

SECTION 4

Owner maintenance

The long-term safety, reliability and performance of your vehicle will depend very largely on how it is maintained.

Maintenance is the owner's responsibility and it is ESSENTIAL that all routine services are carried out by a Land Rover dealer at the specified intervals. These are shown in the Owner Information & Service Record book included in the literature pack. The Owner Information & Service Record book also includes service record dockets, which must be correctly endorsed by your Land Rover dealer at the conclusion of each service.

This section of the handbook includes information to assist the owner carry out those daily, weekly and monthly checks that are also necessary to ensure safe, reliable motoring.

Section Contents	Page
Owner maintenance	105
Bonnet opening	108
Engine compartment	109
Tyres	118
Washer jets & wiper blades	120
Headlight washers	120
Battery	121
Wheel changing	124
Wading plugs	130
Fuse box	132
Bulb replacement	135
Cleaning & vehicle care	142

Owner maintenance

OWNER MAINTENANCE

In addition to the routine services, which should be carried out by your Land Rover dealer at the intervals shown in the Owner Information & Service Record book, a number of simple checks and adjustments (listed below) must be carried out by the owner or driver on a regular basis.

These are fully described on the pages that follow.

Daily checks

- Operation of lights, horn, direction indicators, wipers, washers and warning lights.
- Operation of seat belts and brakes.
- Look for deposits on the garage floor which may indicate a fluid leak.

Weekly checks

These should be carried out at least every 400 km or 250 miles.

- Engine oil level.
- Cooling system level.
- Screen washers reservoir level.
- Condition and pressure of tyres.

Monthly checks

- Brake fluid level.
- Clutch fluid level.
- Power steering reservoir level.
- Automatic gearbox fluid level.

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

The fluid level on manual gearboxes should only be checked by a Land Rover dealer at the time of a routine service.

All fluid specifications and capacities are shown in 'General data'.

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.

Owner maintenance

Planned maintenance

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

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

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.

Road testing on dynamometers (‘rolling roads’)

WARNING

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.

Owner maintenance

SAFETY IN THE GARAGE

Whenever you carry out maintenance on your vehicle, the following safety precautions should be observed at all times:

- ALWAYS keep hands, tools and items of clothing clear of all drive belts and pulleys.
- DO NOT touch the exhaust or cooling system components until they are cool.
- DO NOT touch electrical leads or components with the starter switch turned on.
- NEVER leave the engine running in an unventilated area - exhaust gases contain carbon monoxide, which can cause unconsciousness and may even be fatal.
- DO NOT work beneath the vehicle with the vehicle lifting jack as the only means of support.
- ENSURE sparks and naked lights are kept away from the engine compartment.

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.

Poisonous liquids

Most liquids and lubricants 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, clutch and power steering fluids, as well as 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.

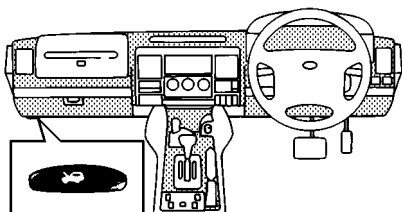
It is illegal to pollute drains, water courses or soil with toxic chemicals such as used engine oil. ALWAYS dispose of vehicle fluids and lubricants at authorised waste disposal sites or at garages which provide facilities for the receipt of used engine oil and toxic chemicals. If in doubt, contact your Local Authority for advice.

PROTECT THE ENVIRONMENT!

Bonnet opening

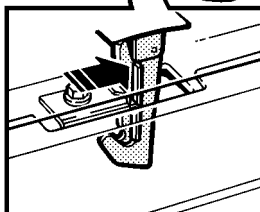
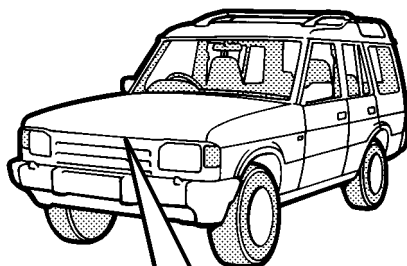
WARNING

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



J507

Pull the bonnet release handle.



J483

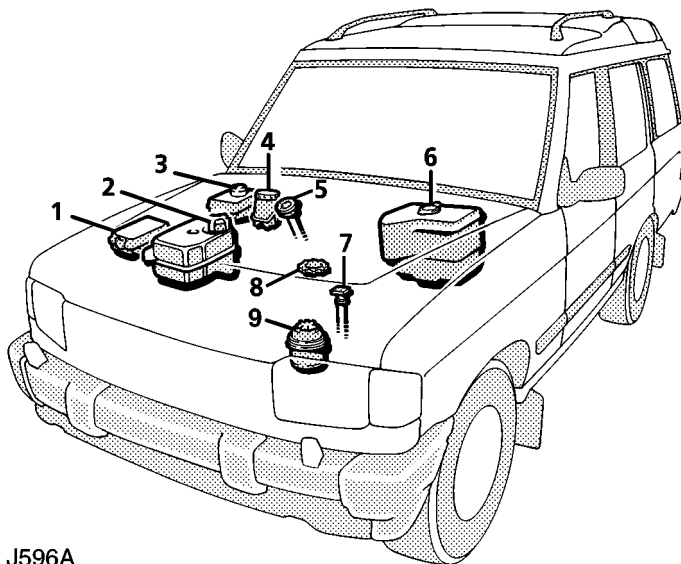
Push the safety catch to the right and raise the bonnet.

Release the bonnet support stay from the underside of the bonnet and fit the stay in the slotted hole in the bonnet locking platform.

Closing the bonnet

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



J596A

300Tdi models

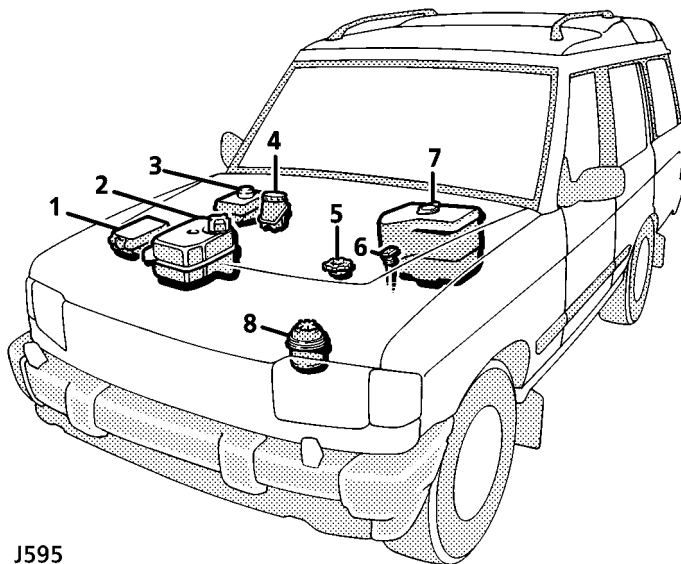
1. Fuse box - engine compartment.
2. Cooling system reservoir.
3. Brake fluid reservoir.
4. Clutch fluid reservoir (if fitted).
5. Automatic gearbox fluid dipstick (if fitted).
6. Washer reservoir.
7. Engine oil dipstick.
8. Engine oil filler cap.
9. Power steering reservoir.

Instructions on how and when owner maintenance should be carried out are included on the following pages.

WARNING

Before carrying out maintenance checks or working in the engine compartment, ALWAYS observe the safety precautions listed under 'Safety in the garage', at the beginning of the Owner Maintenance section of this handbook.

Engine compartment



J595

Mpi models

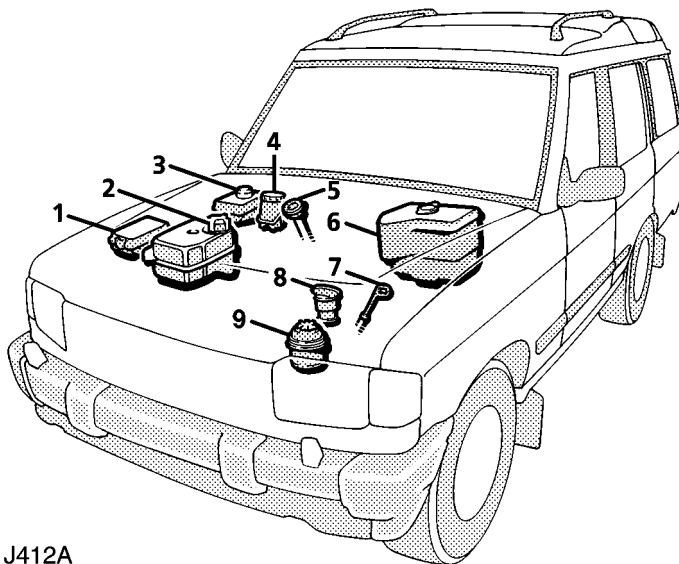
1. Fuse box - engine compartment.
2. Cooling system reservoir.
3. Brake fluid reservoir.
4. Clutch fluid reservoir.
5. Engine oil filler cap.
6. Engine oil dipstick.
7. Washer reservoir.
8. Power steering reservoir.

Instructions on how and when owner maintenance should be carried out are included on the following pages.

WARNING

Before carrying out maintenance checks or working in the engine compartment, ALWAYS observe the safety precautions listed under 'Safety in the garage', at the beginning of the Owner Maintenance section of this handbook.

Engine compartment



J412A

V8i models

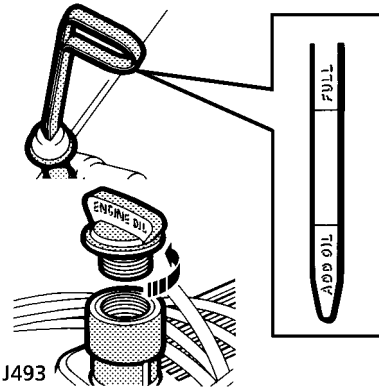
1. Fuse box - engine compartment.
2. Cooling system reservoir.
3. Brake fluid reservoir.
4. Clutch fluid reservoir (if fitted).
5. Automatic gearbox fluid dipstick (if fitted).
6. Washer reservoir.
7. Engine oil dipstick.
8. Engine oil filler cap.
9. Power steering reservoir.

Instructions on how and when owner maintenance should be carried out are included on the following pages.

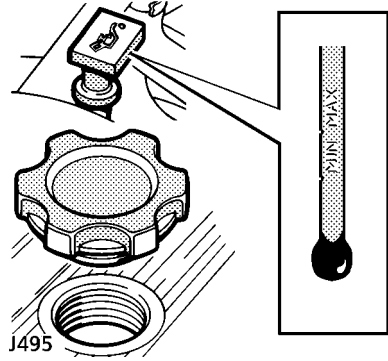
WARNING

Before carrying out maintenance checks or working in the engine compartment, ALWAYS observe the safety precautions listed under 'Safety in the garage', at the beginning of the Owner Maintenance section of this handbook.

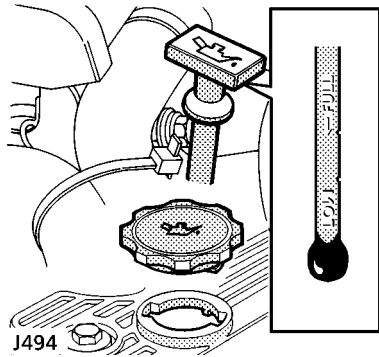
Engine compartment



V8i Petrol engine



Mpi Petrol engine



300Tdi Diesel engine

ENGINE OIL LEVEL-CHECK & TOP-UP

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

Switch off the engine and let the vehicle stand for five minutes to allow the oil to drain back into the sump. Withdraw the dipstick and wipe the blade clean and then 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.

To top-up, unscrew the oil filler cap and add oil to maintain the level between the **UPPER** and **LOWER** marks on the dipstick.

Engine compartment

DO NOT OVERFILL!

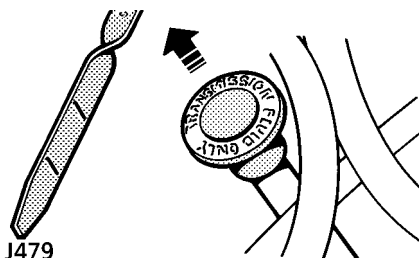
As a general guide, if the level on the dipstick:

- 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.

NOTE: *If it is necessary to check the oil level when the engine is cold, DO NOT start the engine. Follow the procedure detailed above, but re-check the oil level as soon as the engine has reached its normal operating temperature.*

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 'General data'. If in doubt, contact your Land Rover dealer.



AUTOMATIC TRANSMISSION TOP-UP

Ensure the vehicle is resting on level ground then select 'P' (Park) and start the engine. With the engine running at idle speed and both the foot brake and handbrake applied, move the selector lever to position '1' and then back to position 'P'.

Withdraw the dipstick from the filler tube and wipe the blade clean. Reinsert the dipstick fully and withdraw again to check the level. Top-up to maintain the level between the two markings on the dipstick with a fluid meeting ATF Dexron II D specification.

NOTE: *In extreme ambient temperatures, the level of fluid showing on the dipstick will vary. To ensure an accurate reading, the level should be checked at an ambient temperature of 68° F (20° C).*

DO NOT OVERFILL!

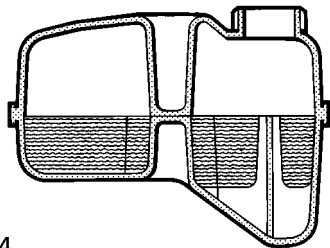
NOTE: *Approximately 0.25 litre (1/2 pint) of fluid will be required to raise the level from the lower to the upper mark.*

Engine compartment

COOLING SYSTEM TOP-UP

WARNING

- **NEVER** remove the filler cap when the engine is hot - escaping steam or scalding water could cause serious personal injury.
- 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**.
- Unscrew the filler cap slowly, allowing the pressure to escape before removing completely.
- **NEVER** run the engine without coolant.



J484

Top-up with a 50% mixture of anti-freeze and water so that the surface of the coolant is level with the top of the indicator inside the tank. 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

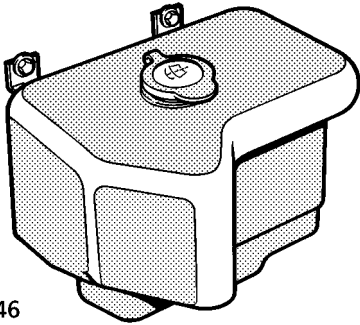
Anti-freeze contains important corrosion inhibitors. Ensure the 50% anti-freeze/water solution is maintained and topped up all year round (not just in cold conditions). Failure to do so may cause corrosion of the radiator and engine components.

Use an ethylene glycol based anti-freeze (containing no methanol) with non-phosphate corrosion inhibitors suitable for use in aluminium engines. The specific gravity of a 50% anti-freeze solution at 68° F (20° C) is 1.075 and protects against frost down to -33° F (-36° C).

WARNING

- **Anti-freeze is poisonous and can be fatal if swallowed. If accidental consumption of anti-freeze is suspected, seek appropriate 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 will damage painted surfaces.**
- **NEVER top-up with salt water. Even when travelling in territories where the water supply contains salt, always ensure you carry a supply of fresh (rain or distilled) water.**

Engine compartment



J446

WINDSCREEN WASHER TOP-UP

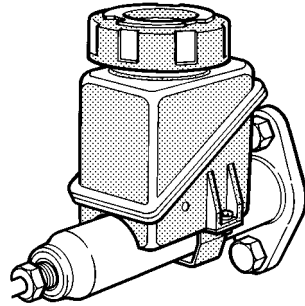
The windshield washer reservoir also supplies the rear screen and headlight washer jets (where fitted).

Check the reservoir level and top-up with a mixture of water and an approved screen washer solvent to approximately 25 mm (1 in) below the bottom of the filler neck. In cold weather, to prevent freezing, use a screen washer solvent containing isopropanol.

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

WARNING

DO NOT use an anti-freeze solution in the washer reservoir. Anti-freeze will damage painted surfaces.



J477

CLUTCH FLUID TOP-UP

Wipe the filler cap clean before removing to prevent dirt from entering the reservoir. Check the fluid level and top up if necessary to the bottom of the filler neck, using *FMVSS 116 DOT 4* fluid.

Use only new fluid from a sealed container (old fluid from opened containers or fluid previously bled from the system must NOT be used).

DO NOT OVERFILL!

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

WARNING

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.

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

Engine compartment

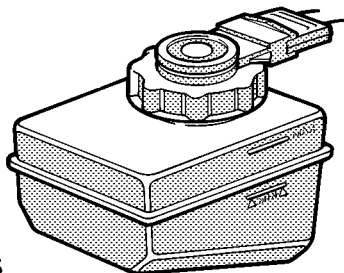
WARNING

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

BRAKE FLUID CHECK

The fluid level will fall slightly during 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.

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 container without removing the filler cap.



J476

Topping-up

Wipe the filler cap clean before removing to prevent dirt from entering the reservoir, and top up to the 'MAX' mark using *FMVSS 116 DOT 4* fluid.

Use only new fluid from an airtight container (old fluid from opened containers or fluid previously bled from the system must NOT be used).

DO NOT OVERFILL!

WARNING

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.

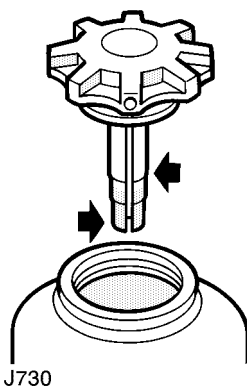
If brake fluid should come into contact with the skin or eyes, rinse immediately with plenty of water.

Engine compartment

WARNING

It is vital that the hydraulic brake fluid is completely renewed at 24,000 mile (40,000 km) intervals or every 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 caliper 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.



POWER STEERING TOP-UP

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

Wipe the filler cap clean 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 then remove it again to check the fluid level. If necessary, top up with a fluid meeting *Dexron II D* specification to maintain the fluid level between the upper mark and the bottom of the dipstick.

- DO NOT fill above the upper mark on the dipstick.

WARNING

The engine must NOT be started if the fluid level has dropped below the bottom of the dipstick - severe damage to the pump could result.

Tyres

WARNING

- *Never drive your vehicle if the tyres are badly worn, cut or damaged, or if the pressures are incorrect.*
 - *Incorrectly inflated tyres wear rapidly and seriously affect the vehicle's safety and road handling characteristics.*
-

Caring for your tyres

Always drive with consideration for the condition of the tyres and frequently inspect the tread and side walls for signs of distortion or damage (in particular, look for lumps, cuts and bulges).

Tyre pressures

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, when the tyres are cold (air pressure naturally increases in warm tyres). The recommended pressures are shown in the 'General data' section.

WARNING

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

Tyre wear

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.*

Valve caps

Keep the valve caps screwed down firmly to prevent dirt from entering the valve.

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 manufacturer's original specification and that the load rating shown on the side wall is 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.

Your vehicle is fitted with tubeless alloy 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.

NOTE: Tyre sizes are shown in 'General data'.

Snow chains

Land Rover approved snow chains are designed for on-road use in extreme snow conditions only, and are not recommended for off-road use. ALWAYS observe the following recommendations:

- ONLY Land Rover approved chains may be fitted to the front wheels, or fitted to all four wheels. Unapproved 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.

NOTE: *If only unapproved snow chains are available, they must only be fitted to the rear wheels.*

WARNING

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

Washer jets & wiper blades

WASHER JETS

To adjust the front screen washer jets, 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.

To adjust the rear screen washer jet, insert a long needle-like probe into the jet orifice and lever gently to position the jet so that the spray is directed towards the centre of the wipers travel.

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

HEADLIGHT WASHERS (if fitted)

The headlight washers operate automatically whenever the windscreen washers are operated, provided the headlights are illuminated. The spray jets are set during manufacture and should not need to be adjusted.

NOTE: Ensure an approved screen washer solvent is used in the windscreen washer reservoir to prevent freezing.

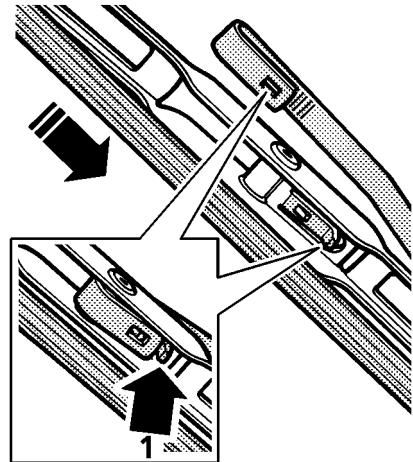
WIPER BLADE REPLACEMENT

To renew a front or rear wiper blade, lift the wiper arm away from the screen, press the retaining clip (1) and slide the wiper blade down the arm to remove.

Locate the new blade assembly on the arm and push into engagement until the blade is retained by the clip.

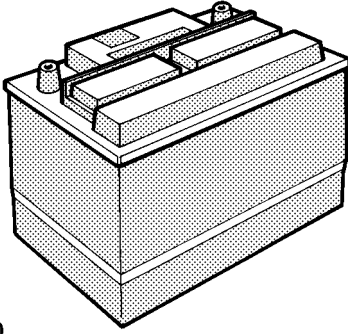
Always fit replacement wiper blades that are identical to the original specification.

NOTE: Before renewing the rear wiper blade, it is necessary to remove the spare wheel from its mounting position on the rear door.



P0210

Battery



J480

WARNING

- *Batteries contain sulphuric acid. If the acid comes in contact with the eyes or skin, wash immediately with cold water and seek medical advice.*
- *During normal operation batteries emit explosive hydrogen gas - ensure sparks and naked lights are kept away from the engine compartment.*
- *To reduce the risk of a short circuit, 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.*
- *ALWAYS remove the starter key before disconnecting the battery. Failure to do this could cause a failure of the airbag SRS.*

BATTERY MAINTENANCE

The battery fitted to your vehicle requires minimal attention as follows:

- In temperate climates check the electrolyte level once every 3 years. In hot climates check the level annually.
- Occasionally wipe the battery casing to remove dirt and grease.
- Keep the battery terminals clean and free from corrosion by occasionally smearing them with petroleum jelly.

Checking the electrolyte level

Gently prise off the vent covers (or unscrew if vent plugs are fitted) and inspect the electrolyte level in each cell. This should be no lower than 1 mm (0.04 in) above the top of the plates. If necessary, top up with distilled water to a maximum of 3 mm (0.12 in) above the plates.

Battery

Battery removal and replacement

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 alarm from sounding:

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

ALWAYS disconnect the negative ('-') terminal first. When replacing the battery, connect the positive ('+') terminal first.

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

WARNING

- *To avoid damaging the vehicle's electrical system, ensure correct polarity when refitting the battery.*
 - *ONLY fit a replacement battery of the same type and specification as the original. Other batteries may vary in size and have different terminal positions, capable of creating a potential fire hazard if the terminals or leads were to come into contact with the battery clamp assembly.*
 - *DO NOT use a high speed battery charger as a starting aid.*
 - *DO NOT let the engine run without the battery connected.*
 - *NEVER allow the battery terminals or vehicle leads to make contact with tools or metal parts of the vehicle.*
-

Battery

Battery charging

Before charging, always remove the battery from the vehicle and ensure the battery is topped up to the correct level.

Batteries generate explosive gases, contain corrosive acid and supply levels of electric current high enough to cause serious burns.

While charging always heed the following precautions:

- Make sure the battery charger is disconnected from its power supply before connecting the leads to the battery terminals.
- Make sure the charging leads are securely clamped before switching on the charger, and DO NOT move the clamps while the charger is switched on.
- Shield your eyes or avoid leaning over the battery.
- Keep the area around the top of the battery well ventilated.
- Keep naked lights clear of the battery (batteries emit inflammable hydrogen during and after charging).
- When charging is complete, switch off the charger before disconnecting the charging leads, and then leave the battery for an hour BEFORE reconnection to the vehicle.

Wheel changing

IMPORTANT INFORMATION

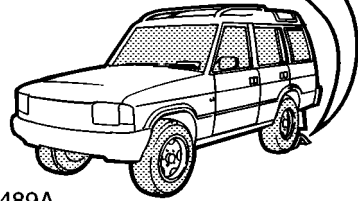
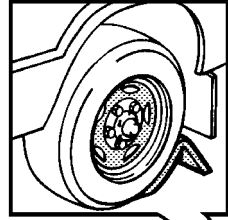
Before jacking the vehicle always observe the following precautions!

- Park your vehicle away from the thoroughfare, and make your passengers wait in a safe area AWAY from the vehicle.
- Switch on the hazard warning lights to alert other road users.
- Ensure the jack is positioned on firm, level ground.
- Always engage the differential lock before jacking (warning light on fascia illuminates).
- Apply the handbrake and engage 1st gear in the main gear box (select 'P' for automatic transmission) and select 'L' in the transfer box. Turn off the starter switch and remove the key.

In addition:

NEVER jack the vehicle with passengers inside, or with a caravan or trailer connected!

NEVER work beneath the vehicle with the jack as the only means of support. The jack is designed for wheel changing only!



J489A

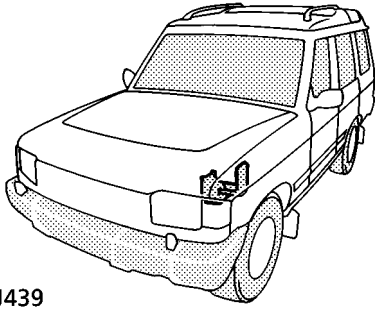
Using the wheel chock

WARNING

Before raising the vehicle, it is ESSENTIAL to chock one of the road wheels; the handbrake acts on the transmission, not on the rear wheels, and therefore may not hold the vehicle when raised.

Always chock the wheel diagonally opposite the one to be removed - chocking the front of a front wheel or the back of a rear wheel, using the chock provided.

Wheel changing

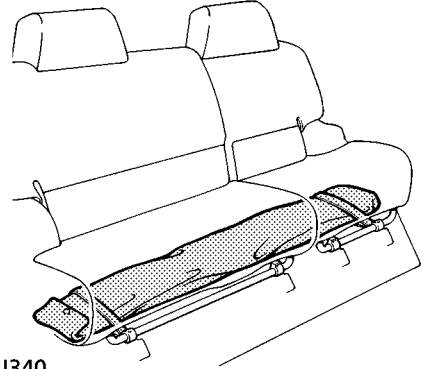


J439

NOTE: The jack and wheel chock are stowed in the front of the engine compartment. The jack handle and tools are stowed in a tool bag under the rear seat.

WARNING

- Tools stowed in the engine compartment will be hot if the engine has been running.
- DO NOT use the spare wheel securing nuts in place of the road wheel nuts.
- The wheels are extremely heavy. Take care when lifting and particularly when removing the spare wheel from its mounting position on the tail door.



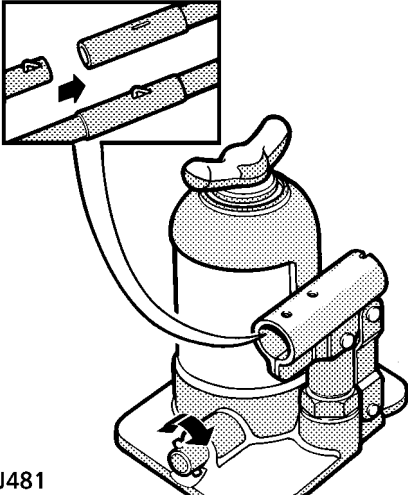
J340

Removing the spare wheel

1. Remove the nuts securing the wheel cover using the wheel nut wrench supplied in the tool kit.
2. Remove the nuts securing the spare wheel to the carrier and lift off the wheel.

NOTE: In some markets, vehicles fitted with alloy wheels have a locking wheel nut fitted to each wheel, including the spare (see 'Locking wheel nuts' later in this section). In other markets, vehicles fitted with alloy wheels have a single locking cap which secures one of the wheel nuts securing the spare wheel to the tail door. To release the locking cap, insert the smaller of the keys supplied with the vehicle. Note that it is also necessary to insert the key in order to replace the cap.

Wheel changing



J481

Operating the jack

Slot the jack lever together, ensuring that the spring clip protrudes from the engagement slot where the two parts join (see inset). Close the jack release valve by turning it fully clockwise and insert the lever into the socket as shown. Pump the lever up and down to raise the jack.

To lower the jack, withdraw the lever and slot the notched end over the the the pegs on the release valve. Slowly turn the release valve anti-clockwise allowing the weight of the vehicle to lower the jack.

WARNING

- *Ensure the jack is positioned on firm, level ground.*
 - *DO NOT use the jack to raise the vehicle until you have carefully read and understood 'Positioning the jack' later in this section. If in doubt, consult your dealer.*
 - *Care must be taken to avoid accidental contact with any underbody parts, especially the hot exhaust system components, likely to cause personal injury during raising or lowering of the vehicle.*
 - *Ensure that the space under and around the vehicle is free from obstruction as it is lowered.*
-

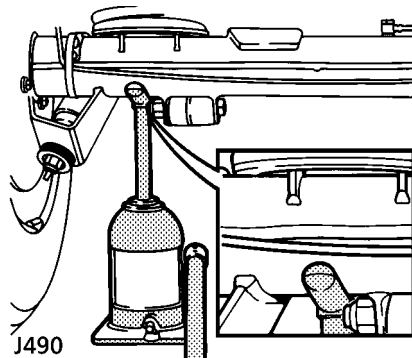
Wheel changing

Positioning the jack

Always position the jack from the front or rear of the vehicle directly in line with the jacking points.

WARNING

- **NEVER** use the jack from the side of the vehicle.
- **ALWAYS** use the complete, two piece, jack lever throughout to minimise any chance of accidental contact with a hot exhaust system.
- **ONLY** jack the vehicle using the jack location points described or damage to the vehicle could occur.



Rear jacking point:

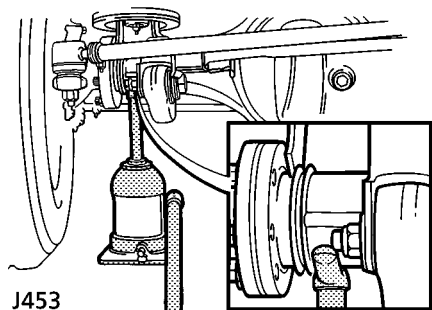
Push the mud flap up over the tyre to allow clear access (return it to its correct position when the wheel change is complete). Position the jack so that, when raised, it engages with the rear axle casing immediately below the coil spring and as close as possible to the shock absorber mounting bracket.

Changing a wheel

Before raising the vehicle, ensure that all the precautions listed at the beginning of this section have been observed. Also, ensure that the wheel chock is correctly positioned (as described previously).

In some markets, vehicles fitted with alloy wheels have one locking wheel nut fitted to each wheel. Refer to 'Locking wheel nuts' later in this section before changing an alloy wheel.

- Use the wheel nut wrench to slacken the wheel nuts half a turn anti-clockwise.
- Raise the vehicle until the tyre is clear of the ground, and remove the wheel nuts and wheel (DO NOT damage the surface of the wheel by placing it face down on the road).



Front jacking point:

Position the jack so that, when raised, it engages with the front axle casing immediately below the coil spring. The jack cradle must engage between the flange at the end of the axle casing and the large bracket to which the front suspension members are mounted (see inset).

Wheel changing

- On alloy wheels, lightly oil or grease (using an approved anti-seize compound) the wheel-mounting spigot to minimise the tendency for adhesion between the wheel and the spigot. Ensure that no oil or compound comes into contact with the brake components. If, due to an emergency situation, this treatment is not practicable; refit the spare wheel for the time being, but remove and treat the wheel at the earliest opportunity.
- Fit the spare wheel and lightly tighten the wheel nuts, ensuring they are firmly seated. DO NOT fully tighten whilst the tyre is clear of the ground.
- Lower the vehicle and remove the jack and wheel chock.
- Fully tighten the wheel nuts. DO NOT OVERTIGHTEN by using foot pressure or extension bars on the wheel nut wrench, as this could overstress the wheel studs.
- REMEMBER to disengage the differential lock and change to 'H' (high range) before driving.
- Finally, check the tyre pressure and wheel nut torque at the earliest opportunity, see 'General data'.

WARNING

When fitting a wheel, ensure that the mating faces of the hub and wheel are clean and free from rust - an accumulation of dirt or rust could cause the wheel nuts to become loose and result in an accident.

Care of the jack

Examine the jack occasionally, clean and grease the moving parts, particularly the ram, to prevent corrosion.

To avoid contamination, the jack should always be returned to its fully closed position and must always be stowed upright.

WARNING

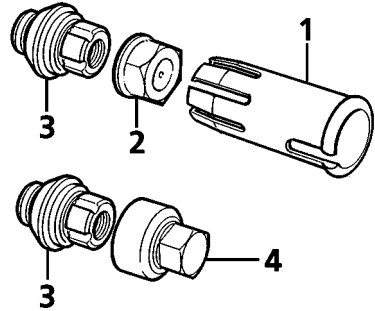
After wheel changing, always secure tools, chock, jack and spare wheel in their correct storage positions.

Wheel changing

LOCKING WHEEL NUTS

In some markets, vehicles fitted with alloy wheels are equipped with a locking wheel nut on each wheel (including the spare). The locking wheel nut covers are visually very similar to standard wheel nuts but can be identified by a concave indent on the surface. The locking wheel nut and cover can only be removed using the special tools provided, as follows:

- Push the extractor tool (1) firmly over the stainless steel nut cover (2).
- Pull the extractor tool **squarely** away from the wheel to remove the nut cover and reveal the locking wheel nut (3).
- Fit the metal key socket (4) securely over the locking wheel nut (3).
- Fit the wheel nut wrench onto the key socket and unscrew the nut in the normal way.



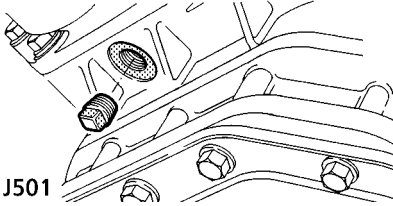
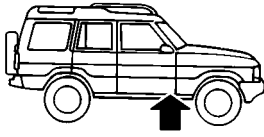
J723

A code letter is stamped on the face of the key socket. Ensure the code letter is entered in the space provided on your Security Information card - you will need to quote this number if replacement components are required. Keep the card in a safe place away from the vehicle.

For security reasons, do not keep the key socket and extractor tool in the glovebox; store them in a less conspicuous place in the vehicle.

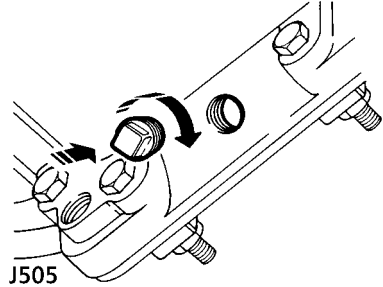
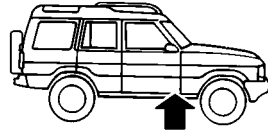
NOTE: *If the extractor tool has been inadvertently pushed onto a standard wheel nut, it can be removed ONLY by first undoing and removing the nut; slide the wheel nut wrench down the centre of the extractor and onto the wheel nut.*

Wading plugs



J501

Engine front timing cover - 300Tdi



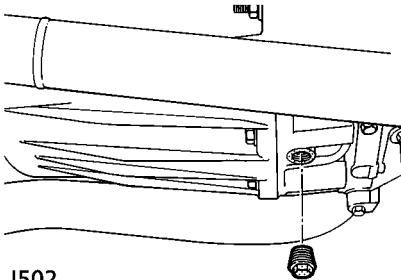
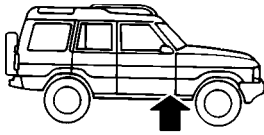
J505

Flywheel housing - V8i & Mpi

Drain holes

Manual gearbox models are provided with drain holes at the lowest point of the flywheel housing (between engine and gearbox). In addition, 300 Tdi models also have a drain hole at the bottom of the engine timing cover. These drain holes enable excess oil to drain from the vehicle, thereby reducing the risk of inadvertent damage to the clutch or camshaft drive belt.

If the vehicle is to be used for wading, ensure that wading plugs are fitted where indicated to prevent the ingress of water or mud. Remove wading plugs immediately after wading or periodically to enable oil or water to drain from the housing. Wading plugs are available from a Land Rover dealer.



J502

Flywheel housing - 300Tdi

Wading plugs

Automatic models

NOTE: *The flywheel housing is completely sealed to exclude mud and water and there is no requirement to fit a wading plug.*

WARNING

For safety, DO NOT work underneath the vehicle unless it is safely parked with the wheels chocked, or is supported by heavy duty stands.

Fuse box

FUSE BOX

Fuses are simple circuit breakers which protect electrical equipment by preventing the electrical circuits from being overloaded. A 'blown' fuse is indicated when the electrical equipment it protects becomes inoperative.

Check a suspect fuse by removing it from the fuse box and looking for a break in the wire inside the fuse (see inset).

The main fusebox is fitted below and to one side of the steering column; remove the cover by releasing the fixing screws using a coin or small screwdriver.

Renewing a fuse

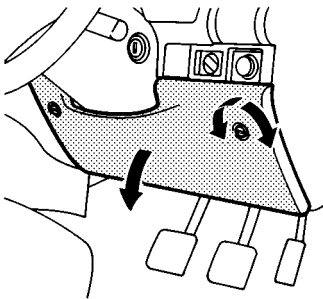
Always turn the starter switch to position 'O' and switch off the affected electrical circuit before removing a fuse.

Press the fuse removal tweezers onto the head of a fuse (as shown) and pull. Always replace a fuse with another of the same value, however, if the replacement fuse blows immediately the circuit MUST be checked by a Land Rover dealer.

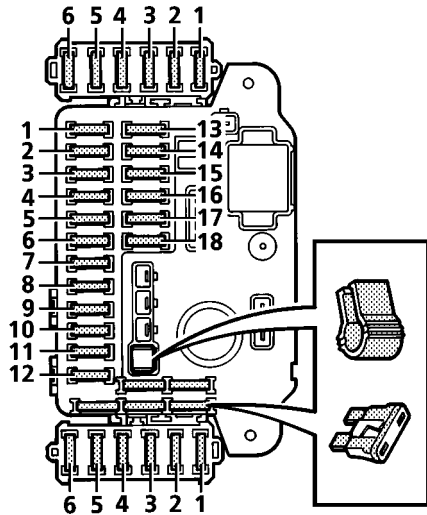
Fuses are colour coded to help identify their amperage, as follows:

VIOLET	3
TAN	5
BROWN	7.5
RED	10
BLUE	15
YELLOW	20
WHITE	25
GREEN	30

A label in the fuse box cover shows the circuits protected, the fuse values and their locations. They are also listed on the following page.



J593



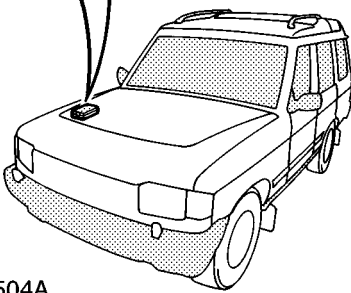
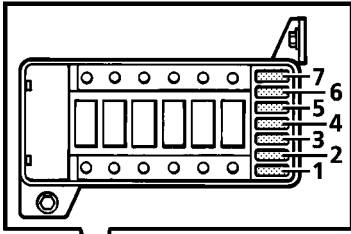
Fuse box

Fuse No.	Value (amps)	Electrical circuit
1	15	Stop lights, direction indicators
2	10	LH side lights
3	10	Radio/cassette/CD player
4	10	RH headlight main beam
5	10	LH headlight main beam
6	20	Cigar lighter, vanity mirror, heated seats
7	10	Airbag SRS
8	10	RH side lights
9	10	Rear fog guard lights
10	10	LH headlight dipped beam
11	10	RH headlight dipped beam
12	10	Multi-function unit
13	10	Ignition feed for multi-function unit
14	10	Instruments, clock, speed transducer
15	10	Air conditioning, windows
16	20	Washers & wipers - front
17	10	Starter, glow plug
18	10	Wash/wipe - rear, mirrors, cruise control
Satellite 1		
1	15	Anti-theft alarm
2	20	Headlight washers
3	10	Engine management
4	5	Anti-lock brakes
5	10	Anti-theft alarm
6	25	Rear air conditioning, heater
Satellite 2		
1	30	Electric windows - front
2	30	Electric windows - rear
3	10	Anti-lock braking
4	15	Central door locking
5	30	Electric sun roof
6	20	Radio, clock, alarm, indicator light, interior lights, loadspace lights, trailer lights

NOTE: Some additional spare fuses are included in the fuse box.

NOTE: In the event of failure of any electrical system or component, always check fuses 12 and 13 in addition to the appropriate component fuse.

Fuse box



J504A

ENGINE COMPARTMENT FUSE BOX

A second fuse box is located on the right side of the engine compartment adjacent to the engine coolant reservoir.

The circuits protected and their locations are shown on a printed diagram on the inside of the fuse box cover and are also listed below.

Fuse No.	Value (amps)	Electrical circuit
1	30	Heated rear window
2	20	Lights
3	30	Air conditioning
4	30	Hazard warning lights, horn
5	30	Anti-lock braking
6	15	Fuel pump
7	20	Fuel system

NOTE: Six main circuit fuses are also located in the engine compartment fuse box. If a fault is suspected in one of the main circuit fuses, contact your dealer for assistance.

Bulb replacement

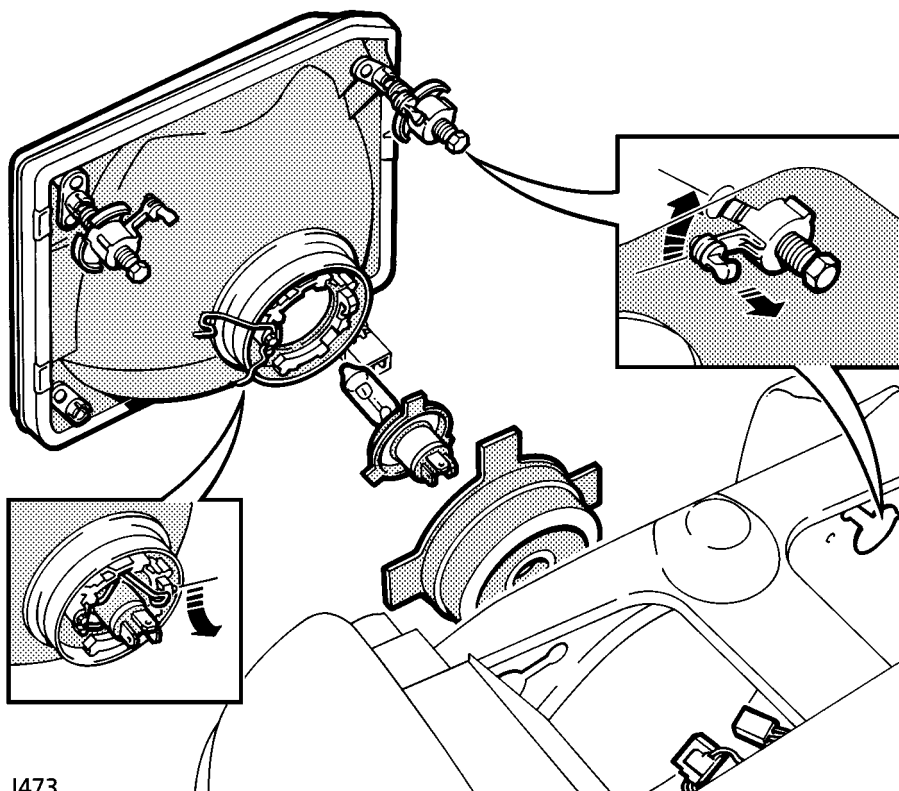
REPLACEMENT BULBS	Watts
Headlight unit	
Front side lights	5
Front direction indicators	21
Dip/main headlights	60/55
Front fog lights	55
Rear lights:	
direction indicators	21
tail lights	5
stop lights	21
rear fog guard lights	21
reversing lights	21
High mounted stop light	21
Side repeater lights	5
Puddle lights	3
Number plate lights	5
Loadspace light	10
Front courtesy light	10
Rear courtesy light	5
Vanity mirror lights	1.2
Glovebox light	5

IMPORTANT INFORMATION

Before replacing a bulb, always switch off the starter switch and appropriate lighting switch to prevent any possibility of causing a short circuit. Only use new bulbs of the same type and with the same specification.

NOTE: All bulbs must be rated at 12 volts.

Bulb replacement



J473

HEADLIGHT AND SIDELIGHT

Light unit removal

To replace either headlight or sidelight bulb, remove the light unit as follows:
Disengage the three retaining clips and rotate them approximately 10 degrees (see inset) to align with the slots. The light unit can now be released forward.

NOTE: Vehicles fitted with headlight levelling (as illustration, above) have two retaining clips only (the bottom of the light unit is mounted on the headlight height adjustment operating rod). Remove the lamp by gently pulling it off the ball socket of the operating rod.

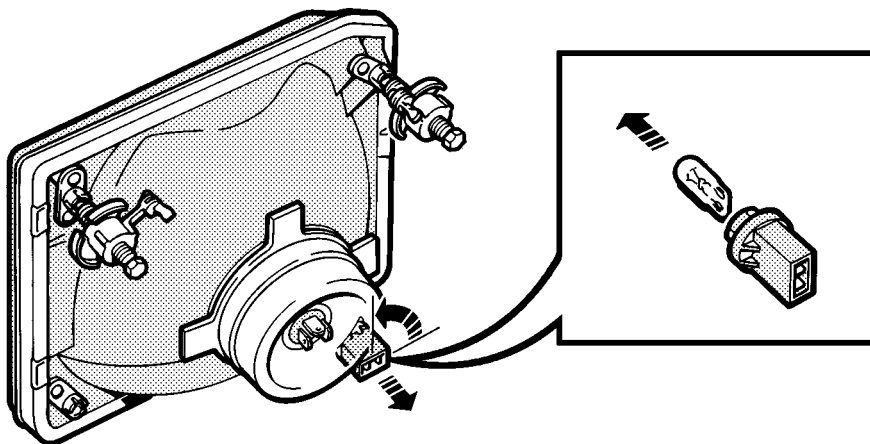
Headlight bulb:

Disconnect the electrical multi-plug and remove the rubber cover. Release the spring clip and withdraw the bulb. Replace the bulb ensuring that the larger tab is pointing towards the top of the headlight.

Replace the rubber cover, ensuring the slit in the cover is at the top of the headlight, and pressing the centre firmly to seal around the electrical contacts of the bulb.

NOTE: Do not touch the bulb glass with your fingers. If necessary, clean the bulb with methylated spirits.

Bulb replacement



J474

Replacing the headlight unit

Replacement is a reversal of the above procedure. However if headlight levelling is fitted, it is necessary to carefully align the lower fixing position to the height adjustment operating lever before fitting the retaining clips.

Once the retaining clips are secure, firmly push the bottom of the headlight unit towards the rear of the vehicle to fully engage the height adjustment operating lever, a firm 'clunk' will be felt when engagement is correct.

Sidelight bulb:

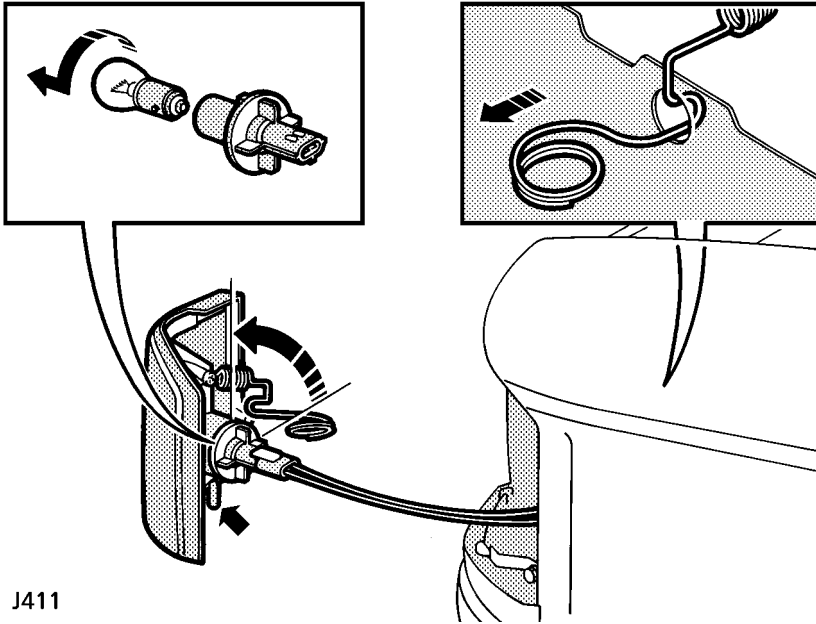
With the light unit removed (see previous page), disconnect the electrical multi plug and disengage the bulb holder by twisting a quarter turn anti-clockwise. Withdraw the bulb holder to replace the bulb.

IMPORTANT INFORMATION

BULB REPLACEMENT

Before replacing a bulb, always switch off the lighting switch to prevent any possibility of a short circuit. Replace bulbs with the same type and specification.

Bulb replacement



J411

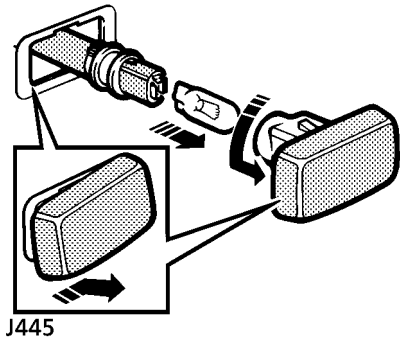
FRONT DIRECTION INDICATORS

Unclip the spring to release the light unit. Lift out the light unit and turn the bulb holder anti-clockwise to release. Push and twist the bulb to remove.

When replacing the light unit, locate the two lugs at the bottom of the unit before re-engaging the spring.

SIDE REPEATER LIGHT

Push the lens firmly to the right, lift the left edge and withdraw the light unit from the wing. Twist to release the bulb holder and pull the bulb to remove.



J445

Bulb replacement

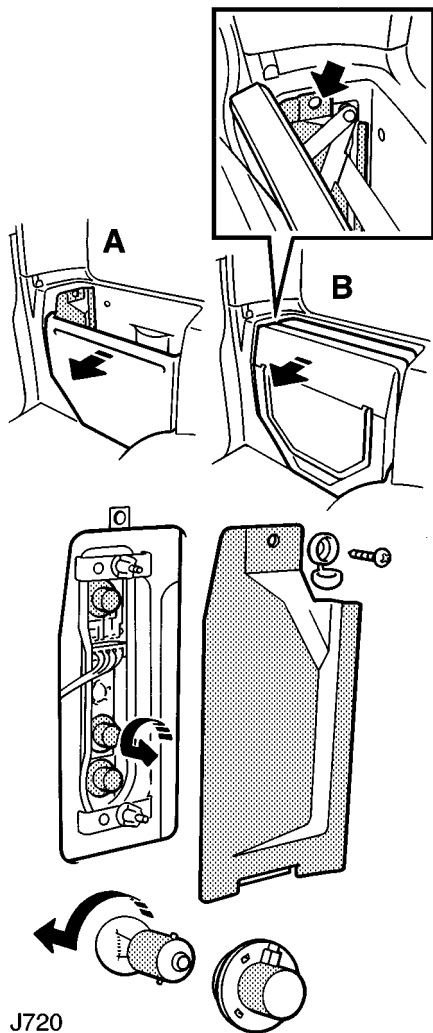
REAR LIGHT CLUSTER

(Stop, reverse & fog guard lights)

To gain access to the light cluster, either: remove the side pocket cover (picture 'A') or, half pull out the side facing seat (picture 'B'), as applicable. Use a small screwdriver to lever the fastener cover free (the fastener location is arrowed in the inset) and then unscrew the fastener to remove the access panel (as shown in the lower illustration).

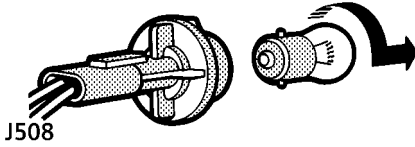
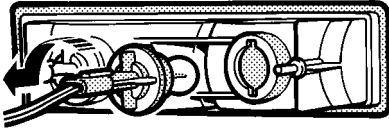
Twist and remove the appropriate bulb holder, then push and twist to release the bulb.

NOTE: In some markets, the stop lights are replaced by combined stop/tail lights and the rear light cluster also includes direction indicator lights.



J720

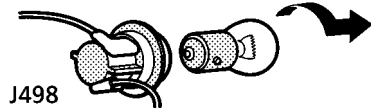
Bulb replacement



BUMPER MOUNTED LIGHTS

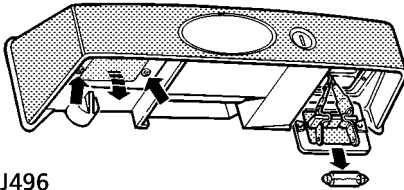
(Tail lights & direction indicators)

Reach behind the bumper and twist to remove the relevant bulb holder, push and twist to release the bulb.



HIGH MOUNTED STOP LIGHT

Remove the retaining screws and the cover from the rear of the light unit. Twist to remove the bulb holder. Push and twist to release the bulb.



J496

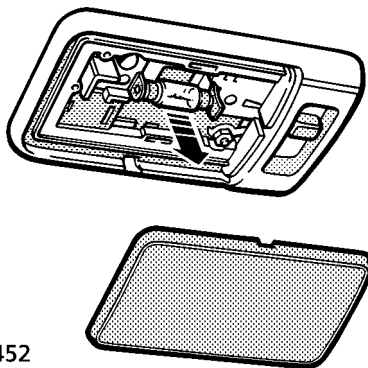
NUMBER PLATE LIGHTS

Remove the screws and withdraw the lens. Pull the bulb out.

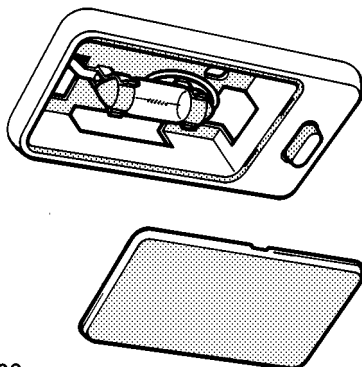
FRONT FOG LIGHTS

To change a front fog light bulb entails removing the light unit from the vehicle. To ensure correct refitting of the light unit, owners are advised to entrust bulb changing to a Land Rover dealer.

Bulb replacement



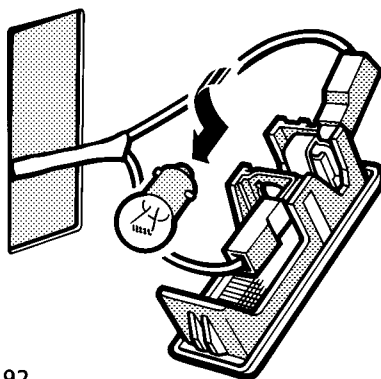
J452



J509

INTERIOR LIGHT

Prise the lens from the unit. Spread the bulb holders to release the bulb.



J492

LOADSPACE LIGHT

Prise the light from its location. Push and twist the bulb to remove. Replace and reassemble.

GLOVEBOX LIGHT

Slide the light unit to the left and insert a broad flat-headed screwdriver to release the retaining catch. Withdraw the light unit from the glovebox and pull out bulb to replace.

Cleaning & vehicle care

WASHING YOUR VEHICLE

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!

During winter months when salt has been used on the roads, use a hose to wash the underside of the vehicle. Pay particular attention to wheelarches and panel seams, and to removing accumulations of mud.

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 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.

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.

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 water pipes, hose clips and the ignition coil clamp, to prevent corrosion.

Getting rid of 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. Treat paint chips and scratches with touch-up paint to prevent corrosion, and occasionally protect the paint surface with an application of car polish.

NOTE: *DO NOT apply car polish to the bumper mouldings - polish will become ingrained in the textured finished.*

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 - DO NOT use abrasive cleaning compounds or metal scrapers.

Cleaning & vehicle care

LOOKING AFTER THE INTERIOR

- Clean plastic-faced or cloth covered surfaces with diluted upholstery cleaner.
- Leather seats, steering wheel and trim features should be cleaned with a damp cloth moistened with undiluted upholstery cleaner. Leave for five minutes, and then repeat the operation using a clean cloth and water - but avoid flooding the area! Dry and polish the leather with a dry, lint-free cloth.
- DO NOT use petrol, detergents, furniture creams or polishes!
- Sweep carpets with a brush or vacuum cleaner and clean with diluted nylon upholstery cleaner.

Clock and radio

- Clean with a dry cloth only! DO NOT use cleaning fluids or sprays.

Seat belts

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

Airbag

To prevent airbag SRS damage, the steering wheel centre pad and area of the fascia panel containing the passenger side 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.

RECOMMENDED CARE PRODUCTS

(Available in the UK)

De icer	STC 717
Alloy wheel cleaner	STC 718
Glass cleaner	STC 719
Black bumper cleaner	STC 721
Shampoo	STC 722
Wax polish	STC 723
Screen wash	STC 8249