

# SECTION 4

## Owner maintenance

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

*Maintenance is the owner's responsibility and it is ESSENTIAL that all routine services are carried out at the specified intervals. These are shown in the Passport to Service book included in the literature pack. The Passport to Service also provides spaces for your dealer to record the completion of each service as and when it is carried out, thus creating a valuable and comprehensive record of the maintenance history of your vehicle.*

*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.*

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# Owner maintenance

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## OWNER MAINTENANCE

In addition to the routine services, which should be carried out by your Land Rover dealer at the intervals shown in the Passport to Service, a number of simple checks (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 or weekly checks

(to be carried out at least every 400 km or 250 miles).

- Check/top-up engine oil.
- Check/top-up engine cooling system.
- Check/top-up windscreen washer reservoir.
- Check/top-up brake fluid reservoir.
- Check/top-up power steering reservoir.
- Check/top-up gearbox fluid level.
- Check/adjust tyre pressures.
- Check operation of inertia reel seat belts.
- Check tyres for wear or damage.
- Check operation of parking brake and footbrake.
- Check operation of lights, horn, wipers and washers.

### WARNING

***If brake travel is unusually long or if there is any evident loss of brake fluid, contact your dealer immediately. Any significant or sudden drop in fluid levels, or uneven tyre wear should be reported to your dealer without delay.***

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

### IMPORTANT INFORMATION

#### Special operating conditions

When a vehicle is operated in extremely arduous conditions or on 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.

### 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.***

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# Owner maintenance

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## 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 Passport to Service. Most of the 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.

While Land Rover North America Inc. maintains that an authorised Land Rover dealer is best equipped to carry out repairs and maintenance on the emission control system, such work may be carried out by any competent automotive repair shop, or individual, using certified parts.

## Road testing on dynamometers (‘rolling roads’)

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

## Steering

The intermediate steering shaft, connecting the steering column to the steering box, is designed to disconnect under certain crash conditions. This is a critical safety feature and any servicing, replacement or repair must **ONLY** be carried out by an authorised dealer using approved Land Rover parts.

Examination of the intermediate shaft every 24,000 miles (40,000 km), or two years, is an important part of the vehicle’s servicing schedule. However, you should be aware that a more thorough examination **MUST** be carried out if the vehicle is involved in a frontal collision.

Under no circumstances should any form of oil, grease or lubricant be applied to any part of the steering column at any time; any noise or roughness of operation should be reported to your dealer.

# Safety in the garage

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## 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 engine, 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 a vehicle lifting jack as the only means of support.
- ENSURE sparks and naked lights are kept away from the engine compartment.

### WARNING

***Remember; cooling fans may continue to operate after the engine is switched off. Always wait until the fans have completely stopped moving before working in the engine compartment.***

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## 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 and power steering fluids, as well as gasoline, engine oil and windscreen washer additives.

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

## Used engine oil

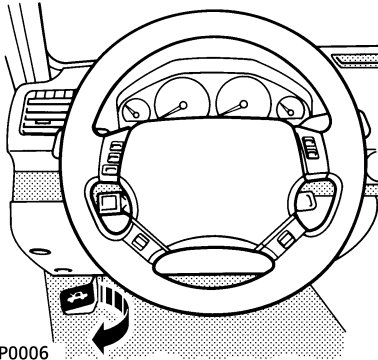
Prolonged contact with engine oil may cause serious skin disorders, including dermatitis and cancer of the skin. ALWAYS wash thoroughly after contact.

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 oil and toxic chemicals. If in doubt contact your Local Authority for advice.

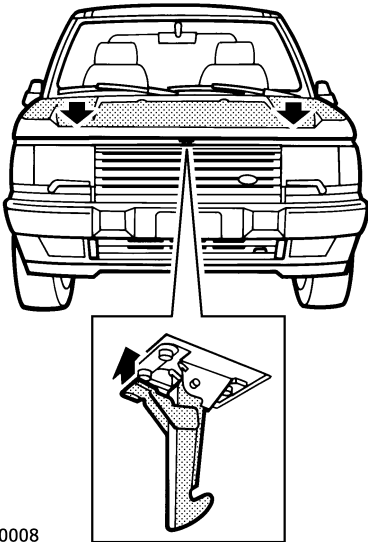
## PROTECT THE ENVIRONMENT!

# Hood opening

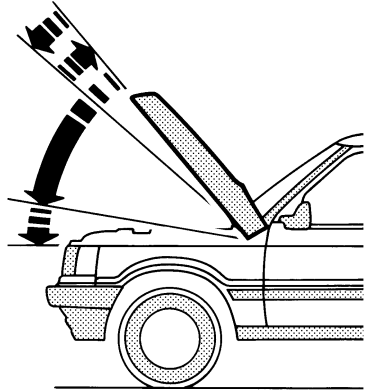
## OPENING THE HOOD



Pull the release lever.



Lift the safety catch and raise the hood.



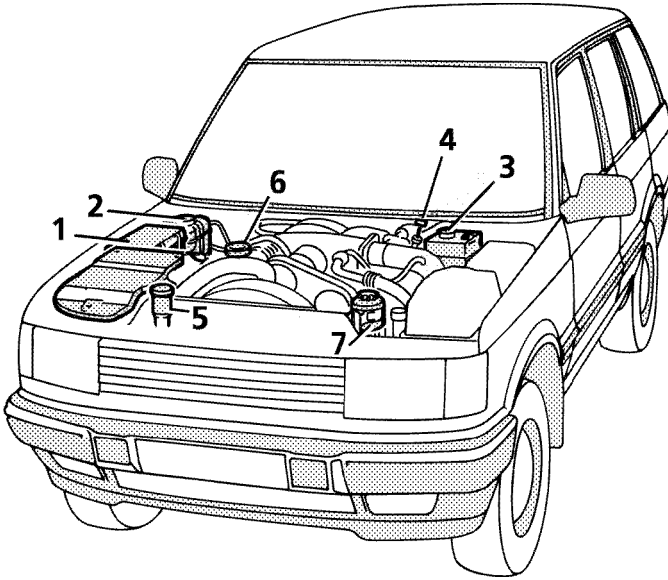
## Closing the hood

Lower the hood slightly until a stop is felt. Then lift the hood (to release the locking strut) before lowering fully.

When the hood is approximately 12 inches (300 mm) from its closed position, push down CAREFULLY, using the palms of both hands positioned on the leading edge of the hood on either side of the radiator grill (where shown in illustration). Check that the locks are FULLY engaged by attempting to lift the front edge of the hood, which should be free from all movement.

# Engine compartment

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P0004A

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

**NOTE:** There is no dipstick for checking transmission lubricant levels. Transmission lubricant checks are performed at scheduled service intervals.

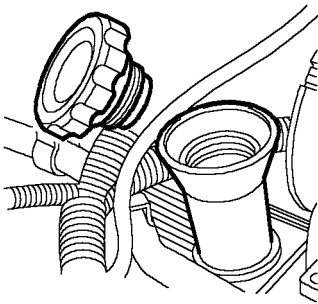
Instructions on how and when owner maintenance should be carried out are included on the following pages.

## WARNING

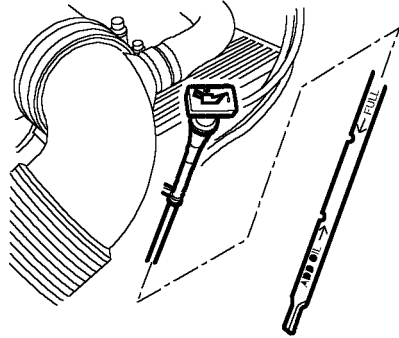
**Before carrying out maintenance checks, or working in the engine compartment, ALWAYS observe the safety precautions listed under 'Safety in the garage', at the beginning of the Owner maintenance section of this handbook.**

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# Engine compartment



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## ENGINE OIL LEVEL CHECK & TOP-UP

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

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. 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!

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 0.5 US quart (0.5 litre) of oil.
- is below the lower mark, add 1 US quart (1 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 hot, switch off the engine and let the vehicle stand for five minutes to allow the oil to drain back into the sump. Then follow the procedure already described.

## 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.

## Engine oil change

Ensure the engine oil is changed at the recommended service intervals (see your 'Passport to Service').

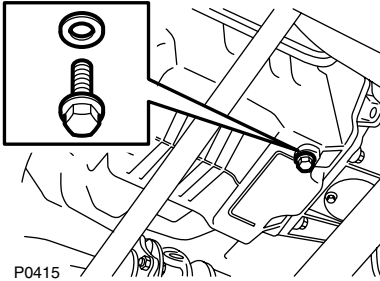
Under severe operating conditions (i.e. regular use in muddy terrain or dusty conditions), the engine oil must be changed frequently, even to the extent of a daily change. Consult your Land Rover dealer for guidance.



# Engine compartment

## Engine oil drain and refill

With the vehicle parked on firm, level ground, remove the filler cap and position a container of suitable size under the drain plug in the bottom of the sump.



- Clean the area around the drain plug.
- Remove the drain plug and discard the sealing washer
- Allow the oil to drain into the container.
- Clean the drain plug and its mating surface on the sump.
- Fit a new sealing washer to the drain plug, fit the drain plug and tighten to 33Nm (24 lbf.ft).

## IMPORTANT INFORMATION

DO NOT pollute drains, water courses or soil. ONLY dispose of used engine oil and other vehicle fluids at an authorised waste disposal site.

## WARNING

***Prolonged contact with used engine oil can cause serious skin disorders, including dermatitis and cancer of the skin. Wear protective clothing if possible and ALWAYS wash thoroughly after contact.***

Refill the engine with fresh oil suitable for the climatic conditions in which the vehicle is to be operated (precise specifications are shown in 'General data').

DO NOT overfill the engine! Remember that a little oil will always remain in the engine after draining and that, therefore, the quantity of oil required to refill the engine will be slightly less than the full capacity quoted in 'General data'.

After filling, allow a few minutes to elapse before checking the level on the dipstick (this will allow all the oil to drain into the sump and enable a true reading to be obtained). Once the correct level of oil is shown on the dipstick, replace the filler cap.

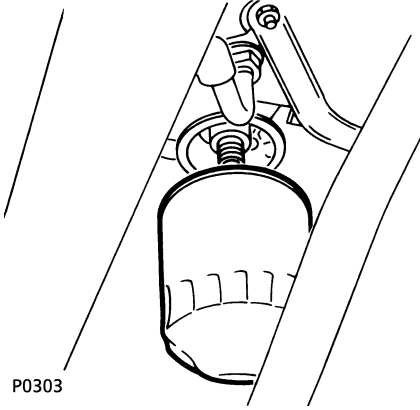
# Engine compartment

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## Oil filter renewal

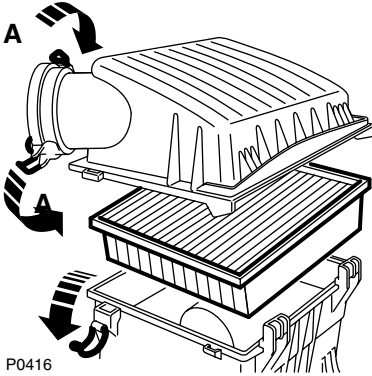
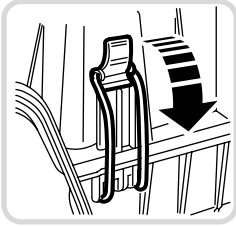
To avoid draining the oil pump, it is essential that the engine is filled with oil to the correct level BEFORE the filter is removed. It is therefore recommended that the engine oil is renewed before work on the filter commences.

4. Start and run the engine. Do not rev the engine until the oil pressure warning light extinguishes. Check for oil leaks around the filter and drain plug.
5. Stop the engine, wait a few minutes, then check the oil level and top up if necessary.



1. Clean the area around the filter head and place a container beneath the filter.
2. Using a strap type filter wrench, unscrew the filter anti-clockwise and discard it.
3. Smear the sealing ring of the new filter with clean engine oil, and then fit the filter tightening clockwise until it is securely in position by hand or to 15Nm (13 lbf.ft). DO NOT overtighten.

# Engine compartment

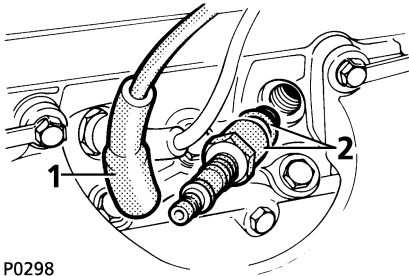


## Air cleaner element removal

- Remove the battery cover and disconnect the negative ('-') lead.
- Release the 2 clips (A) and disconnect the air pipe from the air cleaner cover.
- Release the 2 clips securing the air cleaner cover and remove the cover.
- Remove the air cleaner element.
- Clean the inside of the air cleaner case and cover.
- Fit a new air cleaner element.
- Fit air cleaner cover and secure with clips.
- Connect air pipe to air cleaner and secure with clips.
- Connect the battery negative lead.
- Fit the battery cover.

Renewing the air cleaner element at the recommended service intervals (see your 'Passport to Service') is extremely important. However, to maintain optimum engine performance under dusty operating conditions, more frequent renewal will be necessary. Consult your Land Rover dealer for guidance.

# Engine compartment

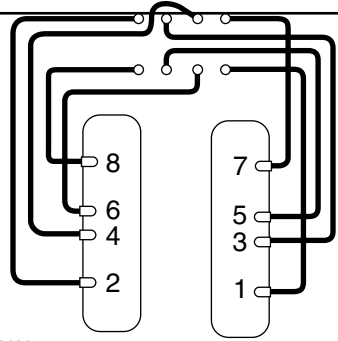


P0298

## Spark plug removal

Remove the plug leads (1), ensuring that you hold the rubber shroud and NOT the H.T. leads (this prevents damage occurring to the connectors during removal).

Ensure that the recesses around the plugs are free from debris (to avoid foreign matter accidentally entering the cylinder head), and use a suitable spark plug wrench to remove the plugs and washers (2).



P0426

## Refitting the plugs

When refitting, take care not to cross-thread the spark plugs otherwise costly damage to the cylinder head will result.

Only fit spark plugs of a type recommended by the vehicle manufacturer. These are specified in 'General data' and must be tightened to a torque of 14 to 16 lbf.ft (19 to 21,7 Nm). Note that incorrect grades of plug may lead to engine failure and serious damage.

## Refitting the high tension leads

To ensure the correct firing order (1, 8, 4, 3, 6, 5, 7, 2), the high tension leads must be replaced in the correct relationship to each other (as illustrated). Failure to maintain the correct plug lead connections will result in a misfire and possible damage to the catalytic converter.

When pushing the leads on to the plugs, ensure that the shrouds are firmly seated on the plugs.

# Engine compartment

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## COOLING SYSTEM TOP-UP

### WARNING

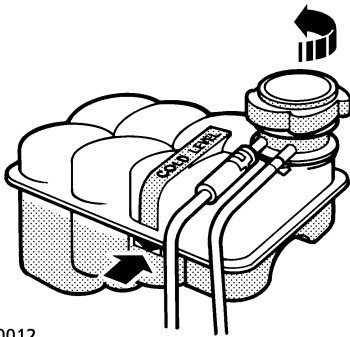
**NEVER** remove the filler cap when the engine is hot; escaping steam or scalding water could cause serious personal injury.

The coolant level in the expansion tank should be checked at least weekly (more often in high mileage or arduous operating conditions). Always check the level **WHEN THE SYSTEM IS COLD**.

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

**NEVER** run the engine without coolant.

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P0012

Top-up to the arrowhead (next to the seam) on the side of the tank with a 50% mixture of anti-freeze and water. 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 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.**
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# Engine compartment

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P0015

## WINDSCREEN WASHER TOP-UP

The windscreen washer reservoir also supplies the rear screen and headlight washer jets.

The message 'LOW SCREEN WASH' appears on the message centre whenever the washer is operated and the reservoir fluid level is low. To reset the message centre, top-up the reservoir **ONLY** when the starter switch is turned off.

Top-up with a mixture of water and a good quality, proprietary brand of screenwash. In cold weather, to prevent freezing, **ALWAYS** use the recommended quantity of screenwash to help disperse ice and snow.

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

**CAUTION:** Do not use an anti-freeze solution in the washer reservoir. Anti-freeze will damage painted surfaces.

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

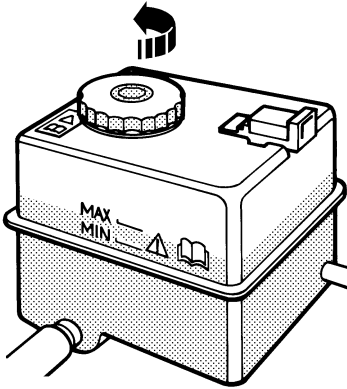
## WARNING

***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.***

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# Engine compartment

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P0013

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

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

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

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

## 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) as follows:

1. Turn the starter switch to position 'II' to activate the pump (brake warning light illuminates).
2. If the pump cannot be heard to operate, press the brake pedal several times.
3. Wait until the pump has stopped operating and the warning light has extinguished before checking the fluid level.

# Engine compartment

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## Topping-up

Wipe the filler cap before removing, to prevent dirt from entering the reservoir, then top-up to the 'MAX' mark using a recommended fluid (see 'General data').

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!**

### **WARNING**

***DO NOT drive if the reservoir fluid level is below the 'MIN' mark.***

***It is vital that the hydraulic brake fluid is completely renewed at 45,000 mile (72,000 km) intervals or every 36 months, whichever is sooner.***

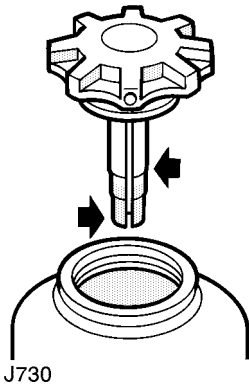
***At 90,000 mile (144,000 km) intervals or every 6 years, whichever is sooner, all hydraulic brake fluid, seals and flexible hoses should be renewed. All working surfaces of the caliper cylinders should be examined and the components renewed where necessary. Under arduous operating conditions, these intervals must be reduced. Please consult your Land Rover dealer.***

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# Engine compartment

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## POWER STEERING TOP-UP

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

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 filler cap fully and remove it again to check the fluid level. Add fluid to the reservoir until the level is between the upper mark and the bottom of the dipstick (see 'General data' for recommended fluid).

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

**CAUTION:** 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.

## WARNING

*Power steering fluid is highly toxic - keep containers sealed and out of the reach of children. If consumption of power steering 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.*

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## 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.***
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### **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 given 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.***

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### **Tyre wear**

Some tyres fitted as original equipment have wear indicators moulded into the tread pattern. When the tread has worn down to 1/16 inch (1.6 mm) the indicators start appearing on the surface of the tread pattern, producing the effect of a continuous band 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 1/16 in. (1.6 mm). **DO NOT** drive with tyres worn to this limit; the safety of the vehicle and its 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.

## Uniform tyre quality grading

Tyre quality grades can be found, where applicable, marked on the sidewall of the tyre between the tread shoulder and maximum section width.

For example:

*Treadwear 200, Traction AA, Temperature A.*

However, deep tread, winter-type snow tyres are exempt from these grading requirements and, consequently, the tyres fitted to your vehicle may not be marked.

Note that all passenger car tyres must conform to federal safety requirements in addition to the quality grades.

### **Treadwear:**

The treadwear grade is a comparative rating based on the wear rate of the tyre when tested under controlled conditions on a specified government test course. For example; a tyre graded 150 would wear one and a half times as well on the government course as a tyre graded 100. However, the relative performance of tyres depends upon the actual conditions of use, and may depart significantly from the norm due to variations in driving habits, service practices and differences in climate and road characteristics.

### **Traction:**

The traction grades, from highest to lowest, AA, A, B and C. These grades represent a tyre's ability to stop on wet roads as measured under controlled conditions on specified government test surfaces of asphalt and concrete. A tyre marked 'C' may have poor traction performance.

## WARNING

***The traction grade assigned to this tyre is based on straight-ahead braking tests, and does not include acceleration, cornering, hydroplaning, or peak traction characteristics.***

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### **Temperature:**

The temperature grades, from highest to lowest, are A, B and C, and represent a tyre's resistance to the generation of heat and its ability to dissipate heat when tested under controlled conditions on a specified indoor laboratory test wheel. Sustained high temperatures can cause the material of a tyre to degenerate, thereby reducing tyre life, and excessive temperatures can lead to sudden tyre failure.

Grade 'C' corresponds to a level of performance which all passenger car tyres must meet under the Federal Motor Safety Standard No 109.

Grades 'B' and 'A' represent higher levels of performance on the laboratory test wheel than the minimum required by law.

## WARNING

***Temperature grades are established using tyres that are properly inflated and not overloaded. Excessive speed, under-inflation or excessive loading, either separately or in combination, can cause heat build-up and possible tyre failure.***

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## 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 back. DO NOT use cross-ply or tubed tyres, and DO NOT interchange tyres from front to back.***

***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 upon the correct operation of the suspension systems and vehicle handling. Alternative wheels, which do not meet original equipment specifications, should not be fitted.***

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***NOTE:*** Tyre sizes and pressures 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. They must be fitted in axle sets to the front wheels or to all four wheels.
- 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).
- To avoid tyre damage, do not drive over curbs, potholes or obstructions in the road and remove snow chains as soon as highway conditions allow.

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

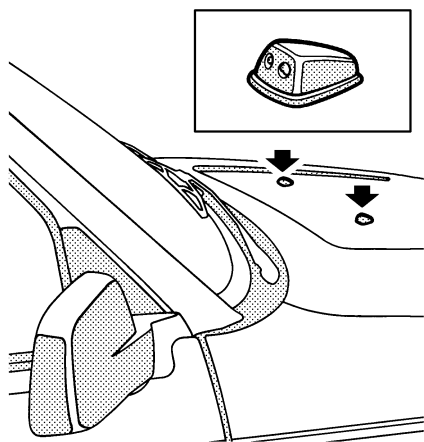
### WARNING

***DO NOT fit unapproved snow chains as they could damage your vehicle.***

***ALWAYS take care when fitting snow chains, to avoid any possible damage to alloy wheels.***

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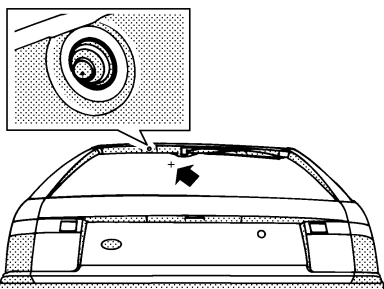
# Washer jets & wiper blades



P0188

## 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 horizontal centre line of the windscreen.

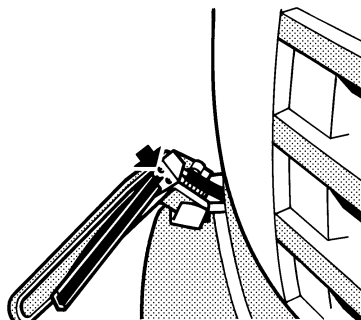


P0189

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 'cross' symbol printed on the screen glass.

## HEADLIGHT WIPERS

Each headlight wiper arm has two jets (arrowed in illustration), which direct wash fluid on to the headlight lens as the wiper arm passes over it. These jets are set during manufacture and must NOT be adjusted.



P0016

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

## REAR WIPER BLADE REPLACEMENT

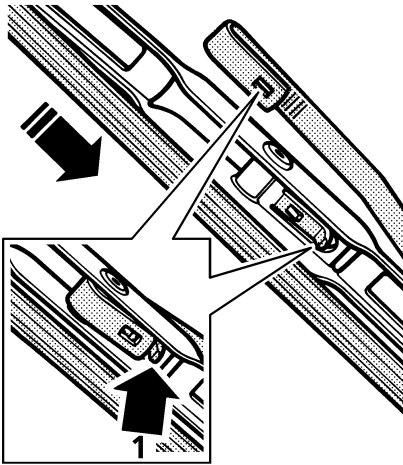
The rear wiper arm is inaccessible in its stowed position (under a cover at the top of the tailgate). To change the wiper blade, it is necessary to stop the wiper arm during its travel as follows:

Set the rear screen wiper operating, then open the upper tailgate when the wiper is in a near-vertical position. The wiper will stop as soon as the tailgate is opened.

Turn the starter switch to the '0' position to prevent the wiper from operating, lower the upper tailgate and then replace the wiper blade (as described for front wiper blade - see next page). The wiper will continue operating, as soon as the starter switch is returned to position '1'.

# Washer jets & wiper blades

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P0210

## FRONT WIPER BLADE REPLACEMENT

To renew a wiper blade, lift the wiper arm away from the windscreen, 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.

## REAR WIPER BLADE REPLACEMENT

The rear wiper arm is inaccessible in its stowed position (under a cover at the top of the tailgate). To change the wiper blade, it is necessary to stop the wiper arm during its travel as follows:

Set the rear screen wiper operating, then open the upper tailgate when the wiper is in a near vertical position. The wiper will stop as soon as the tailgate is opened.

Turn the starter switch to the '0' position to prevent the wiper from operating, lower the upper tailgate and then replace the wiper blade (as described for the front wiper blade). The wiper will continue operating as soon as the starter switch is returned to position '1'.

# Battery

---

## WARNING

***Always wear appropriate eye protection when working around batteries.***

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

- ***On clothing or the skin - remove any contaminated clothing immediately, flush the skin with large amounts of water and seek medical attention urgently.***
  - ***In the eyes - flush with clean water immediately for at least 15 minutes. Seek medical attention urgently.***
- 

## WARNING

***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, flames and other ignition sources (e.g. cigarettes, incandescent lights etc.) are kept away from the engine compartment.***

***For your safety, remove all metal wrist bands and jewelry 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.***

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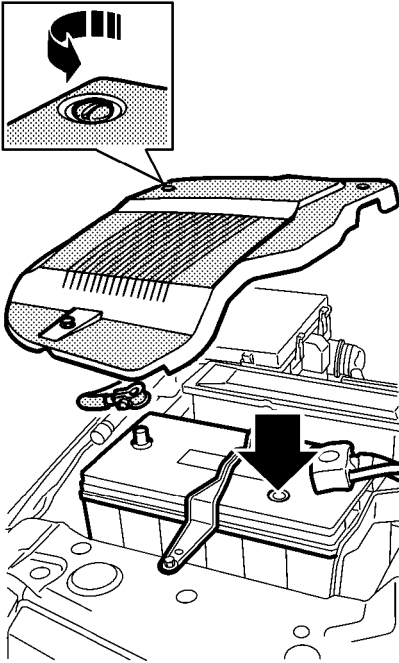
The battery is designed to be maintenance free, so topping-up is unnecessary. On some batteries there is a battery condition indicator (arrowed in illustration - see next page). Examine the indicator periodically to check the battery's condition. When the indicator shows:

- 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 vehicle in this condition.
- If the green dot is missing the battery needs charging.

***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



P0193B

## Battery removal & replacement

### WARNING

***ALWAYS remove the starter key before disconnecting the battery. Failure to do this could cause a failure of the airbag SRS.***

ALWAYS turn the starter switch to position '0', switch off all electrical equipment and remove the key before disconnecting the battery.

Turn the three turnbuckles anti-clockwise to release the battery cover.

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.

To release the battery from the vehicle, undo the nuts securing the battery clamping plate and remove the clamping plate.

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

### Replacement batteries

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

### Battery disposal

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

### 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.***



# Battery

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## WARNING

- ***DO NOT disconnect the battery when the security system is armed.***
- ***DO NOT use a high speed battery charger as a starting aid.***
- ***DO NOT charge the battery if it is connected to the vehicle - this may seriously damage the electrical system.***
- ***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.***

---

## Cold climates

Where ambient temperatures are consistently below freezing point, a heater should be used to keep the battery warm while the vehicle is not in use. Consult your Land Rover dealer for recommendations.

## BATTERY CHARGING

Batteries generate explosive gases, contain corrosive acid and supply levels of electric current high enough to cause serious burns. Before charging, ensure the battery is properly topped up, and ALWAYS observe the following precautions while charging the battery:

- Always remove the battery from the vehicle.
- 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 sparks, flames and other sources of ignition (e.g. cigarettes, incandescent lights etc.) away from the battery (batteries emit flammable 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.

# Battery

---

## **EFFECTS OF BATTERY DISCONNECTION**

Following disconnection and reconnection of the battery, a number of the vehicle's electronic control systems will fail to operate. These are listed below, together with the symptoms and action you should take to restore full operation. References are made to the appropriate section in this handbook for remedial action.

### **Radio/cassette & CD player**

The unit will fail to operate if the security feature has been enabled. To restore operation, re-enter the security code (see '*In-car entertainment*').

### **Windows & sunroof**

Operation of the windows and the sunroof will be accompanied by messages from the message centre to inform you that the 'one-touch' and 'anti-trap' functions are not set (see '*Electric windows*' and '*Electric sunroof*').

### **Trip computer**

All data entered will be lost. Reset as described in '*Trip computer*'.

### **Trip odometer (trip 1)**

This resets to zero.

## **Handsets**

Both handsets will require to be resynchronised to the vehicle (see '*Locks & alarm*').

# Wheel changing

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## WARNING

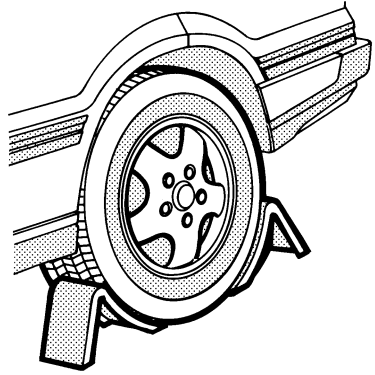
*To prevent personal injury, before jacking the vehicle the air suspension system must be 'locked' - this will prevent the suspension from self-levelling or the ride height from changing while the vehicle is supported by the wheel changing jack.*

---

To 'lock' the suspension:

1. First, ensure that either Standard or High ride height are engaged - this will provide sufficient space beneath the vehicle to locate and operate the jack.
2. Open the tailgate.
3. Switch on the hazard warning lights.

The hazard warning lights MUST remain flashing and the tailgate open THROUGHOUT THE WHOLE wheel changing process.



## Using the wheel chocks

### WARNING

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

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If possible, position the vehicle on level ground, chocking both sides of the wheel diagonally opposite the one to be removed.

If jacking the vehicle on a slope is unavoidable, place the chocks on the downhill side of the two opposite wheels.

The wheel chocks are stowed with the jack, jack lever, wheel brace and steel spare wheel beneath the loadspace floor.

# Wheel changing

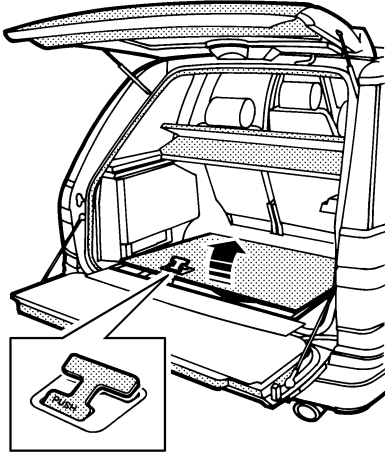
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## **IMPORTANT INFORMATION**

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.
- Position the warning triangle at an appropriate distance from the vehicle to warn other traffic.
- Apply the parking brake and select gear position 'P' in Low or High range.
- Ensure the air suspension system is locked, and remove the starter key.
- **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!

# Wheel changing



P0078

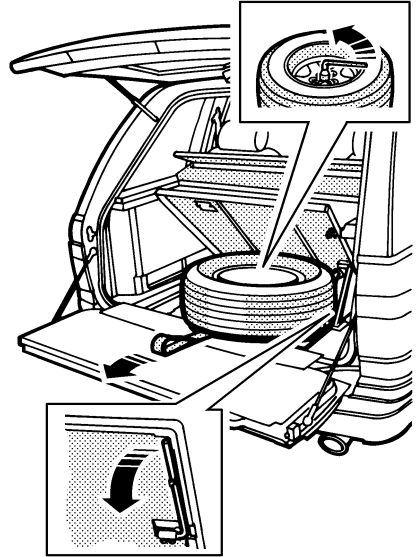
## Removing the spare wheel

Fully open the tailgate and hinge the rear portion of the parcel shelf forward.

Unlatch and raise the loadspace floor panel and then secure the panel in a raised position by engaging the stay (as shown).

Using the wheel brace, remove the spare wheel retaining nut. Pull the loop of the webbing rearward; the wheel will be raised up and lifted onto the rear tailgate.

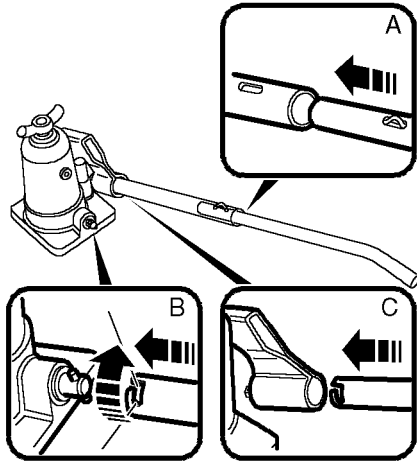
**NOTE:** A warning triangle is stowed on the underside of the loadspace floor panel (see 'Warning triangle').



## WARNING

**The wheels are extremely heavy. Take care when lifting and particularly when removing the spare wheel from the loadspace.**

# Wheel changing



P0400

## Operating the jack

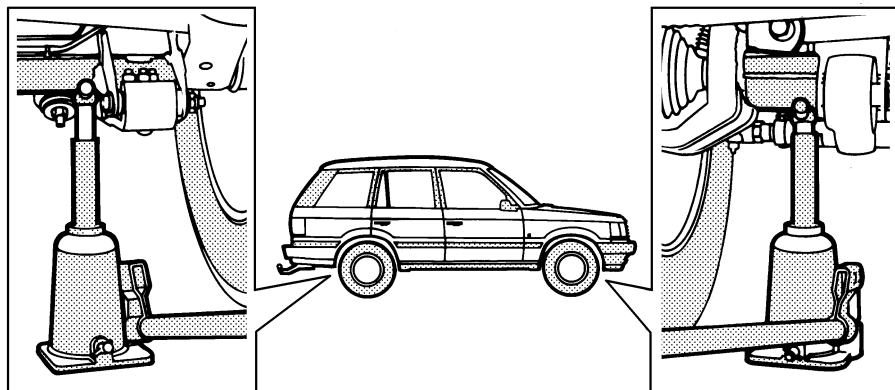
Slot the two parts of the jack lever together, ensuring that the spring clip protrudes from the engagement slot where the two parts join (see inset 'A'). Close the jack release valve by using the notched end of the jack lever to turn the valve fully clockwise (see inset 'B'). Insert the lever into the socket as shown (inset 'C') and twist the lever to lock it onto the socket. Pump the lever up and down to raise the jack.

To lower the jack, withdraw the lever and slot the notched end over 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



P0082

## Positioning the jack

Before positioning the jack, ensure that the air suspension system is 'locked' (key removed from starter switch, hazard lights switched on, and tailgate open). If the vehicle had previously settled to Low ride height (or Access), it will be necessary to improve access beneath the vehicle by starting the engine and raising the vehicle to Standard or High ride height before 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, jacking lever throughout to minimise any 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:

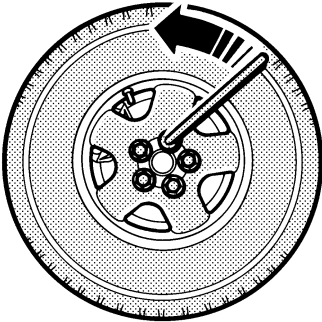
Push the mud flap up over the tyre to allow clear access. Position the jack so that, when raised, it engages with the rear axle casing immediately below the air spring and as close as possible to the shock absorber mounting bracket (see illustration).

## Front jacking point:

Position the jack so that, when raised, it will engage with the front axle casing immediately below the air spring (see illustration). The cradle of the jack must locate between the end of the axle and the point where the radius arm attaches to the axle (see illustration).

# Wheel changing

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P0142

## 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 chocks are correctly positioned (as described previously) and that the air suspension system is 'locked' at Standard or High ride height.

### WARNING

*To prevent any accidental change in the ride height or automatic levelling of the suspension, the air suspension system must remain inhibited during the **WHOLE** wheel changing process - to achieve this, **ALWAYS** remove the key from the starter switch and ensure that the tailgate remains open and the hazard lights are operating throughout.*

---

- Use the wheel brace 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 alloy wheels by placing them face down on the road).
- Use an approved anti-seize compound to treat 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 tighten the wheel nuts, ensuring they are firmly seated. DO NOT fully tighten whilst the tyre is clear of the ground.

### 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.*

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# Wheel changing

- Lower the vehicle and remove the jack and wheel chocks.
- Tighten the wheel nuts in an alternating pattern (every other nut) until all are fully tightened. DO NOT OVERTIGHTEN by using foot pressure or extension bars on the wheel brace. At the earliest opportunity check the wheel nut torque (see 'General data' section).
- REMEMBER to change to 'H' (high range) before driving.
- Finally, check the tyre pressure (see 'General data' section).

## Care of the jack

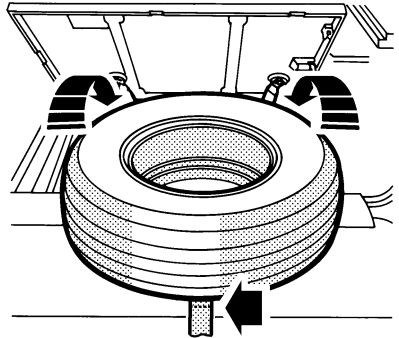
Examine the jack occasionally; clean and grease the moving parts, particularly the ram, to prevent corrosion.

To avoid contamination, the jack should always be stowed in its fully closed position.

## Wheel centre cap

After fitting the spare wheel, it will be necessary to remove the centre cap from the replaced road wheel, in order to stow the wheel in the spare wheel compartment.

Using a suitable blunt instrument (the handle of a large screwdriver, for example) apply light pressure to the rear of the cap. Use hand pressure only to replace the cap.



P0165

## Replacing the spare wheel

Preferably clean and dry the wheel before stowing it in the vehicle.

Lay the webbing flat across the lower tailgate and place the wheel face down with the rear edge of the tyre in line with the mark on the webbing.

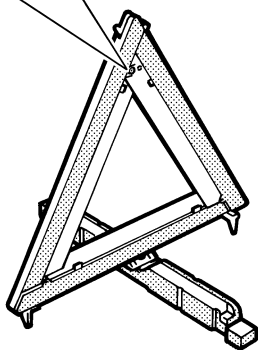
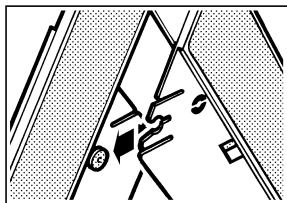
Grasp the webbing loop, raise the wheel from the tailgate, and lower into position, then fit and tighten the wheel securing nut.

## IMPORTANT INFORMATION

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

# Warning triangle

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P0296

## Warning triangle

The warning triangle is secured to the underside of the loadspace floor. Assemble by turning the base to lie at right angles to the red triangle, then raise the side arms and join them at the apex as shown in the illustration.

If a vehicle is accidentally immobilised (due to a puncture or accident for example) and is parked in a hazardous location, place the warning triangle to the rear of the distressed vehicle. Position the triangle at least 60 feet (18 metres) from the vehicle to give sufficient advance warning to other road users.

# Fuses

Fuses are simple devices which protect electrical equipment against the effects of excess current. Always remove the starter key and switch off the affected circuit before removing a fuse.

Press the fuse removal tweezers (located in the engine compartment fuse box) onto the head of the fuse and pull to remove. Fit a new fuse of the same rating. If the replacement fuse fails immediately, contact your local Land Rover dealer and have the circuit checked.

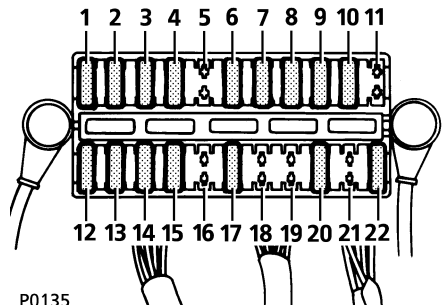
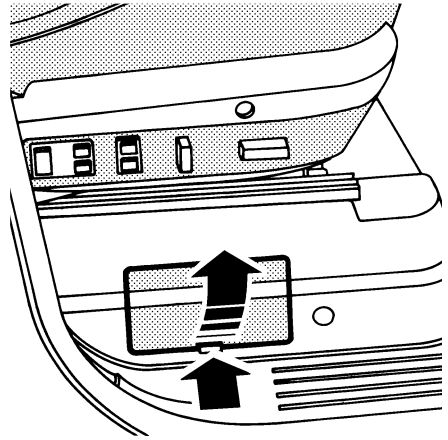
Fuses are colour-coded to help identify their amperage, as follows:

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

## WARNING

**Fit only replacement fuses of the same rating and type. Always rectify the cause of a failure before replacing a fuse. Seek qualified assistance if necessary.**

**Never replace a blown fuse with a fuse of a higher amperage rating - wiring damage or fire may result.**



## RIGHT HAND SEAT FUSE BOX

The failure of fuses 2 to 22 inclusive is reported by the vehicle message centre.

Fuses 1 to 22 inclusive are located behind a cover on the side of the right hand seat.

Lift the catch (arrowed) to disengage the cover. A label on the rear of the cover identifies the fuses and their ratings. The following list supports the information on the cover.

**NOTE:** *The applicability of fuses will vary from model to model, depending on the features fitted to the vehicle.*

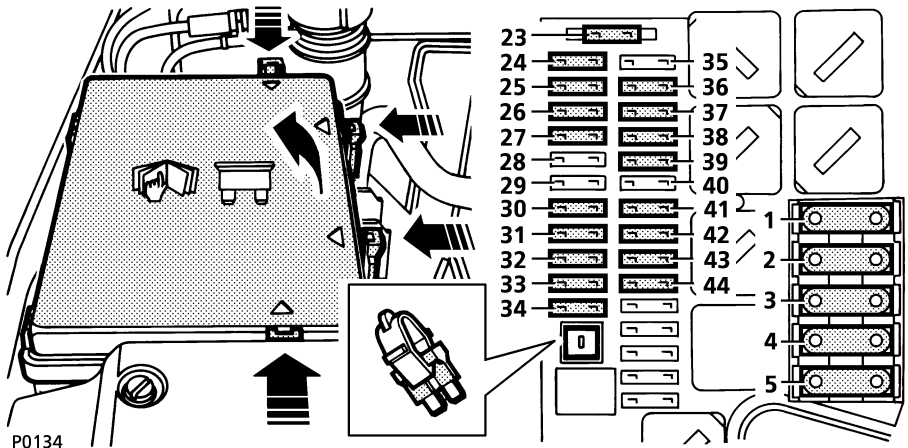
# *Fuses*

## **RIGHT HAND SEAT FUSE BOX**

<b>Fuse number</b>	<b>Rating (AMPS)</b>	<b>Circuit protected</b>
1	10A	Instrument pack, clock, radio, centre console, navigation unit
2	30A	RH rear window, seat heaters
3	5A	Automatic gearbox ECU
4	30A	Transfer box ECU
5	-	Not used
6	10A	Rear view mirror dip, sun visor illumination
7	10A	Auto gearbox ECU, transfer box ECU, engine ECU
8	30A	Car phone, auxiliary power socket, cigar lighter, radio, heating, ventilation and air-conditioning, navigation unit
9	20A	Front audio system amplifiers, front doors
10	30A	RH seat
11	-	No fuse installed (insert fuse - 5 amp or more - to select transfer neutral)
12	30A	Heated rear screen and LH rear window
13	20A	Shift interlock solenoid, sunroof
14	20A	Rear central door locking, fuel flap solenoid, trailer socket, tailgate central door locking
15	20A	Courtesy lights, handset receiver, loadspace light, rear wiper, sub-woofer, audio system amplifiers
16	-	Not used
17	10A	Brake switch
18	-	Not used
19	-	Not used
20	30A	LH seat
21	-	Not used
22	30A	LH and RH front doors (windows only)

This fuse box contains five spare fuses, one each of 5A, 10A, 20A, 30A and 40A.

# Fuses



P0134

## ENGINE COMPARTMENT FUSE BOX

### WARNING

**Batteries emit explosive hydrogen gas; ensure that sparks, flames and other ignition sources (i.e. cigarettes, incandescent lights etc.) are kept away from the engine compartment.**

Fuses 23 to 44 inclusive, listed on the following page, are located in the engine compartment fuse box.

Press each of the four latches in the direction of the arrows (moulded into the lid) and pivot the lid upward to disengage the three side location posts.

A label on the underside of the cover identifies the fuses and their ratings. The following list supports the information on the cover.

A fuse puller (red tweezers) is provided for extracting the fuses. To remove a fuse, press the fuse puller on to the head of a fuse and pull.

Refit the cover by engaging the three side posts in the slots in the fuse box. Close the cover and then push the four side catches away from the fuse box until they can be heard to 'snap' into position.

### WARNING

**Fit only replacement fuses of the same rating and type. Always rectify the cause of a failure before replacing a fuse. Seek qualified assistance if necessary.**

**Never replace a blown fuse with a fuse of a higher amperage rating - wiring damage or fire may result.**

# Fuses

## ENGINE COMPARTMENT FUSE BOX

Fuse number	Rating (AMPS)	Circuit protected
23	10A	Airbag SRS
24	5A	ABS
25	20A	Front wiper system, headlight wash
26	20A	Engine management system (EMS)
27	10A	Air conditioning compressor
28	30A	Ignition coils (EMS)
29	10A	Air suspension ECU
30	30A	Heated front screen
31	30A	Air-conditioning
32	30A	Heated front screen
33	5A	Diagnostics
34	30A	Heater blower
35	10A	Air conditioning, air suspension
36	30A	Air-conditioning
37	30A	Engine management system (EMS)
38	30A	ABS
39	20A	Fuel pump
40	40A	Starter motor, air suspension
41	20A	Horn
42	10A	Heating & ventilation, key inhibit solenoid
43	30A	Heater blower
44	30A	Engine management system (EMS)

Spare fuses 5A, 10A, 20A, 30A, 40A

Maxi 1	60A	*
Maxi 2	50A	Engine management system (EMS)
Maxi 3	40A	ABS pump
Maxi 4	60A	*
Maxi 5	60A	*

\* Failure of one of these fuses will result in the message centre displaying various messages simultaneously. Do not attempt to replace the fuse; contact your Land Rover dealer.

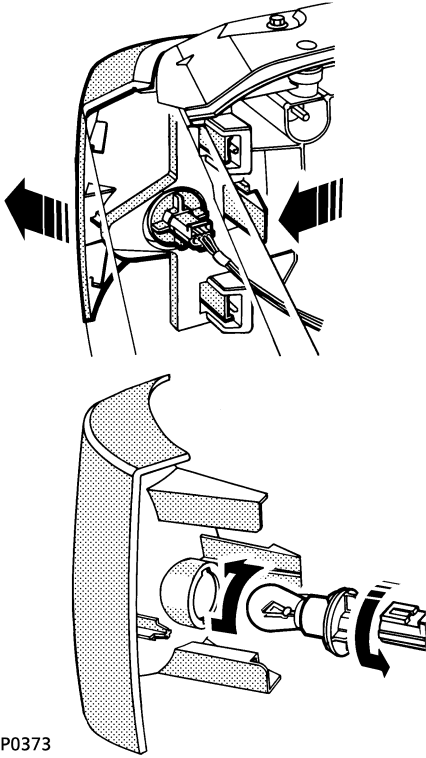
# Bulb replacement

REPLACEMENT BULBS	Watts
Headlight units	
Front direction indicator/side marker light	21/5
Inboard main beam headlight	60
Dip/main headlight	60/55
Front fog lights	55
Rear clusters:	
direction indicator	21
tail light	5
stop light	21
Tailgate clusters:	
rear fog guard light	21
reversing light	21
High mounted stop light	5
Side repeater lights	5
Puddle lights	3
Number plate lights	5
Loadspace light	10
Front courtesy & reading lights:	
courtesy light	10
map reading light	5
Rear courtesy & reading lights:	
courtesy light	5
map reading light	4
Rear footwell courtesy lights	5
Vanity mirror lights	1.2
Glovebox light	5

**NOTE:** All bulbs must be rated at 12 volts.

IMPORTANT INFORMATION
<p>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.</p> <p style="text-align: center;"><b>Halogen bulbs</b></p> <p>Halogen bulbs are used for dipped/main, supplementary main beam and front fog lights. Take care NOT to touch this type of bulb with your fingers; always use a cloth to handle them. If necessary, clean the bulb with methylated spirits to remove fingerprints.</p>

# Bulb replacement



## Front direction indicators/Side marker lights

For right hand indicator: remove the battery cover.

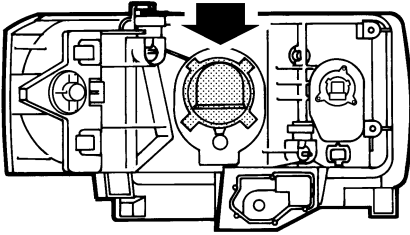
For both indicators: press the plastic lever (arrowed in top picture) to release the light unit from the front of the vehicle. Hold the light unit and rotate the bulb holder (see lower picture), then pull bulb holder to remove. Press and twist bulb to remove.

Refitting the light unit is a reversal of the above procedure. However, ensure the light unit is correctly located into the front wing and ensure that the plastic lever is securely engaged before driving.

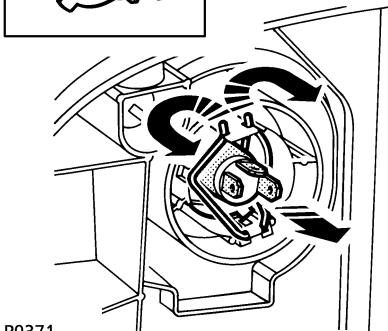
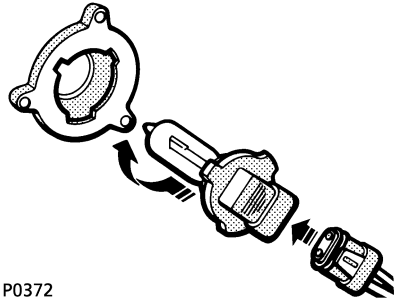
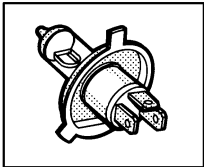
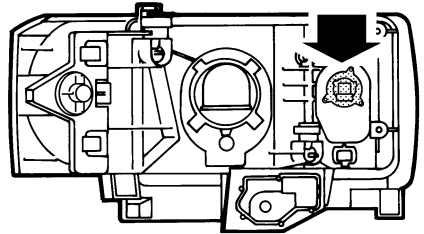
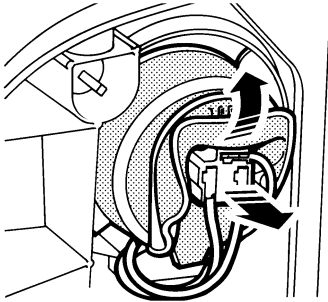
P0373



# Bulb replacement



Replace the bulb (the larger of the three tabs uppermost) and spring clip. Fit the rubber cover, ensuring that the three connectors pass through the slots in the cover, then refit the multi-plug.



P0372

P0371

## Dipped and main beam

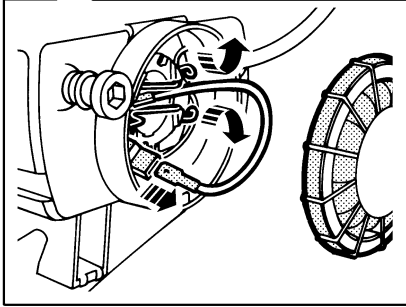
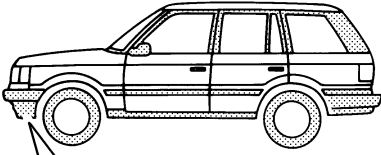
To gain access to the right hand headlight, first remove the battery cover.

Detach the multi-plug and remove the rubber cover (the rubber cover has four tabs which will assist removal and refitting). Unhook the spring clip and withdraw the bulb.

## Inboard main beam

Remove the plastic cover from rear of unit, and detach the plug from the rear of the bulb. Twist bulb counter-clockwise to remove.

# Bulb replacement



P0136

## Front fog lights

Twist the plastic cap at rear of the light unit to release, then squeeze the spring clip and withdraw the bulb holder. Disconnect the bulb holder electrical lead connector and then remove.

Replace the bulb and bulb holder as one assembly.

## Stop, direction indicator & tail lights

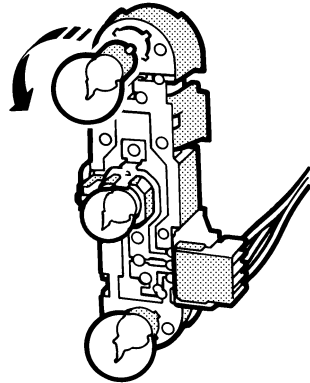
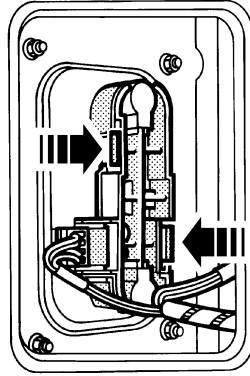
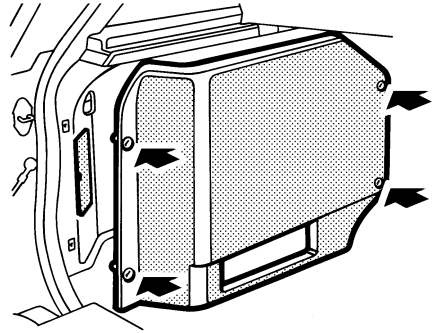
**NOTE:** If your vehicle is fitted with a CD autochanger, to access the left hand cluster, it will be necessary to remove the rear trim panel by releasing the four fasteners.

Press the latch to remove the access panel, then squeeze the two clips (one on each side of the light unit) and withdraw the unit through the access aperture. Press and twist the appropriate bulb to remove.

Top - direction indicator

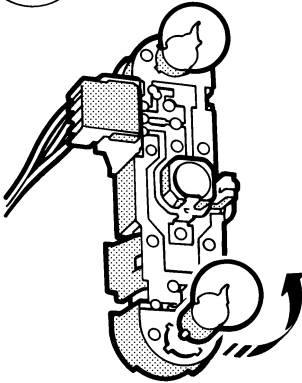
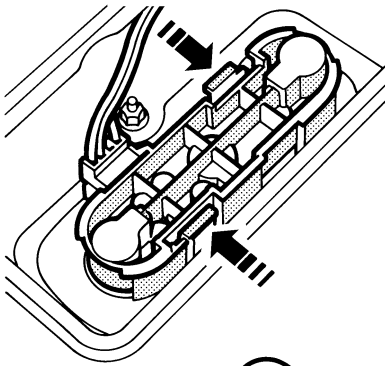
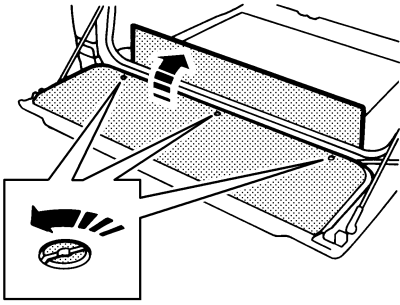
Centre - tail light

Bottom - stop light.



P0138

# Bulb replacement



P0137

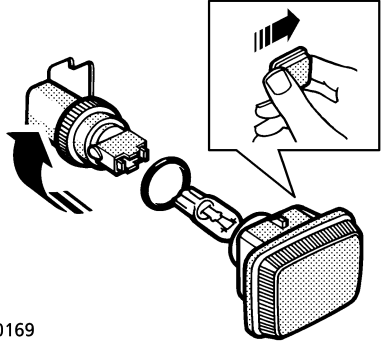
## Reversing & fog guard lights

Open the tailgate and raise the plastic hinge cover on the lower tailgate to expose the three fasteners. Turn the fasteners a quarter turn to release and then remove the tailgate trim panel.

To release either light unit, squeeze the two levers (one on each side), then press and twist the appropriate bulb to remove.

Top - reversing light

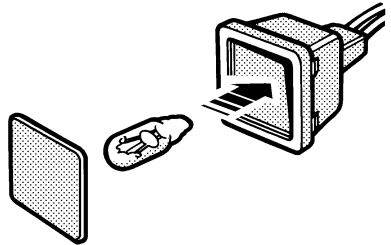
Bottom - fog light.



P0169

## Side repeater lights

Push the lens firmly to the right (arrowed) and withdraw light unit from the wing. Twist the bulb holder to release and pull out bulb.



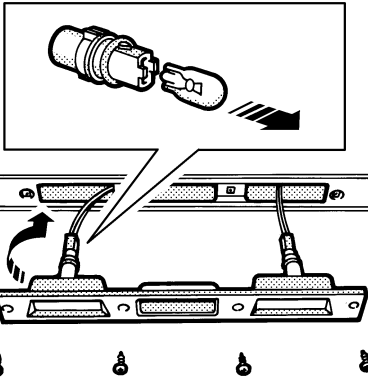
P0139

## Puddle lights

Using a plastic implement, prise the light unit from the door, pulling out as far as the electrical leads will permit, then prise the lens from the light unit. Pull the bulb from holder.

Fit lens to the light unit before refitting.

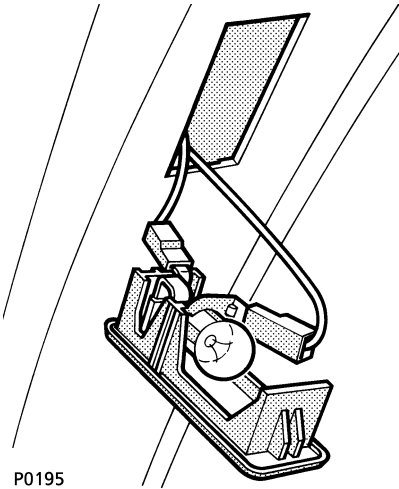
# Bulb replacement



P0164

## Number plate lights

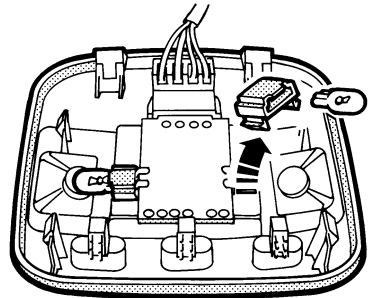
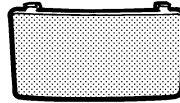
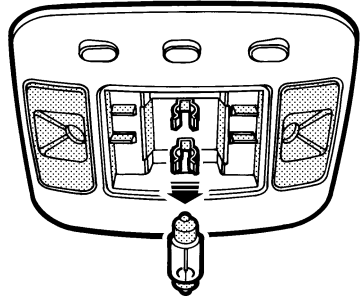
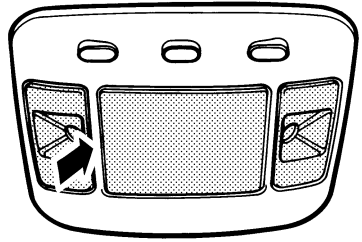
Open the upper tailgate, remove the screws and withdraw the light unit. Twist bulb holders to remove and pull out the bulbs.



P0195

## Loadspace light

Push lamp assembly to one side and prise from the upper tailgate. Press and twist the bulb to release.



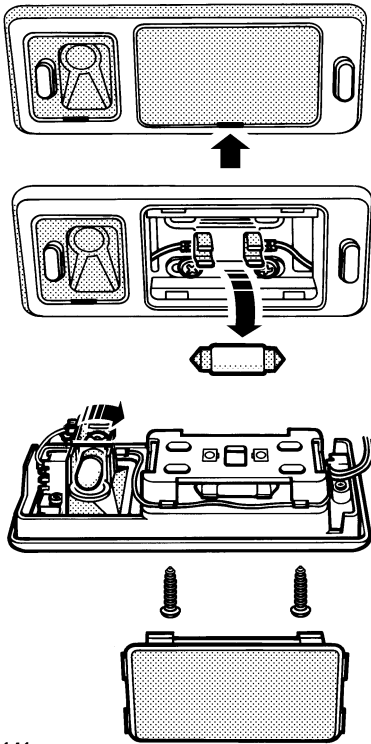
P0140

## Front courtesy & reading lights

Courtesy light bulb: prise the centre lens from the light unit, then pull the bulb out from the clips.

Reading light bulbs: prise the courtesy light unit from the headlining, then pull the bulbs out to remove.

# Bulb replacement

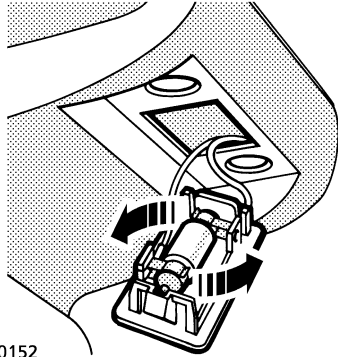


P0141

## Rear courtesy & reading lights

Rear passenger courtesy light bulb: prise the lens from the courtesy light unit, then pull the bulb to remove.

Rear passenger reading light bulb: prise the lens from the courtesy light unit (as above). Unscrew both retaining screws and withdraw light unit from the roof. The bulb can be reached from the rear of the unit.

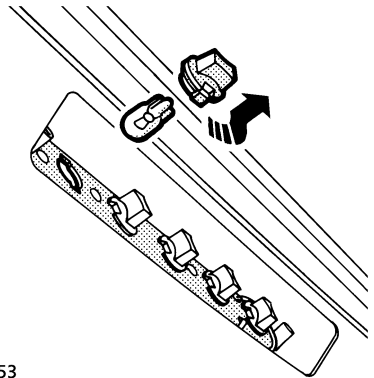


P0152

## Rear footwell light

Prise the combined lens and holder assembly from the rear of the centre console and remove bulb from clips.

Replace the bulb then refit assembly to the centre console.

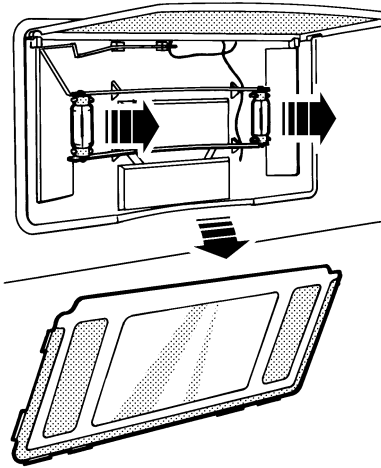


P0153

## High mounted stop light

Unclip the light cover from the inside of the upper tailgate. Twist to release the bulb holders, and pull to remove the bulbs.

# Bulb replacement

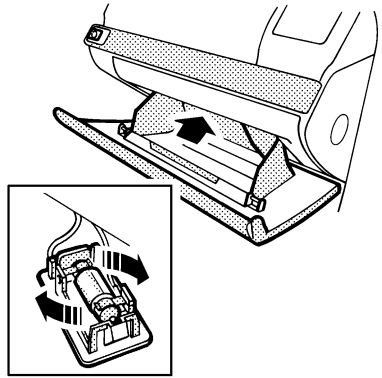


P0191

## Vanity mirror illumination

Using a small, flat bladed screwdriver (at extreme top, left and right corners - just below the hinge), prise the lens and mirror panel from the light unit. 'Spring' the bulbs free from their connectors to remove.

Replace the bulbs then refit the lens and mirror panel to the sun visor.



P0259

## Glovebox illumination

Prise the complete assembly from the underside of the top edge of the glovebox and remove the bulb from its holder.

Replace the bulb then refit assembly to the glovebox.

**NOTE:** *Glovebox illumination is available only when the side lights are on.*

# Cleaning & vehicle care

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## WASHING YOUR VEHICLE

Wash your car 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 dishwashing liquid!

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 components that might easily be damaged.***

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## 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 on underbody parts such as the frame, floor pan and the exhaust system. Regularly flush these materials from the underbody with plain water. Take care to thoroughly clean any areas where mud and other debris can 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.

## Steam cleaning

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

## Removing tar spots

Use mineral spirit or turpentine to remove tar spots and stubborn grease stains from the 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 body work 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 aluminum which will not corrode in the same manner as sheet 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.

Occasionally protect the paint surface with an application of car polish.

***NOTE: DO NOT apply car polish to the moulded bumpers - polish will become ingrained in the textured finish of the mouldings.***

## Cast alloy road wheels

The cast alloy road wheels are covered with a protective coating. To prevent corrosion, it is essential that this coating is not damaged. To clean the wheels, use a warm soapy liquid, stubborn stains can be removed using a soft brush.

# *Cleaning & vehicle care*

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## **Sunroof**

It is important that the sunroof aperture surround, channels, drain tubes and slides (accessible with the panel fully open), are kept clear, clean and lubricated for efficient operation. This requirement is particularly important in dusty environments.

If in doubt, consult your dealer.

## **Mirrors**

Mirror glass is particularly susceptible to damage; DO NOT use abrasive cleaning compounds or metal scrapers.

## **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, clean, lint-free cloth.

DO NOT use gasoline, detergents, furniture creams or polishes.

## **Instrument pack, clock & radio**

Clean with a dry cloth. 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 SRS**

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

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

## **Heated rear screen**

The following precautions must be taken, to avoid irreparable damage being caused to the printed circuit which is baked onto the interior of the screen.

- Do not remove labels or stickers from the screen with the aid of sharp instruments, or similar equipment likely to scratch the glass.
- Care should be taken to avoid inadvertently scratching the glass with a ringed finger etc, when cleaning or wiping the screen.
- Do not clean the screen with harsh abrasives.