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, routine servicing and 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 the 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.

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

Brake fluid/component replacement

Brake fluid must be completely renewed every 24,000 miles (40,000 km) or 24 months, whichever is the sooner.

At 48,000 mile (80,000 km) intervals or every 4 years, whichever is the sooner, all hydraulic brake fluid, seals and flexible hoses should be renewed. All working surfaces of the calliper cylinders should be examined and the components renewed where necessary. Under arduous operating conditions, these intervals may need to be reduced. Please consult your Land Rover dealer.

Coolant replacement

The 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 coolant at the scheduled service.

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 - at least 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.
- Brake fluid level.
- Clutch fluid level.
- Power steering fluid level.
- Screen washer fluid level.
- Tyre pressures and condition.
- Operate air conditioning*.

The gearbox fluid level should only be checked by a qualified dealer, at the time of a routine service.

All fluid specifications and capacities are shown in *'LUBRICANTS AND FLUIDS', page 151*.

IMPORTANT INFORMATION

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.

SAFETY IN THE GARAGE

WARNING

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 10 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 and battery.
- 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 vehicle to make contact with the battery leads or terminals.

WARNING

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.

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.

EMISSION CONTROL

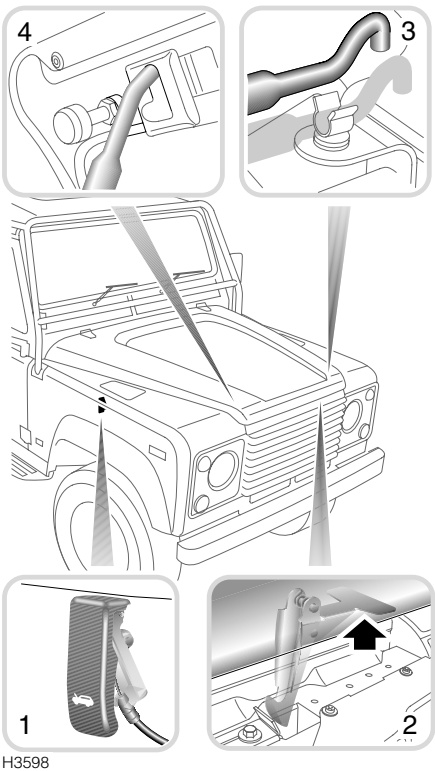
Your vehicle is fitted with various items of emission and evaporative control equipment designed to meet specific territorial requirements. You should be aware that unauthorised replacement, modification or tampering with this equipment by an owner or repair shop may be unlawful and subject to legal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

ROAD TESTING DYNAMOMETERS ('rolling roads')

Because your vehicle is equipped with 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 (Td5 models)



H3598

WARNING

Ensure the wipers are switched off and have returned to the parked position before opening the bonnet.

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. Release the bonnet support stay from the bonnet locking platform.
4. Fit the support stay into the slotted hole in the underside of the bonnet (see illustration).

NOTE: *On Tdi models the bonnet support stay is stowed on the underside of the bonnet, and slots into the corresponding circular hole in the bonnet locking platform.*

Closing the bonnet

WARNING

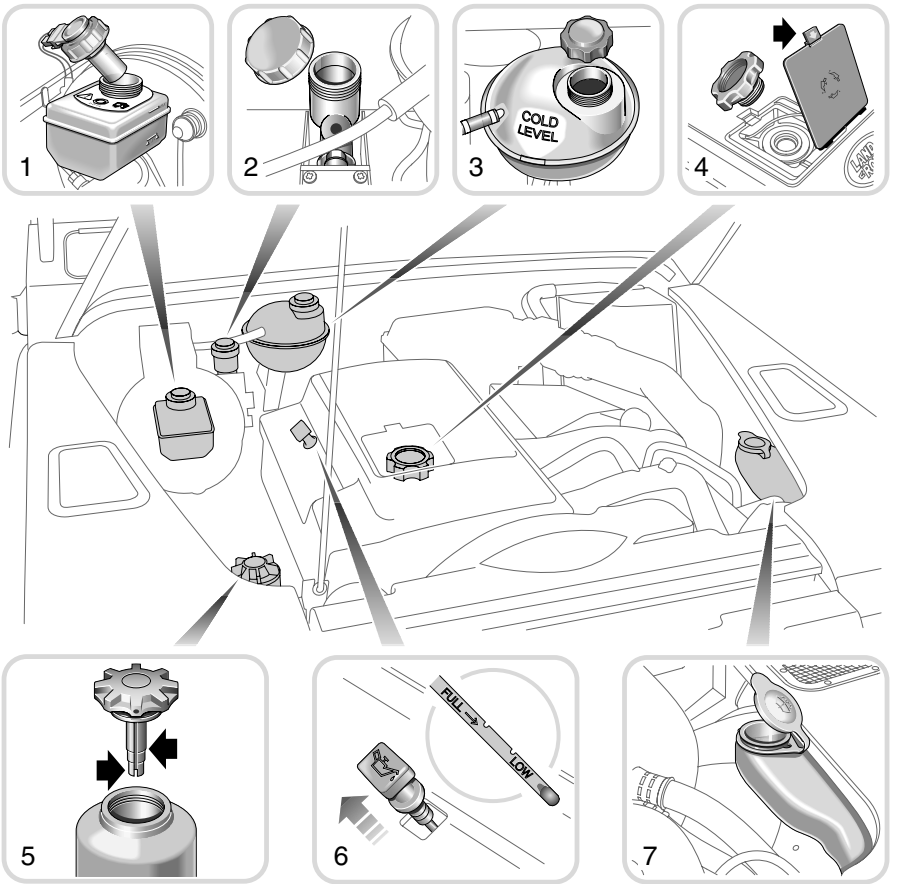
DO NOT drive with the bonnet retained by the safety catch alone.

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

Td5 DIESEL ENGINE



H3706

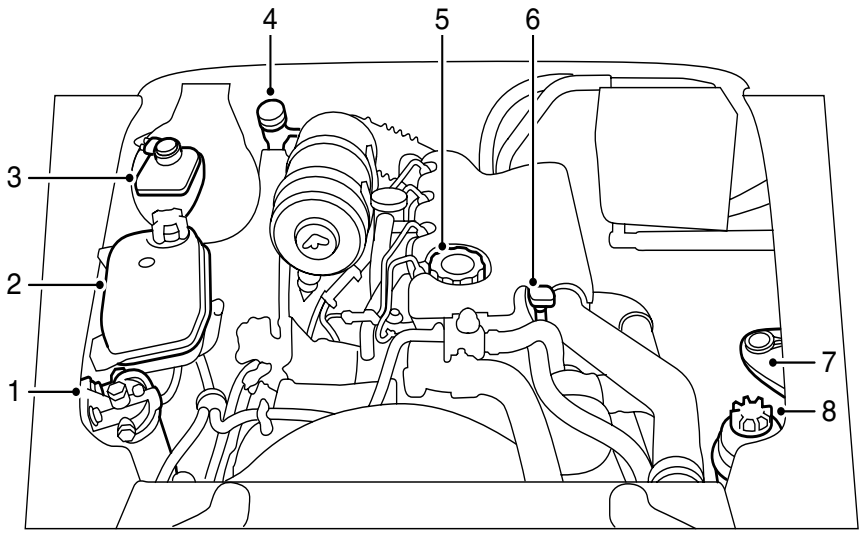
1. Brake fluid reservoir.
2. Clutch fluid reservoir.
3. Cooling system reservoir.
4. Engine oil filler cap.
5. Power steering reservoir.
6. Engine oil dipstick.
7. Washer reservoir.

WARNING

While working in the engine compartment, ALWAYS observe the safety precautions listed under 'Safety in the garage' on a previous page.

Engine Compartment

Tdi DIESEL ENGINE



H3766

1. Diesel fuel filter.
2. Cooling system reservoir.
3. Brake fluid reservoir.
4. Clutch fluid reservoir.
5. Engine oil filler cap.
6. Engine oil dipstick.
7. Washer reservoir.
8. Power steering reservoir.

WARNING

While working in the engine compartment, ALWAYS observe the safety precautions listed under 'Safety in the garage' on a previous page.

Engine Oil

CHECK & TOP-UP

WARNING

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

Check the oil level at least every 250 miles (400 km) when the engine is COLD and with the vehicle resting on level ground.

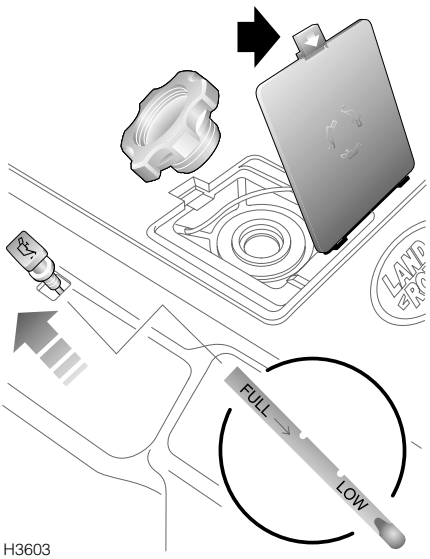
NOTE: *If it is necessary to check the oil level when the engine is hot, switch off the engine and let the vehicle stand for five minutes to allow the oil to drain back into the sump. DO NOT start the engine.*

As a general guide, if the level on the dipstick:

- is nearer to the upper mark than the lower, add no oil.
- is nearer to the lower mark than the upper, add half a litre of oil.
- is below the lower mark, add one litre of oil and re-check the level after a further five minutes.

WARNING

Driving the vehicle with the engine oil level above the upper mark, or below the lower mark on the dipstick, can damage the engine.



H3603

1. Withdraw the dipstick and wipe the blade clean.
2. Fully reinsert the dipstick and withdraw again to check the level, which should NEVER be allowed to fall below the lower mark on the dipstick.
3. Lift the release tab (arrowed) and remove the access flap.
4. To top-up, unscrew the oil filler cap and add oil to maintain the level between the UPPER and LOWER marks on the dipstick.

   DO NOT OVERFILL!

Oil specification

It is essential to use an oil suitable for the climatic conditions in which the vehicle is to be operated. Precise specifications are shown in *'LUBRICANTS AND FLUIDS', page 151*. If in doubt, contact your Land Rover dealer.

COOLANT CHECK AND TOP-UP

WARNING

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

Unscrew the filler cap slowly, allowing the pressure to escape before removing completely.

NEVER run the engine without coolant.

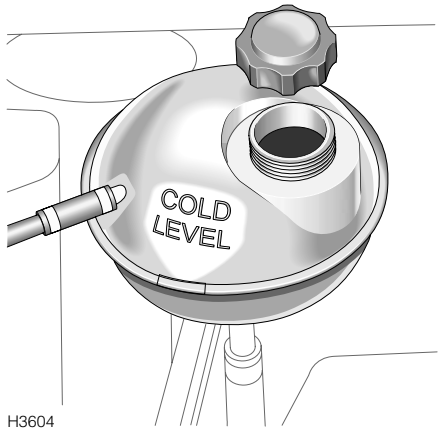
Anti-freeze will damage painted surfaces; soak up any spillage with an absorbent cloth immediately and wash the area with a mixture of car shampoo and water.

NEVER top-up with salt water. When travelling in territories where the water supply contains salt, always ensure you carry a supply of fresh (rain or distilled) water.

Avoid spilling anti-freeze onto a hot engine - a fire may result.

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.

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.



H3604

Top-up with a 50% mixture of anti-freeze and water so that the surface of the coolant is level with the indicator on the side of the tank (see illustration).

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

If the level has fallen appreciably, suspect leakage or overheating and arrange for your dealer to examine the vehicle. **DO NOT OVERFILL!**

ANTI-FREEZE

WARNING

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 at 50% ± 5% 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 and completely renewed every 36,000 miles (60,000 km) or 36 months, 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 a 50% mix of water and Havoline 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.

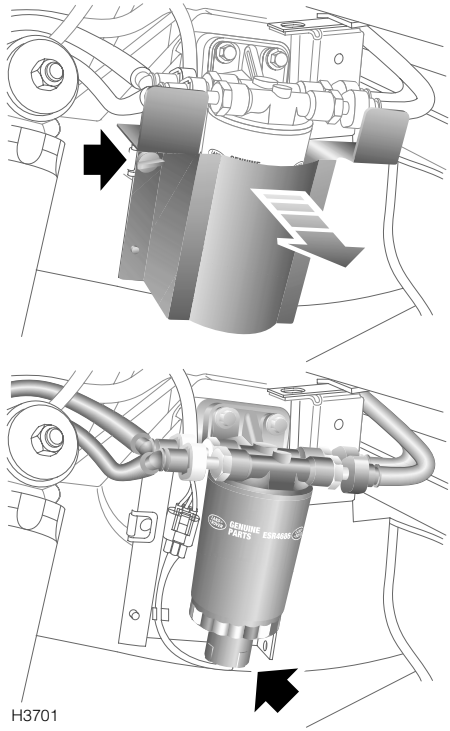
FUEL SEDIMENTER (Tdi engines)*

H3761

The fuel sedimenter is located at the front of the engine compartment.

To drain:
Slacken off the drain plug (arrowed in illustration), to allow any water to drain off. Retighten the plug as soon as pure diesel is emitted.

FUEL FILTER (Td5 engines)*



H3701

The fuel filter is located on the chassis side member, near the rear wheel. Twist the turnbuckle (arrowed in the upper illustration) through 90º to release the protective cover. Pull the cover forward to reveal the filter.

To drain:
Slacken off the drain plug (arrowed in the lower illustration) to allow any water to drain off. Retighten the plug as soon as pure diesel is emitted.

BRAKE FLUID

WARNING

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.

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

DO NOT drive the vehicle with the fluid level below the 'MIN' mark.

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.

Check

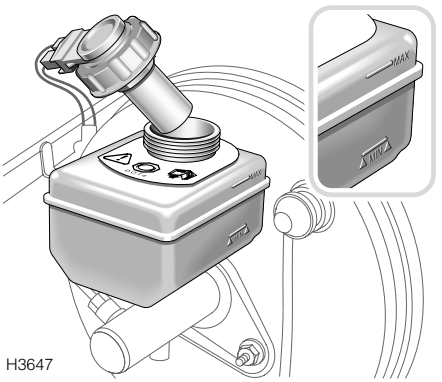
The fluid level may fall slightly during normal use as a result of brake pad wear but should not be allowed to fall below the 'MIN' mark. Any substantial drop in fluid indicates a leak in the system, in which case the vehicle must NOT be driven and you should contact your dealer.

WARNING

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



Wipe the filler cap clean before removing to prevent dirt from entering the reservoir. Unscrew the cap (1/8 turn) and top-up the reservoir to the 'MAX' mark using Shell Donax YB brake fluid conforming to DOT 4 specification.

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!**

Brake fluid must be completely renewed every 24,000 miles (40,000 km) or 24 months, whichever is the sooner.

CLUTCH FLUID

WARNING

Clutch 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 clutch fluid should come into contact with the skin or eyes, rinse immediately with plenty of water.

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

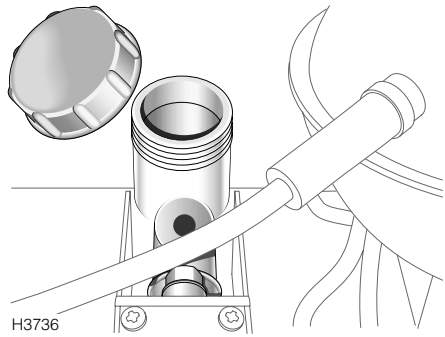
Clutch fluid will damage painted surfaces; soak up any spillage with an absorbent cloth immediately and wash the area with a mixture of car shampoo and water.

Check

With the vehicle on level ground, check the fluid level at least every week (more frequently in high mileage or arduous operating conditions).

Wipe the filler cap before removing, to prevent dirt from entering the reservoir. Check the fluid level and top-up if necessary.

Top-up



Maintain the level approximately 10 mm below the top of the reservoir, using fluid meeting *FMVSS 116 DOT 4* specification. Ensure dirt does not enter the reservoir while filling.

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!**

If significant topping-up is required, a leak is indicated - consult your dealer immediately.

POWER STEERING FLUID

WARNING

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.

Do not spill power steering fluid onto a hot engine - a fire may result.

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

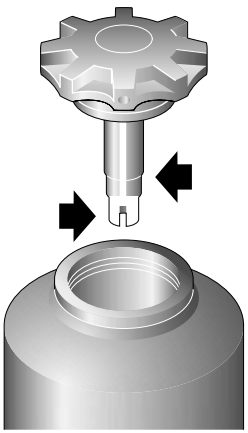
Any large or sudden drop in the fluid level must be investigated by a qualified dealer.

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.

Check and Top-up

Check and top-up the fluid level ONLY with the engine switched off and the system cold, and ensure that the steering wheel is not turned after stopping the engine.



H3583

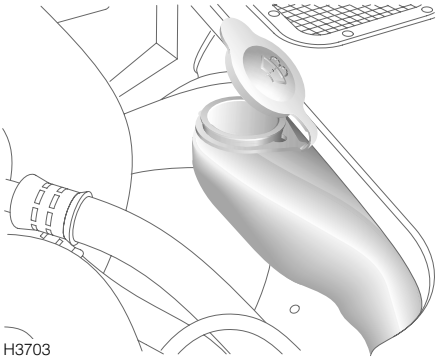
Wipe the filler cap to prevent dirt from entering the reservoir.

Remove the filler cap, and using a lint-free cloth, wipe the dipstick clean. Refit the cap fully and remove it again to check the fluid level. Ensure the fluid level is between the UPPER mark and the bottom end of the dipstick (arrowed in illustration). If necessary, top up with a fluid meeting *Dexron II D or Dexron II E/III* specification, ensuring no dirt enters the reservoir.

DO NOT fill above the UPPER mark on the dipstick.

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

WINDSCREEN WASHER TOP-UP



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

Check the reservoir level at least every week and top-up with a mixture of water and Land Rover Parts STC 8249 Screenwash to approximately 1 inch (25 mm) below the bottom of the filler neck. Preferably mix the recommended quantities of water and screenwash in a separate container before topping-up, and always follow the instructions on the container. Note that an approved screenwash is necessary to prevent freezing in very cold weather.

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

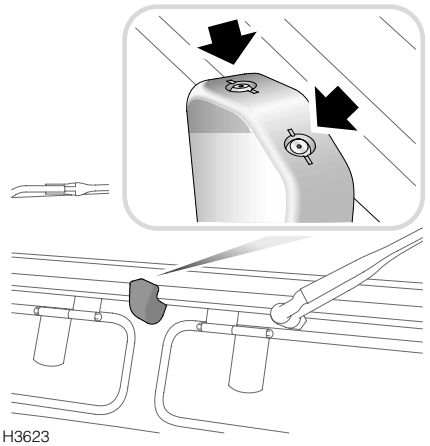
WARNING

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.

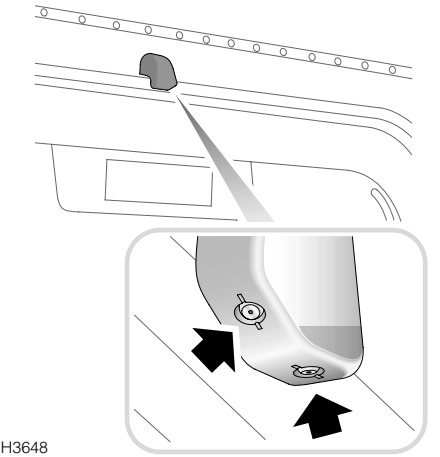
Some screenwash products are inflammable, particularly if high or undiluted concentrations are exposed to sparking. DO NOT allow screenwash to come into contact with naked flames or sources of ignition.

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

WASHER JETS



Front washer jets



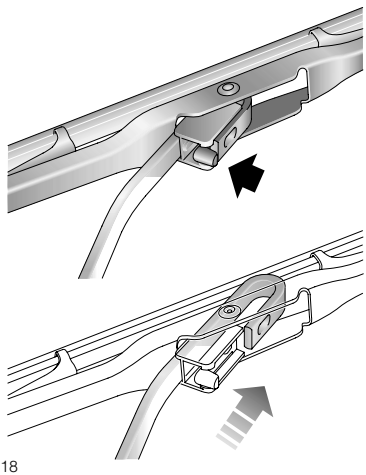
Rear washer jet

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 screen.

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

Wiper Blades

WIPER BLADE REPLACEMENT



H3718

To renew a windscreen or rear wiper blade, lift the wiper arm away from the screen, press the retaining clip (arrowed in illustration), pull the blade down the arm away from the hooked end and then unhook the wiper blade.

Locate the new blade assembly on the arm, hook it to the swivel bracket and push into engagement until the blade is retained by the clip.

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

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.

NOTE: *On vehicles where the spare wheel is mounted on the tail door, the wheel must be removed before renewing the rear wiper blade.*

BATTERY SAFETY

WARNING

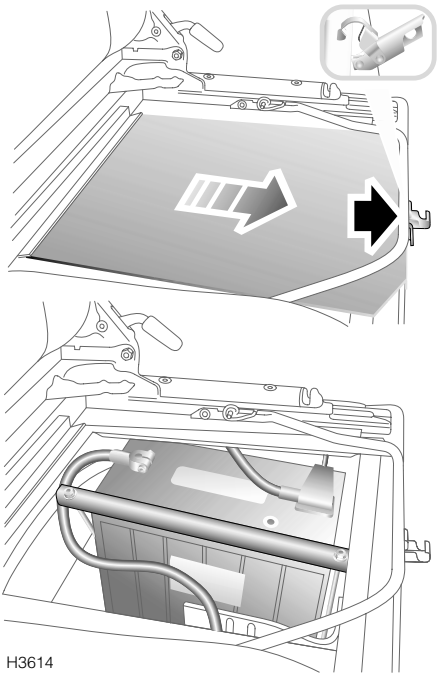
Batteries contain acid, which is both corrosive and poisonous. If spillage occurs:

- ***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.

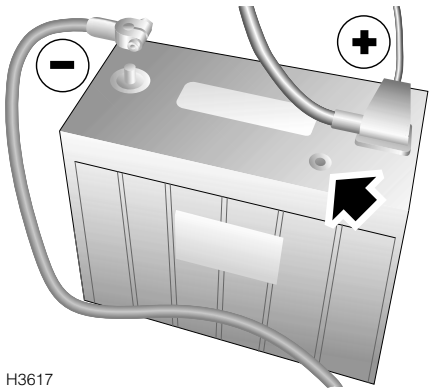


H3614

The battery is located underneath the left-hand front seat. Pull up the front of the seat base to release it from its retaining clips and pull it forward (see *'Seat cushion removal', page 21*). Release the buckle on the front of the battery compartment (solid arrow in illustration) and slide off the lid in the direction shown.

When refitting the seat base, insert the rear of the base first and then push down firmly to re-engage the retaining clips - ENSURE the seat base is secure before driving.

BATTERY MAINTENANCE



H3617

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 jump start the car in this condition.

NOTE: *When checking the battery condition indicator, if necessary, clean the battery top to ensure a clear view.*

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 removal and replacement

WARNING

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

Your vehicle may be fitted with a battery backed-up sounder, which operates as an anti-theft siren if the main battery is disconnected.

If it is necessary to remove the main vehicle battery, it is ESSENTIAL to adopt the following procedure before disconnecting the terminals, in order to prevent the siren from sounding:

1. Turn the starter switch ‘on’ and then ‘off’. Then remove the starter key.
2. Disconnect the vehicle battery WITHIN 15 SECONDS (if it is not disconnected within 15 seconds, the back-up siren will sound immediately the battery terminals are disconnected).

ALWAYS disconnect the negative (‘-’) terminal first. When replacing, connect the positive (‘+’) terminal first. Do not allow the battery terminals to make contact with metal parts of the vehicle.

If the siren sounds when the battery is reconnected, it CANNOT be turned off in the normal way (i.e. by operating the handset button). To deactivate the siren, disarm the alarm system with the handset and turn the starter switch to position ‘II’.

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 car's electrical system.

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.

Battery 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 - charging the battery with the cables connected may damage the vehicle's electrical system.

  NOTE: *On Tdi models, ensure that the battery is topped up to the correct level.*
- 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 and keep the area around the top of the battery well ventilated.
- Do not allow naked lights near the battery (batteries generate inflammable hydrogen during and after charging).
- On Td5 models, 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: *Be aware that a battery will take longer to charge in a cold environment.*

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

WARNING

DO NOT charge the battery if it is connected to the car - this may seriously damage the electrical system.

On Td5 models, DO NOT attempt to charge the battery if the battery condition indicator is clear or light yellow.

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

CARING FOR YOUR TYRES

WARNING

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.

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, 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.

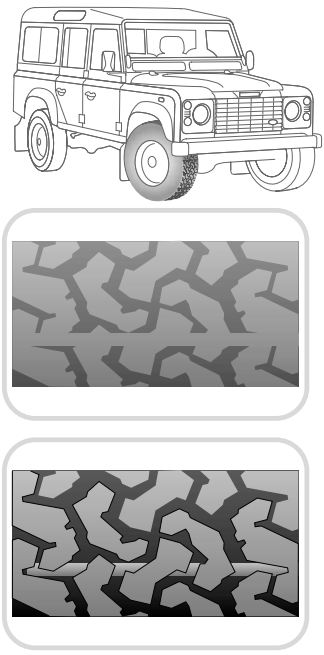
Air pressure naturally increases in warm tyres; if it is necessary to check the tyres when they are warm (after the vehicle has been driven for a while), you should expect the pressures to have increased between 4 and 6 lbf/in^2. In this circumstance, NEVER let air out of the tyres in order to match the recommended pressures.

WARNING

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 *'WHEELS & TYRES', page 156*.

Tyre wear



H3606

Some tyres fitted as original equipment 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.

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!

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 (see *'WHEELS & TYRES', page 156*) 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.

WARNING

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.

If the wheel is marked 'TUBED', an inner tube MUST be fitted, even with a tubeless tyre.

If the wheel is marked 'TUBELESS', an inner tube must NOT be fitted.

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.

Always have replacement wheels and tyres balanced before use.

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:

- ***Rear wheels:*** Snow chains can be fitted to the rear wheels of any vehicle, provided the wheels and tyres conform to one of the original equipment specifications listed in the handbook (see *'WHEELS & TYRES', page 156*).
- If 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.
- Non-approved chains can be fitted to the rear wheels ONLY.
- Ensure the gearbox differential is locked.
- 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.

WARNING

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

WASHING YOUR VEHICLE

H3645

WARNING

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, or at any components that might easily be damaged.

Wash your vehicle frequently using a sponge and generous quantities of cold or lukewarm water containing a car shampoo. Rinse 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.

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.

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

Steam cleaning

Before steam cleaning the engine compartment, cover the brake, clutch and power steering reservoirs 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.

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.

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. Some exterior panels of your vehicle are made of aluminium which will not corrode in the same manner as steel. However, any damage should still receive prompt attention. 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.

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.

Glass and mirrors
Clean the rear window with a soft cloth to avoid damaging the heating elements. DO NOT scrape the glass or use an abrasive cleaning fluid.

Mirror glass is particularly susceptible to damage. Wash with soapy water. DO NOT use abrasive cleaning compounds or metal scrapers to remove ice.

CLEANING THE INTERIOR

WARNING

DO NOT use water to clean the dashboard, damage to the fuses and switches could occur. Instead, clean sparingly with a damp cloth and approved upholstery cleaner.

RECOMMENDED CARE PRODUCTS (Available in the UK)	
De icer	STC 717
Alloy wheel cleaner	STC 718
Glass cleaner	STC 719
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.*

Steering wheel and trim features should be cleaned with a damp cloth moistened with undiluted upholstery cleaner. Leave for 5 minutes, and then repeat the operation using a clean cloth and water - but avoid flooding the area! Dry and polish the trim with a dry, lint-free cloth. DO NOT use petrol, detergents, furniture creams or polishes.

Carpet and fabrics
Clean with diluted nylon upholstery cleaner - test on a concealed area first.

Clock and radio
Clean with a dry cloth only! DO NOT use cleaning fluids or sprays.

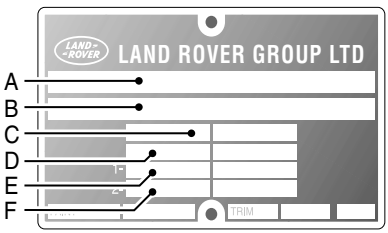
Seat belts
Extend the belts, then use warm water and a non-detergent soap to clean. Allow the belts to dry naturally, and do not retract them or use the vehicle until they are completely dry.

VEHICLE IDENTIFICATION NUMBER (VIN)

If you need to communicate with a Land Rover dealer, you may be asked to quote the Vehicle Identification Number (VIN).

The VIN (and recommended maximum vehicle weights) is stamped on a plate riveted to the top of the brake pedal box in the engine compartment (this should match the VIN recorded in the Service Portfolio book). The VIN is also stamped on the right-hand side of the chassis, forward of the spring mounting turret.

In addition, as a deterrent to car thieves and to assist the police, the VIN is stamped on a plate which is visible through the lowest part of the left side of the windscreen and also on the vehicle's chassis.



H3551

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)

NOTE: *In the interests of safety, it is essential that the gross vehicle weight, gross train weight and axle loads are NOT exceeded. For further information see* *'VEHICLE WEIGHTS', page 160.*

PARTS AND ACCESSORIES

WARNING

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.

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.

Electrical equipment

WARNING

It is extremely hazardous to fit or replace parts or accessories whose installation requires the dismantling of, or addition to, either the electrical or fuel systems.

Fitting inferior quality parts or accessories, may be dangerous and could invalidate the vehicle warranty.

It is recommended that you always consult a Land Rover dealer for advice regarding the approval, suitability, installation and use of any parts or accessories before fitting.

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 for rapid ordering of parts and accessories.

In addition, with franchised representation in over 100 countries worldwide, 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 our rigorous standards of safety, durability and performance.

Travelling abroad

In certain countries, it is illegal to fit parts which have not been made to the vehicle manufacturers' specification.

Owners should ensure that any parts or accessories fitted to the vehicle while travelling abroad will also conform to the legal requirements of their own country when they return home.

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