-up the system, and always follow the instructions on the screenwash container.

NOTE: DO NOT use an anti-freeze or vinegar/water solution in the washer reservoir - anti-freeze will damage painted surfaces, while vinegar can damage the windscreen washer pump.

Screenwash

Use Land Rover Parts STC8249 screenwash, or any good quality proprietary screenwash.

! Some screenwash products are inflammable, particularly if high or undiluted concentrations are exposed to sparking. Do not allow screenwash to come into contact with naked flames or sources of ignition.

! Body panels may suffer discoloration as a result of screenwash spillage. Take care to avoid spillage, particularly if an undiluted or high concentration of screenwash is being used. If spillage occurs, wash the affected area immediately with water.

Washer jets

Operate the washer switches periodically to check that the nozzles are clear and properly directed.

The windscreen washer jets are set during manufacture and should not need adjusting. However, if adjustment is ever necessary, insert a needle into the jet orifice and lever gently to position each jet so that the spray is directed towards the centre of the windscreen.

Should a windscreen washer jet become obstructed, insert a needle or thin strand of wire into the orifice to clear the blockage.

NOTE: The rear screen washer jet is integral with the wiper arm and requires no adjustment.

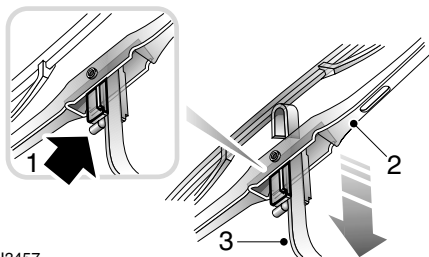
Wiper Blades

WIPER BLADE REPLACEMENT

IMPORTANT

- Grease, silicone and petrol based products impair the blade's wiping capability. Wash the wiper blades in warm soapy water and periodically check their condition.
- If signs of hardness or cracking in the rubber are found, or if the wipers leave streaks or unwiped areas on the windscreen during use, then the wiper blades should be replaced.
- Clean the windscreen regularly with an approved glass cleaner and ensure the screen is thoroughly cleaned before fitting replacement wiper blades.

Front wiper blades



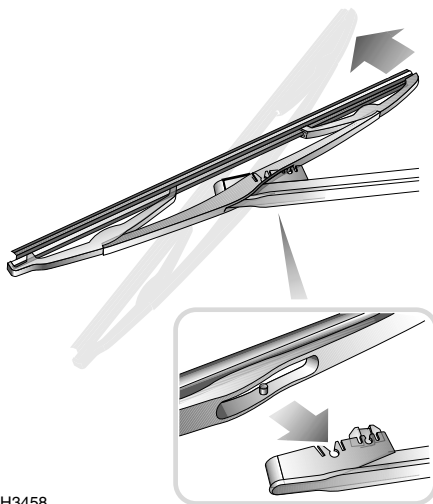
H3457

Lift the wiper arm away from the windscreen. With the blade at 90° to the arm as shown, disconnect the blade by pushing in the locking tab (1) and sliding the blade (2) down the arm (3).

Fitting a replacement blade is a reversal of this process; position the new blade assembly on the wiper arm and slide the blade fully towards the hooked end of the arm until it locks in place. Check that the blade is securely locked before returning the wiper assembly to the windscreen.

Only fit replacement wiper blades that are identical to the original specification.

Rear wiper blades



H3458

Lift the wiper arm away from the rear screen, as far as the spare wheel carrier will allow. Pivot the blade assembly away from the arm (as arrowed), levering against resistance, until the two retaining lugs detach from their slots at the end of the arm. Carefully replace the arm to its stowed position.

To replace, position the wiper arm into the aperture in the middle of the blade assembly, line up the retaining lugs with the corresponding slots in the wiper arm and push firmly into position until the blade clips into place.

Battery

BATTERY SAFETY

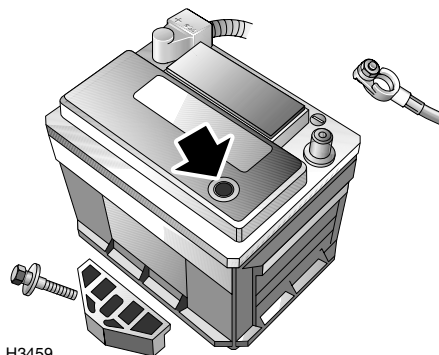
! *Batteries contain sulphuric acid, which is both corrosive and poisonous. If spillage occurs:*

- *On clothing or the skin - remove any contaminated clothing immediately, flush the skin with large amounts of water, and seek medical attention urgently.*
- *In the eyes - flush with clean water immediately for at least 15 minutes. Seek medical attention urgently.*
- *Swallowing battery acid can be fatal unless IMMEDIATE action is taken - seek medical attention urgently.*

! *During normal operation batteries emit explosive hydrogen gas - ensure sparks and naked lights are kept away from the engine compartment.*

! *For your safety, remove all metal wrist bands and jewellery before working in the engine compartment and NEVER allow the battery terminals or vehicle leads to make contact with tools or metal parts of the vehicle.*

BATTERY MAINTENANCE



The battery is designed to be maintenance free, so topping-up is unnecessary. On the top of the battery there is a battery condition indicator (arrowed in illustration). Examine the indicator periodically to check the battery's condition. When the indicator shows:

- GREEN - the battery is in a good state of charge.
- DARK (turning to black) - the battery needs charging.
- CLEAR (or light yellow) - the battery must be replaced. Do not charge the battery or push start the vehicle in this condition.

If the green dot is missing the battery needs charging.

NOTE: *If necessary, clean the battery top to ensure a clear view. Use a torch if natural light is poor.*

If the indicator shows clear or yellow, tap the indicator with the handle of a screwdriver to disperse any air bubbles. If the colour is unchanged, the battery must be replaced.

Battery

Battery removal and replacement

IMPORTANT

- Do not reverse the polarity of the battery - the electrical system may be damaged if the battery leads are connected to the wrong terminals.
- DO NOT run the engine with the battery disconnected, or disconnect the battery while the engine is running.
- Keep the battery upright at all times - damage will be caused if the battery is tilted more than 45 degrees.

Before disconnecting the battery, disarm the alarm, and ensure that the starter switch and all electrical equipment is turned off.

To remove: disconnect the negative ('-') cable first and then the positive ('+') cable. When reconnecting, connect the positive cable first and then the negative cable. Do not allow the battery terminals to make contact with metal parts of the vehicle.

To release the battery from the vehicle, undo the bolt and remove the battery clamping plate (see illustration).

When replacing, ensure the battery is fitted the right way round (terminal posts towards the rear of the vehicle) and that the clamping plate is secure. Tighten the clamping plate bolt until the clamping plate is free from movement, but do not overtighten.

Battery disposal



Used batteries should be recycled. However, batteries are hazardous - you should seek advice about disposal from a Land Rover dealer or your local authority.

Replacement batteries

Only fit a replacement battery of the same type and specification as the original - other batteries may vary in size or have different terminal positions which could cause a fire hazard when connected to the vehicle's electrical system.

Battery charging

! DO NOT charge the battery if it is connected to the vehicle - this may seriously damage the vehicle's electrical system.

! DO NOT charge the battery if it is suspected of being frozen.

As the battery ages, it may not retain its charge as effectively as when it was new. Vehicles that are used infrequently, or are used excessively for short journey motoring, or operation in cold climates, may need the battery to be charged regularly.

Always check the battery condition indicator before charging.

Batteries generate explosive gases, contain corrosive acid and produce levels of electric current sufficient to cause serious injury. While charging, always heed the following precautions:

- Before charging, disconnect and remove the battery from the vehicle.
- Make sure the battery charger leads are securely clamped to the battery terminals BEFORE switching on the battery charger. Do not move the leads once the charger is switched on.
- While charging, shield your eyes, or avoid leaning over the battery.
- Keep the area around the top of the battery well ventilated.

Battery

- Do not allow naked lights near the battery (batteries generate inflammable hydrogen during and after charging).
- The battery will be charged sufficiently once the battery condition indicator shows GREEN. When charging is finished, switch off the battery charger BEFORE disconnecting the leads from the battery terminals.

NOTE: *The battery will take longer to charge in a cold environment.*

After charging, leave the battery for one hour before reconnection to the vehicle - this will allow time for explosive gases to disperse, thereby minimising the risk of fire or explosion.

THE EFFECTS OF BATTERY DISCONNECTION

Some of the vehicle's electrical systems will be affected if the battery is disconnected. These are listed below, together with the symptoms you might experience once the battery is reconnected and the actions required to restore operation.

Radio/cassette player

The word 'CODE' will appear in the display and the set will fail to operate. To restore operation, enter the security code using the procedure described in the '*In-car Entertainment*' book.

Taildoor glass

If the battery has been disconnected, the taildoor glass will need to be recalibrated. If the alarm was armed when the battery was disconnected (or discharged), disarm the alarm after battery reconnection - the taildoor glass will fully lower. This will happen automatically if the alarm was in a disarmed state when the battery was disconnected.

After battery reconnection, fully raise the taildoor glass (if the glass is not fully raised, an error 'beep' will sound) - the taildoor glass is now recalibrated.

Alarm system


The alarm system will automatically reset to the status in operation prior to battery disconnection, but the handset will need to be resynchronised (see '*Handset resynchronisation*', page 18).

Clock

The clock will need to be reset to the correct time, see '*CLOCK*', page 60.

Tyres

CARING FOR YOUR TYRES

 **DEFECTIVE TYRES ARE DANGEROUS!**
Do not drive if any tyre is damaged, is excessively worn, or is inflated to an incorrect pressure.

Always drive with consideration for the condition of the tyres, and regularly inspect the tread and side walls for any sign of distortion (bulges), cuts or wear.

The most common causes of tyre failure are:

- Bumping against kerbs
- Driving over deep potholes in the road
- Driving with under or over-inflated tyres

NOTE: *If possible, protect tyres from contamination by oil, grease, fuel and other automotive fluids.*

Tyre pressures

Correctly inflated tyres will ensure that you enjoy the best combination of tyre life, ride comfort, fuel economy and road handling.

Under-inflated tyres wear more rapidly, can seriously affect the vehicle's road handling characteristics and fuel consumption, as well as increasing the risk of tyre failure.


Over-inflated tyres give a harsher ride, wear unevenly and are more prone to damage.

Tyre pressures should be checked at least once a week with normal road use, but should be checked DAILY if the vehicle is used off-road.

Check the pressures (including the spare wheel) when the tyres are cold - be aware that it only takes a mile (1.6 km) of driving to warm up the tyres sufficiently to affect the tyre pressures.

NOTE: *The spare tyre pressure on vehicles fitted with steel wheels can be checked through the aperture in the wheel cover (provided the wheel is correctly positioned on the carrier).*

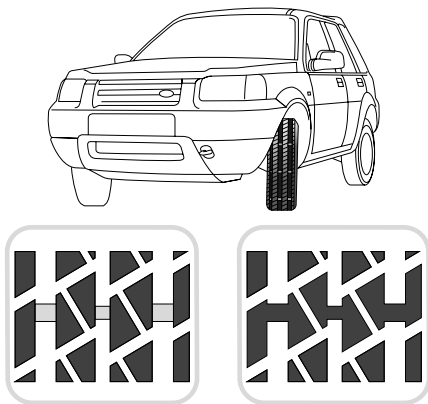
Air pressure naturally increases in warm tyres; if it is necessary to check the tyres when they are warm (after the car has been driven for a while), you should expect the pressures to have increased between 4 and 6 lbf/in² (0.3 and 0.4 bar). In this circumstance, DO NOT let air out of the tyres in order to match the recommended pressures.

 ***If the vehicle has been parked in strong sunlight or used in high ambient temperatures, DO NOT reduce tyre pressures; instead, move the vehicle into the shade and allow the tyres to cool before checking.***

The recommended pressures for cold tyres are shown in 'TYRE PRESSURES', page 195.

Tyres

Tyre wear



H3460

The tyres fitted as original equipment to your vehicle have wear indicators moulded into the tread pattern. When the tread has worn down to 1.6 mm (1/16 inch) the indicators start appearing at the surface of the tread pattern, producing the effect of a continuous band of rubber across the width of the tyre.

A tyre **MUST** be replaced as soon as an indicator band becomes visible or the tread depth reaches the minimum permitted by legislation.

NOTE: If tyre wear is uneven (on one side of the tyre only) or becomes abnormally excessive, the wheel alignment should be checked by your dealer.

Tread depth must be checked regularly (at every maintenance service, or more frequently). Always replace a tyre before the tread reaches a remaining depth of 1.6 mm. **DO NOT** drive with tyres worn to this limit, the safety of the vehicle and occupants will be adversely affected.

NOTE: After off-road use, check to make sure there are no lumps or bulges in the tyres or exposure of the ply or cord structure.

Valves

Keep the valve caps screwed down firmly - they prevent dirt from entering the valve. Check the valve for leaks (listen for a tell-tale hissing) when you check the tyre pressure.

Punctured tyres

Your vehicle is fitted with tubeless tyres, which may not leak if penetrated by a sharp object, provided the object remains in the tyre. If you are aware of this occurring, reduce speed immediately and drive with caution until the spare wheel can be fitted.

A puncture of this kind will eventually cause the tyre to lose pressure, which is why regular (and frequent) checking of tyre pressures is important. Punctured or damaged tyres must be permanently repaired or replaced as soon as possible. **DO NOT DRIVE WITH A PUNCTURED TYRE!**


Tyres


Replacement tyres


Wheel rims and tyres are matched to suit the handling characteristics of the vehicle. For safety, ALWAYS check that replacement tyres comply with the original specification shown in 'WHEELS & TYRES', page 195, later in this handbook and that the load and speed ratings shown on the side wall are the same as that of the original equipment. Contact your Land Rover dealer for further information or assistance.

Ideally, tyres should be replaced as sets of four, but if this is not possible, replace the tyres as axle sets. When replacing tyres in axle sets, always fit the new tyres to the rear axle.

Always have the wheels and tyres re-balanced after replacing.

 ***ALWAYS use the same make and type of radial-ply tyres front and rear. DO NOT use cross-ply tyres, or interchange tyres from front to rear.***

 ***Your vehicle is fitted with road wheels that will NOT accept inner tubes. DO NOT fit a tubed tyre.***

 ***DO NOT replace wheels with any type other than genuine Land Rover parts. Wheels and tyres are designed for both off-road and on-road use and have a very important influence on vehicle handling. Alternative wheels which do not meet original equipment specifications should not be fitted.***

SNOW CHAINS

Snow chains are designed for use on metalled roads in extreme conditions only, and are not recommended for off-road use. If it is necessary to fit snow chains to your vehicle, ALWAYS observe the following:

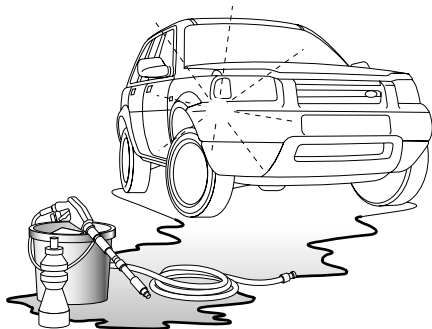
- Snow chains can only be fitted to vehicles equipped with 195/80 x 15 tyres.
- Whether chains are to be fitted to the front wheels only, or to all four wheels, then ONLY Land Rover approved chains should be used - these are designed for your vehicle and will eliminate any risk of damage to other components.
- Always adhere to the snow chain fitting and retensioning instructions, and the speed limitations recommended for varying road conditions. NEVER exceed 30 mph (50 km/h).
- Avoid tyre damage by removing the chains as soon as the road is free from snow.

For further information about approved snow chains, consult your Land Rover dealer.

 ***DO NOT fit unapproved snow chains to the front wheels - this could damage brake components.***

Cleaning & Vehicle Care

WASHING YOUR VEHICLE



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! *Some high pressure cleaning systems are sufficiently powerful to penetrate door and window seals and damage rubbing strips and locking mechanisms. Never aim the water jet directly at heater air intakes, body and sunroof seals, the softback canopy, or at any components that might easily be damaged.*

If the vehicle is particularly dirty, use a hose to flush grime and grit from the painted surfaces, prior to washing. Then, wash the vehicle using cold or lukewarm water containing a good quality wash and wax shampoo. Always use plenty of water to ensure that grit is flushed from the surface and not ground into the paintwork. After washing, rinse the vehicle with clean water and dry off with a chamois leather.

- Do not use hot water!
- Do not use detergent soap products or washing-up liquid!
- In hot weather, do not wash the vehicle in direct sunlight.

When using a hose, do not direct the jet into the heater air intake ducts, or through the wheel trim apertures onto the brake components, or at the door, window or sunroof seals, or at the soft-back canopy* where water pressure could penetrate the seals.

Automatic car wash

If using an automatic car wash (5-door models), remove the radio aerial before entering the car wash.

NOTE: *DO NOT wash a 3-door model in an automatic car wash.*

Removing tar spots

Use white spirit to remove tar spots and stubborn grease stains from paintwork. Then wash immediately with soapy water to remove all traces of spirit.

Underbody maintenance

Corrosive materials used for snow and ice removal and dust control can collect on underbody parts. If these materials are not removed, accelerated rusting can occur. Use a hose to regularly flush the underbody with plain water, taking particular care to thoroughly clean those areas where mud and other debris can easily collect.

Similarly, after off-road driving or wading in muddy or salt water conditions, use a hose to wash underbody components and other exposed parts of the vehicle.

Engine compartment

The engine compartment must only be cleaned by steam cleaning.

! *DO NOT use a high pressure hose to clean the engine compartment - damage to the vehicle's electronic systems may occur.*

Steam cleaning


Before steam cleaning the engine compartment, cover the power steering reservoir to prevent contamination of fluid. After steam cleaning carefully re-wax the metallic components, especially the steering column, engine coolant pipes, hose clips and the ignition coil clamp, to prevent corrosion.

Cleaning & Vehicle Care

Softback canopy and hardback

- Use a soft brush to remove dust and flaking dirt from the canopy or hardback (not the windows), then soak with a mild soap and water solution to soften encrusted dirt and remove stains, prior to washing.
- Wash using a mild soap and water solution, before rinsing the canopy or hardback with clean lukewarm or cold water. Rinse until all traces of soap are removed.
- Never use spirit, petrol or chlorine based cleaning agents, or wash/wax compounds to clean the canopy, hardback and windows - wax polishes will become ingrained in the textured finish.
- Never use an automatic car wash, or a high pressure hose.
- Do not aim jets of water at zips or seals.
- Ensure the canopy is dry before folding or removing.
- Improper cleaning and lack of care may cause damage to the canopy and window panels, resulting in water penetration.

Softback or hardback windows

 ***DO NOT use abrasive or solvent cleaners on the canopy or hardback and especially NOT on the window panels. Use only mild detergents.***

- Wipe off any dust or dirt using a damp soft cloth.
- DO NOT wipe the window panels when they are dry.
- Wash the windows with a clean, grit-free sponge or cloth and a mixture of a mild dishwashing detergent and cold or lukewarm water. Rinse the window panels thoroughly and wipe with a soft moist cloth.

NOTE: *The removable window panels fitted to the softback, are susceptible to scratching from the effects of dirt and grit. For this reason, it is important to wash them frequently.*

- Remove frost, ice and snow using lukewarm water - do not use a scraper. Take care when clearing ice or snow from the window panels, as they are easily scratched and could crack at low temperatures.
- Do not put adhesive backed material (badges, stickers etc) onto the window panels - this may result in damage and discolouration.

Body protection

After washing, inspect the paintwork for damage. Any stone chips, fractures or deep scratches in the bodywork should be repaired promptly. Bare metal will corrode quickly and can develop into major repair expense.

Minor chips and scratches can be repaired with touch-up materials available from your dealer. Larger areas of damage need to be corrected to professional standards immediately.

Cleaning & Vehicle Care

Polishing

Occasionally treat the paint surface with an approved polish containing the following properties:

- Very mild abrasives to remove surface contamination without removing or damaging the paint.
- Filling compounds that will fill scratches and reduce their visibility.
- Wax to provide a protective coating between the paint and the elements.

NOTE: *DO NOT apply wax polish to the Targa roof panels*, or to the bumper mouldings - polish will become ingrained in the textured finished.*

Windows and mirrors

Regularly clean all windows and mirrors, inside and out, using an approved glass cleaner.

Windscreen: In particular, clean the outside of the screen with glass cleaner after washing the vehicle with wash and wax products, and before fitting new wiper blades.

Rear screen: Clean the inside with a soft cloth, using a side to side motion to avoid damaging the heating elements. DO NOT scrape the glass or use abrasive cleaners - this will damage the heating elements.

Mirrors: Wash with soapy water. Use a plastic scraper to remove ice. DO NOT use abrasive cleaners or metal scrapers.

Wiper blades

Wash in warm soapy water. DO NOT use spirit or petrol based cleaners.

CLEANING THE INTERIOR

RECOMMENDED CARE PRODUCTS (Available in the UK)	
De icer	STC 717
Alloy wheel cleaner	STC 718
Glass cleaner	STC 719
Bumper cleaner	STC 721
Shampoo	STC 722
Wax polish	STC 723
Screen wash	STC 8249

Plastic materials

Clean plastic-faced or cloth covered surfaces with diluted upholstery cleaner and wipe with a clean cloth.

NOTE: *DO NOT polish fascia components - for safety, these should remain non-reflective.*

Leather

Leather seats, steering wheel and trim features should be cleaned with warm water and a non-detergent soap. Dry and polish the leather with a dry, lint-free cloth.

NOTE: *DO NOT use petrol, detergents, furniture creams or polishes!*

Carpet and fabrics

Clean with diluted nylon upholstery cleaner - test a concealed area first.

Instrument pack, clock and radio

Use a clean cloth which has been moistened slightly with water.

 **Do not use chemicals or household cleaners. Keep fluids and liquids of all kinds away from the radio.**

Cleaning & Vehicle Care

Fascia mounted rubber mats

The mats are removable for cleaning - replace with care.

Seat belts

Extend the belts, then use warm water and a non-detergent soap to clean. Allow the belts to dry naturally, and do not retract them or use the vehicle until they are completely dry.



DO NOT use bleaches, dyes or cleaning solvents on seat belts.

Airbag module covers

To prevent airbag SRS damage, the steering wheel centre pad and area of the fascia panel containing the passenger airbag should ONLY be cleaned sparingly with a damp cloth and upholstery cleaner.

DO NOT allow these areas to be flooded with liquid, and DO NOT use petrol, detergent, furniture cream or polishes.

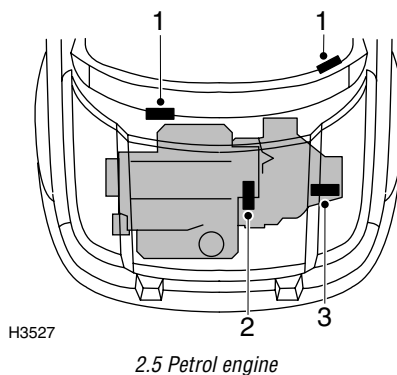
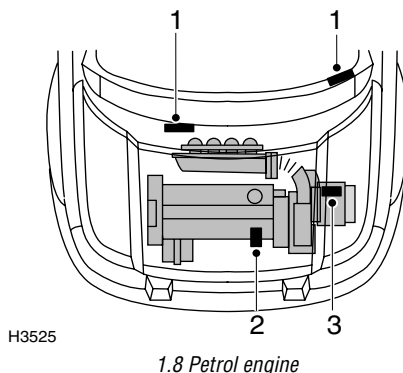
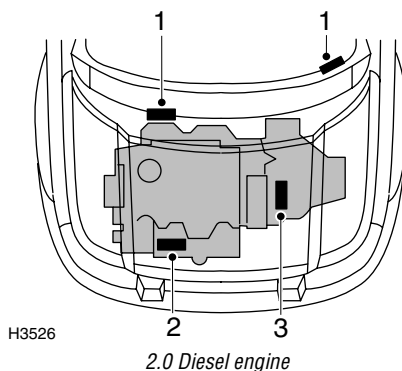
Identification Numbers

CONTACTING YOUR DEALER

When communicating with your dealer, always quote the Vehicle Identification Number (VIN). If your communication concerns the engine or gearbox, it may be necessary to quote these numbers as well.

IDENTIFICATION NUMBER LOCATIONS

1. Vehicle identification number (VIN)
2. Engine Number
2.0 diesel engine: Stamped horizontally into the flange between the engine casing and gearbox.
1.8 petrol engine: Stamped vertically into the centre front face of the cylinder block.
2.5 petrol engine: Stamped vertically into the right side of the cylinder block (when viewed from the front).
3. Gearbox number
On a label attached to the upper face of the gearbox housing.



Identification Numbers

VEHICLE IDENTIFICATION NUMBER

The VIN (and recommended maximum vehicle weights) is stamped on a plate at the foot of the left hand door pillar and also stamped into the bulkhead, at the top, inside the engine compartment. In addition, as a deterrent to car thieves and to help the police, the VIN is stamped into a plate, visible at the bottom left hand corner of the windscreen.

LAND ROVER GROUP LTD			
(A)			
(B)			
1- 2-	(C)	Kg	
	(D)	Kg	
	(E)	Kg	
	(F)	Kg	
PAINT		TRIM	
			LAND-ROVER

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- A. Type approval (where required)
- B. Vehicle Identification Number (VIN)
- C. Gross vehicle weight (where required)
- D. Gross train weight (where required)
- E. Maximum front axle load (where required)
- F. Maximum rear axle load (where required)

Parts & Accessories


PARTS AND ACCESSORIES

Your vehicle has been designed, built and tested to cope with a variety of off-road driving conditions, some of which can place the severest possible demands on control systems and components. As such, fitting replacement parts and accessories that have been developed and tested to the same stringent standards as the original components will safeguard the continued reliability, safety and performance of your vehicle.

To augment the vehicle's already impressive performance, a comprehensive range of Land Rover-approved spare parts and accessories is available, enabling the vehicle to fulfil a wide variety of roles, and enhancing and protecting the vehicle in the many tasks to which it can be applied.

Land Rover parts are the only parts built to original equipment specifications AND approved by Land Rover designers; this means that every single part and accessory has been rigorously tested by the same engineering team that designed and built the vehicle and can therefore be guaranteed for twelve months with unlimited mileage.

A full list and description of all accessories is available from your Land Rover dealer.

 ***The fitting of non-approved parts and accessories, or the carrying out of non-approved alterations or conversions, may be dangerous and could affect the safety of the vehicle and occupants, and also invalidate the terms and conditions of the vehicle warranty.***

Electrical equipment

It is extremely hazardous to fit parts or accessories where installation requires the dismantling of, or addition to, either the electrical or fuel systems. If an airbag SRS is fitted to your vehicle, it is recommended that you consult a Land Rover dealer before fitting any accessory.

After sales service

The After Sales Parts service is of paramount importance, both in the UK and across the world. In the UK there are over 100 authorised Land Rover dealers, all computer linked to speed the ordering of parts and accessories.

In addition, with worldwide franchised representation in over 100 countries, Land Rover are able to support your vehicle wherever you go.

Only Land Rover dealers are able to provide the full range of recommended parts and accessories that meet the rigorous, Land Rover standards of safety, durability and performance.

Travelling abroad

In some countries it is illegal to fit parts that do not conform to the vehicle manufacturer's specification. Owners should ensure that any parts or accessories fitted while travelling abroad, also conform to the legal requirements of their home country.

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