



## Owner's Handbook





# DISCOVERY

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As part of the Land Rover environmental policy, this publication is printed on paper made from chlorine free pulp.



# SECTION 1

## Introduction

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### OWNER'S HANDBOOK

*This handbook covers the current version of the Land Rover Discovery and, together with the Passport to Service, provides all the information you need to derive maximum pleasure from owning and driving your new vehicle.*

*For your convenience, the handbook is divided into sections, each dealing with a different aspect of driving or caring for the vehicle. The sections are listed on the contents page and you will find it worthwhile to take a little time to read each one, and get to know your Discovery as soon as you possibly can. The more you understand before you drive, the greater the satisfaction once you are seated behind the steering wheel.*

*Land Rover operates a policy of constant product improvement and therefore reserves the right to change specifications without notice at any time. Whilst every effort is made to ensure complete accuracy of the information in this handbook, no liabilities for inaccuracies or the consequences thereof can be accepted by the manufacturer, Land Rover North America Inc.*

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# Introduction

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## Reporting safety defects

If you believe that your vehicle has a defect which could cause a crash, or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Land Rover North America Inc.

If NHTSA receives similar complaints, it may open an investigation and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign.

However, NHTSA cannot become involved in individual problems between you, your Dealer or Land Rover North America.

To contact NHTSA, you may call the Auto Safety HOTLINE toll free at 1-800-424-9393 (or 202-366-0123 in Washington, D.C. area) or write to: NHTSA, U.S. Department of Transportation, Washington, DC 20590. You can also obtain other information about motor vehicle safety from the HOTLINE.

## PASSPORT TO SERVICE

The Passport to Service included in your literature pack, contains important vehicle identification information, details of your entitlement under the terms of the Land Rover warranty, as well as useful consumer advice.

Most important of all, however, is the section on maintenance. This outlines the servicing requirements for your Discovery, as well as incorporating the service record slips, which the Dealer should sign and stamp to certify that the routine services have been carried out at the recommended intervals.

## WARNINGS IN THIS HANDBOOK

### WARNING

*Safety warnings are included in this handbook. These indicate either a procedure which must be followed precisely, or information that should be considered with great care in order to avoid the possibility of personal injury or serious damage to the vehicle.*

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# Introduction

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## WARNING LABELS ATTACHED TO THE VEHICLE



Warning labels attached to your vehicle bearing this symbol mean: **DO NOT** touch or adjust components until you have read the relevant instructions in the handbook.

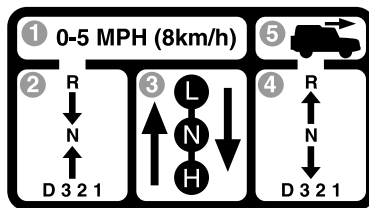


Warning labels showing this symbol indicate that the ignition system utilises very high voltages. **DO NOT** touch any ignition components while the starter switch is turned on!

### WARNING

*The Discovery has a higher ground clearance and hence a higher centre of gravity than ordinary passenger cars to enable the vehicle to perform in a wide variety of off-road applications. An advantage of the higher ground clearance is a better view of the road, allowing you to anticipate problems. Discovery is not designed for cornering at the same speed as conventional passenger cars any more than a low slung sports car is designed to perform satisfactorily under off-road conditions. If at all possible, avoid sharp turns and abrupt manoeuvres. As with other vehicles of this type, failure to operate the Discovery correctly, may result in loss of control, or vehicle rollover. Be sure to read the 'On-road' and 'Off-road' driving guidelines given in this book.*

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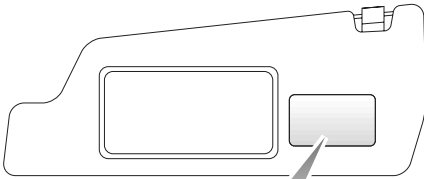


H2763

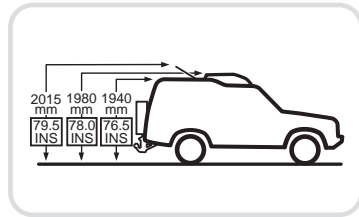
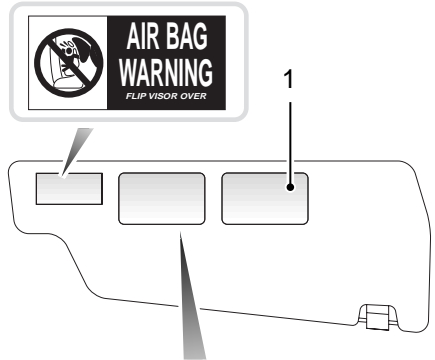
Information concerning operation of the transfer gearbox with automatic gearbox is printed on the centre console. This is important information and must be understood fully with reference to the 'Gearbox and Transmission' section of this handbook, before using the transfer gearbox.

# Introduction

## SUN VISOR LABELS



H2662



H2659

Always take careful note of warning information about the airbag SRS attached to the sun visors or other parts of the vehicle.

Details of the vehicle's standard ride height, both with and without an open sunroof are printed on the driver's sun visor.

Details of the vehicles driving and handling characteristics are printed on the driver's sun visor (see item 1).

1. THIS IS A 'MULTIPURPOSE PASSENGER VEHICLE' AND MAY HANDLE & MANEUVER DIFFERENTLY FROM AN ORDINARY PASSENGER CAR, IN DRIVING CONDITIONS ON ROAD AND OFF ROAD.

AS WITH OTHER VEHICLES OF THIS TYPE IF YOU MAKE SHARP TURNS OR ABRUPT MANEUVERS YOU MAY CAUSE THE VEHICLE TO GO OUT OF CONTROL, ROLL OVER OR CRASH.

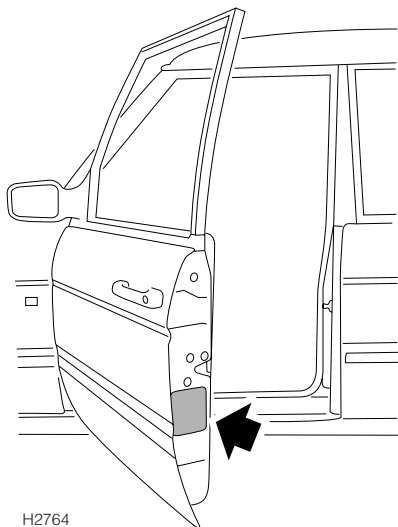
YOU SHOULD READ THE "DRIVING TECHNIQUES" SECTION IN THE OWNERS MANUAL.

'WEAR YOUR SEAT BELT AT ALL TIMES'


# Introduction

## VEHICLE IDENTIFICATION NUMBER (VIN)

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

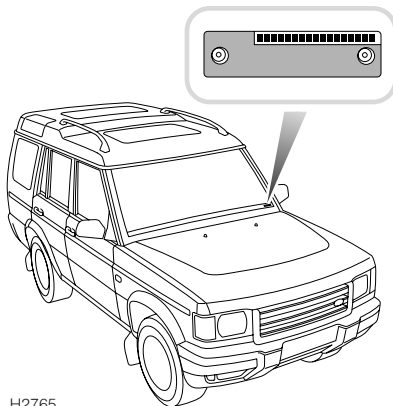


The VIN and other information concerning the vehicle can be found on the certification label affixed to the lock face of the front left-hand door. This should match the VIN recorded in the Passport to Service book.

MFD BY ROVER GROUP LTD FOR LAND ROVER	
DATE	09/98
<b>LAND-ROVER</b>	
GVWR	2825 kg (6229 lbs)
GAWR	1200 kg (2646 lbs)
FRONT	255/65 R16 TIRES WITH 8Jx18 RIMS AT 193 KPA (28 psi) COLD or 255/55 R18 TIRES WITH 8Jx18 RIMS AT 193 KPA (28 psi) COLD
GAWR	1800 kg (3969 lbs)
REAR	255/65 R16 TIRES WITH 8Jx16 RIMS AT 317 KPA (46 psi) COLD or 255/55 R18 TIRES WITH 8Jx18 RIMS AT 317 KPA (46 psi) COLD
GVWR	2825 kg (6229 lbs)
GAWR	1200 kg (2646 lbs)
FRONT	215/75 R16 TIRES WITH 7Jx16 RIMS AT 193 KPA (28 psi) COLD
GAWR	1773 kg (3909 lbs)
REAR	216/75 R16 TIRES WITH 7Jx16 RIMS AT 317 KPA (46 psi) COLD
THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE	
	
<b>SALTY124XXA200554</b>	
TYPE MULTIPURPOSE PASSENGER VEHICLE	
MFD IN THE UK	

H2766

## Certification label



In addition, the Federal VIN plate is mounted to the vehicle body in so that it is visible through the lowest part of the left side of the windscreen. The VIN is also stamped on the vehicle's chassis.



# Introduction

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## ANTI-THEFT PRECAUTIONS

While it may be impossible to deter the 'professional' car thief, the majority of thefts are carried out by unskilled opportunists. Therefore, take vehicle security very seriously and ALWAYS adopt this simple 'five point' drill whenever you leave your vehicle - even for just a few minutes:

- Fully close all the windows (and the sunroof).
- Remove your valuable belongings (or hide them out of sight).
- Remove the starter key.
- Engage the steering lock (by turning the wheel until it locks).
- Lock all the doors and turn on the alarm.

Thieves are attracted to 'vulnerable' vehicles. Even if you have followed the 'five point' drill, there is still much you can do to make your vehicle a less inviting target.

### BE SAFE NOT SORRY!

- Park where your vehicle can easily be seen by householders and passers-by.
- At night, park in well lit areas and avoid deserted or dimly lit side streets.
- At home, if you have a garage, use it - and NEVER leave the keys in the vehicle.
- Do not keep important vehicle documents (or spare keys) in the vehicle - these are a real bonus for the thief.

## IMPORTANT INFORMATION

**Remember the breakdown safety code**  
If a breakdown occurs while travelling:-

- Wherever possible, consistent with road safety and traffic conditions, the vehicle should be moved off the main thoroughfare onto the shoulder as far as possible. If breakdown occurs on a freeway, pull well over to the inside of the hard shoulder.
- Switch on hazard lights.
- If possible, position a warning triangle or flashing amber light, at an appropriate distance from the vehicle to warn other traffic of the breakdown (note the legal requirements of some areas).
- Consider evacuating passengers through the right hand doors away from the road as a precaution in case your Discovery is struck by another vehicle.

# **SECTION 2**

## ***Controls & instruments***

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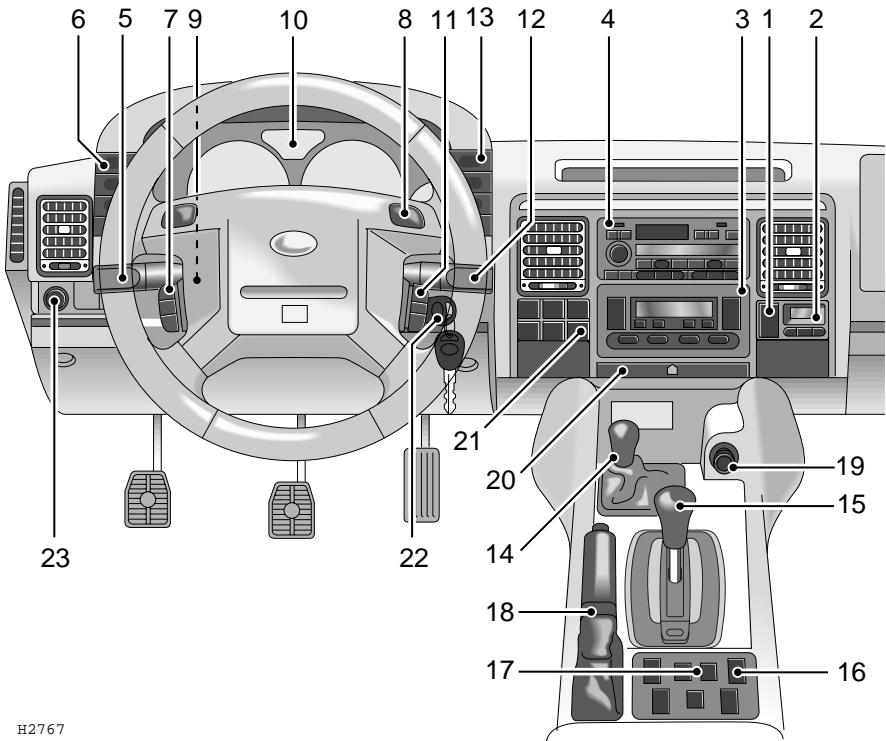
*In this section of the handbook you will find descriptions of the controls and instruments.*

*For your own safety, it is most important to read this section fully and to gain a thorough understanding of all the controls before driving.*

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# Controls



H2767

1. Door locks switch
2. Clock
3. Air conditioning controls
4. Radio cassette player
5. Lighting and direction indicator controls
6. LH binnacle switch panel (includes rear fog guard light)
7. Remote radio controls (if fitted)
8. Horn switches (2)
9. Steering column height adjuster
10. Instrument panel
11. Cruise control switches (if fitted)
12. Windscreen wiper/washer controls
13. RH binnacle switch panel (includes rear wash/wipe)
14. Transfer gear lever
15. Main gear selector lever
16. Electric window switches
17. Heated front seat switches (if fitted)
18. Handbrake
19. Cigar lighter
20. Cup holder
21. Fascia panel switches (includes hazard warning, fuel filler and screen demisters)
22. Starter switch
23. Electric mirror adjuster

**NOTE:** The precise specification and location of controls may vary from model to model within the vehicle range.

# Locks & Alarm

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## ALARM SYSTEM

All Discovery vehicles are fitted with a sophisticated electronic anti-theft alarm system. Some vehicles are equipped with a number of additional security features, some of which are selectable options and some are standard features. In order to ensure maximum security and operating convenience, you are strongly advised to gain a full understanding of the features and alternatives available, by thoroughly reading this section of the handbook.

## LOCKING

### ***With the remote handset:***

Press the lock (padlock symbol) button once:

- all doors are locked
- engine immobilised
- perimeter alarm activated (protects the doors, bonnet and taildoor)
- interior space protection activated (if fitted)

The direction indicator lights flash three times to confirm that the vehicle is secure and the anti-theft alarm indicator light (in the instrument panel) starts to flash.

### ***With the key:***

Insert the key and turn the door lock towards the rear of the vehicle:

- all doors locked
- engine immobilised
- perimeter alarm activated (protects the doors, bonnet and taildoor)
- NO INTERIOR SPACE PROTECTION

The direction indicator lights flash once to confirm that the vehicle is secure and the anti-theft alarm indicator light (in the instrument panel) starts to flash.

## UNLOCKING

### ***With the remote handset:***

- Press the unlock (Land Rover) button once to disarm the alarm and unlock the driver's door only (see '*Single point entry*').
- Press the unlock button twice to disarm the alarm and unlock ALL the doors.

In either case, the direction indicator lights flash once and the interior lights illuminate.

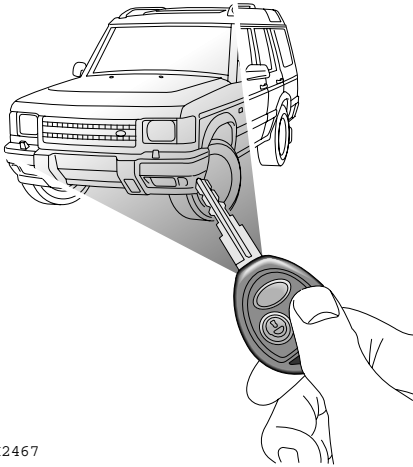
### ***With the key:***

In addition to remote handset operation, the driver's door can be unlocked and the alarm disarmed manually using the key. One key turn will unlock the driver's door while a second turn (after a short pause) will unlock the remaining doors.

***NOTE:*** *If the handset does not operate after the vehicle has been parked for a long period, unlock the driver's door with the key and then try again. If the handset still fails to operate, enter the EKA code using the procedure shown later in this section.*

# Locks & Alarm

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H2467

## Using the remote handset

While it is not necessary to point the handset at the vehicle, the handset must be within range of the vehicle when a button is pressed. Note that the operating range may vary depending upon handset battery condition and may sometimes be limited by physical and geographical factors beyond your control. From a security point of view, it may not be wise to unlock unless you are within a few feet of the vehicle.

**NOTE:** The handset complies with part 15 of the FCC rules. Operation is subject to the following two conditions.

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation. This applies to both alarm receivers and handset transmitter.

**CAUTION:** Any changes or modifications to the transmitter not expressly approved by the manufacturer could void the user's authority to operate the equipment.

## Superlocking

Superlocking provides greater security by immobilising the interior door handles, thereby preventing an intruder from gaining entry by smashing a window and reaching inside the vehicle to operate the door handles. Provided all the doors are fully closed Superlocking is activated by pressing the handset lock button twice within one second, or turning the door lock to the lock position with the key twice within one second.

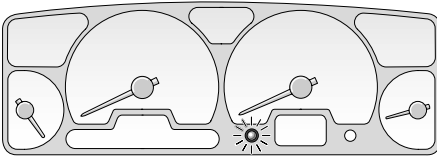
# Locks & Alarm

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## WARNING

**For safety, NEVER use Superlocking if passengers are to remain inside the vehicle - in an emergency they would not be able to escape.**

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H2546

### Anti-theft alarm indicator light

This light provides information about the status of the alarm system, as follows:

*When the vehicle is locked:*

The light flashes rapidly while the alarm is arming itself. After ten seconds, the light adjusts to a slower frequency and continues to flash as an anti-theft deterrent until the alarm is disarmed.

*If the engine is immobilised (even though the alarm has been disarmed):*

The light flashes slowly until the engine is remobilised.

*If the alarm has been triggered:*

The light will flash rapidly when the alarm is disarmed until the starter switch is turned to position II.

*If the remote handset battery power is low:*

The light will flash rapidly for ten seconds after the handset has been used when the driver's door is opened.

### Mislock

If the driver's door is not fully closed when the handset lock button is pressed, the alarm sounder or vehicle horn will sound once, indicating a mislock. In this case, none of the doors will lock and the alarm system will not be armed.

If a passenger door or other aperture is not fully closed when the handset lock button is pressed, the alarm sounder or vehicle horn will sound once, indicating a mislock. However, the 'partial arming' attributes of the security system will enable as much of the system to be armed as possible (all fully closed door or bonnet apertures will be protected, but an open door will not!). As soon as the open aperture is closed, the system will automatically revert to a fully armed state.

**NOTE:** *If a mislock occurs as a result of an open door, superlocking and interior space protection features (if fitted) will not be activated.*

**NOTE:** *Your Land Rover dealer can disable the mislock audible warning.*

### If the alarm sounds

If the alarm is triggered, the alarm sounder or vehicle horn will sound for 30 seconds before switching off and resetting itself to the same protection status that existed prior to the alarm being triggered.

To silence the alarm, press either button on the remote handset.

# Locks & Alarm

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## Headlight courtesy delay

When locking the vehicle, the remote handset can be used to illuminate the headlights for 30 seconds. At night this will make it easier for you to unlock the garage, or walk to your home in safety. Operate this feature at the same time as you lock the car, by keeping the handset LOCK button pressed for more than 2 seconds (the doors lock and alarm system arms in the usual way).

To extinguish the lights before the 30 second illumination period has expired, press the lock button again.

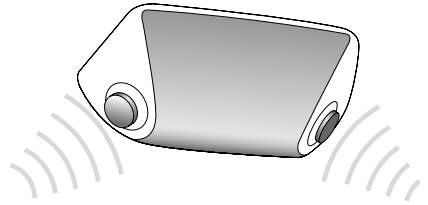
**NOTE:** This feature can be disabled by a Land Rover dealer.

## Single point entry

This is a personal security feature, which enables the driver's door only to be unlocked, leaving the other doors in a locked state. It can be operated by the remote handset as follows:

Press the unlock button once to unlock the driver's door, press a second time (within one minute) to unlock the remaining doors.

**NOTE:** This feature can be disabled by a Land Rover dealer.



H2468

## Interior space protection

(if fitted)

Interior space protection is designed to protect the interior of the vehicle from intrusion (entry by a thief through a smashed window, for example). Two pairs of sensors monitor the interior space and activate the alarm if air movement is detected in the passenger compartment.

*Using the handset:*

Interior space protection is activated automatically whenever the remote handset is used to set the alarm and can ONLY be deactivated with the handset.

*Key operation:*

Using the key will NOT activate (or deactivate) interior space protection.

**NOTE:** The feature cannot be activated if a door is open, or if the starter switch is turned on.

## WARNING

**Never activate interior space protection if windows or sunroof are to be left open, or if passengers or animals are to be left inside the vehicle - any movement will activate the alarm.**

---



# Locks & Alarm

## Speed-related locking (if fitted)

This security feature locks all the doors automatically when the vehicle speed exceeds 4 mph (7 km/h), and unlocks the doors as soon as the starter switch is turned off (provided the doors had previously been locked by the speed related feature).

Note that this feature is not selectable by the driver, and that operation of the door locks by any other means (interior locking switch on the fascia panel, for example) will disable the speed-related locking function for the remainder of the journey, or until the starter switch is turned off and on again.

**NOTE:** This feature can be selected or deselected by a Land Rover dealer.

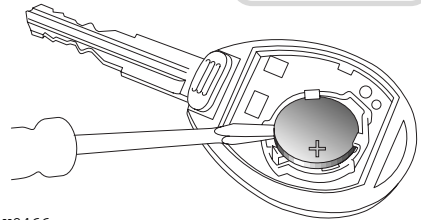
## Bathrobe locking

This feature is designed for cold climate operating. The purpose of the feature is to enable the engine to be started and allowed to warm-up for a while (or to reach its normal operating temperature) before being driven, while remaining fully locked.

Start the engine in the normal way, then lock the vehicle using the SPARE handset or key. The engine can be left running until you are ready to return to the vehicle.

**NOTE:** Some state local jurisdictions have laws which prohibit leaving a motor vehicle unattended with the engine running.

**NOTE:** This feature can be selected or deselected by a Land Rover dealer.



H2466

## REMOTE HANDSET BATTERY

The battery should last for approximately three years dependent upon use. When the battery needs replacing it will be apparent from the following symptoms:

- A gradual deterioration in range and performance.
- The alarm indicator light in the instrument panel will flash rapidly for 10 seconds after the driver's door is opened.

# Locks & Alarm

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Always fit a Land Rover STC 4080 or a Panasonic CR2032 replacement battery (available from a Land Rover dealer) and adopt the following replacement procedure:

- 1) Insert the blade of a small flat-bladed screwdriver into the slot at the rear of the handset (see illustration) and prise the back from the handset. Do not insert the screwdriver blade at any other point or the seal between the two halves of the case may be damaged.
- 2) Use a small flat-bladed screwdriver to prise the battery from its mounting (see illustration), taking care to avoid touching the circuit board or the metal battery contacts.
- 3) Fit the new battery, ensuring that correct polarity is maintained ('+' side facing up). Finger marks will adversely affect battery life; if possible, avoid touching the flat surfaces of the battery and wipe them clean before fitting.
- 4) Press the two halves of the handset firmly together and ensure that both halves are fully joined to prevent dirt or moisture from entering the handset.

The handset is now ready for use.

## **WARNING**

*The handset contains delicate electronic circuits and must be protected from impact and water damage, high temperatures and humidity, direct sunlight and the effects of solvents, waxes and abrasive cleaners.*

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## **KEY AND HANDSET NUMBERS**

You have been supplied with two remote handsets with integral keys which operate all locks.

The key number is stamped on a tag attached to the key ring. Check that the key number has been entered in the space provided on your Security card.

Additional handsets can be programmed into the system if required.

If the remote handset is lost, contact a Land Rover dealer, who can supply replacement units.

## **WARNING**

*Keep the Security card and spare handset in a safe place - NOT IN THE VEHICLE!*

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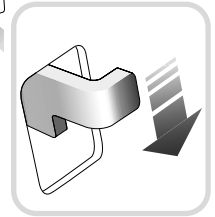
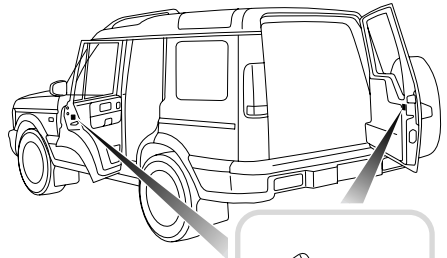
# Locks & Alarm

## Interior door handles and door sill locking buttons

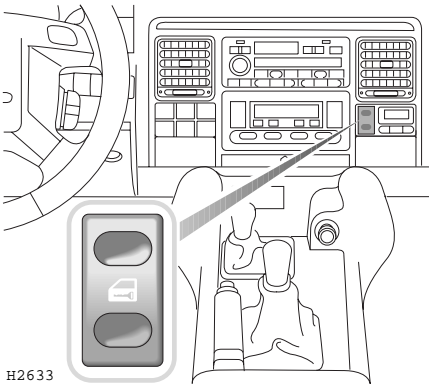
From inside the vehicle, each door can be individually locked by depressing the appropriate door sill button. However, doors cannot be unlocked by raising the sill button.

Use the door handles to unlock, as follows:

- First operation of the door handle unlocks the door.
- Second operation of the door handle opens the door.



H2464

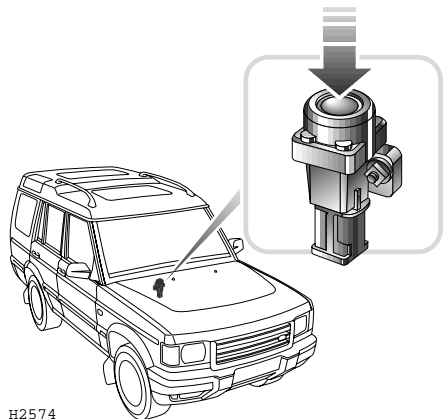


H2633

## Interior locking switch

This is a personal security feature which allows the driver to lock (or unlock) all the doors from inside the vehicle (while driving or with the vehicle stationary). Press the lower part of the switch to lock (the alarm will not be armed), and the upper part to unlock.

**NOTE:** If the locks have already been superlocked, the switch will not release the locks.



H2574

# Locks & Alarm

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## CHILD-PROOF LOCKS

Move the locking levers on the rear doors and taildoor down to engage the child locks.

With the child-proof locks engaged, neither the rear doors nor the taildoor can be opened from inside the vehicle, thereby avoiding the risk of a door being opened accidentally while the vehicle is moving.

### WARNING

***NEVER leave children unsupervised in the vehicle.***

---

## DOOR LOCKING CUT-OFF SWITCH

An inertia switch, operational only with the starter switch in position 'II' and the alarm disarmed, prevents the doors centrally locking (or if the doors are locked, will unlock them) in the event of an accident or sudden impact.

When the switch operates, the direction indicator lights flash, until the system is reset by turning the starter switch on and off, and opening and closing the driver's door.

Note that doors cannot be locked again until the switch is reset.

The inertia switch also cuts off the fuel supply (see '*Fuel cut-off switch*').

### WARNING

***Always check for fuel leaks before resetting the switch!***

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# *Locks & Alarm*

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## **ALARM OR HANDSET DIFFICULTIES**

Alarm goes off unexpectedly.	Ensure all windows, doors, hood and sunroof are closed.
------------------------------	---

Vehicle will not start.	Press unlock button on handset. If it still will not start, consult your Land Rover dealer.
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Hazard lights don't flash when alarm is armed.	Ensure all doors and the hood are fully closed.
--	---

Doors unlock and hazard lights start to flash when vehicle is in motion.	The inertia switch has been triggered. See 'Door locking cut-off switch'. If fault continues, consult your Land Rover dealer.
--	---

Within range of the vehicle, the handset appears to malfunction.	The handset may have lost synchronisation. Press the lock button on the handset four times whilst within range of the vehicle.
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## POWER OPERATED FRONT SEATS

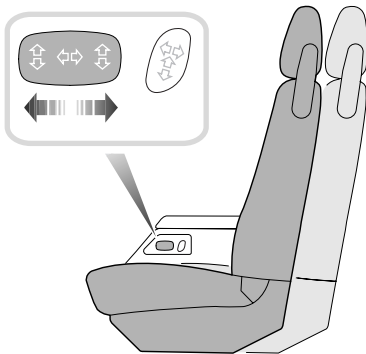
### WARNING

*To avoid the risk of loss of control and personal injury, DO NOT adjust the driver's seat while the vehicle is in motion.*

The seat adjustment controls are situated on the side of the centrally mounted cubby box.

Seat adjustment is only possible when the starter switch is turned to position 'II' or for 45 seconds after opening the driver's door.

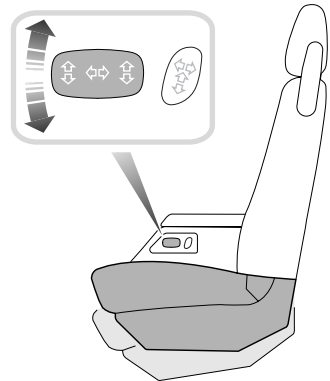
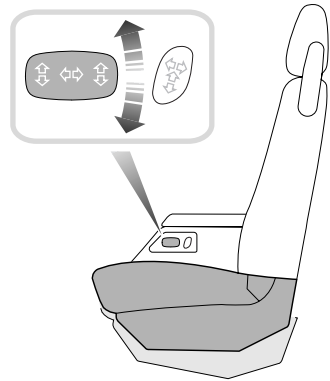
The following functions are available:



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### Forward/backward adjustment

Push and hold the switch forwards or backwards to move the seat to the desired position.



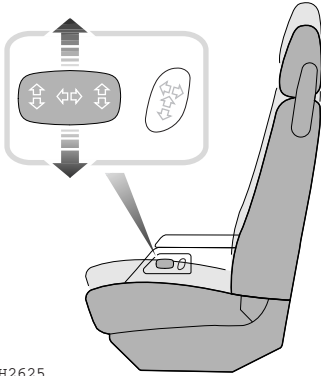
H2624

### Seat cushion angle

Twist the switch to tilt the seat cushion to the desired position. Note that the front and rear of the switch work independently - the front raising or lowering the front of the cushion, the rear of the switch similarly controlling the rear of the seat cushion.

# Seats

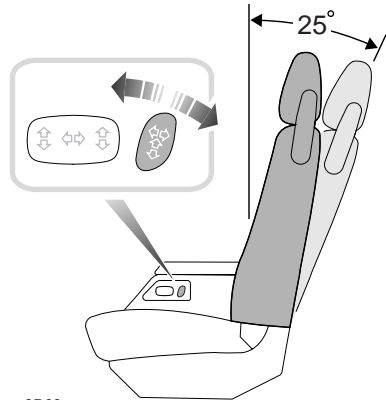
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H2625

## Seat cushion height

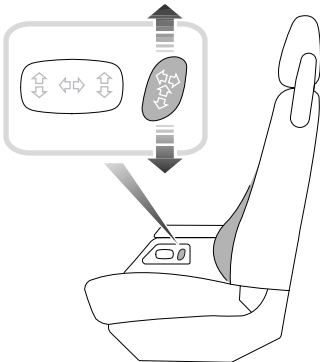
Push the switch up or down to raise or lower the cushion.



H2768

## Seat back adjustment

Twist the switch forward or backward until the desired seat back angle is achieved.



H2626

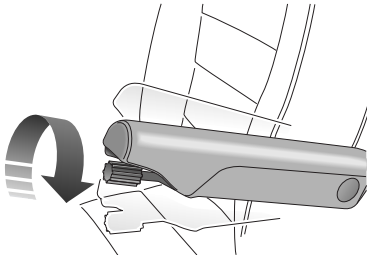
## Lumbar support adjustment

Push the switch up to increase support to the lumbar region of the back. Push the switch down to reduce lumbar support.

## WARNING

***DO NOT*** travel with the seatbacks reclined steeply rearwards. Optimum benefit is obtained from the seat belt with the seat back angle set to 25 degrees from the upright (vertical).

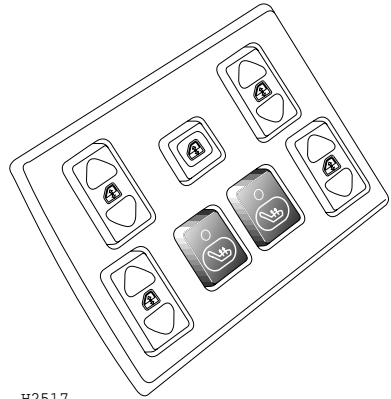
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## Folding armrests

The front seat armrests are adjustable, and can be either; stowed vertically in line with the seat backrest when not required, or folded horizontally to serve as an arm/elbow rest.

The height/angle of each armrest can be adjusted by turning the knob set into the end of the armrest: clockwise to raise and anti-clockwise to lower.



## Heated front seats

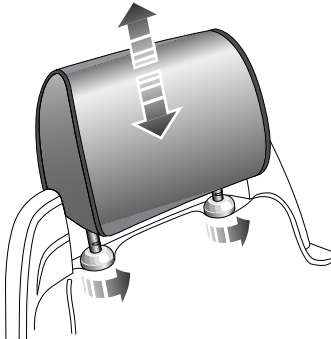
(if fitted)

With the starter switch turned on and the engine running, press the switches to operate the heating elements in either the driver's or front passenger seat (the indicator light in the switch illuminates). Press a second time to switch off.

The seat heaters are thermostatically controlled and operate intermittently to achieve and then maintain a predetermined temperature between 79° F and 97° F (26° - 36° C).

IMPORTANT INFORMATION
The seat heaters consume considerable power from the battery. For this reason, they should ONLY be operated while the engine is running.





H2465

## HEAD RESTRAINTS

Pull the head restraint up or down until the cushion is level with the back of the head.

### WARNING

*Head restraints are designed to support the back of the head (NOT THE NECK), and to restrain rearward movement of the head in the event of a collision. The restraint must be positioned level with the head to be effective.*

*DO NOT drive or carry passengers with head restraints removed from occupied seats.*

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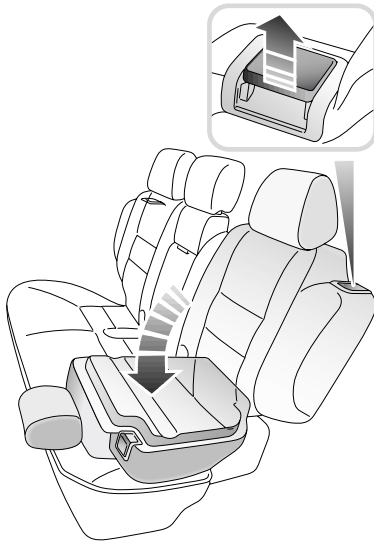
### Head restraint removal

Turn both mounting collars fully anti-clockwise and pull the restraint upwards to remove.

After replacing a head restraint turn the mounting collars clockwise.

# Seats

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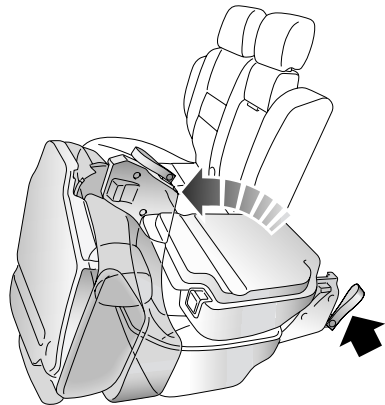
## FOLDING THE REAR SEATS

### WARNING

**DO NOT adjust any part of a seat while the vehicle is in motion.**

One or both parts of the split rear seat can be either partially or fully folded to further increase the rear loadspace.

To release either part of the backrest, lift the lever shown in the inset.

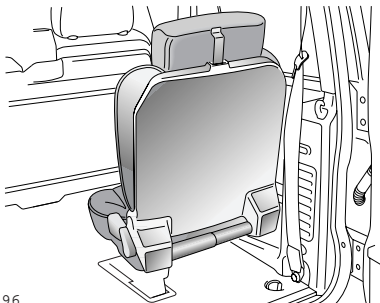
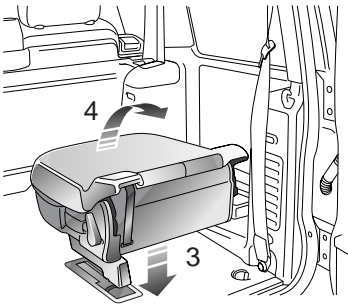
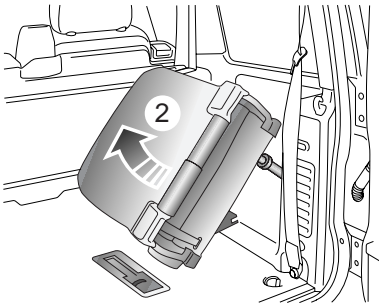
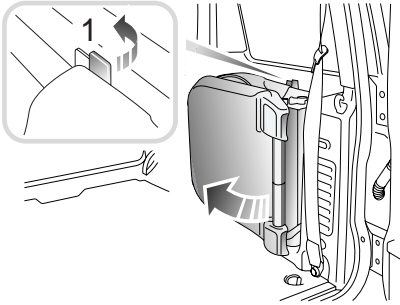


**NOTE:** Prior to releasing the seat base and folding the complete seat forward, always remove the central head restraint.

To release the seat base, pull the control arrowed in illustration. With both backrest and seatbase released, the seat assembly may be folded forward as shown above.

### WARNING

**After the seat is returned to the upright position, the latching mechanism should be checked and physically tested to ensure that both the seat base and backrest are secure before driving.**



## OCCASIONAL REAR SEATS

### WARNING

*Before driving with passengers seated in the occasional rear seats, for safety ensure that the floor latches are fully engaged.*

*Do not carry passengers in the occasional rear seats if a dog guard is fitted between the second row of seats and the loadspace.*

### Erecting the seats

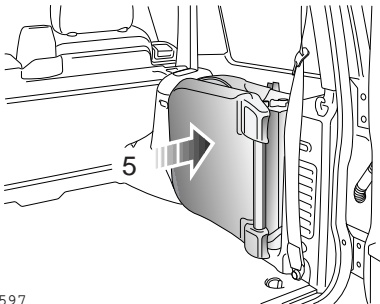
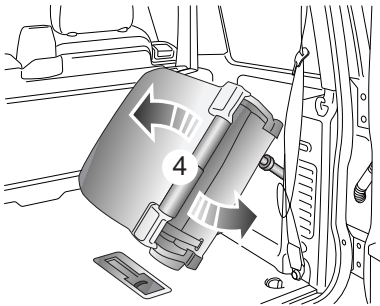
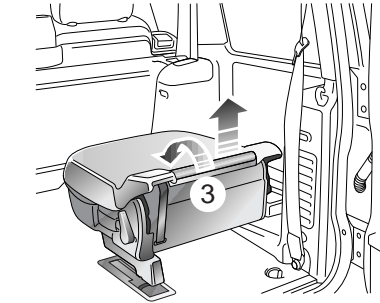
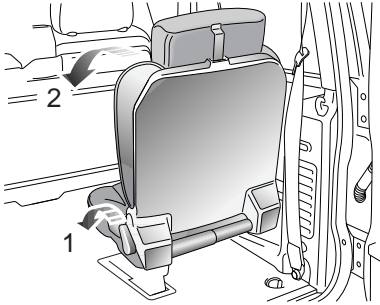
1. Push the lever (shown in inset) and hold to release the seat from its stowed position.
2. Swing the seat away from the vehicle side, at the same time lifting and turning it towards the horizontal.
3. Lower the seat to the loadspace floor, PUSHING DOWN FIRMLY to ensure that the floor latch has fully engaged.
4. Pull the backrest into the upright position.

**NOTE:** *The backrest cannot be raised unless the seat is securely latched to the floor.*

### IMPORTANT INFORMATION

Remember to unfold the head restraints from the roof before driving.

# Seats

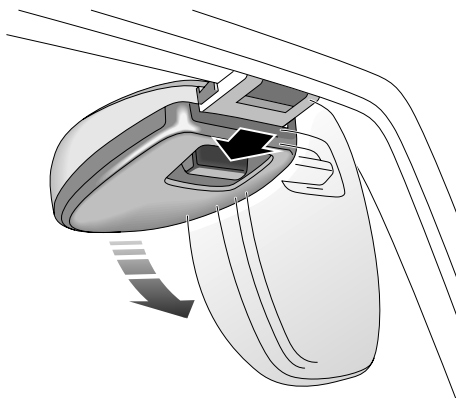


H2597

## Stowing the seats

Before stowing a seat, ensure that the drinks tray to the side of the seat has been emptied.

1. Push the backrest release lever forward to unlock the backrest.
2. Fold the backrest fully forward.
3. Turn the twist grip (moving part of the bar on the back of the seat) fully forward to release the floor latch, and start to lift the seat from the loadspace floor.
4. Continue lifting, at the same time turning the seat into a vertical position.
5. Push the seat firmly into the vehicle side, ensuring that the seat has engaged fully with the securing catch.



H2552

## Head restraints

The head restraints for use with the occasional rear seats are hinged from the roof.

To unfold a head restraint, pull the handle (arrowed in illustration) forward and swing the restraint down from the roof. Stow the head restraint when not in use by pushing it back flush with the roof.

## WARNING

***DO NOT drive with occupants in the occasional rear seats unless the head restraints are unfolded.***

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# Seat belts

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## SEAT BELT SAFETY

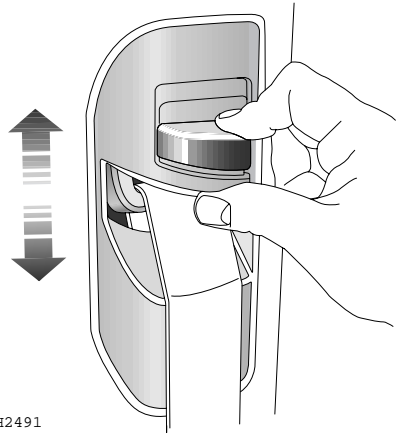
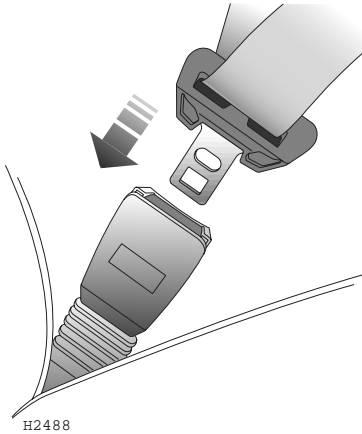
### WARNING

*Seat belts are life saving equipment. In a collision, occupants not wearing a seat belt will be thrown around inside, or possibly thrown out of the vehicle. This is likely to result in more serious injuries than would have been the case had a seat belt been worn. It may even result in loss of life! Don't take chances with safety!*

- *DO make sure ALL occupants are securely strapped in at all times - even for the shortest journeys.*
  - *The airbag supplementary restraint system (SRS) is designed to add to the overall effectiveness of the seat belts, it DOES NOT replace them. SEAT BELTS MUST ALWAYS BE WORN.*
  - *Ensure that all seat belts are worn correctly - an improperly worn seat belt increases the risk of death or serious injury in the event of a collision.*
  - *DO use the seat belts to secure items of luggage that are to be carried on the seats - in the event of an accident, loose items become flying missiles capable of causing serious injury, or even death.*
-

# Seat belts

## WEARING SEAT BELTS CORRECTLY



### Fastening the inertia reel belts

Inertia reel belts are fitted to all front and rear seating positions, and also to the occasional rear seats (where fitted).

Draw the belt over the shoulder and across the chest, and then insert the metal tongue plate into the lock nearest the wearer - a 'CLICK' indicates that the belt is securely locked.

In some circumstances, perhaps due to the vehicle being parked on a slope, the inertia mechanism may engage, preventing the initial extension of a belt. This is not a fault - ease the belt free and use it.

Adjust the seat belt to eliminate any slack in the webbing. **DO NOT** slacken the webbing by holding the belt away from the body - to be fully effective, the seat belt must remain in full contact with the body at all times. Also, ensure that the lap belt fits as low on the hips as possible and that the shoulder belt passes across the shoulder without slipping off or pressing on the neck.

### Upper anchorage adjustment (front seats only)

The height of the seat belt upper anchorage can be adjusted for comfort AND safety. Squeeze the control between finger and thumb to raise or lower the anchorage. For safety, the seat belt should always be worn with the webbing crossing the shoulder midway between the neck and the edge of the shoulder.

Ensure that the anchorage is correctly located in one of the height positions before driving.

Where possible, rear seat passengers should adjust their position on the seat to enable the seat belt webbing to cross the shoulder without pressing on the neck.

# Seat belts

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## WARNING

*Seat belts are designed to bear upon the bony structure of the body (pelvis, chest and shoulders), and can only be worn safely with the seats in a normal, upright, position.*

- *ALWAYS fit the lap strap as low on the hips as possible (never across the abdomen) and ensure that the diagonal belt passes across the shoulder without slipping off or pressing on the neck.*
  - *DO NOT travel with the seat backs reclined steeply optimum benefit from the seat belt is obtained with the seat back set to an angle of 25 degrees from the upright. Seat belts are only effective when they are properly positioned on the body - a steeply reclined seat could allow a passenger to slip under either the shoulder or the lap belt.*
- 

## WARNING

- *DO NOT fit more than one person into a belt; this could result in the occupants striking each other and causing injury in the event of a crash.*
  - *DO NOT use, or attempt to fit, a seat belt that is twisted or obstructed in any way that could impede its smooth operation. If a belt is twisted, it must be straightened before use. Using a twisted or obstructed seat belt could increase the risk of injury in a crash.*
  - *ALWAYS use the seat belt lock (buckle) nearest the wearer. If the belt is locked in the wrong place, the seat belt will not fit correctly and may ride up over the abdomen, causing serious internal injury in a crash.*
  - *DO NOT wear the shoulder belt under your arm. In an accident this could increase your chances of being injured.*
- 

### **Wearing seat belts during pregnancy**

The seat belts have been designed for all adults, including pregnant women. In a crash situation any occupant is less likely to be injured while correctly restrained by a seat belt. However, pregnant women should wear the lap belt as low on the hips as possible to avoid pressure on the abdomen.

Women should consult their doctor to establish the best use of seat belts during pregnancy.



# Seat belts

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## CHILD RESTRAINTS FOR SMALL CHILDREN AND BABIES

Infants and children too small for adult seat belts should be restrained in a child safety seat or restraint system appropriate to their age and/or size, and which is approved for use in your vehicle. All child restraint systems are designed to be secured in vehicle seats by lap belts or the lap belt portion of a lap/shoulder belt. Always ensure that the manufacturer's fitting instructions are followed exactly. Crash statistics show that children are safer when properly restrained in the rear (2nd row) seating positions than in the front.

**NOTE:** *Some child seat manufacturers recommend the installation of a top tether strap that is mounted to the vehicle body. Some may also provide 'generic' hardware to install the tether to the vehicle body. INSTALLATION OF THIS HARDWARE WILL DAMAGE THE HEADLINER OF THE VEHICLE. Such damage will not be covered under warranty. For cost and installation of Land Rover approved mounts, please contact your Land Rover Centre or retailer.*

## Seat belt locking mechanism

The seat belts fitted to the second row seats have a special locking mechanism, which aids the securing of child restraint systems. The mechanism is used to secure a child restraint as follows:

1. Attach the seat belt to the child restraint in accordance with the manufacturer's instructions.
2. Insert the metal tongue of the seat belt into the lock ensuring that it engages with a 'click'.
3. Pull on the shoulder section of the belt until it is fully extended.
4. Allow the belt to retract. A 'clicking' sound will confirm that the mechanism has engaged.
5. Remove all slack from the mechanism, by pulling upwards on the shoulder belt, immediately above the child restraint.
6. Check the tightness of the installation by rocking the child seat backwards and forwards, any movement of the seat indicates the need for further tightening.

# Seat belts

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7. If the seat needs tightening further, remove the metal tongue of the seat belt from the lock and shorten the belt by feeding the belt back into the reel. Re-insert the metal tongue into the lock, this will take some effort if the belt has been adjusted correctly.
8. Re-evaluate the tightness of the installation. If the child seat is still too loose, repeat the above procedure, making the belt incrementally shorter (and therefore tighter). It may be necessary to put your weight on the seat in order to fasten the belt.

To deactivate the locking mechanism, unlatch the seat belt and allow it to fully retract.

## WARNING

- ***UNDER NO CIRCUMSTANCES SHOULD A REARWARD FACING CHILD SEAT BE INSTALLED IN ANY FRONT PASSENGER SEAT POSITION. INFLATION OF THE AIRBAG COULD RESULT IN SERIOUS INJURY OR DEATH FOR THE CHILD.***
  - ***DO NOT allow a baby or infant to be carried on the lap. The force of a crash can increase effective body weight by as much as 30 times, making it impossible to hold on to the child.***
  - ***Children could be endangered in a crash if their child restraints are not properly secured in the vehicle.***
  - ***Young adults and children typically require the use of a booster seat appropriate to their age and size, thereby enabling the seat belts to be properly fitted, reducing the risk of injury in a crash.***
  - ***DO NOT use a child seat that hooks over the seat back. This type of seat cannot be satisfactorily secured, and is unlikely to be safe for your child.***
  - ***Never leave a child unattended in your vehicle.***
-

# Seat belts

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## SEAT BELT PRE-TENSIONERS

The seat belt pre-tensioners activate in conjunction with the airbag SRS and provide additional protection in the event of a severe frontal impact on the vehicle (see 'Airbag SRS'). The pre-tensioners automatically retract the seat belts fitted to the front seats. This reduces any slack in both the lap and diagonal portions of the belts, thereby reducing forward movement of the belt wearer in the event of a severe frontal collision.

The airbag SRS warning light on the instrument panel will alert you to any malfunction of the seat belt pre-tensioners.

If the pre-tensioners have been activated, the seat belts will still function as restraints, and must be worn in the event that the vehicle remains in a driveable condition.

**NOTE:** *The seat belt pre-tensioners will NOT be activated by rear, side or minor frontal impacts.*

IMPORTANT INFORMATION
<p>The seat belt pre-tensioners will only be activated once and then <b>MUST BE REPLACED</b>. Failure to replace the pre-tensioners will reduce the efficiency of the vehicle's front restraint systems.</p> <p>After any frontal impact, always have the seat belts and pre-tensioners checked and, if necessary, replaced by a Land Rover dealer.</p> <p>In the interests of safety, it is recommended that removal or replacement of the front seats and seat belts should only be carried out by a Land Rover dealer.</p>

# Seat belts

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## Care & maintenance of seat belts

### WARNING

- ***DO NOT allow foreign matter (particularly sugary food and drink particles) to enter the seat belt locks - such substances can render the locks inoperative.***
  - ***Regularly inspect the belt webbing for signs of fraying, cuts and wear, also paying particular attention to the condition of the fixing points and adjusters.***
  - ***DO NOT bleach or dye the webbing. Clean the webbing using warm water and non-detergent soap only - allow to dry naturally and DO NOT retract or use the belts until they are completely dry.***
  - ***Always replace a seat belt that has withstood the strain of an impact or shows signs of fraying.***
- 

## Testing inertia reel belts

From time to time, carry out the following tests:

1. With the seat belt fastened, give the webbing near the buckle a quick upward pull. The buckle must remain securely locked.
2. With the webbing half unreeled, hold the tongue plate and give it a quick forward pull. The mechanism must lock automatically and prevent any further unreeling of the belt.
3. With the seat belt unfastened, unreel the webbing to the limit of its travel. Check that unreeling is free from snatches and snags.

If a seat belt should fail any of these tests, contact your dealer immediately.

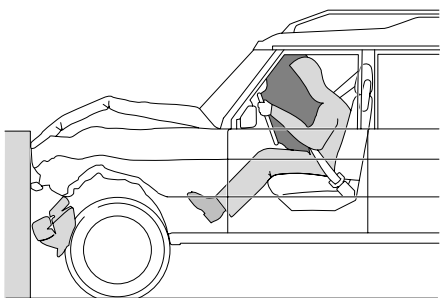
# SRS/Airbag

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The airbag supplementary restraint system (SRS) provides additional protection for the driver and front seat passenger, in the event of a collision or severe frontal impact on the vehicle.

**Always remember; the SRS/airbags are a supplementary restraint system providing ADDITIONAL protection in certain types of frontal impact collisions only - they DO NOT replace the need to wear a seat belt. To minimise the risk of severe injury or death in the event of a crash, all occupants in all seating positions including the driver, should always wear their seat belt whether or not an airbag is present in that seating position!**



H2474

## SRS/airbag warning light

Whenever the starter switch is turned to position 'II', the diagnostic control unit monitors the readiness of the system's electrical circuits. The elements of the system being monitored include:

- SRS warning light
- Rotary coupler
- Airbag modules
- Airbag diagnostic control unit
- Airbag wiring harness

A warning light mounted on the instrument panel will alert you to any malfunction of the SRS/airbag. The system should always be checked by a dealer if any of the following symptoms occur. These indicate a fault, which may result in the SRS/airbag not operating as required in the event of a frontal impact.

- The warning light fails to illuminate when the starter switch is turned to position 'II'.
- The warning light fails to extinguish within approximately four seconds after the starter switch is turned to position 'II'.
- The warning light illuminates after the engine is started, or while the vehicle is being driven.

# SRS/Airbag

## How the SRS/airbag works

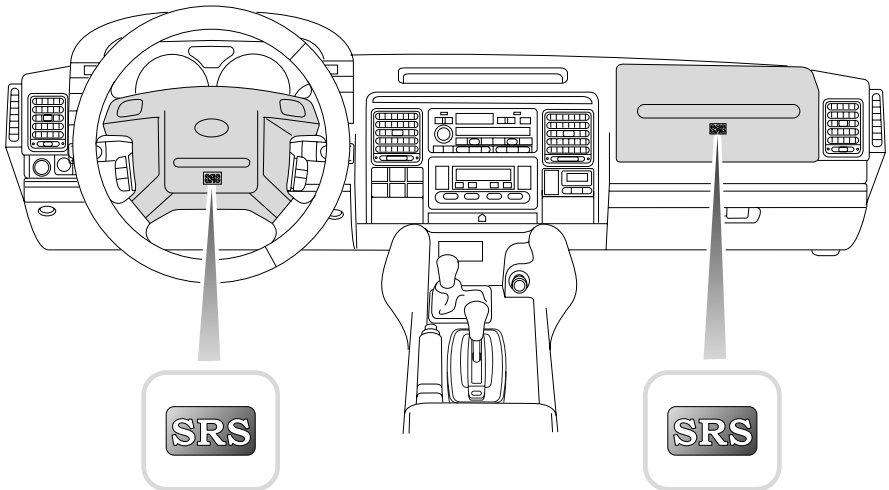
The airbag supplementary restraint system (labelled SRS), includes twin airbag modules (shown in illustration) for the driver and the front seat passenger and lap/shoulder belts at both driver and front passenger seat positions.

In the event of a frontal impact, a sensor monitors the force of the impact, to determine whether the SRS/airbag should be activated.

If the impact is sufficiently severe, the system causes both airbags to inflate. Inflation is instantaneous and accompanied by a loud noise. Also evident are traces of smoke and powder, which do not indicate a malfunction of the airbag or the presence of fire.

After inflation, the airbag will immediately deflate thereby ensuring that visibility is not impaired.

**NOTE:** *The SRS/airbag is not designed to activate in all frontal impacts; most minor frontal impacts, heavy braking and driving over pot holes will not result in sufficient deceleration to cause the airbags to inflate. This does not indicate that there is a fault with the system. However, if, as a result of an impact, you believe the airbags should have deployed and they failed to do so, please call 1(800)637-6837 for advice, or to arrange for a Land Rover representative to inspect the vehicle to determine whether the system operated correctly.*



H2654

# SRS/Airbag

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## WARNING

***Following inflation, some SRS/airbag components are hot - DO NOT touch until they have cooled.***

***Even with SRS/airbag equipment fitted, seat belts must ALWAYS be worn because:***

- ***An airbag will only provide additional protection in certain types of frontal collisions. NO protection is afforded against the effects of side or rear impacts, roll over accidents, or minor frontal impacts.***
  - ***Inflation and deflation take place instantaneously and will not provide protection against the effects of secondary impacts that can occur during multiple vehicle collisions.***
- 

## CHILD SEATS

Children aged 12 years and under are more likely than adult occupants to receive injuries from inflating airbags. For this reason, it is recommended that children should always be seated in the second row of seats in a child safety seat or restraint system appropriate to their age and size, see 'Seat belts'.

If it is necessary for a child to travel in the front, set the seat fully rearwards and use a front facing child seat ONLY.

## WARNING

***DO NOT USE A REAR FACING CHILD SEAT IN ANY FRONT PASSENGER SEAT LOCATION. If the passenger airbag inflates, a child in a rear facing child restraint could be seriously injured.***

***Children could be endangered in a crash if their child restraints are not properly secured in the vehicle. Be sure to install child restraints according to the manufacturer's instructions.***

***Under no circumstances should a rear facing child seat be installed facing forward in any seating position.***

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# SRS/Airbag

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## WARNING

*The airbag module inflates with considerable speed and force. For your safety:*

*An inflating airbag can cause facial abrasions and other injuries. The injurious affects of airbag inflation can be minimised, by ensuring driver and passenger are seated correctly, with the seat moved back as far as is practical, and the seat belts worn correctly.*

*NEVER attach accessory items to an airbag module cover, or place items of hand luggage or any objects on the top of a module cover; these could interfere with the inflation of the airbag, or if the airbag inflates, be propelled inside the vehicle causing injury to the occupants.*

*DO NOT allow occupants to obstruct the operation of the airbag modules by placing their feet, knees or any part of their person in contact with, or close to, an airbag module while the vehicle is moving.*

*Activation of an airbag creates dust, causing possible breathing difficulties for asthma sufferers or other people with respiratory problems. If an airbag is activated, any occupant who suffers from breathing difficulties should; either leave the vehicle as quickly as possible, or obtain fresh air by fully opening the windows or doors.*

*Both front seating positions are equipped with knee bolsters to provide knee protection in the event of an impact. DO NOT modify the bolsters, or mount after market equipment on or behind them.*

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## Service information

## WARNING

*DO NOT attempt to service, repair, replace, or modify any part of the SRS/airbag; tampering could cause inadvertent activation of the system, resulting in personal injury.*

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Certain components of the SRS/airbag must be replaced by a Land Rover dealer after 10 years from the date of manufacture (shown on the certification plate on the rear face of the left hand front door).

ALWAYS contact your dealer if:

- an airbag inflates.
- the front of the vehicle is damaged, even if the airbag has not inflated.
- any part of an SRS/airbag module cover (the steering wheel centre pad or the passenger side fascia panel) shows signs of cracking or damage.



## Disposing of vehicles

If you sell your vehicle, be sure to inform the new owner that the vehicle has an SRS/airbag system, and make the new owner aware of the airbag module replacement date shown in the Passport to Service.

If the vehicle is to be scrapped; uninflated airbags are potentially very dangerous and must be safely deployed in a controlled environment before a vehicle is scrapped.

See your Land Rover Dealer or Centre for advice on safe deployment of SRS/airbags.

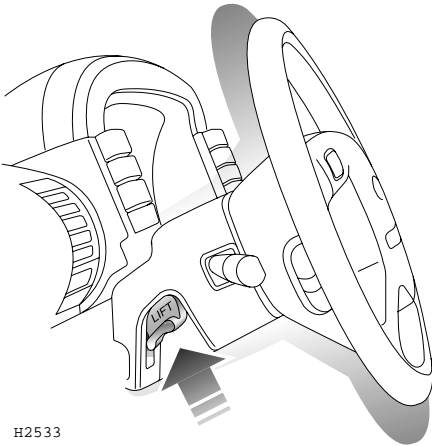
## WARNING

***The components that make up the SRS/airbag are sensitive to electrical or physical interference, either of which could easily damage the system and cause inadvertent operation or a malfunction of the airbag module. For your safety it is recommended that you seek the assistance of a Land Rover dealer to carry out any of the following:***

- ***Removal or repair of any wiring or component in the vicinity of any of the SRS/airbag components (yellow wiring harness), including; the steering wheel, steering column, instrument and fascia panels.***
  - ***Installation of electronic equipment such as a mobile telephone, two-way radio or audio system.***
  - ***Modification to the front of the vehicle, including the bumper and chassis.***
  - ***Attachment of accessories to the front of the vehicle, such as a winch or brush bar.***
-

# Steering column

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H2533

## STEERING COLUMN ADJUSTMENT

The angle of the steering column can be adjusted to suit your driving position:

1. With the vehicle stationary, push the locking lever up and hold in this position.
2. Move the steering wheel (up or down) into the desired position, making sure the instrument panel is clearly visible.
3. When adjustment is complete, release the locking lever to lock the steering column in position.

## WARNING

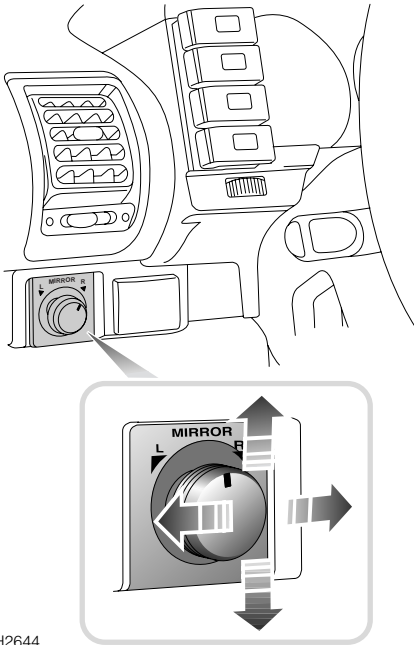
***DO NOT adjust the steering column while the vehicle is in motion. This is extremely dangerous!***

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# Door mirrors

## WARNING

*The right-hand mirror glass is convex. As a result, reflected images are closer than they appear.*

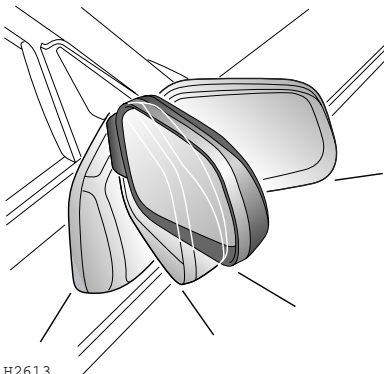


H2644

## EXTERIOR MIRRORS - ELECTRIC

1. Turn the control to the 'L' or 'R' position to select either the left or right hand mirror.
2. With the starter switch turned to position 'II', push the control in the appropriate direction to tilt the mirror glass up/down/left or right.
3. When adjustment is complete, return the control to the OFF position (midway between 'L' and 'R').

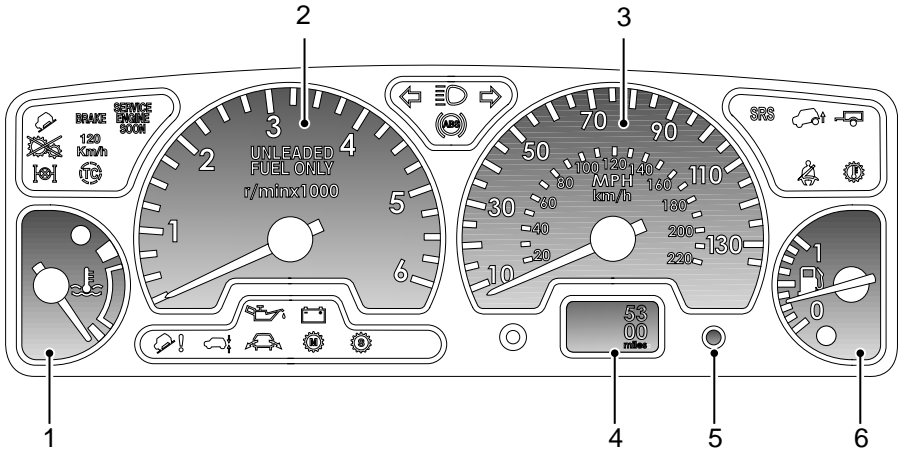
**NOTE:** Heating elements inside the mirrors operate in conjunction with the heated rear window to disperse ice, mist and rain.



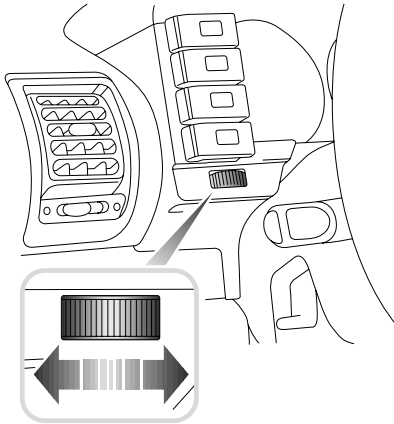
H2613

The door mirrors are designed to fold forwards or rearwards on impact. They can also be folded back towards the side windows into a 'park' position to enable the vehicle to negotiate narrower openings.

# Instruments



H2645



H2643

## Instrument illumination

Rotate the control to increase or reduce the intensity of instrument panel illumination.

## 1. Temperature gauge

Once the engine coolant has reached its normal operating temperature, the pointer will rise to a position within the WHITE segment of the gauge (the precise position will vary according to climatic conditions).

If the pointer moves towards the RED segment, this indicates that the engine coolant is becoming too hot. Should the pointer move INTO the RED segment and the RED warning light within the gauge illuminates, severe engine damage could occur (under these circumstances, the air conditioning may switch off and engine performance may reduce in order to minimise engine load).

Stop the vehicle as soon as safety permits and allow the engine to idle for five minutes in order to cool down - DO NOT SWITCH OFF. Seek qualified assistance before continuing.

# *Instruments*

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## **2. Tachometer**

Indicates engine speed in revolutions per minute (x 1000). In normal driving conditions the engine is most fuel efficient between 2000 and 3000 rev/min.

The vehicle is equipped with a system which automatically restricts the number of engine revolutions per minute once the engine's maximum 'governed' speed has been reached.

## **3. Speedometer**

Indicates road speed in miles and kilometres per hour.

## **4. Total distance (odometer) and trip recorder**

With the starter switch turned to position 'II', the display indicates the total distance travelled by the vehicle, and also shows the most recent individual journey distance.

The display can be set to show either miles or kilometres. To convert from one to another, press and hold the trip recorder reset button for more than two seconds.

**NOTE:** *The display also indicates which gearbox selector position is selected.*

## **5. Trip recorder reset button**

Press briefly to return the trip recorder display to zero.

## **6. Fuel gauge**

The pointer drops to zero when the starter switch is turned off, but quickly rises to show the level of fuel in the tank when the switch is turned to position 'II'. After refuelling, the gauge rapidly rises to reflect the increase of fuel in the tank.

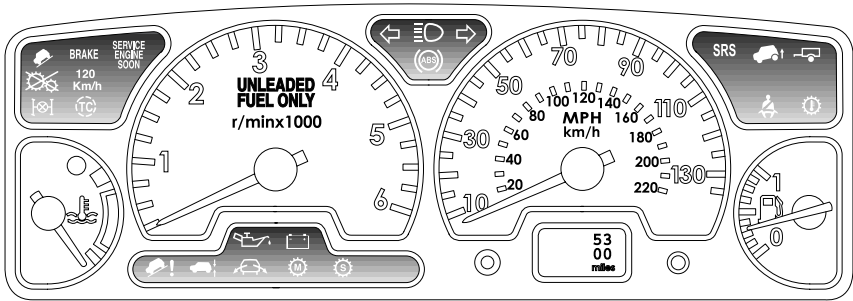
When the fuel remaining in the tank is approximately 3.75 gallons (14 litres), the AMBER low fuel warning light in the fuel gauge illuminates. If the light illuminates, refuel at the first opportunity.

### **WARNING**

***NEVER allow the vehicle to run out of fuel (the resultant misfire may destroy the catalytic converter).***

---

# Warning lights



H2646

## WARNING

**RED warning lights are of particular importance, their illumination indicates that a fault exists. If a RED warning light illuminates, stop the vehicle and review the specific instructions given in this section.**



### Service engine soon - AMBER

The engine management system on your Land Rover is controlled by a sophisticated engine control module which maintains optimum control of engine running and emission levels and monitors the operation of the sub systems and components.

The 'Service engine soon' indicator illuminates as a system check when the starter switch is turned to position 'II' and should extinguish when the engine is started.

If an engine operation or emissions problem is registered by the engine control module when the vehicle is being operated, the 'Service engine soon' indicator will illuminate.

**NOTE:** An incorrectly fitted fuel filler cap may

cause the 'Service engine soon' light to illuminate.

**If 'Service engine soon' illuminates, and the vehicle drives normally:**

Contact your Land Rover dealer to schedule a service appointment at your earliest convenience - YOU MAY STILL DRIVE THE VEHICLE

**If 'Service engine soon' flashes and/or the vehicle does not drive normally:**

Avoid high speeds and seek immediate assistance from your Land Rover dealer.

### Airbag SRS - RED

**SRS** The light illuminates when the starter switch is turned to position 'II' and extinguishes after about 4 seconds. If the light illuminates at any other time, the system is faulty - seek qualified assistance urgently.

# Warning lights

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## BRAKE

### Parking brake, brake fluid - RED

The light illuminates for about 3 seconds as a bulb check when the starter switch is turned on. It also illuminates when the parking brake is applied with the starter switch in position 'II'.

The light should extinguish when the parking brake is fully released or shortly after the electrical circuits are switched on. If the light illuminates whilst driving, a fault with the braking system is indicated. Stop the vehicle as soon as safety permits and seek qualified assistance before continuing.

## WARNING

***Do not drive the vehicle while the brake warning light is illuminated.***

---



### Low oil pressure - RED

The light illuminates as a bulb check when the starter switch is turned to position 'II' and extinguishes when the engine is started. If the light remains on, flashes on and off, or illuminates whilst driving, stop the vehicle as soon as safety permits and SWITCH OFF THE ENGINE IMMEDIATELY. Seek qualified assistance before driving. Always check the oil level when this light illuminates.

## WARNING

***Do not drive the vehicle while the low oil pressure light is illuminated.***

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### Transmission oil temperature

- RED

Illuminates as a bulb check when the starter switch is turned to position 'II' and extinguishes after 3 seconds approx. If the light illuminates while driving, the gearbox oil temperature is too high (most likely to occur in very hot weather during continuous high speed driving, or whilst towing heavy loads on steep inclines or if the handbrake has been applied while driving).

If the light illuminates, reduce speed. If the light remains on, stop the vehicle and allow the gearbox to cool. Do not drive until the light has extinguished. (Depending on the ambient temperature and the carrying loads imposed on the vehicle, it may take several minutes before the light extinguishes and it is safe to drive).



### Anti-lock braking system -

AMBER

The light illuminates as a bulb and system check when the starter switch is turned to position 'II'. If the light illuminates whilst driving or remains illuminated after the starter switch is turned on, a fault has occurred. This means that full ABS control may not be available and you should seek qualified assistance urgently.

***NOTE: Faults which cause the ABS light to illuminate after the initial system checks, or whilst driving, will be accompanied by a warning chime sounding 3 times.***

## WARNING

***Drive with extreme caution if the warning light is illuminated - ABS may not be working!***

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# Warning lights

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## Headlight main beam - BLUE

Illuminates when the headlights are switched to main beam.



## Direction indicators - GREEN

The left or right warning light flashes in time with the

corresponding left or right direction indicator lights whenever they are operated. If the warning light fails to flash, or flashes very rapidly, this may indicate a bulb failure in one of the direction indicator lights.

If the hazard switch is pressed, both warning lights will flash in conjunction with the direction indicator lights.



## Trailer direction indicators - GREEN

The light illuminates briefly as a bulb check when the starter switch is turned to position II. If a trailer is attached, the light illuminates in conjunction with the vehicle direction indicator lights to show that all trailer indicator lights are functioning correctly. In the event of a direction indicator bulb failure on the trailer, the warning light remains off.



## Differential lock - RED

Illuminates whenever the differential is locked.

While carrying out maintenance operations on your vehicle, it may be necessary for the dealer to lock the differential between the front and rear axles. This will cause the warning light to illuminate.

The dealer should always unlock the differential before returning the vehicle to the owner. However, if the light illuminates when the starter switch is turned on, this indicates that this has not been done. The vehicle should not be driven in this condition because ABS performance will be impaired and Traction Control will be disabled. Contact your dealer immediately and ask for the differential to be unlocked.



## Battery charging - RED

The light illuminates as a bulb check when the starter switch is turned to position 'II' and extinguishes once the engine is running. If it remains on, or illuminates whilst driving, a fault is indicated. Seek qualified assistance urgently.



## Seat belt - RED

The light illuminates when the starter switch is turned to position 'II' and extinguishes after approximately 6 seconds. Illumination of the light will also be accompanied by a 6 second warning chime.



# Warning lights

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## Hill descent control (HDC)

'information' - GREEN

Illuminates briefly as a bulb and system check when the starter switch is turned to position 'II' and also when HDC is selected.

If HDC is selected when Low Range gears are engaged the light will illuminate continuously indicating that HDC is active.

When HDC is selected and non-operating gears are engaged (i.e. High range), the light will flash to inform the driver that HDC is selected, but will not operate.

If the light starts to flash while HDC is active, normal functionality may seize and HDC 'fade out' may be induced (see 'Hill Descent Control').



## Hill descent control (HDC)

'failure' - AMBER

The light illuminates briefly as a bulb and system check when the starter switch is turned to position 'II'.

If the light illuminates at any other time, either a fault has occurred which affects the functionality of the system, or over-use of the system has been detected, in which case HDC may 'fade out' (see 'Hill Descent Control').

**NOTE:** *Faults which cause the HDC 'failure' light to illuminate after the initial system checks, or whilst driving, will be accompanied by a warning chime sounding 3 times.*



## Traction Control - AMBER

Illuminates as a bulb check when the starter switch is turned to position 'II' and extinguishes after approximately 3 seconds. The light illuminates for a minimum of 2 seconds, whenever traction control is operating.

If the light illuminates continuously, and remains illuminated when the vehicle is stationary, a fault with the system is indicated; seek qualified assistance.

**NOTE:** *Faults which cause the light to illuminate after the initial system checks, or whilst driving, will be accompanied by a warning chime sounding 3 times.*

# Warning lights

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## **Active cornering enhancement (ACE) - RED/AMBER (if fitted)**

The light illuminates RED when the starter switch is turned to position 'II'. After two seconds, the RED illumination changes to AMBER, and after a further two seconds, the light extinguishes.

***If illumination occurs while driving, a fault with the system is indicated, as follows:***

***If the light shows RED (a flashing red light which changes to constant illumination after two minutes, and is accompanied by a warning chime):***

This indicates a system fault that may result in serious damage to vehicle components and reduced ACE performance. Stop the vehicle as soon as safety permits and switch off the engine. **DO NOT CONTINUE DRIVING!** Seek qualified assistance immediately.

***If the light shows AMBER (constant illumination).***

This indicates a system fault that will result in reduced ACE performance but will not leave the vehicle in a dangerous condition. You may continue driving, but reduce speed, take additional care, and consult a Land Rover dealer at the earliest opportunity.



## **Off Road - AMBER (if fitted)**

Illuminates briefly as a bulb and system check when the starter switch is turned to position 'II' and then extinguishes.

*If the off-road switch is pressed:*

The light flashes continually while the rear of the vehicle is either; rising to off-road height, or returning to standard ride height. The light illuminates constantly while the suspension remains at off-road height.

In addition, the light will flash if extended mode is induced.



## **Manual mode - GREEN**

Illuminates for 3 seconds as a bulb check when the starter switch is turned to position 'II'. Illuminates constantly while Manual mode is selected.

***NOTE:*** *If both the Manual and Sport mode lights (shown below) flash together, this indicates an electrical fault with the automatic gearbox. If the lights continue flashing after the vehicle has been brought to a halt and the starter switch has been turned off and then on again, you should seek qualified assistance urgently.*

# Warning lights

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## **Sport mode - GREEN**

Illuminates for 3 seconds as a bulb check when the starter switch is turned to position 'II'. Illuminates constantly while Sport mode is selected.



## **Self-levelling suspension -**

AMBER (if fitted)

Illuminates briefly as a bulb and system check when the starter switch is turned to position 'II' and then extinguishes.

*If the remote handset is operated:*

The light flashes continually while the rear of the vehicle is being lowered, or raised.

If the light illuminates constantly, this indicates a fault with the self-levelling suspension and you should seek qualified assistance.

# *Audible warnings*

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## **AUDIBLE WARNINGS**

### **Lights on reminder**

If the lights are left on after the starter switch is turned off, a warning chime will sound when the driver's door is opened. The chime will cease as soon as the lights are switched off or when the driver's door is closed.

### **Transfer box reminder**

A warning will chime continuously while the transfer gearbox is in neutral.

### **Self-levelling suspension warning**

1. A single warning will chime whenever the off-road switch is operated to raise the vehicle to off-road height, or to return it to standard ride height.
2. A warning will chime continuously while the remote handset is used to lower the vehicle from standard ride height, and also while returning the vehicle to standard ride height.
3. A warning chime will sound 3 times if changes to or from off-road height are requested but not permitted.

### **ABS warning**

If a fault with the anti-lock braking system is detected, a warning will chime three times. You may continue driving, but should understand that full ABS control may not be available. Consult your dealer at the earliest opportunity.

### **ACE warning**

A single warning will chime if a fault with the active cornering enhancement system is detected. The chime will coincide with the ACE warning light flashing RED.

### **HDC warnings**

1. A warning will chime continuously in conjunction with the HDC warning light flashing green, whenever HDC has been selected but the system's operating criteria have not been met.
2. A warning will chime continuously and the HDC failure warning light will illuminate (amber), whenever a fault is detected with the HDC system.
3. A single warning will chime when HDC is deselected.

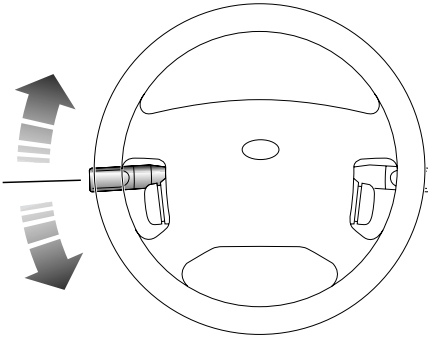
### **Starter key reminder**

If the key is left in the starter switch while the driver's door is open, a warning will chime continuously. The chime stops as soon as the door is closed or the key is removed from the starter switch.

### **Seat belt reminder**

If the driver's seat belt has not been fastened when the starter switch is turned on, a warning chime will sound (one second frequency). The chime operates in conjunction with the seat belt warning light and sounds for up to 6 seconds.

# Lights & indicators

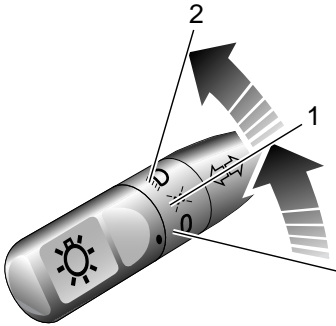


H2582

## Direction indicators

Move the lever **DOWN** to indicate a **LEFT** turn, and **UP** to indicate a **RIGHT** turn (the appropriate **GREEN** warning light on the instrument panel will flash in time with the direction indicators).

Hold the lever part-way up or down against spring pressure to indicate a lane change.



H2448

## Side, tail and instrument panel lights

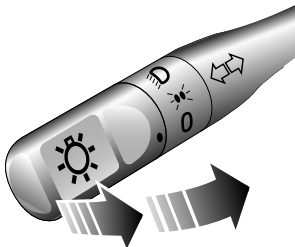
Turn lighting switch to position 1.

## Headlights

Turn lighting switch to position 2.

## Daylight running lights (Canada only)

With the lighting switch off, the daylight running light system illuminates the headlight low beams as soon as the starter switch is turned to position 'I'. The instrument panel illumination remains off.



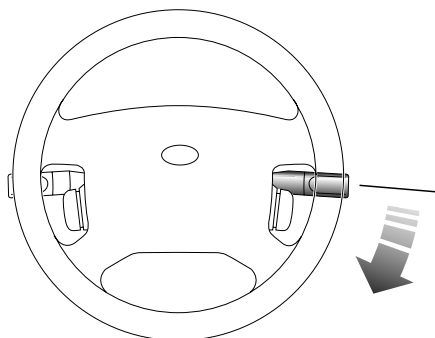
H2449

## Headlight main and dipped beams

Pull the lever fully towards the steering wheel to change headlight beams (**BLUE** warning light glows when the headlights are on main beam).

To flash the headlights, pull the lever part way towards the steering wheel and release.

# Wipers & washers



H2583

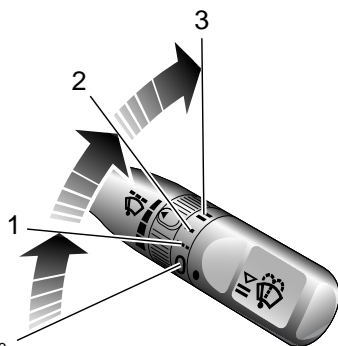
## WINDSCREEN WIPERS

The wipers and washers will only operate when the starter switch is turned to position 'I' or 'II'.

### Single wipe

Pull the lever down and release immediately.

**NOTE:** With the lever held down, the wipers will operate at high speed until the lever is released.



H2450

### 1. Intermittent wipe

Turn switch to first position.

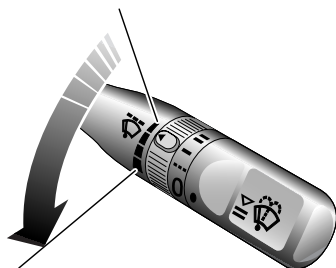
### 2. Normal speed wipe

Turn switch to second position.

### 3. Fast speed wipe

Turn switch to third position.

**NOTE:** If the front screen wipers are operating (in either intermittent or continuous mode), the rear wiper operates automatically whenever reverse gear is selected.

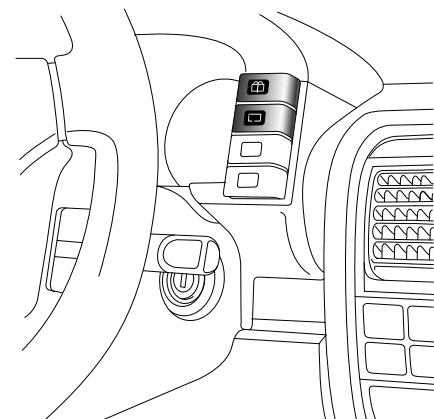


H2451

### Variable delay (intermittent wipe)

Rotate the switch to vary the delay between wipes.

# Wipers & washers



H2634

## REAR WINDOW WIPERS



### Rear window wash/wipe

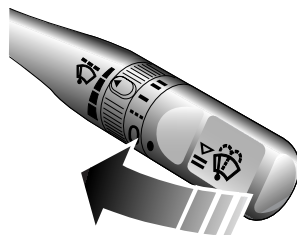
Press and hold switch for the required duration of window washing. The wiper operates automatically during washing and continues for a further 3 wipes after the switch is released.



### Rear window wiper

Press to operate: after continuously wiping 3 or 4 times, the wiper operates intermittently until switched off.

**NOTE:** When reverse gear is selected, the rear wiper will operate (either continuously or intermittently) in tandem with the front wipers.



H2452

## WINDSCREEN WASHER

Pull the lever towards the steering wheel. The windscreen wipers will operate in conjunction with the washers for as long as the lever is held in this position, the wipers continuing for a further 4 seconds after the lever is released.

## HEADLIGHT WASHERS

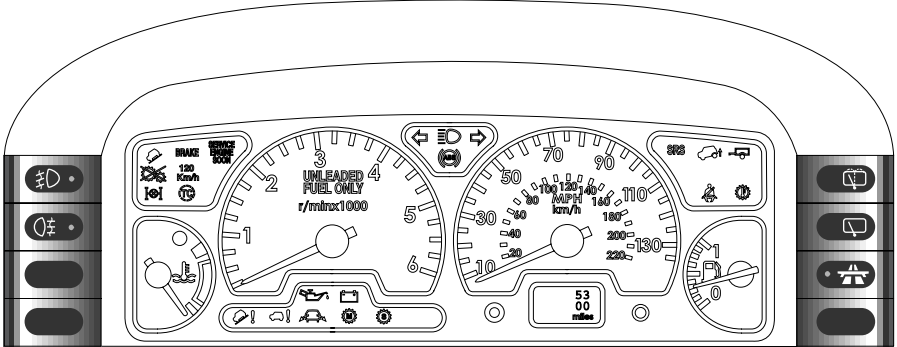
When the headlights are illuminated, the headlight washers operate automatically in conjunction with every third operation of the windscreen washers.

## IMPORTANT INFORMATION

- DO NOT operate the wipers on a dry screen.
- In freezing or very hot conditions, ensure that the blades are not frozen or stuck to the glass.
- In winter, remove any snow or ice from around the arms and blades, including the wiped area of the windscreen and the heater air intakes.

**NOTE:** If the wiper blades have stuck to the glass, a thermal cut-out may temporarily prevent the wiper motor from operating. In this case, switch the wipers off, free them from obstruction and then switch on again.

# Switches



H2647

## BINNACLE SWITCHES



### Front fog lights (if fitted)

Press to operate, press a second time to switch off (the indicator light in the switch illuminates when the fog lights are switched on).

The fog lights can be operated **ONLY** when the starter switch is at position 'II' and the side or headlights are also switched on. The fog lights extinguish automatically when the side lights or the starter switch is turned off.



### Rear fog guard lights

Press to operate, press a second time to switch off (the indicator light in the switch illuminates when the fog guard lights are switched on). The rear fog guard lights illuminate **ONLY** when the headlights (or front fog lights) are also switched on, and the starter switch is turned to position 'II'. Switching off the headlights, or front fog lights, or turning the starter switch to position '0' will automatically extinguish the rear fog guard lights too (the lights will not illuminate again unless switched on).

**ALWAYS** remember to switch the fog guard lights off as soon as visibility permits; in clear conditions fog guard lights can dazzle other road users!



### Rear window wash/wipe

The functions of the wash/wipe switch are described under '*Wipers & washers*'.



### Rear window wiper

The functions of the rear window wiper switch are described under '*Wipers & washers*'.

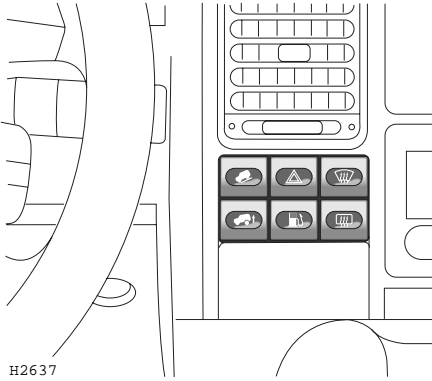


### Cruise control

Operation and functions of the cruise control switch are described under '*Cruise Control*'.



# Switches



## FASCIA SWITCHES



### Hazard warning lights

Press to operate; all the direction indicator lights (including those fitted to a trailer) will flash together. Use **ONLY** in an emergency to warn other road users when your stationary vehicle is causing an obstruction, or is in a hazardous situation. Remember to switch off before moving away.



### Heated front screen (if fitted)

Press to operate (the indicator light in the switch illuminates); press a second time to switch off (the indicator light extinguishes). The heated screen operates only with the engine running. After 5 minutes continuous operation, the heater switches off automatically.



### Heated rear window

Press to operate; press a second time to switch off. The indicator light in the switch illuminates while the heating elements are switched on and extinguishes when they are turned off. Note that the heating elements operate only with the engine running.

After 15 minutes continuous operation, the heater switches off automatically.

## WARNING

**DO NOT** stick labels over the heating elements, and **DO NOT** scrape or use abrasive materials to clean the inside of the window.



### Fuel filler flap

With the starter switch turned to position '0' or '1', press to open the fuel filler flap.



### Hill descent control

Press to select hill descent control (HDC) (see '*Hill descent control*').

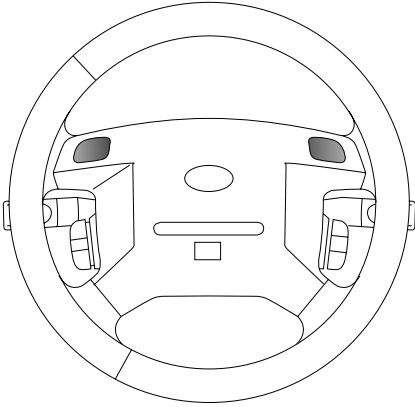


### Off-road suspension mode

(if fitted)  
Press to raise or lower the suspension to or from off-road height. (see '*Self-levelling suspension*').

# Switches

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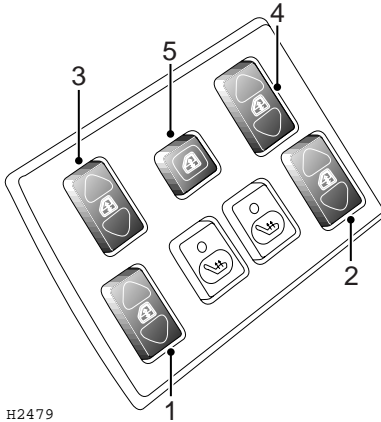


H2586

## **Horn**

To operate, press either of the horn switches set into the steering wheel pad.

# Electric windows



## ELECTRIC WINDOWS

The switches on the centre console operate the windows as follows:

1. Right hand front window.
2. Left hand front window.
3. Right hand rear window.
4. Left hand rear window.
5. Isolating switch for rear door window switches.

**NOTE:** Rear windows can also be operated by the individual switches mounted on each rear door, provided the isolation switch has not been activated.

### Operating the windows

The electric windows can be operated when the starter switch is at position 'II' and for up to 45 seconds after the starter switch is turned to position '0' (provided a door is not opened in the meantime).

Press and HOLD the bottom of a switch to lower and the top of a switch to raise. The window will stop moving as soon as the switch is released.

### 'One touch' down (Front windows only)

By briefly pressing (and then releasing) the bottom of a switch, a front window will open fully at a single touch. Window movement can be stopped at any time by BRIEFLY pressing the top of the switch.

## WARNING

**Accidental closing of an electrically operated window on fingers, hands or any vulnerable part of the body, can result in serious injury. Always observe the following precautions:**

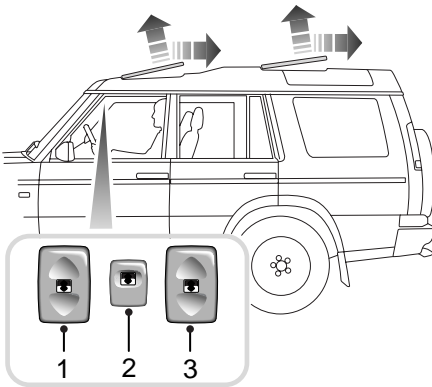
- **ISOLATE** the rear window switches when carrying children.
- **ENSURE** children are kept clear whilst raising or lowering windows.
- **ENSURE** that all adult passengers are familiar with the controls and the potential dangers of electrically operated windows.

### Rear window isolation switch

Press once to isolate the rear window switches; press a second time to restore independent control.

Always isolate the rear window switches when carrying children.

# Sunroof



H2528

## ELECTRIC SUNROOF

(if fitted)

The electric sunroof can be operated when the starter switch is at position 'II', and for up to 45 seconds after the starter switch is turned off (provided a door is not opened in the meantime).

The roof opens in two separate phases as follows:

**To tilt the roof:** press the upper part of the switch once BRIEFLY - the rear edge of the roof automatically rises to the tilted position.

**To open the roof:** press the upper part of the switch BRIEFLY a second time - the roof remains tilted and slides towards the rear until it is fully open or until movement is stopped by briefly pressing the lower part of the switch.

**To close the roof:** press and hold the lower part of the switch until the roof has moved to the required position.

The roof will pause momentarily when it reaches the tilt position.

**NOTE:** If the roof is obstructed for more than 7 seconds whilst opening or closing, an

automatic cut-out will prevent the sunroof motor from operating. After a period, operation of the motor will be restored.

1. Front sunroof operating switch
2. Rear sunroof disable switch. (Always disable the rear sunroof when driving with children in the rear of the vehicle).
3. Rear sunroof operating switch.

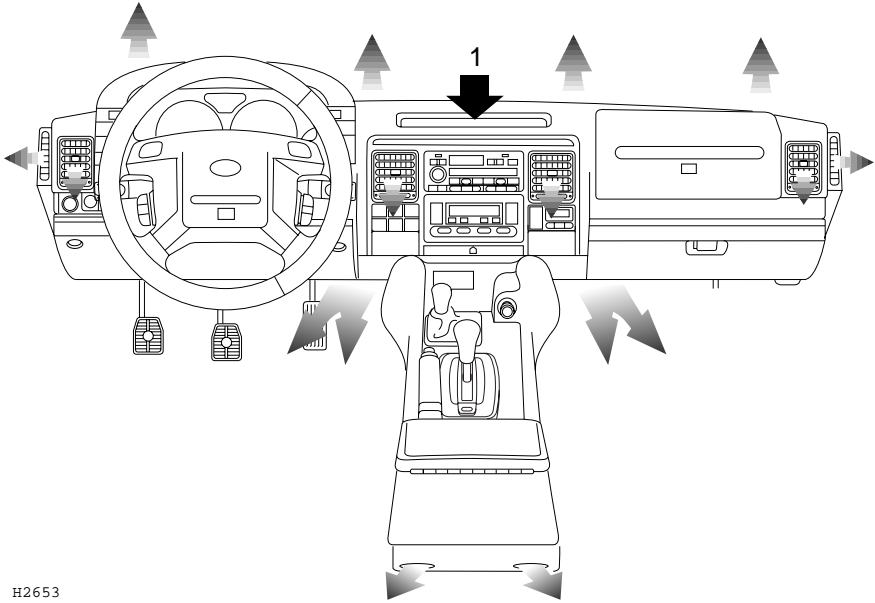
**NOTE:** Vehicles fitted with a rear sunroof have an additional operating switch set into the roof lining forward of the rear sunroof.

## WARNING

**Accidental closure of a sunroof on fingers, hands or any vulnerable part of the body, can result in serious personal injury. Always observe the following precautions:**

- **ENSURE passengers are kept clear while closing the roof, particularly when closing the rear sunroof using the front switch.**
- **ENSURE that all adult passengers are familiar with the controls and the potential dangers of operating an electrically operated sunroof.**
- **DO NOT allow passengers to extend any part of their bodies through the sunroof aperture while the vehicle is moving - injury from flying debris, branches of trees or other obstructions could occur.**
- **ENSURE the sunroof is not obstructed when opening or closing.**
- **ALWAYS close the roof when the vehicle is unattended.**

# Heating & ventilation



H2653

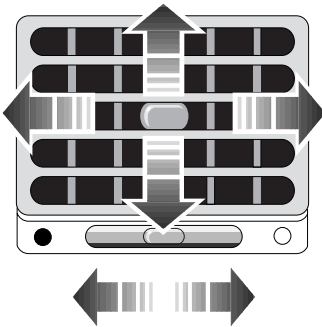
The location of air vents is shown by the air-flow arrows in the picture. The temperature of air supplied to each vent is controlled by the heater.

**NOTE:** Vent (1) is designed to keep the audio unit cool, there is no airflow from this vent.

## Face level vents

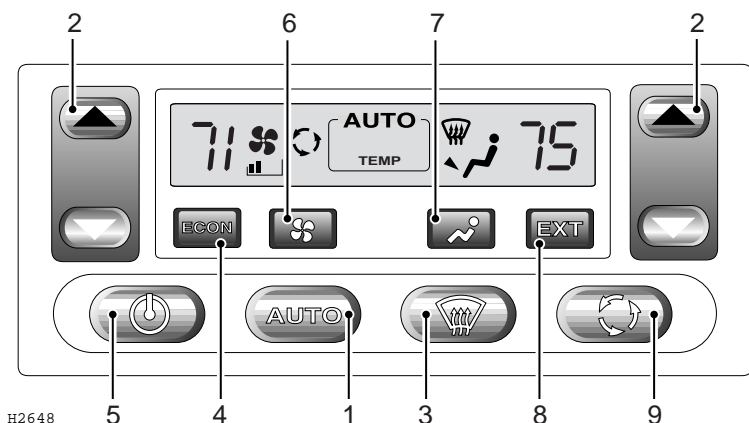
Each vent can be opened or closed by rotating the thumbwheel: left to open, right to close. Direct the flow of air by moving the control in the centre of the louvres.

To ensure best ventilation and minimum noise, the vents should be fully open when the air distribution control is set to face level.



H2454

# Air conditioning



H2648

The air conditioning system features automatic temperature and air distribution control, which is programmed to maintain optimum levels of comfort within the vehicle in all but the most severe climatic conditions.

While the controls can be adjusted manually to satisfy individual requirements, allowing the system to function automatically (in Auto mode) is by far the simplest method of operation for the owner and is preferable in most operating conditions.

## Auto mode

**Press 'AUTO' (1) for fully automatic operation.**

**Press the temperature control switches (2) on either side of the display to select the required temperature.**

**Let the automatic temperature control system do the rest.**

In Auto mode, air distribution and blower speeds are adjusted automatically to achieve and then maintain the desired temperature. *(An enclosed area in the centre of the display will show 'AUTO' together with the air distribution and blower speed settings).*

Both the air distribution and blower controls can be operated independently to override the automatic setting. In this case, the relative symbols will move outside the enclosed area in the centre of the display to indicate that they are no longer being controlled automatically.

**NOTE:** *If the air distribution and blower controls are operated independently, the system may not be able to achieve or maintain the required temperature settings.*

# Air conditioning

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## Defrost mode

If the windscreen is misting or covered in ice, press the 'SCREEN' button (3); the system will immediately direct its output to achieve maximum screen clearing by:

- setting the blower speed to maximum
- distributing air flow to the screen only.

In addition, the rear and front screen heaters (if fitted) will be switched on (or their timed operating cycle will recommence if they are already switched on).

**NOTE:** *The temperature and blower speed controls can be adjusted and air recirculation selected manually if required.*

Press the 'SCREEN' button a second time (or select 'AUTO') to leave the Defrost mode - the system will default automatically to Auto mode.



## Economy mode

Press the 'Econ' button (4) to operate (*the display shows 'ECON'*).

In economy mode the air conditioning compressor is switched off and the system functions as a conventional heating and ventilation system. This reduces the load on the engine, thereby reducing fuel consumption.

Select Economy mode whenever air conditioning is not required i.e. in cold weather when the external temperature is lower than the temperature required for the passenger compartment.

The air distribution, blower and recirculation controls can be operated independently.

Pressing the 'Econ' button a second time will switch the air conditioning compressor on and return the system to Auto mode.

**NOTE:** *In Economy mode, it is possible to switch the blower off (no segments showing in the display).*



## On/off button

Press (5) to switch on or off. When switching on, note that the system automatically recalls the mode and control settings that were last used.

## Temperature controls

Operate the rocker switches (2) on either side of the display to set the required temperature for the corresponding side of the passenger compartment (left hand switch for the left side of the vehicle, and right hand switch for the right side).

Temperatures above 82° F (28° C) and below 16° C (61° F) cannot be set. Above or below these maximum and minimum settings 'HI' or 'LO' will appear in the display.

**NOTE:** *The temperatures shown on the display are relative, target, temperatures only and are not reflective of any specific temperature measured within the vehicle interior.*

**NOTE:** *The system will not achieve temperatures on the passenger side of the vehicle that are more than 9° F (5° C) greater or less than the temperature set for the driver's side.*

# Air conditioning

---

## Blower button



Press the button (6) to adjust the blower speed. The blower speed increases incrementally with each press of the button, until maximum fan speed is reached (the display shows five segments and the word 'MAX').

Once the maximum fan speed has been reached, another press of the button returns the blower to its slowest speed (one segment shows in the display).

## Air distribution control



Press the button (7) to adjust. Air distribution changes

incrementally with each press of the switch in the following sequence:



Face level vents



Foot and face level vents



Foot level vents



Foot level, windscreen and side window vents



Windscreen and side window vents

A further operation of the button returns to the start of the sequence.

**NOTE:** If the button is pressed for more than one second, air distribution will automatically default to foot and face level vents.

## External temperature



Press the button (8) to display.

The external temperature is displayed for approximately 6 seconds, after which the display reverts to its previous state.

**NOTE:** While the air conditioning system is switched off, the external temperature can be displayed briefly by pressing the button.

## Air recirculation



The air recirculation feature can be used to prohibit the entry of air from outside the vehicle, alternatively recirculating the air inside the vehicle instead.

This is useful to prevent the entry of traffic fumes.

The feature also significantly influences the dehumidifying and cooling performance of the air-conditioning system. Therefore, in Auto mode, air recirculation is controlled automatically to enable the air-conditioning system to achieve its optimum performance.

However, the feature is also manually selectable in Auto, Defrost and Economy modes, as follows:

### In Auto mode:

1. Press the control (9) briefly (*display shows recirculation symbol*):

Air recirculation operates until the control is pressed a second time to switch off.

2. Press and hold for 2 seconds (*two beeps will sound, display shows recirculation symbol*):

Air recirculation operates for a pre-timed period of 4-6 minutes only.



# Air conditioning

---

## In Defrost and Economy modes:

- Press the control briefly (*display shows recirculation symbol*):  
Air recirculation operates for a pre-timed period of 4-6 minutes only.
- Press and hold for 2 seconds (*two beeps will sound, display shows recirculation symbol*):  
Air recirculation operates until the control is pressed a second time to switch off.

**NOTE:** Prolonged recirculation may cause the windows to mist.

## Temperature conversion (° F - ° C)

The temperature displays can be converted to or from Fahrenheit and Centigrade, as follows:

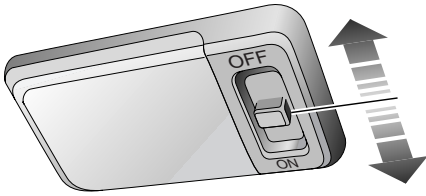
1. Press and hold the air recirculation button (9).
2. At the same time, press and hold the on/off button (5) for 3 seconds.
3. A 'bleep' will sound to indicate that the conversion has taken place.

## General notes

- For optimum operating efficiency, ensure all the air vents (including those in the rear of the vehicle) are open.
- For the automatic temperature control system to function efficiently, all windows (and the sunroof) should be closed, and the air intake vents free from ice, snow, leaves or other debris.
- In very humid conditions, slight screen misting may be experienced when the air conditioning system is turned on. This is a natural occurrence on most automotive air conditioning systems. It is not a fault and misting will clear after a few seconds once the air conditioning system is operating.
- The air conditioning compressor will not function unless the engine is running.
- Surplus water produced by the dehumidifying process is expelled from the system via drain tubes beneath the vehicle. This may result in a small pool of water forming on the road when the vehicle is stationary and is not a cause for concern.
- If desired, the system's audible information chimes can be deactivated, as follows:
  - 1) Press 'Auto' button and hold.
  - 2) Press 'On/off' button and hold pressed for 3 seconds, then release.
  - 3) Press 'On/off' button again for a further 3 seconds, and release.
  - 4) Release 'Auto' button.

# Interior equipment

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H2592

## FRONT INTERIOR & LOADSPACE LIGHTS

### **Switch positions:**

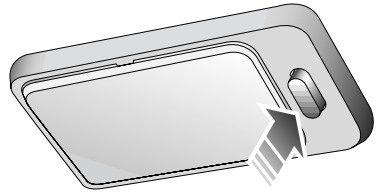
'OFF' - Light permanently off.

'ON' - Light illuminates continuously.

With the switch in the centre position, the interior light illuminates automatically whenever the vehicle is unlocked, when the starter switch is turned off (to position '0'), or when a door or taildoor is opened. The light remains illuminated for 15 seconds after the doors and taildoor are closed, or until the starter switch is turned on.

After driving, the interior lights will fade and then extinguish as soon as the vehicle is locked or when the last door is closed.

**NOTE:** When the light is switched for automatic operation (switch in centre position), a 'time-out' function extinguishes the lights after 8 minutes approx. if a door is left open, to prevent the battery from discharging.



H2593

## REAR INTERIOR LIGHTS

Press the switch to illuminate (or extinguish) the lights manually.

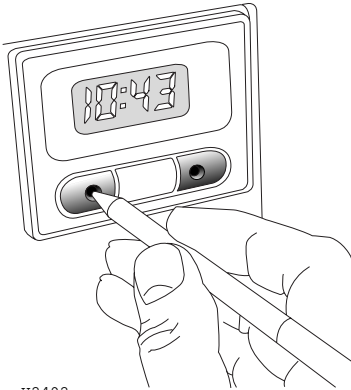
Lights illuminate automatically when the vehicle is unlocked or whenever a door or taildoor is opened, and extinguish approximately 15 seconds after ALL the doors are closed, or as soon as the starter switch is turned on.

## GLOVEBOX LIGHT

Illuminates automatically whenever the glovebox is opened, provided the sidelights are switched on, and extinguishes when the glovebox is closed.

# Interior equipment

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H2492

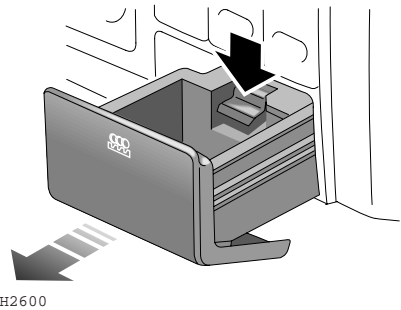
## CLOCK

The digital clock display illuminates constantly and dims automatically for night time viewing, when the side lights are illuminated.

To adjust the time, use a ballpoint pen or similar probe to press the hour (left hand) and minute (right hand) controls, until the correct time is displayed.

**NOTE:** *The clock will need to be reset if the battery is disconnected.*

Pressing both hour and minute controls simultaneously 'zeroes' the display.

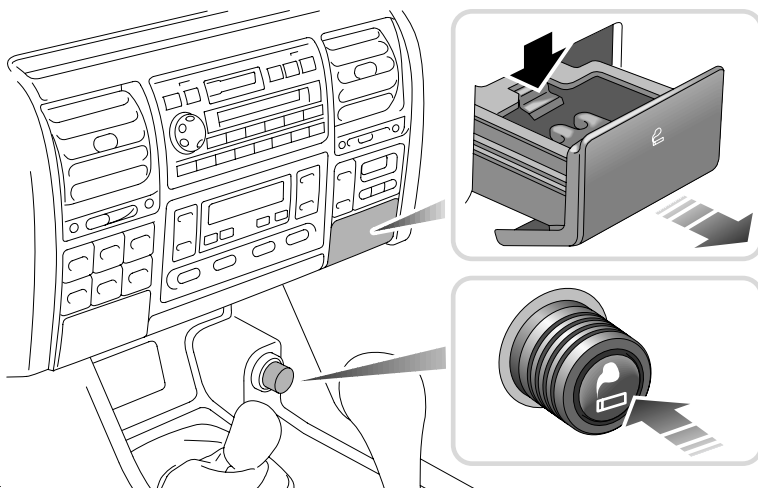


H2600

## COIN TRAY

Push the front to open. To remove the tray, open fully, then press down on the release plate (arrowed in illustration) and pull to remove.

# Interior equipment

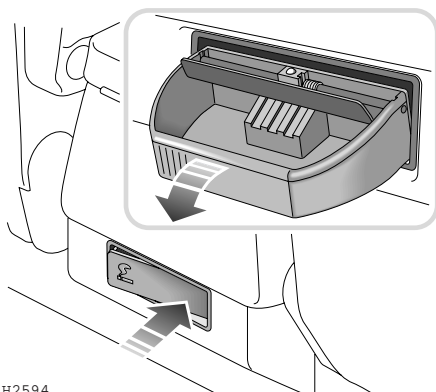


H2614

## CIGAR LIGHTER

With the starter switch turned on, press the lighter in to heat up. When it has reached the correct temperature it will partially eject and can then be withdrawn for use.

- ONLY hold the cigar lighter by the handle.
- DO NOT plug accessories into the cigar lighter socket unless they are approved by Land Rover.



H2594

## ASHTRAYS

**Front:** Push the front of the ashtray to open. To remove the ashtray, open fully, then press down on the release plate (arrowed in illustration) and pull to remove.

**Rear:** Push the front of the ashtray on the right hand side to open. To remove, open the ashtray and then carefully lever the tray downwards to disengage the upper pivot.

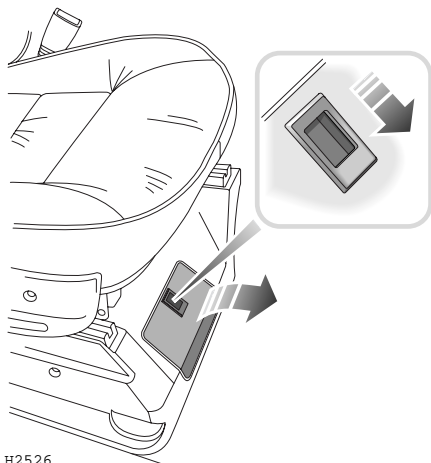
Refit by locating the upper pivot and then easing the ashtray into a position whereby the lower pivot can also be engaged.

## WARNING

**DO NOT use the ashtrays for disposing of waste paper or other combustible items.**

# Interior equipment

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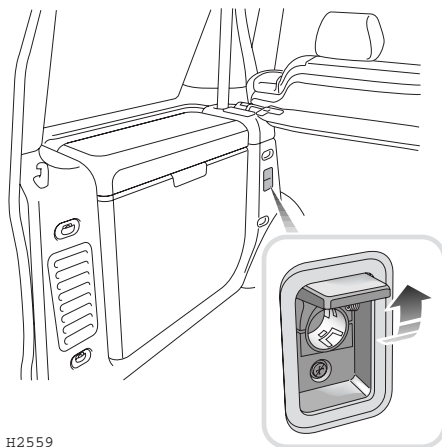


H2526

## UNDER SEAT STOWAGE BOX

To gain access, depress the catch (arrowed in illustration) and open the lid.

**NOTE:** *On some models the stowage box provides the location for a CD autochanger.*



H2559

## AUXILIARY POWER SOCKET

An auxiliary power socket is mounted immediately behind the rear seat on the left hand side of the loadspace. This can be used to power Land Rover approved accessories that use a maximum of 180 watts.

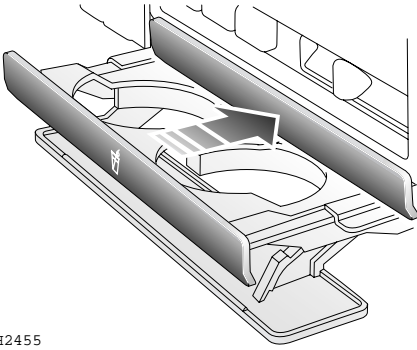
Always run the engine during prolonged use of electrical accessories, otherwise the battery may become discharged.

### WARNING

***NEVER plug non-approved accessories into the power socket - damage to the vehicle's electrical systems could occur.***

---

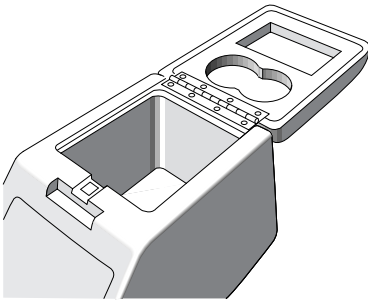
# Interior equipment



H2455

## CUP HOLDER - FRONT

Push leading edge of tray to open.

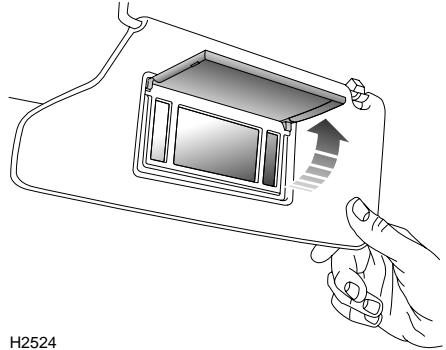


H2456

## CUBBY BOX

Lift front of lid to open.

**NOTE:** The recesses in the underside of the lid can be used to hold cups or drink cans.

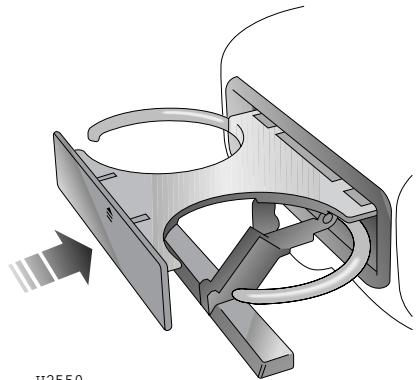


H2524

## SUN VISOR VANITY MIRROR ILLUMINATION

(if fitted)

With the starter switch turned to position 'II', pivot the sun visor downward and raise the cover on the vanity mirror to illuminate the mirror. Close the cover to extinguish the lights.



H2550

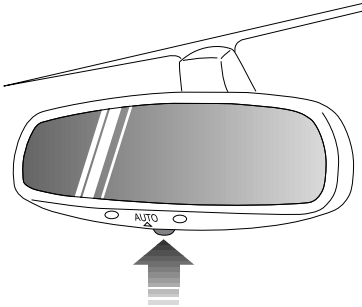
## CUP HOLDER - REAR

(if fitted)

With the centre armrest lowered, press the front of the cup holder tray to open.

# *Interior equipment*

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H2458

## **INTERIOR REAR-VIEW MIRROR**

### **Automatic mirror**

The interior mirror is equipped with an automatic dimming function which operates when the 'auto' button on the base of the mirror is pushed and the starter switch is turned on. A green indicator to the right of the button illuminates to confirm that the mirror is powered.

When powered, the mirror will reduce glare from the headlights of following vehicles at night. Press the 'auto' button again and the mirror assumes its normal reflective state.

# Rear step

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H2482

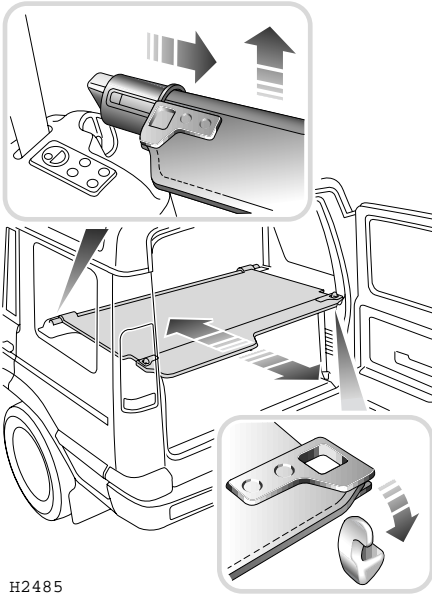
## **REAR STEP** (if fitted)

Press down with your foot to lower the step.  
The step will automatically return to its  
stowed position after use.



# Loadspace Cover

---



H2485

## LOADSPACE COVER

The rear loadspace cover is a spring loaded roller blind, which can be retracted when not in use by detaching the cover from the hooks at the rear of the vehicle (see lower inset).

To remove the loadspace cover:

1. Slide the retracted cover firmly to the right.
2. Lift the left hand end of the cover from its location.
3. Carefully manoeuvre the cover from the rear of the vehicle.

Refitting the loadspace cover is the reverse of the removal procedure.

**NOTE:** Removal of the loadspace cover may be eased by folding the rear seat backrest forward.

## WARNING

**DO NOT** carry loose items of luggage on top of the loadspace cover - these may obscure vision and could become dangerous projectiles in the event of a sudden stop or collision.

**All equipment, luggage or tools carried in the loadspace should be secured to minimise the risk of injury to the driver and passengers in the event of an accident or emergency manoeuvre.**

**DO NOT** store the loadspace cover loose in the vehicle.

---

# *In-Car Telephones*

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## **WARNING**

***NEVER operate a telephone fitted with its own aerial inside the vehicle (see main text).***

---

Your vehicle utilises a number of electronic systems designed to provide you with maximum comfort, safety and economy. These systems may be affected by the use of mobile communication equipment inside the vehicle. However, the use of an external aerial will greatly reduce the likelihood of this occurrence.

For your safety, always note the following precautions before fitting or using an in-car telephone, or any mobile communication equipment.

- ONLY use an installation kit incorporating an aerial external to the vehicle.
- Ensure that the installation is carried out by a competent installer.
- NEVER operate a mobile phone fitted with its own aerial inside the vehicle - the electromagnetic field radiated by the phone may interfere with the vehicle's electrical systems.

## **For your safety**

Using any hand-held appliance while driving can be dangerous. Always stop the vehicle before making a call and ensure the telephone is switched off while you are driving.

# In-Car Entertainment

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## Radio aerial

The radio aerials are etched onto the surface of the glass on both rear side windows.

No maintenance is possible, however it is important to ensure that the interior surface of the glass is protected from possible damage caused by contact with hard objects or from the injurious effects of abrasive cleaners.

## Radio cassette player

Full operating instructions for any audio equipment fitted as standard to your vehicle, are contained in the 'In-Car Entertainment' book in the vehicle literature pack.

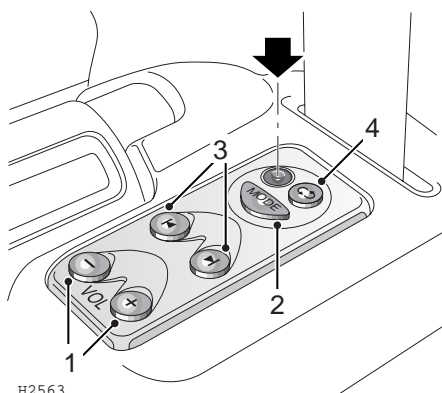
## CD autochanger (if fitted)

The CD autochanger is located under the right hand front seat. Full operating instructions are contained in the 'In-Car Entertainment' book.

## WARNING

**DO NOT insert or eject the magazine while driving.**

---



H2563

## HEADPHONE CONTROLS (if fitted)

The control panel (illustrated) is for the convenience of rear seat passengers and can be used with headphones only.

The controls include:

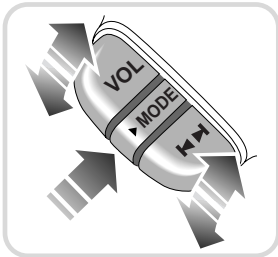
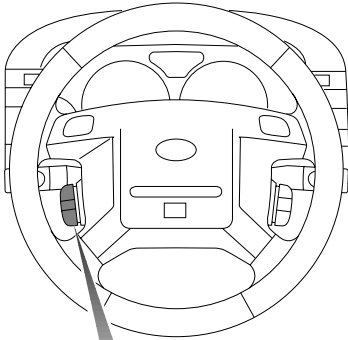
1. Volume
2. Mode (for changing between radio, cassette tape and CD)
3. Auto search (to search up or down the selected waveband, or skip forward or back between tracks of a tape or CD).
4. Multi-function control (selects the next radio pre-set, reverses the direction of tape play, or selects the next CD in the autochanger).

Full operating instructions are included in the 'In-Car Entertainment' book.

**NOTE:** Where a conflict arises between operation of the vehicle's audio unit and the headphone controls, the audio unit takes priority.

# In-Car Entertainment

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H2615

## RADIO REMOTE CONTROLS

(if fitted)

### Volume control

**VOL**

Lift or press to increase or decrease the volume.

### Mode select control

**MODE**

Press to change to cassette tape or compact disc play, or to return to radio tuner mode. The mode change will only be effected if a tape or disc has been loaded.

### Search control



Lift or press to change to the next or previous radio station on the selected waveband.

During tape (or CD) play, lift the control to move forward to the next track on the tape (or disc), or press to return to the start of the current track. Operate the control repeatedly to move forward or back through several tracks at a time.



# ***SECTION 3***

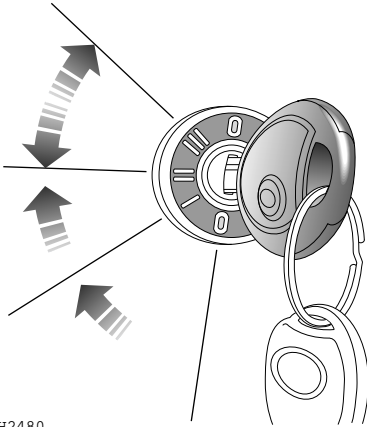
## ***Driving & operating***

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# Starter switch & steering lock



H2480

## STEERING COLUMN LOCK

### To unlock the steering column

Insert the key FULLY and turn the starter switch to position 'I'. A small movement of the steering wheel may be necessary to disengage the steering lock while turning the switch.

### To lock the steering column

Press the key inwards, turn to position '0' and withdraw the key from the starter switch. Turn the steering wheel slightly until the lock engages.

## WARNING

**Do not under any circumstances turn the key to the '0' position while the vehicle is moving. To prevent the steering column lock engaging it is most important that, before the vehicle is moved in any way, the key be inserted in the lock and turned to position 'I'. If, due to an accident or electrical fault, it is not considered safe to turn the key, disconnect the negative lead of the battery and turn the key.**

## STARTER SWITCH

The starter switch is located to the right of the steering column, and uses the following sequence of key positions to operate the steering lock, electrical circuits and starter motor:

### Position '0'

- Steering locked (if key is removed).
- Most lighting circuits are operational, including: sidelights, headlights and hazard warning lights.

### Position 'I'

- Steering unlocked.
- Clock, radio/cassette player and cigar lighter can now be operated.

### Position 'II'

- All instruments, warning lights and electrical circuits are operational.

### Position 'III'

- Starter motor operates.  
Release the key immediately the engine starts (the key will automatically return to position 'II'). Note that operation of position 'I' electrical functions will be interrupted during engine cranking.

**NOTE:** Gear selector position 'P' or 'N' must be selected before the engine will start.

**NOTE:** Gear selector position 'P' must be selected before the starter key can be removed.



# Starting the engine

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## STARTING THE ENGINE

### WARNING

*The catalytic converter is easily damaged by improper use, particularly if the wrong fuel is used, or if an engine misfire occurs.*

---

Before starting the engine, ENSURE you are familiar with the precautions shown under '*Catalytic converter*' later in this section.

In particular, you should be aware that if the engine fails to start, continued use of the starter may result in unburnt fuel damaging the catalytic converter.

### Starting

1. Check that the handbrake is applied and that the gear lever is in neutral ('P' or 'N' for automatic transmission).
2. Switch off all unnecessary electrical equipment.
3. Turn the starter switch to position 'II' and then on to position 'III' to operate the starter motor. DO NOT press the accelerator pedal while starting, and RELEASE THE KEY as soon as the engine is running.

# Starting the engine

---

In temperate climates DO NOT operate the starter for longer than 10 seconds. If the engine fails to start, switch off and wait 10 seconds before re-using the starter. Please note that continued use of the starter will discharge the battery and may cause the starter motor to overheat.

**NOTE:** *The battery charging and oil pressure warning lights should extinguish as soon as the engine is running.*

## **Cold climates**

In very cold climates, if the engine fails to start after three attempts, fully depress the accelerator and operate the starter continually for up to 30 seconds, or until the engine runs.

In addition the oil pressure warning light may take several seconds to extinguish, and, engine cranking times will also increase; at -22° F (-30° C) the starter motor may need to be operated continuously for as long as 30 seconds before the engine will start. For this reason, ensure that all non-essential electrical equipment is switched off.

## **Block heaters**

Additionally, in very cold temperatures, use of a 110 V AC block heater will improve the engine's starting characteristics. In order to ensure correct performance, only Land Rover approved engine block heaters should be used. In any event, block heaters restricted to a maximum of 400 W should be used. Block heaters that exceed this output may damage the emission control components.

## **WARNING**

***Exhaust fumes contain poisonous substances which can cause unconsciousness and may even be fatal.***

- ***DO NOT inhale exhaust gases.***
- ***DO NOT start or leave the engine running in an enclosed unventilated area, or drive with the taildoor open.***
- ***DO NOT modify the exhaust system from the original design.***
- ***ALWAYS repair exhaust system leaks immediately.***
- ***If you think exhaust fumes are entering the vehicle have the cause determined and corrected immediately.***

---

## **EMISSION CONTROL SYSTEM**

Land Rover vehicles are fitted with emission and evaporative control equipment necessary to meet a number of territorial requirements.

In many countries it is against the law for vehicle owners to modify or tamper with emission control equipment, or to sanction the unauthorised replacement or modification of this equipment. In such cases the vehicle owner and the repairer may both be liable for legal penalties.

It is important to remember that all Land Rover dealers are properly equipped to perform repairs and to maintain the emission control system on your Discovery.

# Starting the engine

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## Auxiliary equipment

### WARNING

**DO NOT use auxiliary equipment, such as roller generators, that are driven by one wheel of the vehicle, as they could cause failure of the gearbox differential. If the gearbox differential lock is engaged in an attempt to avoid damage, the vehicle will drive itself forward.**

**Some local jurisdictions require emission testing using a two wheel roller dynamometer. Your vehicle is equipped with permanent 4-wheel drive and cannot be safely operated on these machines. For more information regarding safe emission testing of your vehicle consult your local Land Rover dealer or Centre.**

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## DRIVING

### Instruments and warning lights

Before driving it is important to fully understand the function of the instruments and warning lights described in 'section 2'.

**NOTE:** Red warning lights are of particular importance, illumination indicating that a fault exists. If a red light illuminates, always stop the vehicle and seek qualified assistance before continuing.

### WARNING

#### Vehicle stability

**Your vehicle has a higher ground clearance and, hence, a higher centre of gravity than ordinary passenger cars to enable the vehicle to perform in a wide variety of different off-road applications. An advantage of the higher ground clearance is a better view of the road, allowing the driver to more easily anticipate problems. Inexperienced drivers should take additional care, remembering that the Discovery is not designed for cornering at the same speeds as conventional passenger cars, any more than a low slung sports car is designed to perform satisfactorily in off-road conditions. If at all possible, avoid sharp turns and abrupt manoeuvres. As with other vehicles of this type, failure to operate the Discovery correctly may result in loss of control or even vehicle rollover. Be sure to read 'On-road' and 'Off-road' driving guidelines given in this book.**

#### Vehicle height

**The overall height of your vehicle exceeds that of ordinary passenger cars (The height is shown on the underside of the sun visor). Always be aware of the height of your vehicle and check the available headroom before driving through low entrances. This is particularly important if the vehicle is fitted with a roof rack or if a sunroof is open.**

---

# Starting the engine

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## Automatic gearbox

### WARNING

*When the engine has started, BEFORE moving the gear selector lever out of 'P' or 'N' it is important that the parking brake or foot brake is firmly applied and the accelerator pedal is not depressed - otherwise, the vehicle may move immediately if the gear selector lever is moved to any of the drive positions (1, 2, 3, D or R). This is particularly important when the engine is cold, because the engine will be idling at a faster speed than normal. Use the foot brake to control the vehicle until the engine is warm and running at normal speed.*

---

**NOTE:** *The foot brake MUST be applied before the selector can be moved from 'P'.*

### IMPORTANT INFORMATION

#### Before driving:

Learn the layout and function of all the instruments, warning lights and controls.

Adjust the seat to a comfortable driving position from which you can ensure full control of the vehicle.

Always start the vehicle and operate the controls from the driving position.

## Power assisted steering

The hydraulic power-assisted is progressively geared; when steering straight ahead gearing is relatively low, but becomes progressively higher as the steering wheel is turned.

**NOTE:** *Power assistance is dependent on the engine running. If the engine is not running, greater effort will be required to steer the vehicle.*

### WARNING

*Under no circumstances must the steering wheel be held on full lock for more than thirty seconds in any one minute, otherwise the steering assembly may be damaged.*

---

# *Starting the engine*

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## **Warming-up**

In the interests of fuel economy, it is advisable to drive the vehicle straight away, remembering that harsh acceleration and labouring the engine before the normal operating temperature has been reached can damage the engine.

When the engine is cold, engine idle speeds will be faster than normal. Under these circumstances, use the footbrake to control the vehicle until the engine is warm and running at normal speed, and be aware of the need to take additional care when manoeuvring the vehicle.

## **Breaking-in**

Proper breaking-in will have a direct bearing on the reliability and smooth running of your vehicle throughout its life.

In particular, the engine, gearbox, brakes and tyres need time to 'bed-in' and adjust to the demands of everyday driving. During the first 500 miles (800 km), it is essential to drive with consideration for the breaking-in process and heed the following advice:

- LIMIT maximum road speed to 70 mph (110 km/h) or 3,000 rev/min. Initially, drive the vehicle on a light throttle and only increase engine speeds gradually once the breaking-in distance has been completed.
- DO NOT operate at full throttle or allow the engine to labour in any gear.
- AVOID fast acceleration and heavy braking except in emergencies.
- Initially, the vehicle should be driven on a light throttle. Once the breaking-in distance has been completed, engine speeds may be gradually increased.

## **FUEL ECONOMY**

Fuel consumption is influenced by two major factors:

- How your vehicle is maintained.
- How you drive your vehicle.

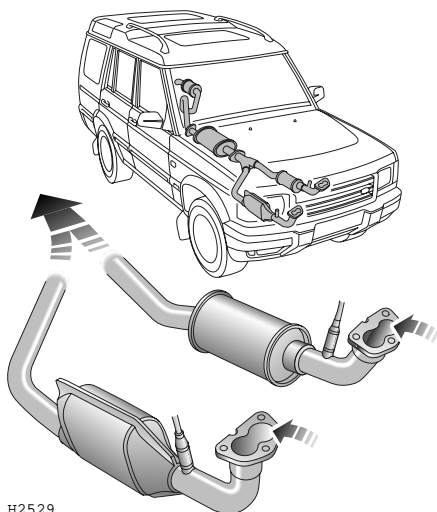
To obtain optimum fuel economy, it is essential that your vehicle is maintained in accordance with the manufacturer's service schedule.

Items such as the condition of the air cleaner element, tyre pressures and wheel alignment will have a significant effect on fuel consumption. But, above all, the way in which you drive is most important. The following hints may help you to obtain better value from your motoring:

- Avoid unnecessary, short, start-stop journeys.
- Avoid fast starts. Instead, accelerate gently and smoothly from rest.
- Do not drive in the lower gears for longer than necessary.
- Decelerate gently and avoid sudden and heavy braking.
- Anticipate obstructions and adjust your speed accordingly well in advance.

# Catalytic converter

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H2529

## CATALYTIC CONVERTER

The exhaust system incorporates a catalytic converter, which converts poisonous exhaust emissions from the engine into environmentally less harmful gases.

### WARNING

***Catalytic converters can be easily damaged through improper use, particularly if the wrong fuel is used, or if an engine misfire occurs. For this reason it is VERY IMPORTANT that you heed the precautions which follow:***

---

### Fuel

- Use **ONLY** fuel recommended for your vehicle.

### Misfire

- A misfire can cause an engine to run rough or skip for more than just a few seconds. If a misfire is suspected, there is a risk of catalyst damage; consult a Land Rover dealer for assistance.

### Starting the engine

- **DO NOT** continue operating the starter switch if the engine fails to start after a few attempts (unburnt fuel may be drawn into the exhaust system, thereby poisoning the catalyst); seek qualified assistance.
- Do not attempt to push or tow-start the vehicle.

# Catalytic converter

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## Driving

- If a misfire is suspected, or the vehicle lacks power while driving, provided the engine has reached its normal operating temperature, it may be driven SLOWLY (at risk of catalyst damage) to a Land Rover dealer for assistance.
- NEVER allow the vehicle to run out of fuel (the resultant misfire could damage the catalyst).
- Engines burning excessive oil (e.g. 1 quart every 750 miles) will progressively reduce catalyst efficiency. In extreme cases, blue smoke may be emitted from the exhaust.
- On rough terrain do not allow the underside of the vehicle to be subjected to heavy impacts which could damage the catalytic converter.
- DO NOT overload or excessively 'rev' the engine.
- DO NOT switch off the engine when the vehicle is in motion with a drive gear selected.

## WARNING

***Exhaust system temperatures can be extremely high - DO NOT park on ground where combustible materials such as dry grass or leaves could come into contact with the exhaust system - in dry weather a fire could result.***

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## Vehicle maintenance

- Any engine misfire which causes the Check Engine warning light to flash (see 'Warning lights'), loss of engine performance or engine run-on, could seriously damage the catalytic converter. For this reason, it is vital that unqualified persons do not tamper with the engine, and that regular systematic maintenance is carried out by a Land Rover dealer.
- DO NOT run the engine with a spark plug or HT lead removed, or use any device that requires an insert into a spark plug.

# Fuel

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## USE ONLY UNLEADED FUEL

### Octane requirements

Premium unleaded gasoline with a CLC or AKI octane rating of 90 or 92 should be used whenever possible. However, lower octane fuels can be used but performance and fuel economy may be reduced.

**NOTE:** Federal law requires that gasoline octane ratings be posted on the pumps. The Cost of Living Council (CLC) octane rating or Anti Knock Index (AKI) octane rating shown is an average of Research Octane Number (RON) and Motor Octane Number (MON).

Using unleaded fuel with an octane rating lower than that recommended, can cause persistent, heavy 'engine knock' (a metallic rapping sound). If severe, this can lead to engine damage.

If heavy engine knock is detected when using recommended octane rated fuel, or if steady engine knocking is present while maintaining a steady speed on level roads, contact your dealer for advice as soon as possible. Failure to take measures to eliminate either condition constitutes misuse of the vehicle!

**NOTE:** An occasional, light, engine knock experienced ONLY for short periods while accelerating or climbing hills is acceptable.

## WARNING

**DO NOT use leaded fuel! Your engine is designed to use unleaded fuel ONLY.**

**Unleaded fuel is essential for proper operation of the emission control system.**

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Even a very small quantity of leaded fuel will damage your vehicle's emission control system and could invalidate the emissions warranty. In addition, leaded fuel will damage the oxygen sensors in the fuel injection system and also seriously damage the catalyst in the catalytic converter.

Reformulated gasolines and gasolines that contain detergents, anti-corrosion and stability additives are recommended - they will help your vehicle maintain the correct level of emissions and engine performance.

Fuel system cleaning agents should be avoided, as many of these products can be harmful to gaskets and other materials used in fuel system components.

## Driveability

If you encounter driveability, starting and stalling problems, especially in high ambient temperatures or at high altitude when the engine is cold, it may be caused by poor quality fuel. Try an alternative brand, and if the problem persists, seek advice from your dealer.



# Fuel

## Gasoline/oxygenated fuel blends

To avoid invalidating the vehicle warranty, use ONLY fuels blended within the following limits.

1. Up to 15% of Methyl Tertiary Butyl Ether (MTBE) and unleaded fuel mix.
2. Up to 15% of Ethyl Tertiary Butyl Ether (ETBE) and unleaded fuel mix.
3. Up to 10% of Ethanol (Ethyl or grain alcohol) and unleaded fuel mix.

## Methanol/unleaded fuel blends

In some areas, it is possible to buy unleaded fuel that is blended with up to 5% Methanol (Methyl or wood alcohol) and cosolvents and corrosion preventatives. Using these blends can cause driveability problems and damage to the fuel system components. Their use may also invalidate the vehicle warranty. WHEREVER POSSIBLE, AVOID USING FUEL CONTAINING METHANOL!

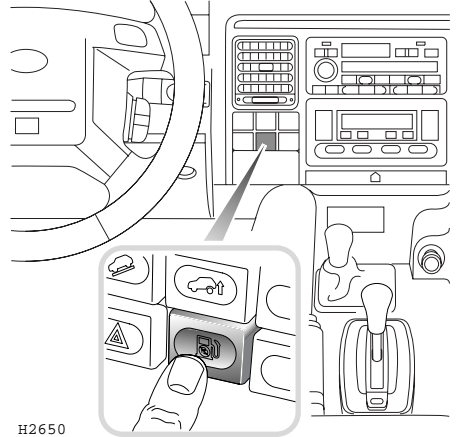
## Octane enhancers

The use of octane enhancers is not recommended, and may invalidate the vehicle warranty.

### WARNING

***Automotive fuels can cause serious injury, and even death if misused.***

***Methanol/unleaded fuel blends, even in small amounts, can cause blindness and possible death if swallowed. Additionally, take precautions to prevent methanol from coming into contact with the skin.***



## Locking and unlocking the fuel filler flap

### WARNING

***To avoid any sudden discharge of fuel caused by excessive air pressure, the cap is designed to allow the fuel tank to vent during the first half turn. DO NOT fully remove the cap until any pressure has been released.***

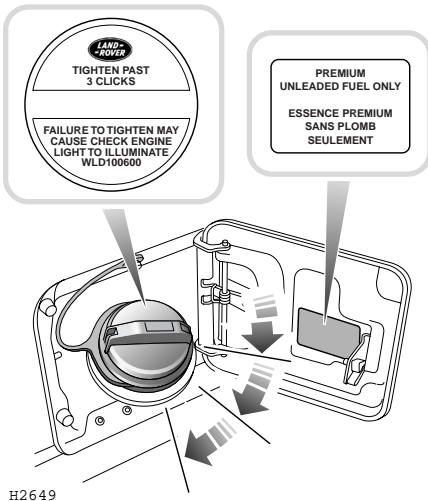
***Take careful note of warning labels located around the filler flap.***

***DO NOT fully fill the tank, if the vehicle is to be parked in direct sunlight or high ambient temperature - expansion of the fuel could cause spillage.***

The fuel filler is located in the rear right-hand wing. With the starter switch turned off, press the fascia mounted switch (shown in previous illustration) to release the filler flap.

The filler cap is designed to allow the fuel tank to vent during the first half turn. Carefully loosen the cap one half turn until resistance is felt, and allow fuel tank pressure to be released. Once the pressure is released (hissing has stopped), it is safe to fully remove the filler cap.

When replacing, tighten the cap clockwise until you hear the fuel cap ratchet click at least three times. If the cap is not fitted correctly, the 'Check Engine' warning light may illuminate.



## Fuel filling

Filling station pumps are equipped with automatic cut-off sensing to avoid fuel spillage - only fill the tank until the filler nozzle automatically cuts off the supply.

DO NOT attempt to fill the tank beyond this point or spillage could result due to expansion of the fuel.

The reduced diameter filler neck, accepts ONLY a narrow filler nozzle of the type found on pumps that supply UNLEADED fuel.

## WARNING

***Ensure the filler cap is fitted correctly after refueling, otherwise the Check Engine warning light may illuminate.***

## Empty fuel tank

### DO NOT RUN THE FUEL TANK DRY!

Running the fuel tank dry could create an engine misfire capable of damaging the catalytic converter. It will also cause the Check Engine warning light to illuminate.

## GAS STATION SAFETY

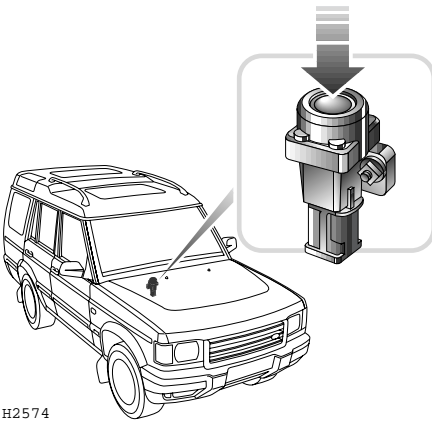
Petroleum gases are highly flammable and, in confined spaces, are also extremely explosive. Always take sensible precautions when refuelling:

- Switch off the engine.
- DO NOT smoke or introduce other ignition sources.
- Take care not to spill fuel.
- DO NOT overfill the tank.
- DO NOT fill gas cans (jerry cans) in the vehicle.

## FUEL CUT-OFF SWITCH

The fuel cut-off switch is a safety device which, in the event of a collision or sudden impact, automatically cuts off the fuel supply to the engine.

The switch is located in the engine compartment on the bulkhead. After an impact, the switch must be reset by pressing the rubber top (arrowed in illustration) before the engine can be restarted.



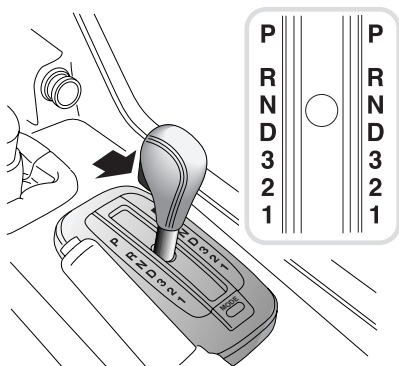
H2574

### **WARNING**

***ALWAYS check for fuel leaks before resetting the switch!***

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# Gearbox & transmission



H2640

## AUTOMATIC TRANSMISSION

The Automatic transmission features a four speed main gearbox with a torque converter and a two speed transfer box. Using the main gearbox in conjunction with the transfer gearing produces eight forward and two reverse speeds.

### Main gearbox selector lever

A spring loaded catch restricts movement of the lever, thereby preventing inadvertent gear selection. Press and hold the trigger mounted in the handle of the selector lever (arrowed in illustration) to release the catch whilst moving the lever to the required position.

**NOTE:** Gear selection between 'D' and '3' in high and low range may be made without operating the trigger.

## Selector lever positions

### 'P' Park

In this position the transmission is locked to prevent the vehicle from rolling away. Select **ONLY** when the vehicle is stationary and with the handbrake applied.

### 'R' Reverse

Select **ONLY** when the vehicle is stationary.

### 'N' Neutral

Use this position when the vehicle is stationary and the engine is to idle for a short period (eg. at traffic lights).

### 'D' Drive

In high range, select for all normal driving on good road surfaces; fully automatic gear changing occurs on all four forward gears according to vehicle speed and accelerator position.

### '3' (1st, 2nd and 3rd gears)

Automatic gear changing is limited to first, second and third gears only. In high range, use this position in congested traffic conditions and for town driving.

### '2' (1st and 2nd gears)

Automatic gear changing is limited to first and second ratios only. In high range, use when driving up steep gradients and for negotiating very narrow, twisting, roads. This position also provides moderate engine braking for descending slopes.

### '1' (1st gear only)

Use on very severe gradients, particularly when towing, and when maximum engine braking is required.

# Gearbox & transmission

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## WARNING

***When parked, always leave the vehicle with the gear selector in 'P' (Park) and the parking brake applied.***

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***NOTE:*** *The starter key cannot be removed unless the gear selector is in 'P' (Park).*

### Starting and driving

Drivers unfamiliar with the performance characteristics of an automatic gearbox should thoroughly familiarise themselves with the following instructions before driving.

- Before starting the engine, ensure that both foot brake and handbrake are applied.
- After starting the engine, KEEP BOTH BRAKES APPLIED before and whilst moving the selector lever to the required drive position.
- Keep the brakes applied until you are ready to move - remember, once a drive position is selected, an 'automatic' will tend to creep forward (or backward) without throttle application, as soon as the brakes are released.
- Never 'rev' the engine while selecting a forward or reverse drive gear, or while the vehicle is stationary with a drive gear selected - remember, an 'automatic' will move immediately the accelerator pedal is pressed.

### Gear change speeds

With 'D' selected, the road speeds at which gear changes take place will vary according to the position of the accelerator: minimum acceleration will result in gear changes at low road speed, while larger throttle openings will cause the gearbox to delay gear changes until faster road speeds have been reached (thereby increasing acceleration).

With practice, gear changes can be made to occur at a wide range of road speeds depending on accelerator pedal pressure.

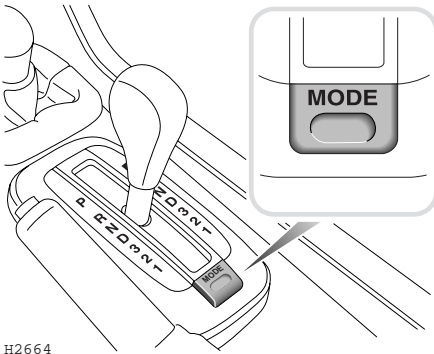
On long inclines the gearbox will sometimes change back and forth between gears. This occurs because the transmission does not include a ratio that is precisely right for the particular incline and vehicle loading circumstances. However, excessive gear changing results in a loss of momentum and is wasteful of fuel. It can be prevented by selecting the '3' or '2' positions which limit the gearbox to lower ratios.

### 'Kick-down'

To provide rapid acceleration for overtaking, push the accelerator pedal to the full extent of its travel in a single quick movement (this is known as 'kick-down'). Up to a certain speed, this will cause an immediate downshift into the lowest appropriate gear, followed by rapid acceleration. Once the pedal is relaxed, normal gear change speeds will resume (dependent upon road speed and accelerator pedal position).

# Gearbox & transmission

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## MODE SWITCH

In High range press the mode switch to select 'Sport' mode (the 'S' information light on the instrument panel will illuminate).

In Low range press the mode switch to select 'Manual' mode (the 'M' manual information light will illuminate).

Press the switch a second time to return the gearbox to normal operation.

## 'Sport' mode

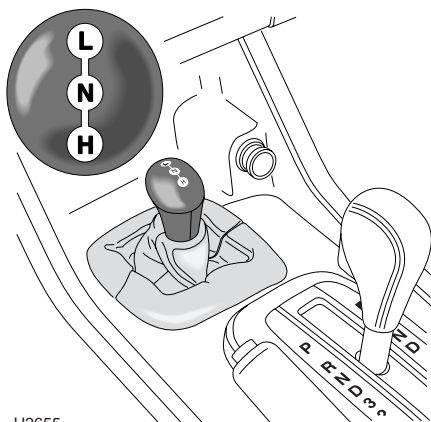
With 'Sport' mode selected, the gearbox is more responsive to accelerator pedal movement - downshifts occur earlier and upshifts are delayed to make optimum use of the engine's power while accelerating. Select 'Sport' when increased acceleration is required, or when negotiating long inclines or twisting roads. Note that driving in 'Sport' mode will increase fuel consumption.

## 'Manual' mode

In Low range, with 'Manual' mode selected, the automatic transmission functions as a manual gearbox requiring the driver to move the selector lever manually to change gear ('D' = 4th gear). Manual mode will provide maximum vehicle control and engine braking - ideal for use in severe off-road conditions. Note that 'kick-down' is disabled and that automatic downshifts will only occur to prevent the engine from stalling.

**NOTE:** *Switching off the engine or using the transfer gearbox will automatically cancel 'Sport' or 'Manual' mode.*

# Gearbox & transmission



## TRANSFER GEARBOX

The second gearbox (known as the transfer box) is used to select either the high or low range of gears.

### High range ('H')

The high range of gears should be used for all normal road driving and also for off-road driving across dry, level terrain.

### Low range ('L')

Use low range gears **ONLY** in situations where low speed manoeuvring is necessary, such as reversing a trailer or negotiating a boulder strewn river bed; also use low range for more extreme off-road conditions where progress in high range cannot be maintained.

## WARNING

***DO NOT attempt to use LOW range gears for normal road driving.***

## USING THE TRANSFER GEARBOX

There are two ways of operating the transfer gearbox lever; the 'normal' method - recommended for inexperienced drivers - and the 'advanced' method for experienced drivers.

### Normal method

With the vehicle stationary and the engine running, apply both foot brake and parking brake and then move the automatic gearbox selector to the 'N' (neutral) position before moving the transfer lever fully forward or backwards to the required position.

If there is resistance to the gear engaging, do not force the lever. Instead, with the engine running, apply the foot brake and parking brake, momentarily engage 'D' on the main gearbox then return it to the 'N' position and then try again.

### Advanced method

Changing from 'H' (High) to 'L' (Low) or vice versa without stopping the vehicle can be achieved as follows:

Reduce (or increase) the speed of the vehicle to 5 mph (8 km/h) and release the accelerator. Select 'N' and move the transfer lever quickly to the required 'H' or 'L' position. Finally, reselect 'D' with the main gear selector and continue driving as normal.

### Audible warning

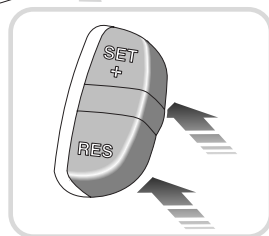
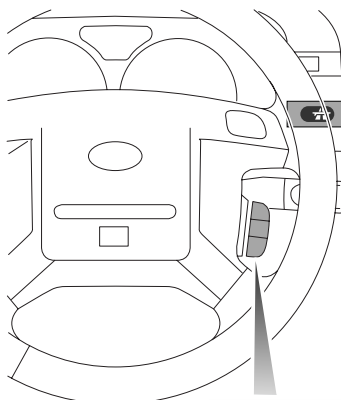
A constant, high pitched, warning chime will sound whenever the starter switch is turned on when the transfer gearbox lever is in the 'N' (neutral) position. The warning is intended to remind the driver that the appropriate 'High' or 'Low' range gearing should be engaged.

# Cruise control

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## WARNING

- **DO NOT** use cruise control when using low range or reverse gears.
  - **DO NOT** use cruise control on winding or slippery road surfaces, or in traffic conditions where a constant speed cannot easily be maintained.
  - Use of 'sport' mode is not recommended when cruise control is selected.
  - **DO NOT** rest your foot under the accelerator pedal while cruise control is engaged - your foot could be trapped.
  - **ALWAYS** switch off the master switch when you no longer intend to use cruise control.
- 



H2616

## CRUISE CONTROL

Cruise control enables the driver to maintain a constant road speed without using the accelerator pedal. This is particularly useful for freeway cruising or for any journey where a constant speed can be maintained for a lengthy period.

The cruise control system has three switches; a master switch on the right hand side of the instrument panel and two control switches marked 'SET +' and 'RES' mounted on the steering wheel.



# Cruise control

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## To operate

1. Press the master switch (the switch indicator light illuminates whenever the switch is pressed to the 'on' position).
2. Accelerate until the desired cruising speed is reached. This must be above the system's operational minimum speed of 28 mph (45 km/h).
3. Press the 'SET +' switch to set the vehicle speed in the system's memory. Cruise control will now maintain that road speed without the need for operation of the accelerator pedal.

With cruise control operating, speed can be increased for periods of up to 30 seconds, by normal use of the accelerator e.g. for overtaking. When the accelerator is released, road speed will return to the selected cruising speed.

**NOTE:** *If the 30 second period is exceeded, cruise control will automatically disengage. Press the 'RES' switch to re-engage.*

## To reduce the cruising speed:

Press the 'RES' switch to slow the vehicle, until the required speed has been reached. Then press the 'SET +' switch to establish the new cruising speed (remember that cruise control will not operate at speeds below 28 mph (45 km/h)).

## To increase the set cruising speed:

Press and hold the 'SET +' switch - the vehicle will accelerate automatically. Release the switch as soon as the desired speed has been reached.

Alternatively, the set speed can be increased incrementally by 'tapping' the 'SET +' switch. Each press of the switch will increase the speed by 1 mph (1.5 km/h approx).

## Disengaging cruise control

Cruise control will disengage automatically whenever the gear selector is moved into neutral, or when the brake pedal is pressed. Cruise control can also be disengaged by pressing the 'RES' switch.

To re-engage cruise control at the previously set speed, press the 'RES' switch.

**NOTE:** *The speed held in the cruise control memory will be cancelled when either the cruise control master switch or the starter switch is turned off.*

# Brakes

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## FOOT BRAKE

For your safety, the hydraulic braking system operates through dual circuits. If one circuit should fail, the other will continue to function, but increased brake pedal travel, greater pedal pressure, and longer stopping distances will be experienced.

### Power assistance

The braking system is power assisted, but **ONLY** when the engine is running. Without this assistance greater braking effort is necessary to safely control the vehicle, resulting in longer stopping distances. Always observe the following precautions:

- NEVER allow the vehicle to coast with the engine turned off.
- ALWAYS take particular care when being towed with the engine turned off.
- If the engine should stop for any reason while the vehicle is in motion, bring the vehicle to a halt as quickly as traffic conditions safely allow, and **DO NOT** pump the brake pedal as the braking system may lose any remaining assistance available.

### Electronic brake force distribution

In addition, your vehicle is equipped with Electronic Brake Force Distribution (EBD), which balances the distribution of braking forces between front and rear axles, in order to maintain maximum braking efficiency under all load conditions.

For example; under light loads EBD applies less effort to the rear brakes to maintain vehicle stability, conversely reducing front braking effort when the vehicle is towing or is heavily laden.

## Brake pads

Brake pads require a period of bedding in. For the first 500 miles (800 km), you should avoid situations where heavy braking is required.

Remember! regular servicing is vital to ensure that the brake pads are examined for wear and changed periodically to ensure long term safety and optimum performance.

## WARNING

***DO NOT rest your foot on the brake pedal while travelling as this may overheat the brakes, reduce their efficiency and cause excessive wear.***

***NEVER place additional floor matting or any other obstructions under the brake pedal. This restricts pedal travel and braking efficiency.***

***NEVER move a vehicle without the engine running because braking assistance will not be available. The pedal brakes will still function, but more pressure will be required to operate them.***

***If the brake warning light comes on when driving, and the parking brake is fully released, a fault with the braking system is indicated. Be prepared for increased brake pedal travel and then stop the vehicle as quickly as traffic conditions and safety permit and seek qualified assistance before continuing.***

***DO NOT pump the brake pedal - the braking system may lose any remaining power assistance available.***

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# Brakes

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## Driving in wet conditions

Driving through water or even very heavy rain may adversely affect braking efficiency. Always dry the braking surfaces by intermittent light application of the brakes, first ensuring that you are at a safe distance from other road users.

## PARKING BRAKE

Unlike most other vehicles, the parking brake operates on the rear propeller shaft, and NOT on the road wheels. This may result in slight movement of the vehicle after the parking brake is applied.

To engage the parking brake, depress the button and pull the lever up fully.

To release, pull the lever up slightly, depress the button and lower the lever.

When parking on a slope, do not rely on the parking brake alone to hold the vehicle.

Always ensure the parking pawl of the gearbox has fully engaged by carefully releasing the foot brake and allowing the vehicle to 'rock' into 'P' (park).

## WARNING

***Always apply the parking brake fully whenever you park.***

***DO NOT apply the parking brake while the vehicle is in motion (except in an emergency) as this could result in loss of vehicle control and damage to the transmission.***

***DO NOT rely on the parking brake to operate effectively if the vehicle has been subjected to immersion in mud and water (see 'Off-road driving' section).***

***ALWAYS use wheel chocks when jacking the vehicle. Even with the parking brake applied, vehicle movement is likely due to tolerances in the transmission.***

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# Brakes

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## ANTI-LOCK BRAKES

### WARNING

*ABS cannot overcome the physical limitations of stopping the vehicle in too short a distance, cornering at too high a speed, or the danger of aquaplaning, i.e. where a layer of water prevents adequate contact between the tyres and the road surface.*

*The fact that a vehicle is fitted with ABS must never tempt the driver into taking risks that could affect his/her safety or that of other road users. In all cases, it remains the driver's responsibility to drive within normal safety margins, having due consideration for prevailing weather and traffic conditions.*

*The ABS is designed to operate only with the tyres specified in 'General data' and genuine Land Rover parts. The manufacturers cannot accept any responsibility for inefficient operation of the system caused by modifications to the vehicle, or the fitting of non-approved components. Always consult your Land Rover dealer for advice.*

*The driver should always take account of the surface to be travelled over and the fact that brake pedal reactions will be different to those experienced on a non-ABS vehicle.*

*On each initial start up a faint whirring sound can be heard, this is part of the brake system self check and is not a cause for concern.*

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### WARNING

*DO NOT pump the brake pedal at any time; this will interrupt operation of the system and may increase braking distance.*

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### WARNING

*NEVER place additional floor matting or any other obstruction under the brake pedal. This restricts pedal travel and therefore braking efficiency is impaired.*

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The purpose of the anti-lock braking system (ABS) is to allow efficient braking without wheel locking - thereby allowing the driver to retain steering control of the vehicle.

Under normal braking conditions, (where sufficient road surface friction exists to reliably bring the vehicle to a halt without the wheels locking), ABS will not be activated. However, should the braking force exceed the available adhesion between the tyres and the road surface, then ABS will automatically come into operation. This will be recognisable by a rapid pulsation felt through the brake pedal.

In an on-road emergency situation full braking effort should always be applied even when the road surface is slippery. The anti-lock braking system constantly monitors the speed of each wheel and varies braking pressure to each, according to the amount of traction available, thereby ensuring that the wheels do not lock.

No matter how hard you brake, you should be able to continue steering the vehicle.

# *Brakes*

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## **Additional operating information**

While anti-lock braking is designed to operate equally effectively in 'off-road' driving conditions, on certain surfaces total reliance on the system may be unwise. Anti-lock braking cannot reliably compensate for driver error or inexperience on difficult off-road surfaces.

Note the following:

- Under ABS control, heavy braking on a dry road may produce tyre noise and slight marking of the road surface. Neither need cause concern.
  - On soft or deep surfaces such as powdery snow, sand or gravel, and on extremely rough ground, braking distances with ABS may be greater than those achievable with a non-ABS system, even though improved steering would be experienced. This is because the natural action of locked wheels on soft surfaces is to build up a wedge of surface material in front of the wheels, which assists in stopping.
  - The driver should always take account of the surface to be travelled over and the fact that brake pedal reactions will be different from those experienced on a non-ABS vehicle.
  - When maximum braking is required on loose or bumpy surfaces, full braking effort should be applied.
- If the vehicle is stopped on a very steep slope where little traction is available, it may slide with the wheels locked because there is no wheel rotation to signal movement to the system. To counteract this, briefly release the brakes to permit some wheel movement, then re-apply the brakes to allow the system to gain control at a suitable speed.
  - Before driving off-road, read and thoroughly understand the 'Off-road driving' section of this handbook.



## Warning light

The anti-lock braking system incorporates a monitoring system, which checks that all the electrical components are in working order, as soon as the starter switch is turned on and also at frequent intervals during your journey.

The warning light on the instrument panel is an important part of this system. The light should illuminate for approximately 3 seconds when the starter switch is turned to position 'II' and then extinguish.

If the light illuminates while driving, or remains illuminated for more than 3 seconds after the starter switch is turned on, a fault has been detected by the self monitoring system and full ABS control may not be available - consult your dealer at the earliest opportunity.

In such circumstances, while the foundation braking system remains fully operational, ABS may not be available and driving techniques appropriate to a non ABS vehicle should be employed.

# *Traction control*

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## **ELECTRONIC TRACTION CONTROL**

The purpose of electronic traction control is to aid traction when one or more wheels are spinning while others have good grip, eg. if one wheel is on ice and others are on tarmac. The system works by applying the brake to a spinning wheel in order to transfer torque to the remaining wheels.

**NOTE:** *Traction control can operate up to speeds of 62 mph (100 km/h).*

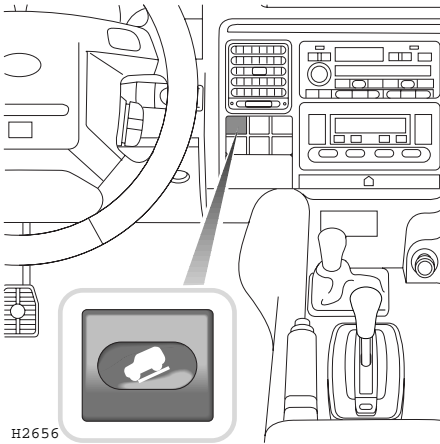
### **Warning light**

The instrument panel has a traction control warning (TC) which illuminates for a minimum of 2 seconds whenever the system is active and also illuminates as a bulb check (for approximately 3 seconds) when the starter switch is turned to position 'II'.

If there is a fault with the system, the warning light will illuminate continuously and remain illuminated when the vehicle is stopped, in which case you should contact your dealer at the earliest opportunity.

**NOTE:** *Faults with the ETC system will invariably cause the Hill Descent Control warning light to illuminate too. In most cases the ABS and brake system lights will also illuminate.*

# Hill Descent Control



## HILL DESCENT CONTROL

Hill Descent Control (HDC) operates in conjunction with the anti-lock braking system to provide greater control in off-road situations particularly when descending severe gradients.

### To select HDC

HDC can be selected with the vehicle in any gear, but will only operate when low range gears are engaged with the vehicle travelling at less than 31 mph (50 km/h).

Press the switch (illustrated above) to select HDC.

If low range gears are engaged, the HDC information light (GREEN) on the instrument panel will illuminate (if low range gears have NOT been selected, the light will flash and the warning chime will sound continuously).

To deselect HDC, press the switch a second time (the information light will extinguish and a single warning sound will chime).

### Hill descent control in action

During a descent, if engine braking is insufficient to control the vehicle speed, HDC (if selected) automatically operates the brakes to slow the vehicle and maintain a speed relative to the selected gear and the accelerator pedal position.

When driving off-road, HDC can be permanently selected, to ensure that control is maintained whenever low range gears are engaged. ABS and traction control are still fully operational and will assist if the need arises.

**NOTE:** With HDC selected, gear changes can be carried out in the normal way.

If the brake pedal is depressed when HDC is active, HDC is overridden and the brakes will perform as normal (a pulsation might be felt through the brake pedal). If the brake pedal is then released, HDC will recommence operating if necessary.

In extreme circumstances, the HDC system may cause brake temperatures to exceed their pre-set limits. If this occurs, the HDC 'failure' warning light (AMBER) will start to flash and the warning chime will sound continuously. During this time HDC will function as normal.



# Hill Descent Control

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To avoid further cause for brake temperatures to rise, engage an appropriate low gear for steep descents and avoid descending hills at higher than the minimum descent speed. If the 'failure' warning light continues to flash, the HDC system will gradually fade out (see 'HDC fade-out').

## HDC fade-out

HDC fade-out gradually decreases the HDC brake intervention with the effect that the rate of hill descent will increase. If this occurs the HDC information light will flash and the warning chime will sound for the period that HDC takes to fade. HDC will be disabled completely once the descent is complete.

If required (eg. the angle of the descent levels out significantly), fade-out may be achieved deliberately by deselecting HDC while the system is operating.

If a fault with the HDC system is detected, or if the braking system reaches a pre-set temperature due to extreme conditions, HDC will automatically fade out.

## Warning lights

### HDC information light - GREEN:



The light illuminates briefly as a bulb and system check when the starter switch is turned to position 'II' and also when HDC is selected.

If HDC is selected when the operating gears (LOW range) are engaged, the light will illuminate continuously.

If HDC has been selected but the system's operating criteria are not met (i.e. gearbox still in high range or vehicle speed too high), the information light will flash and the warning chime will sound continuously.

If the light flashes while HDC is active, normal functionality may seize and HDC 'fade out' may be induced.

### HDC 'failure' light - AMBER:



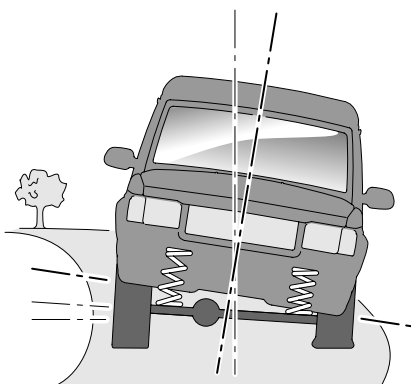
The light illuminates briefly as a bulb and system check when the starter switch is turned to position 'II'.

If the light illuminates at any other time, either a fault has occurred which affects the functionality of the system, or over-use of the system has been detected, in which case HDC may 'fade out'.

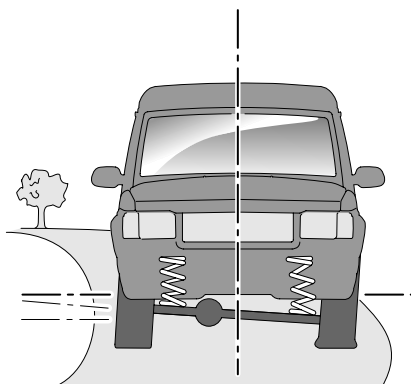
**NOTE:** System faults which cause the 'failure' light to illuminate after the initial system checks, or whilst driving, will be accompanied by the warning chime sounding 3 times.

# Active cornering enhancement

---



H2605



## WARNING

***If the warning light illuminates RED a system fault has occurred that may result in serious damage to vehicle components. Stop the vehicle and switch off the engine as soon as safety permits.***

---

## Active Cornering Enhancement (if fitted)

Active Cornering Enhancement (ACE) is a patented feature unique to Land Rover. The system is designed to eliminate vehicle body lean at low cornering speeds and reduce body lean at higher cornering speeds, while maintaining a soft, car-like, suspension for straight line travelling. On uneven surfaces and rough tracks, the ACE system will adjust the suspension according to the vehicle speed and roughness of the surface to provide improved passenger comfort.

The ACE system automatically compensates in off-road conditions to provide maximum articulation and improved traction..

The system is entirely automatic in operation and cannot be influenced by the driver in any way. However, the functionality of the ACE warning light in the instrument panel is very important and drivers should be aware of the following:

# *Active cornering enhancement*

---

## **Warning light**

The warning light illuminates RED when the starter switch is turned on (to position 'II'). After two seconds, the RED illumination changes to AMBER and, after a further two seconds, the light extinguishes. This process is a system check that takes place every time the vehicle is used. Provided the ACE system is operating correctly, illumination will not occur at any other time.

***If illumination occurs while driving, a fault with the system is indicated, as follows:***

***If the light shows RED (a flashing red light, which changes to constant illumination after two minutes, and is accompanied by a warning chime):***

This indicates a system fault that may result in serious damage to vehicle components and reduced ACE performance. You must stop the vehicle as soon as safety permits and switch off the engine. **DO NOT CONTINUE DRIVING!** Seek qualified assistance immediately.

***If the light shows AMBER (constant illumination):***

This indicates a system fault that will result in reduced ACE performance, but will not leave the vehicle in a dangerous condition. You may continue driving, but reduce speed, take additional care, and consult a Land Rover dealer at the earliest opportunity.

# Self-levelling suspension

---

## SELF-LEVELLING SUSPENSION

(if fitted)

When the engine is running, the self-levelling suspension system (SLS) operates automatically on the rear of the vehicle to maintain a level or efficient vehicle height regardless of vehicle load.

### AUTOMATIC OPERATION

If the height of the vehicle is reduced by additional loading (passengers occupying the occasional rear seats or the attachment of a trailer, for example), the SLS system automatically increases air pressure to the springs to compensate for the additional weight or changed attitude of the vehicle. Similarly, if loads are removed and the vehicle height increases in consequence, the system will reduce air pressure to bring the vehicle back to a level attitude.

### Extended mode

Off-road, if the vehicle becomes grounded and traction control is induced, the SLS system automatically pumps more air to the rear springs to raise the body clear of the obstruction, thereby enabling the vehicle to be freed. This is known as 'Extended mode' and will cause the off-road warning light to flash. Once forward motion is regained, the suspension height will automatically return to its previous setting and the warning light will extinguish.

## MANUAL OPERATION

The SLS system can also be manually controlled to either:

- Raise the rear of the vehicle by 40 mm (approx.) to increase ground clearance and improve the departure angle for off-road driving. Note that this function operates ONLY below a speed of 18 mph (30 km/h) - above this speed, the vehicle will automatically return to its standard ride height.
- Lower the vehicle in order to ease loading, or to enable various heights of trailer hitch to be connected more easily. The SLS system will assume automatic control - adjusting the height of the vehicle 10 seconds after a road speed of 3 mph (5 km/h) is reached, or immediately once a road speed of 7 mph (12 km/h) has been achieved.

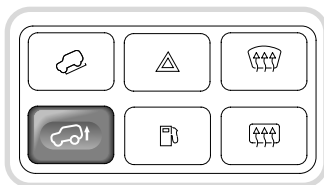
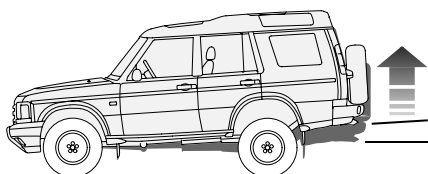
## WARNING

***DO NOT operate the off-road switch while driving on the road, or when the suspension has been manually lowered below standard ride height - any sudden or unexpected change to the vehicle's height or attitude could cause an inexperienced driver to lose control, or disturb the load/weight distribution within the vehicle.***

***DO NOT select off-road height while towing.***

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# Self-levelling suspension



H2606

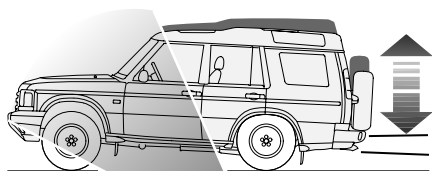
## To manually raise the suspension:

With the engine running and all doors fully closed, press the fascia-mounted off-road mode switch (see illustration). A single warning chime will sound, the off-road warning light on the instrument panel will commence flashing and the rear of the vehicle will start to rise. Once the pre-set off-road height has been reached, the warning light will stop flashing and illuminate constantly instead. Constant illumination will remain while the vehicle is operating at off-road height.

To return the vehicle to standard ride height, press the off-road mode switch a second time. Note that a single chime will sound and the warning light will flash while the rear suspension is lowered.

**NOTE:** If axle displacement is excessive, selection of the off-road height setting may be prohibited. In this case three warning chimes will sound.

**NOTE:** If changes to or from off-road height are prohibited (e.g. door open) the chime will sound three times.



H2607

## To manually lower the suspension:

To lower the suspension you will need a remote suspension control (handset) - see illustration.

With the vehicle stationary at standard ride height, and the starter switch turned to position 'II', press and hold the 'DOWN' button to lower the vehicle. Release the button when the desired height has been reached. The SLS warning light on the instrument panel will flash and a warning chime will sound continually while the vehicle is lowering.

To return the vehicle to its standard ride height, press and hold the 'UP' button on the handset. Again the warning light flashes (and chime sounds) while the vehicle is rising. All suspension movement and warning light activity ceases once the vehicle has returned to standard ride height.

**NOTE:** The SLS system will not operate while a door is open.

**NOTE:** At high altitude the system will take significantly longer to raise the vehicle.

# Self-levelling suspension

---

**NOTE:** *If this feature is subjected to excessive use, the system will automatically disable to prevent components from overheating. The system has a cumulative total of three minutes operation at any one time. If this is exceeded the system will close down (partial operation will return after a few minutes).*

## Remote SLS handset

The remote SLS handset is available as an accessory from a Land Rover dealer.

Battery replacement is similar to the equivalent process for the handset key. This is described under 'Locks & Alarm' in the 'Controls & Instruments' section of the handbook. Battery specification is identical.

IMPORTANT INFORMATION
Note that the handset will operate effectively from inside the vehicle. It is therefore important to keep it out of reach of children at all times, and especially while towing. When operating the handset from inside the passenger compartment for the purpose of lowering the vehicle to attach a trailer, ensure that the underside of the vehicle has been checked for obstructions before lowering, and that a responsible adult has been posted outside the vehicle to supervise the lowering process.

## Warning lights

### Off-road - AMBER

Illuminates briefly as a bulb and system check when the starter switch is turned to position 'II' and then extinguishes.

*If the off-road switch is pressed:*

The light flashes while the rear of the vehicle is either; rising to off-road height, or returning to standard ride height. The light then illuminates constantly while the suspension remains at off-road height.

In addition, the light will flash while Extended mode is induced.

### Self-levelling suspension - AMBER

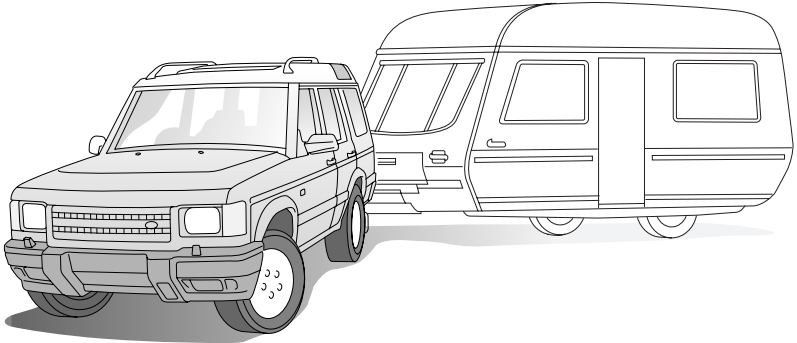
Illuminates briefly as a bulb and system check when the starter switch is turned to position 'II' and then extinguishes.

*If the remote handset is operated:*

The light flashes continually while the rear of the vehicle is being lowered, or raised.

If the light illuminates constantly this indicates a fault with the self-levelling suspension and you should seek qualified assistance.

# Towing



H2568

## TOWING

The torque ranges of Land Rover engines allow maximum-weight loads to be pulled smoothly from standstill, and reduce gear changing on hills or rough terrain.

The suspension is designed to cope with a heavy trailer load without upsetting the balance or feel of the vehicle. Details of gross maximum towed weights are listed on the following pages and in the 'General Data' section.

### WARNING

**Only fit towing accessories that have been designed and approved by Land Rover.**

**Ensure that the gross vehicle weight and maximum rear axle weight are not exceeded.**

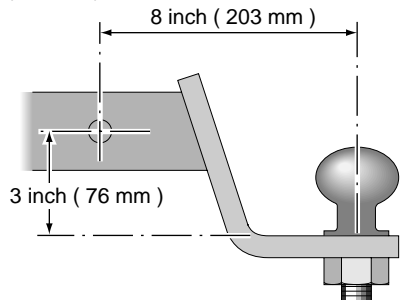
**In on-road towing conditions, vehicles equipped with SLS should only be operated in NORMAL MODE.**

### Trailer hitch

Your vehicle is equipped with a Class III trailer hitch receiver as standard equipment. When selecting a drawbar for the receiver, do not exceed a drop in height of 3 in (76 mm) or a hitch length of 8 in (203 mm) - both as measured from the connecting pin of the receiver.

An equalising or other form of weight distributing hitch should NOT be used with your vehicle.

**NOTE:** Users of light trailers with loads not exceeding 5511 lb (2500 kg) and a tongue weight limited to 400 lb (180 kg), may opt for a drawbar with a drop height not exceeding 5 in (127 mm).



H2651

# Towing

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When preparing your vehicle for towing, pay careful attention to the trailer manufacturer's recommendations and follow the guidelines below:

- Ensure that the towing vehicle tyre pressures are correct and that the trailer tyre pressures are as recommended by the trailer manufacturer.
- Within the limits quoted, choose a draw bar that allows for a level attitude of the trailer and vehicle.
- Check the operation of trailer brakes and lights.
- For maximum stability, ensure that loads are properly secured and unable to shift position during transit. Also, position loads so that most of the weight is placed close to the floor and, where possible, immediately above or close to the trailer axle(s).
- After loading the trailer check that the weight on the hitch point (this is called the tongue weight, or nose weight), is in accordance with both the trailer manufacturer's recommendations, and the requirements in this Manual, (see 'Tongue Weight').
- When calculating the laden weight of the trailer, remember to include the weight of the trailer PLUS THE LOAD.
- Where the load weight can be divided between trailer and tow vehicle, loading more weight into the vehicle will generally improve the stability of the combination.

**NOTE:** *It is the driver's responsibility to ensure that all regulations with regard to towing are complied with according to the state in which the vehicle is being operated. All relevant information should be obtained from an appropriate motoring organisation or towing equipment retailer.*



# Towing

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## Tongue weight

The following operating instructions should be read in conjunction with the towing chart given later in this section.

### IMPORTANT

For all of the towing conditions described, it is important that the following points are observed:

- All loads in the vehicle should be distributed as far forward as possible.
- The maximum Gross Vehicle Weight must not be exceeded, see 'General Data'.
- The maximum individual axle weights must not be exceeded, see 'General Data'.
- Changes between high and low ratio should not be made while the vehicle is on the move.
- Total trailer weight and tongue load can be measured with platform scales found at highway weighing stations, building supply companies, etc.
- The loading capacities and conditions for coil sprung and self levelled vehicles are different. Read the following section on permitted loading conditions for full details.

### WARNING

***The tongue weight plus the combined weight of the vehicle's load carrying area and rear seat passengers must never exceed the specified maximum rear axle load (see 'General data').***

---

**NOTE:** *When towing trailers, always consult and obey local speed regulations. Speed should be reduced to compensate for increased stopping distances.*

### Permitted loading conditions

1. *Trailers without brakes*  
Maximum on and off-road trailer weight is 1653 lb. Maximum tongue weight is 115 lb.
2. *Trailers with brakes - off-road*  
Maximum off-road trailer weight is 2204 lb. Maximum tongue weight is 155 lb.
3. *Trailers with brakes - on-road with vehicle at Gross Vehicle Weight*  
Maximum trailer weight is 4410 lb. Maximum tongue weight is 330 lb. It is permissible to increase the tongue weight to a maximum of 550 lb, however the vehicle payload and rear axle loads must be reduced to keep within the GVW and maximum rear axle load.

Vehicle loading when towing to these conditions should be limited to 710 lb (equal to driver, three passenger's and 110 lb luggage) for vehicles with coil spring suspension or 900 lb (equal to driver and five passenger's) for vehicles with self-levelling suspension.

High and low ranges may be used when loaded to these conditions, but changes between the two ranges should not be made while on the move.

# Towing

---

**4. Maximum towing capacities - on-road in high range**

Maximum trailer weight is 5500 lb. For vehicles with coil springs, the maximum tongue weight is 385 lb, and the load in the vehicle should be limited to 450 lb (equivalent to driver and 2 passengers).

For vehicles with self levelling suspension, a tongue weight of 550 lb should be used and the load in the vehicle should be limited to 600 lb (equivalent to driver and 3 passengers).

**5. Maximum towing capacities - on-road in low range**

Maximum trailer weight is 7716 lb. Maximum tongue weight is 550 lb. Vehicle loading should be restricted as follows

1. Coil spring rear suspension - 450 lb (equivalent to driver and two passenger's).
2. Self levelling rear suspension - 600 lb (equivalent to driver and three passenger's).

All occupants should be seated in the first and second row seats.

### TOWING WEIGHT CHART

Item	Loading description	On-road	Off-road	Tongue weight
1.	Trailer without brakes	1653 lb	1653 lb	330 lb
2.	Trailer with brakes off - road	N/A	2204 lb	330 lb
3.	Trailer with brakes on-road at GVW	4410 lb	N/A	330 - 550 lb see item 3 on page 110
4.	Max. Capacity on-road in high range	5500 lb	N/A	550 lb
5.	Max. capacity on-road in low range	7716 lb	7716 lb	5500 lb

# Towing

## Automatic gearbox models

To avoid overheating the gearbox, it is not advisable to tow heavy trailer loads at speeds of less than 20 mph (32 km/h) using the main gearbox in high range. Use the transfer gearbox to select low range instead.

**NOTE:** Above 1,000 feet (300 metres) the effects of altitude can adversely affect engine performance and also cause overheating.

## Vehicle weights

When loading a vehicle to its maximum (gross vehicle weight), consideration must be taken of the unladen vehicle weight and the distribution of the load to ensure that axle loadings do not exceed the permitted maximum values.

It is your responsibility to limit the vehicle load in such a way that neither the maximum axle loads nor the gross vehicle weight are exceeded (see 'General data').

## Trailer socket

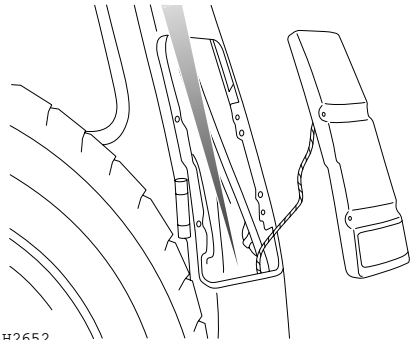
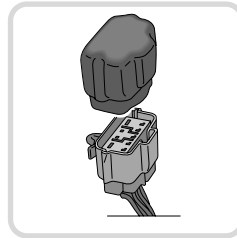
Incorporated in the vehicle's electrical harness is the facility to fit a multi-pin trailer lighting socket.

The wiring connection point is a sealed multi-pin connector located behind the right tail light cluster.

To gain access to the connectors, remove the light cluster (see 'Bulb replacement').

An accessory lighting adaptor kit is available, consult your dealer.

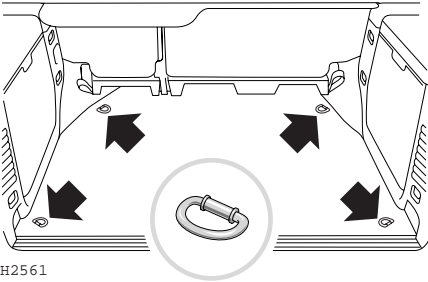
Power output from trailer socket must NOT exceed 5 amps.



H2652

# Load carrying

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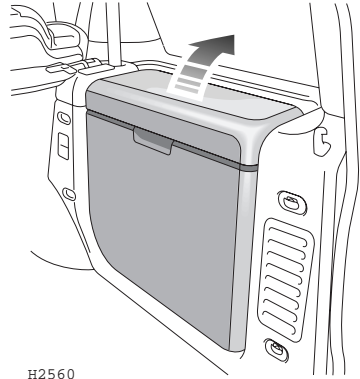
## LUGGAGE ANCHOR POINTS

Four fixing points are provided in the rear luggage compartment floor to assist in safely securing large items of luggage.

### WARNING

***DO NOT carry unsecured equipment, tools or luggage which could move and cause personal injury in the event of an accident or emergency manoeuvre either on or off-road.***

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## STORAGE BINS

Some vehicles are equipped with storage bins on each side of the loadspace. Raise the lid to open.

# *Load carrying*

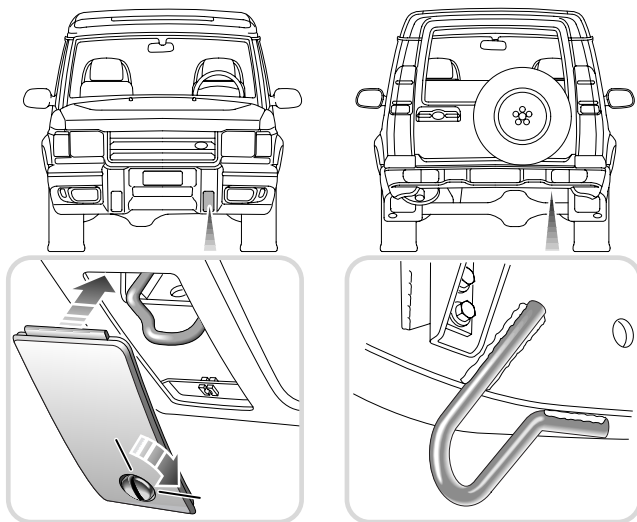
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## **ROOF RACKS**

The roof rack system comprises two side rails permanently fixed to the roof of the vehicle and cross bars available as an accessory from a Land Rover dealer.

<b>IMPORTANT INFORMATION</b>
<ul style="list-style-type: none"><li>• The <b>MAXIMUM</b> load for approved roof rack systems is 110 lb (50 kg) for normal road use and 66 lb (30 kg) off-road.</li><li>• A loaded roof rack can reduce the stability of the vehicle, particularly when cornering and encountering cross winds.</li><li>• All loads should be evenly distributed, and secured within the periphery of the roof rack system.</li><li>• Only fit roof racks that have been designed for your vehicle. If in doubt, consult your dealer.</li><li>• Driving off-road with a loaded roof rack is not recommended. If it is necessary to stow luggage on the roof rack while driving off-road, the maximum weight capacity is limited to 66 lb and all loads <b>MUST</b> be removed before traversing side slopes.</li></ul>

# Vehicle recovery



H2487

## TOWING FOR RECOVERY

Most vehicle recovery specialists will load Discovery onto a trailer. However, if it is necessary to recover the vehicle by towing with all four wheels on the ground, observe the following procedure:

1. With the handbrake applied, set the main gearbox in 'P' (Park) and the transfer box in neutral.
2. Turn the starter switch to the first position to unlock the steering, and then to position 'I' if it will be necessary to operate the brake lights and direction indicators.
3. Secure the towing attachment to the front towing eye of the distressed vehicle.
4. Release the handbrake.

**NOTE:** If, due to an accident or electrical fault, it is not considered safe to turn the starter switch, the battery should first be disconnected.

### WARNING

**DO NOT attempt to tow the vehicle unless the starter switch is turned to position 'I'.**

**DO NOT remove the key or turn the starter switch to position '0' while the vehicle is in motion; the starter switch must be at position 'I' to unlock the steering.**

**Without the engine running, the brake servo and power steering pump cannot provide assistance; greater effort will therefore be required to operate the brake pedal and turn the steering wheel. Longer stopping distances will also be experienced.**

# Vehicle recovery

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## Towing eyes

The towing eyes at the front and rear of the vehicle are designed for on-road vehicle recovery purposes only and must NOT be used to tow a trailer or caravan.

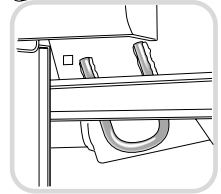
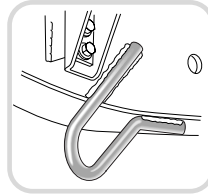
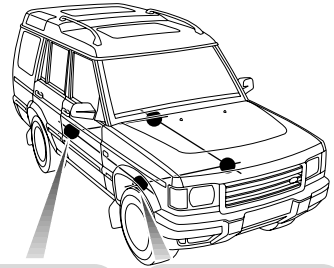
**FRONT:** A single towing eye, set behind a removable panel in the front spoiler (see illustration on previous page), is provided at the front of the vehicle for on-road recovery. **DO NOT** use the front lashing rings for towing purposes.

Before driving off-road, remove the panel from the spoiler as a precaution against accidental loss.

**REAR:** A pair of towing eyes are provided at the rear of the vehicle. These can be used as lashing rings and for towing your vehicle.

## Long distance towing

Your vehicle can be towed behind a motor home or other recreational vehicle. Follow the procedure for towing given in 'Towing for recovery'.



H2486

## Transporter or trailer lashing

Pairs of lashing rings are fixed to the underside of the vehicle - at the front (to the rear of the front wheels) and at the rear (backward of the rear wheels). **DO NOT** secure lashing hooks or trailer fixings to any other part of the vehicle.

**NOTE:** The front rings are for lashing only and must NOT be used for towing. The rear lashing rings are designed for both towing and lashing.

# Emergency starting

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## STARTING AN ENGINE WITH A DISCHARGED BATTERY

Using booster cables (jump leads) from a donor battery, or a battery fitted to a donor vehicle, is the only approved method of starting a Discovery with a discharged battery.

Vehicles with automatic transmission cannot be restarted by pushing or towing.

### WARNING

- *During normal use, batteries emit explosive hydrogen gas sufficient to cause severe explosions capable of causing serious injury - keep sparks and naked lights away from the engine compartment.*
- *DO NOT attempt to start the vehicle if the electrolyte in the battery is suspected of being frozen.*
- *Make sure BOTH batteries are of the same voltage (12 volts), and that the booster cables have insulated clamps and are approved for use with 12 volt batteries.*
- *DO NOT disconnect the discharged battery.*
- *DO NOT connect positive (+) terminals to negative (-) terminals, and ensure booster cables are kept away from any moving parts in the engine compartment.*
- *Take care when working near rotating parts of the engine.*

## USING BOOSTER CABLES

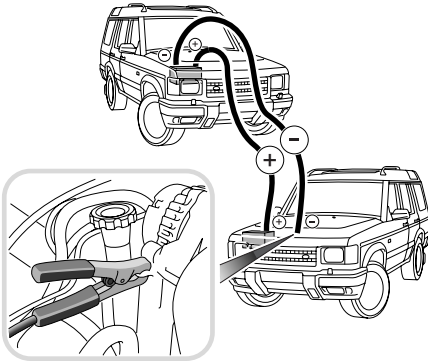
If a donor vehicle is to be used, both vehicles should be parked with their battery locations adjacent to each other. Ensure that the two vehicles do not touch.

Apply the handbrakes and ensure that the transmission of both vehicles is set in neutral ('P' or Park for vehicles with automatic transmission).

Turn off the starter switch and ALL electrical equipment of BOTH vehicles, then follow the instructions.



# Emergency starting



H2569

## CONNECTING THE BOOSTER CABLES

**Always adopt the following procedure:**

1. Connect the RED booster cable between the positive (+) terminal of the donor battery and the positive (+) terminal of the discharged battery.
2. Connect the BLACK booster cable from the negative (-) terminal of the donor battery to a good earth point (eg. an engine mounting or other unpainted surface) away from the battery and away from fuel and brake lines on the disabled vehicle (lug on alternator casting shown in illustration).

## WARNING

**For safety reasons;**

- **DO NOT connect the BLACK cable to the negative terminal of the discharged battery - if in doubt, seek qualified assistance.**
- **ENSURE that each connection is securely made and that there is no risk of the clips accidentally slipping or being pulled from the battery terminals - this could cause sparking, which could lead to fire or explosion.**

3. Check that the cables are clear of any moving parts of both engines, then start the engine of the donor vehicle and allow it to idle for a few minutes.
4. Now start the vehicle with the discharged battery. Once both engines are running normally, allow them to idle for two minutes before switching off the engine of the donor vehicle.

DO NOT switch on any electrical circuits on the previously disabled vehicle until AFTER the booster cables have been removed.

5. Disconnecting the booster cables must be an EXACT reversal of the procedure used to connect them, ie: disconnect the BLACK cable from the earth point on the disabled vehicle FIRST.

# SECTION 4

## Owner maintenance

---

*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 includes a service record section, which enables a record to be kept of all the routine services carried out on the vehicle - ensure your dealer stamps and signs the book after each service.

*This section of the handbook includes information to assist the owner to carry out those daily, weekly and monthly checks that are 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 according to Land Rover's recommendations at the intervals shown in the Passport to Service book, a number of simple checks and adjustments must be carried out by the owner or driver on a regular basis.

These are listed below and fully described on the pages that follow.

### Daily checks

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

### Weekly checks

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

- Engine oil level.
- Coolant level.
- Screen washer fluid level.
- Condition and pressure of tyres.

### Monthly checks

- Brake fluid level.
- Power steering fluid level.
- Active cornering enhancement fluid level.

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

## WARNING

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

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## WARNING

***If brake pedal travel is unusually long or if there is any evident loss of brake fluid, contact your dealer immediately.***

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## 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

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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 book. Most of this necessary workshop maintenance requires specialised knowledge and equipment, and should preferably be entrusted to a 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.

## 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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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’)

### 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.***

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# Owner maintenance

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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:**

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

## 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

Fluids used in motor vehicles are poisonous and should not be consumed or brought into contact with open wounds. These include: battery acid, anti-freeze, brake, active cornering enhancement and power steering fluids, as well as gasoline, engine oil and windshield washer additives.

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

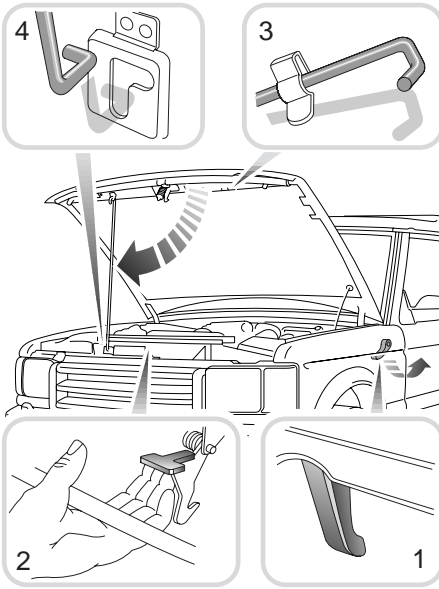
## Used engine oil

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. Use authorised waste disposal sites to dispose of used oil and toxic chemicals.

## PROTECT THE ENVIRONMENT!

# Hood opening



H2525

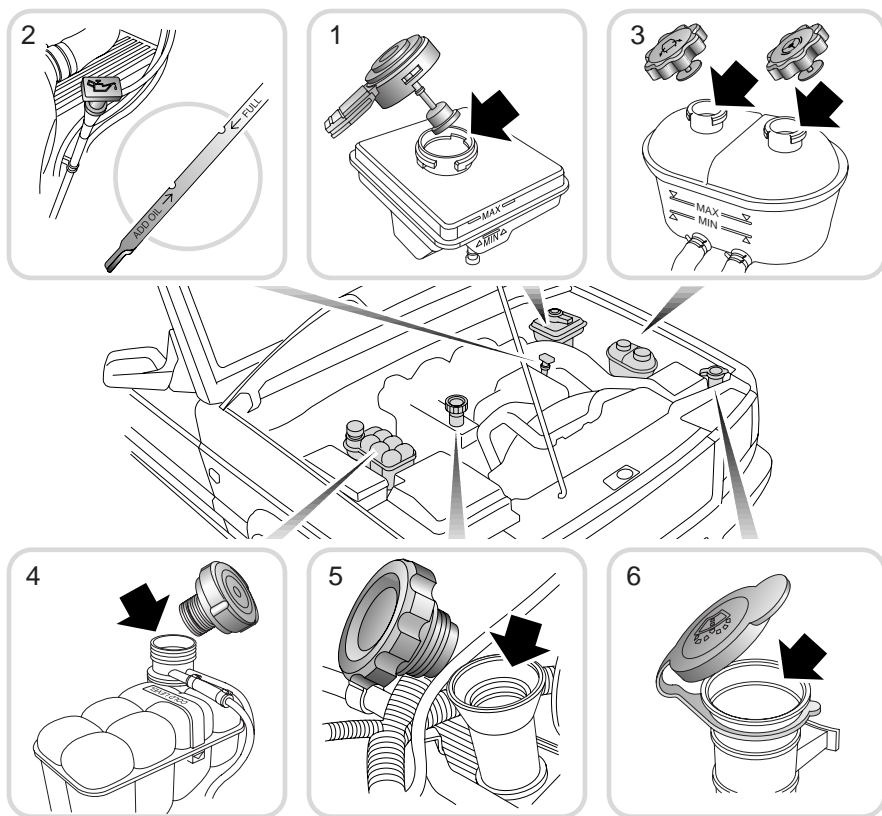
1. From inside the vehicle on the left hand side, pull the hood release handle (see illustration).
2. Lift the safety catch lever and raise the hood.
3. Release the support stay from the underside of the hood.
4. Fit the support stay into the slotted hole in the hood locking platform.

## Closing the hood

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

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

# Engine compartment



H2534

1. Brake fluid reservoir.
2. Engine oil dipstick.
3. Power steering and active cornering enhancement (if fitted).
4. Cooling system reservoir.
5. Engine oil filler cap.
6. Washer reservoir.

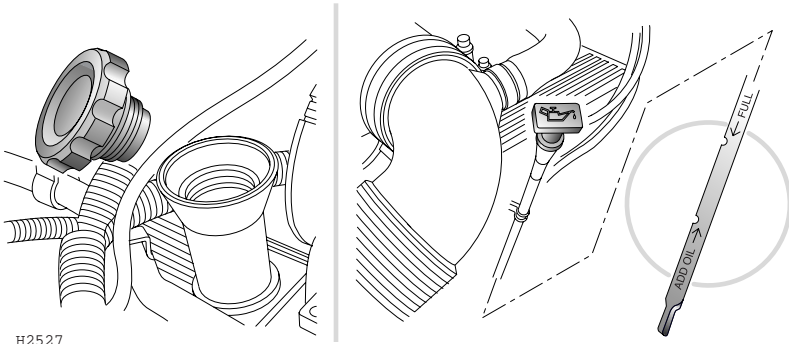
Instructions on how and when owner maintenance should be carried out are included on the following pages.

## WARNING

**While working in the engine compartment, ALWAYS observe the safety precautions listed under 'Safety in the garage', at the beginning of the Owner Maintenance section.**



# Engine oil



H2527

## 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 as follows:

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:

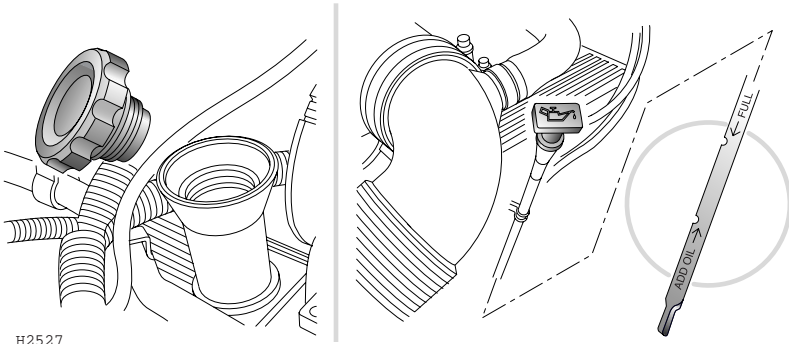
- is nearer to the upper mark than the lower, add no oil.
- is nearer to the lower mark than the upper, add  $\frac{1}{2}$  US quart (0.5 litre) of oil.
- is below the lower mark, add 1 US quart (1 litre) of oil and re-check the level after a further five minutes.

**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. DO NOT start the engine. 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



## ENGINE OIL DRAIN AND REFILL

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.

With the engine warm (to assist oil drainage) and the vehicle parked on firm, level ground, remove the filler cap and position a container of suitable size (at least 5.1 US quarts or 4.87 litres) under the drain plug, in the bottom of the sump.

Remove the drain plug and copper washer and allow the engine oil to drain into the container.

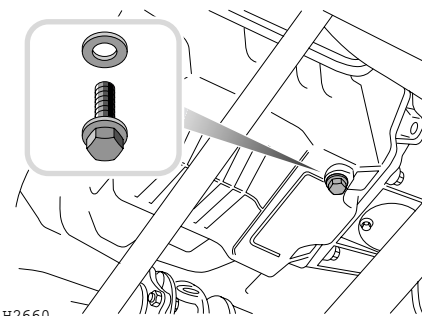
When the oil has thoroughly drained, clean the drain plug and its mating surface on the sump, before securely refitting the plug, complete with a new copper washer.

### WARNING

***Oil from the engine can be very hot - take care when removing the drain plug.***

***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.***

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



# Engine oil

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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').

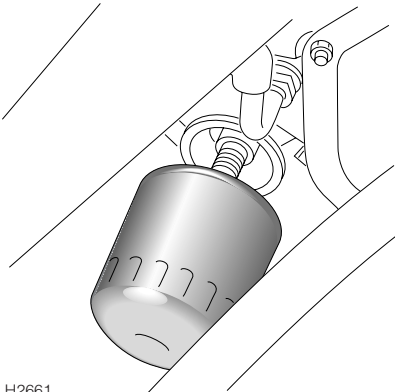
DO NOT overfill the engine! Remember that a little oil will always remain in the engine after draining and that, therefore, the quantity of oil required to refill the engine will be slightly less than the full capacity quoted in 'General data'.

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 oil filter renewal

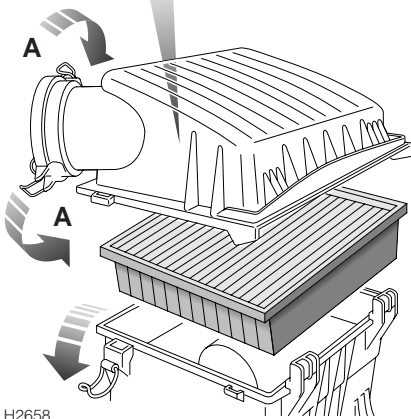
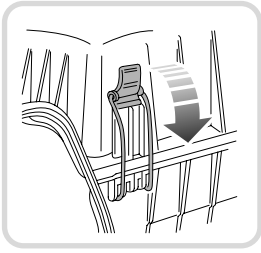
To avoid draining the oil pump, it is essential that the engine is filled with oil to the correct level, before the filter is removed. It is therefore recommended that the engine oil is renewed before work on the filter commences.

1. Clean the area around the filter head and place a suitable container beneath the engine.
2. Using a strap spanner, or similar tool, unscrew the filter anti-clockwise and discard it.
3. Smear the seal of the new filter with clean engine oil, partially fill the filter with oil and then screw the filter on clockwise, until it is securely in position. Use hand force only, DO NOT overtighten.
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.



H2661

# Air cleaner



H2658

## Air cleaner element renewal

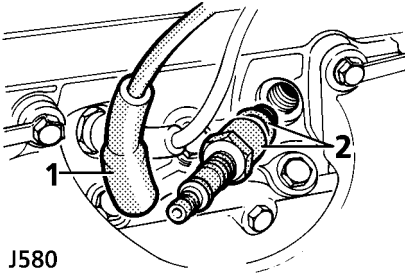
Release the two clips (1) securing the hose to the rear of the air cleaner, then detach the hose. Release the clips (2) securing the air cleaner top (3), then disengage the two clips at the front of the air cleaner and remove the top to gain access to the element (4).

Discard the element and replace with a new one before reassembling the unit. When fitting the top (3), ensure that the two clips at the front are properly engaged.

Always fit a NEW element; under no circumstances should a contaminated element be cleaned and used again.

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 dealer for guidance.

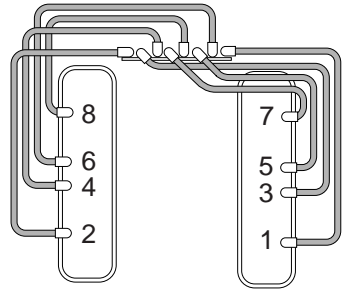
# Spark plugs



## Spark plug removal

Remove the plug leads (1), ensuring that you hold the rubber shroud and NOT the H.T. leads (this will ensure no 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).



## 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 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). Please 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.

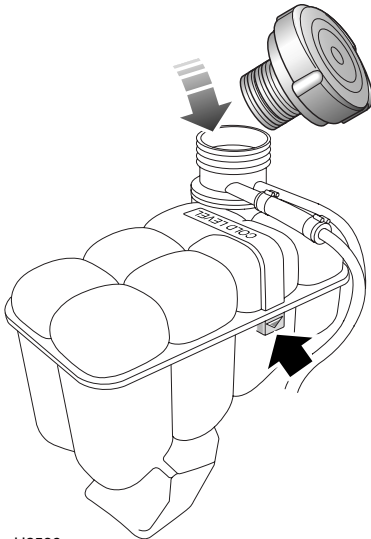
When pushing the leads onto the plugs, ensure that the shrouds are firmly seated on the plugs.

# Cooling System

## 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.
- **Unscrew** the filler cap slowly, allowing the pressure to escape before removing completely.
- **NEVER** run the engine without coolant.



H2539

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.

Top-up with a 50% mixture of anti-freeze and water so that the surface of the coolant is level with the indicator on the side of the tank (arrowed in illustration). Ensure the cap is tightened fully after top-up is completed.

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

### DO NOT OVERFILL!

#### Anti-freeze

Anti-freeze contains important corrosion inhibitors. The anti-freeze content of the coolant must be maintained at 50%  $\pm$  5% all year round (not just in cold conditions). Failure to do so may cause corrosion of the radiator and engine components.

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).

USE ONLY ethylene glycol based anti-freeze (containing no methanol) with Organic Acid Technology (OAT) corrosion inhibitors.

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

# Cooling System

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## WARNING

- *Anti-freeze is poisonous and can be fatal if swallowed. If accidental consumption is suspected, seek medical attention immediately.*
  - *Prevent anti-freeze coming in contact with the skin or eyes. If this occurs, rinse immediately with plenty of water.*
  - *Anti-freeze will damage painted surfaces.*
  - *NEVER top-up with salt water. When travelling in territories where the water supply contains salt, always ensure you carry a supply of fresh (rain or distilled) water.*
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# Brakes

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## WARNING

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

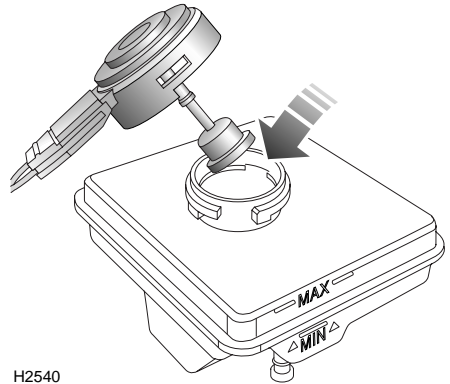
**DO NOT drive the vehicle with the fluid level below the 'MIN' mark.**

**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.**

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

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

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



## Topping-up

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

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

## DO NOT OVERFILL!

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## BRAKE FLUID CHECK

The fluid level may 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.

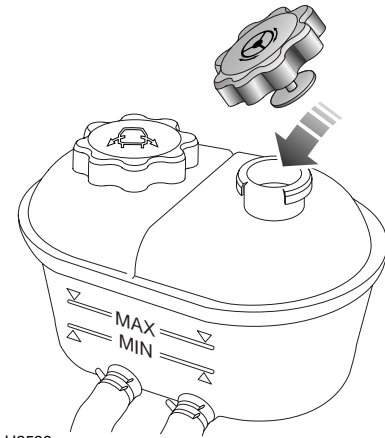
With the vehicle on level ground, check the fluid level at least every week (more frequently in high mileage or arduous operating conditions). Check the level visually through the side of the transparent container without removing the filler cap.



<b>IMPORTANT INFORMATION</b>
<p>Brake fluid must be completely renewed every 30,000 miles (48,000 km) or 24 months, whichever is the sooner.</p> <p>At 60,000 mile (96,000 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.</p>

# Power Steering

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H2538

## POWER STEERING TOP-UP

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

Check the fluid level against the level marks on the side of the reservoir. If more fluid is needed, first wipe the filler cap clean to prevent dirt from entering the reservoir, then twist the cap a quarter turn anti-clockwise and pull to remove. Top up the reservoir until the fluid reaches the upper level mark.

**DO NOT OVERFILL!**

## Emergency operation

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

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

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

## WARNING

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

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

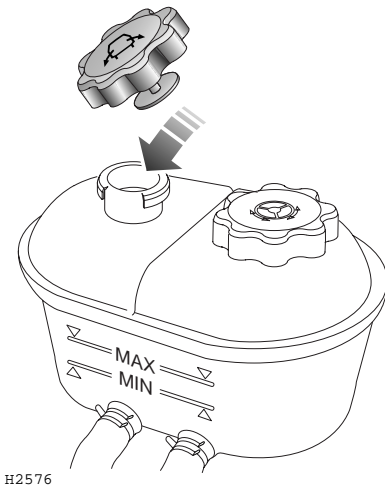
***Do not spill power steering fluid onto a hot engine - a fire may result.***

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

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# Active cornering enhancement

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## ACTIVE CORNERING ENHANCEMENT FLUID TOP-UP

Check the fluid level against the level marks on the side of the reservoir. If more fluid is needed, first wipe the filler cap clean to prevent dirt from entering the reservoir, then twist the cap a quarter turn anti-clockwise and pull to remove. Top up the reservoir until the fluid reaches the upper level mark.

### DO NOT OVERFILL!

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

**NOTE:** While the power steering and active cornering enhancement systems share the same fluid specification and reservoir, both systems are entirely independent of each other. The reservoir is divided into two compartments and each system has its own filler cap.

## WARNING

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

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

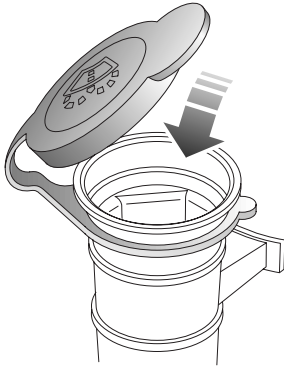
*Do not spill fluid onto a hot engine - a fire may result.*

*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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# Washers

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H2541

## WINDSCREEN WASHER TOP-UP

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

Check the reservoir level at least every week and top-up with a mixture of water and screenwash solvent.

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

## WARNING

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

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## WASHER JETS

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

The rear screen jets located in the wiper arm are not adjustable.

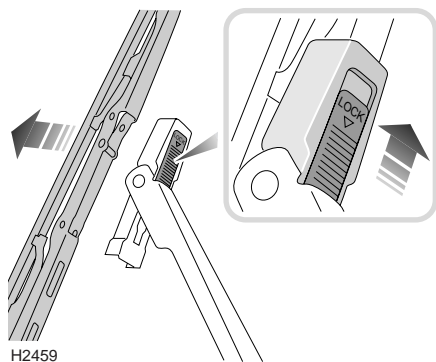
Should any jet become obstructed, insert a needle or thin strand of wire into the orifice to clear the blockage.

## HEADLIGHT WASHERS

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 blades



## WIPER BLADE REPLACEMENT

### Front wiper blades

Lift the wiper arm away from the windscreen. Disconnect the blade by pushing the locking tab (see inset in illustration) to the unlock position.

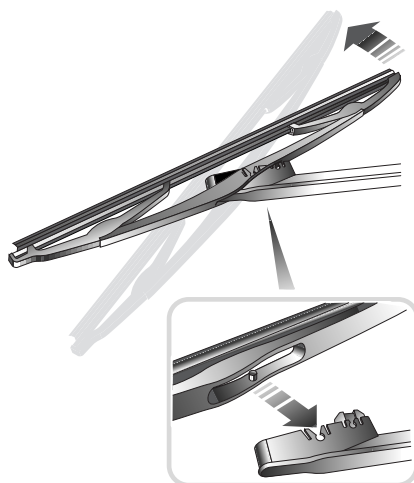
Fitting a replacement blade is a reversal of this process. Check that the blade is securely locked before returning the wiper assembly to the windscreen.

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

Grease, silicone and petrol based products impair the blade's wiping capability. Wash the wiper blades in warm soapy water and periodically check their condition.

If signs of hardness or cracking in the rubber are found, or if the wipers leave streaks or unwiped areas on the windscreen during use, then the wiper blades should be replaced.

Clean the windscreen regularly with an approved glass cleaner and ensure the screen is thoroughly cleaned before fitting replacement wiper blades.



### Rear wiper blade

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

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

# Tyres

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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.**
- 

## 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

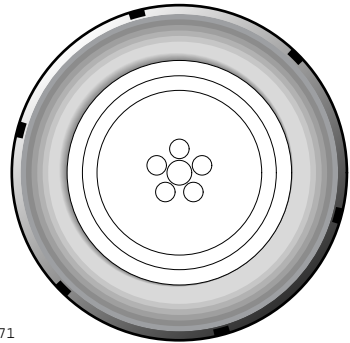
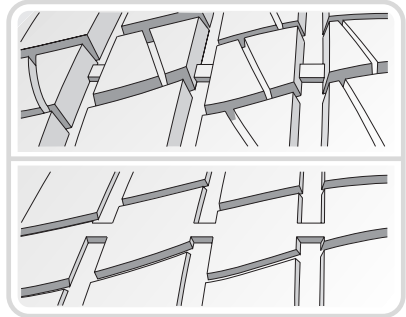
Tyre pressures should be checked at least once a week with normal road use, but should be checked DAILY if the vehicle is used off-road.

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 used in high ambient temperatures, DO NOT reduce tyre pressures; instead, move the vehicle into the shade and allow the tyres to cool before checking. See 'General Data' for important additional information on wheels and tyres.**

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H2571

## 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.

# Tyres

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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  $\frac{1}{16}$  (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.

## Replacement tyres

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

## 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 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.**

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## Snow chains

### **WARNING**

***DO NOT fit snow chains to tyres other than those approved for snow chain fitment.***

***DO NOT fit unapproved snow chains. Unapproved snow chains could damage brake components.***

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

- Snow chains must ONLY be fitted to vehicles equipped with 215/75 R16 Scorpion S/T 107T tyres - consult a Land Rover dealer for advice.
- To avoid damage to the vehicle, use only Land Rover approved snow chains.
- 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.

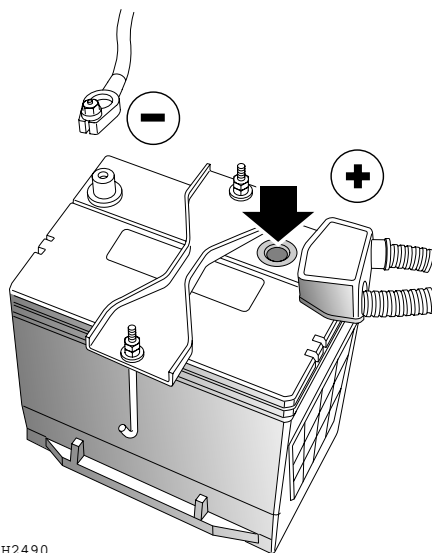


# Battery

## WARNING

**ALWAYS** wear appropriate eye protection when working around the battery.

- Batteries contain acid, which is both corrosive and poisonous. If spillage occurs:
- On clothing or the skin - remove any contaminated clothing immediately, flush the skin with large amounts of water, and seek medical attention urgently.
- In the eyes - flush with clean water immediately for at least 15 minutes. Seek medical attention urgently.
- Swallowing battery acid can be fatal unless IMMEDIATE action is taken - seek medical attention urgently.
- During normal operation batteries emit explosive hydrogen gas - ensure flames and other ignition sources (i.e. cigarettes, incandescent lights, etc) are kept away from the engine compartment.
- For your safety remove all metal wrist bands and jewellery before working in the engine compartment and NEVER allow the battery terminals or vehicle leads to make contact with tools or metal parts of the vehicle.



H2490

## Battery maintenance

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

- GREEN - the battery is in a good state of charge.
- DARK (turning to black) - the battery needs charging.
- CLEAR (or light yellow) - the battery must be replaced. Do not charge the battery or jump start the car in this condition.
- If the green dot is missing, the battery needs charging.

# Battery

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**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.

## WARNING

**ALWAYS** remove the starter key before disconnecting the battery. Failure to do this could cause a fault in the airbag SRS system.

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## Battery removal and replacement

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

## WARNING

- **ALWAYS** disconnect the negative ('-') terminal first (when replacing the battery, connect the positive ('+') terminal first).
  - **NEVER** allow the battery terminals or vehicle leads to make contact with tools or metal parts of the vehicle.
  - **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.
- 

To release the battery from the car, 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.

# Battery

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## Replacement batteries

### WARNING

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

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## Battery disposal

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

## Battery charging

### WARNING

***DO NOT charge the battery if it is connected to the car - 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.***

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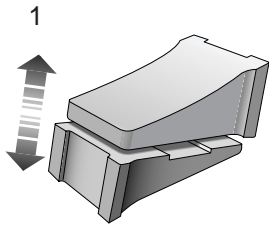
Batteries generate explosive gases, contain corrosive acid and produce levels of electric current sufficient to cause serious injury. While charging always heed the following precautions:

- Before charging, disconnect and remove the battery from the vehicle - charging the battery with the cables connected may damage the vehicle's electrical system.

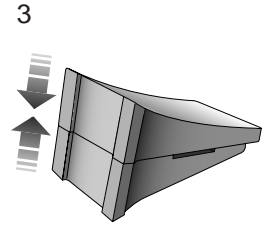
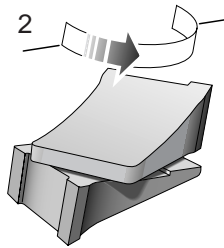
- Make sure the battery charger leads are securely clamped to the battery terminals BEFORE switching on the battery charger. Do not move the leads once the charger is switched on.
- While charging, shield your eyes or avoid leaning over the battery and keep the area around the top of the battery well ventilated.
- Do not allow open flame and incandescent lamps near the battery (batteries generate inflammable hydrogen during and after charging).
- If the battery is fitted with condition indicator, the indicator shows GREEN when the battery is charged sufficiently. When charging is finished, switch off the battery charger BEFORE disconnecting the leads from the battery terminals.
- After charging, leave the battery for an hour BEFORE reconnection to the vehicle - this will allow time for explosive gases to disperse, thereby minimising the risk of fire or explosion.

***NOTE: Be aware that a battery will take longer to charge in a cold environment.***

# Wheel changing



H2514



## IMPORTANT INFORMATION

Before changing a wheel, always observe the following precautions!

- Park your vehicle away from the highway, 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.
- Apply the handbrake and engage Park 'P' in the main gearbox and select 'L' in the transfer box. Position the vehicle's front wheels in the straight ahead position, 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!

## Using the wheel chock

### WARNING

**Before raising the vehicle, it is ESSENTIAL to chock the road wheels in two places as described below; the handbrake acts on the transmission, not on the rear wheels, and therefore may not hold the vehicle when raised.**

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

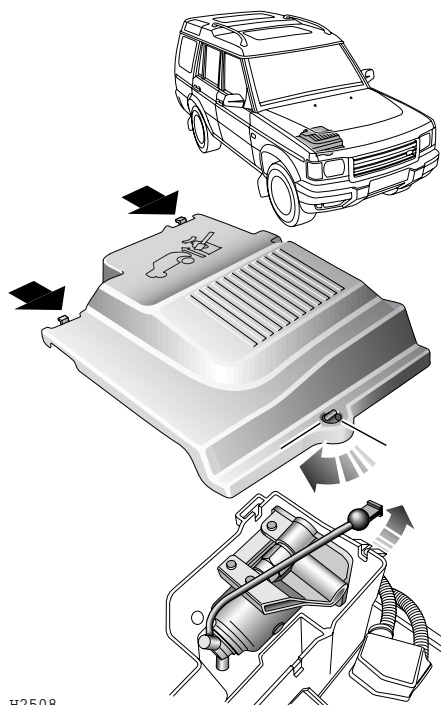
If jacking the vehicle on a slope is unavoidable, place the chocks on the downhill side of the two opposite wheels.

The wheel chocks are stowed with the jack handle and wheel nut spanner in the tool bag.

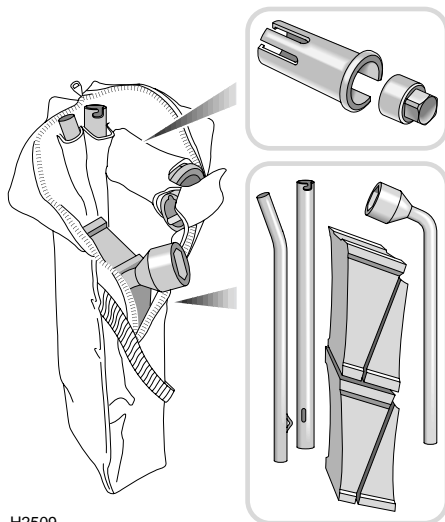
Assemble the wheel chocks as follows:

- 1) Pull the two halves of the chock apart.
- 2) Twist one half of the chock 180°.
- 3) Push the two halves back together.

# Wheel changing



H2508



H2509

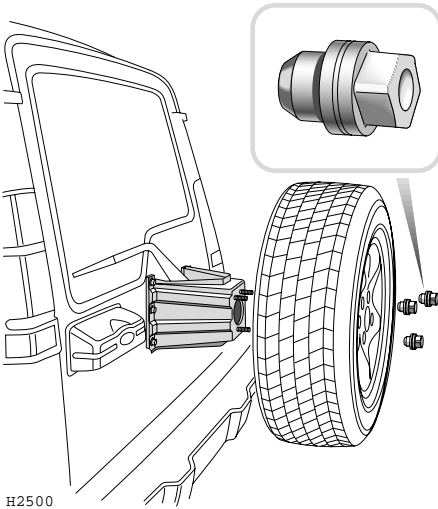
The jack is stowed in the front of the engine compartment next to the battery. To access the jack, remove the battery cover. The jack handle and other tools are stowed in a tool bag in the taildoor storage pocket.

## WARNING

*Due to its stowage position in the engine compartment the jack may be hot if the engine has been running.*

# Wheel changing

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H2500

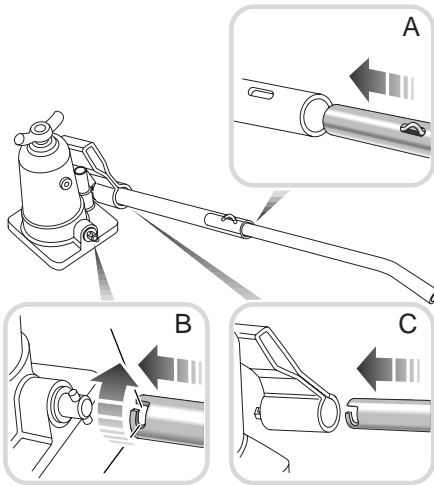
## Removing the spare wheel

Use the wheel nut wrench supplied in the tool kit to remove the nuts securing the spare wheel to the carrier and then lift off the wheel.

### WARNING

- ***DO NOT use the spare wheel securing nuts in place of the road wheel nuts, or use the road wheel nuts to secure the spare wheel - the nuts are not inter-changeable.***
- ***The wheels are extremely heavy. Take care when lifting and particularly when removing the spare wheel from its mounting position on the tail door.***

# Wheel changing



H2510

## 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 into the socket. Pump the lever up and down to raise the jack.

To lower the jack, detach the lever (twist and pull) and then 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.

DO NOT fully unscrew the release valve.

## 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.
- Ensure that the space under and around the vehicle is free from obstruction as it is lowered.

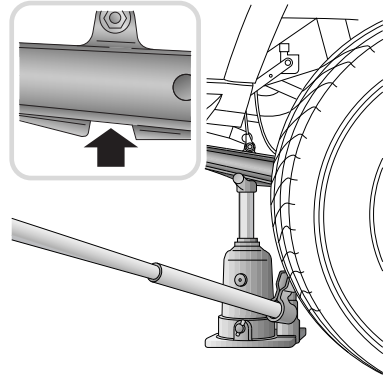
# Wheel changing

## Positioning the jack

Always position the jack from the side of the vehicle, approximately in line with the appropriate jacking point.

### WARNING

- **ALWAYS** use the complete, two-piece, jack lever throughout to minimise any chance of accidental damage or injury.
- **ONLY** jack the vehicle using the jack location points described, or damage to the vehicle could occur.



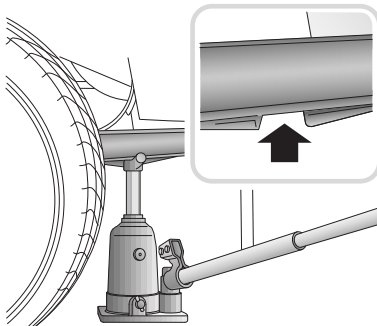
H2515

## Rear jacking point

### 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).

- 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).



H2516

## Front jacking point

Position the jack so that, when raised the cradle head of the jack engages with the shaped notch on the underside of the front or rear suspension links - either just forward of the rear wheels or just to the rear of the front wheels (see illustrations).



# Wheel changing

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- On alloy wheels, lightly oil or grease the wheel-mounting spigot (using an approved anti-seize compound) 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 or the flat mounting surfaces of the wheel. 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 chocks.
- Fully tighten the wheel nuts in an alternating pattern until all are tightened. DO NOT OVERTIGHTEN by using foot pressure or extension bars on the wheel nut wrench, as this could overstress the wheel studs. Check the wheel nut torque at the earliest opportunity (see 'General data').
- Finally, check the tyre pressure.

**NOTE:** REMEMBER to change to 'H' (high range) before driving.

## Care of the jack

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

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

## 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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## WARNING

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

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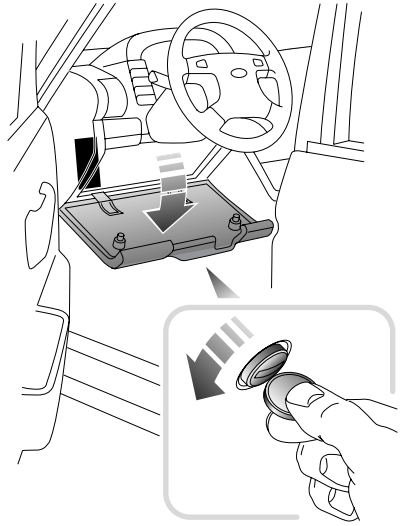
# *Fuse box*

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## **FUSE BOX**

Fuses are simple circuit devices which protect electrical equipment against the effects of excess current. A 'blown' fuse is indicated when the electrical equipment it protects becomes inoperative.

The main fusebox is fitted below and to one side of the steering column; to access the fuses, remove the cover by releasing the fixing screws using a coin or small screwdriver to twist the turnbuckle screw through 90 degrees.



H2619

# Fuse box

## Renewing a fuse

Always turn the starter switch to position '0' and switch off the affected electrical circuit before removing a fuse.

### WARNING

**Fit only replacement fuses of the same rating and type. Do not replace a blown fuse with a fuse of a higher amperage rating. Always rectify the cause of the failure before replacing a fuse. Seek qualified assistance if necessary.**

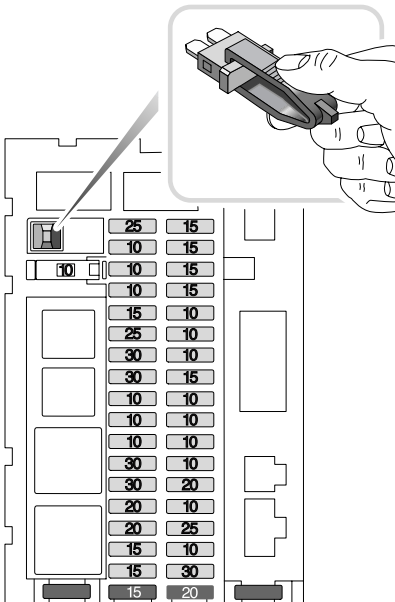
Press the fuse removal tweezers onto the head of the suspect fuse (as shown) and pull to remove. A break in the wire inside the fuse indicates that the fuse has 'blown' and must be replaced. Always replace a fuse with another of the same value, however, if the replacement fuse blows immediately the circuit MUST be checked by a qualified 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
ORANGE	40

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.

## MAIN FUSE BOX



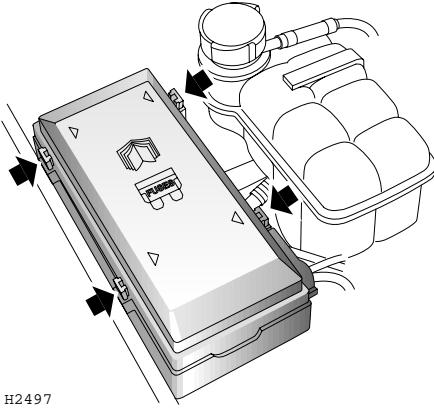
H2495

# Fuse box

Fuse No.	Rating (amps)	Circuits protected
1	25	Central door locking
2	10	Fuel flap release
3	10	LH headlight main beam
4	10	Rear fog guard lights
5	15	Daylight running lights (if fitted)
6	25	Rear air conditioning blower
7	30	Heater blower front
8	30	Heated rear window, heated mirrors
9	10	LH headlight dipped beam
10	10	RH headlight dipped beam
11	10	LH side & tail lights, number plate light, interior illumination
12	30	Sunroof
13	30	Rear windows
14	20	Ignition coils
15	20	Cigar lighter, interior lights, seat heaters, vanity mirror illumination
16	15	Clock, radio
17	15	Radio amplifier, speakers
18	15	Rear wiper motor
19	15	Front wipers/washers
20	15	Interior lights, clock/radio memory, engine remobilisation
21	15	Transfer box
22	10	RH headlight main beam
23	10	Starter motor
24	10	Alternator, auto transmission
25	25	Brake, reverse lights
26	10	Auxiliary circuits
27	10	Instruments, hill descent control
28	10	Self levelling suspension, anti-lock braking
29	10	Active cornering enhancement (ACE)
30	20	Cruise control, electric mirrors, rear washer
31	10	Air conditioning blower
32	25	Accessory socket
33	10	RH side & tail lights, radio, trailer socket, interior illumination
34	30	Front windows
35	10	Airbag SRS - DO NOT REMOVE

**NOTE:** Spare fuses are included in the fuse box (see fuse box label).

# Fuse box



H2497

## WARNING

***Batteries emit explosive hydrogen gas; ensure that sparks, flames and other ignition sources are kept away from the engine compartment.***

### ENGINE COMPARTMENT FUSE BOX

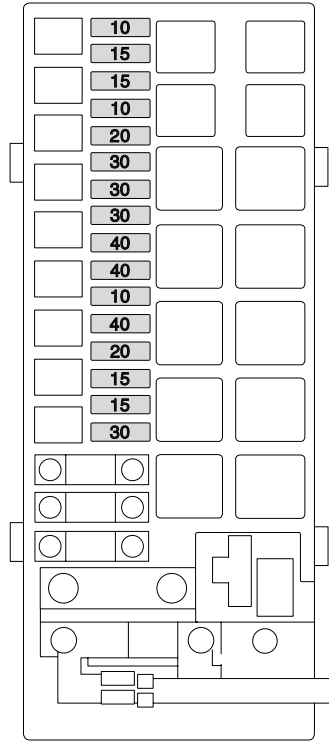
A second fuse box is located on the right side of the engine compartment adjacent to the coolant reservoir.

Press all four latches in the direction of the arrows shown on the illustration to release the fuse box cover.

Information on the underside of the cover identifies the fuses and their ratings. This information is also listed on the following page.

When replacing, the cover, locate the four latches, then push firmly downwards until the latches can be heard to 'snap' closed.

Owners are advised against removing or replacing the relays (identified as R1-R14) and fusible links (FL1-FL13). Failure of any of these items should be investigated by a qualified dealer.



H2498

## WARNING

***Fit only replacement fuses of the same rating and type. Do not replace a blown fuse with a fuse of a higher amperage rating. Always rectify the cause of the failure before replacing a fuse. Seek qualified assistance if necessary.***

## *Fuse box*

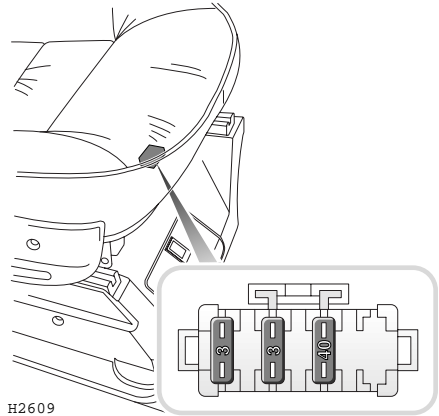
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<b>Fuse No.</b>	<b>Rating (amps)</b>	<b>Circuits protected</b>
1	30	Injectors
2	15	Engine management system
3	15	Front fog lights
4	20	Headlight washers
5	40	Cooling fans
6	10	Air conditioning
7	40	Heated front screen (LH)
8	40	Heated front screen (RH)
9	25	Trailer lights
10	30	Fuel pump
11	30	ABS valve
12	20	Automatic gearbox
13	10	Body Control Unit (BCU)
14	15	Direction indicators, hazard lights
15	15	Active cornering enhancement (ACE)
16	10	Horn

# Fuse box

## UNDERSEAT FUSES

Two identical small fuse blocks are situated one beneath each front seat.



H2609

Fuse No.	Rating (amps)	Circuits protected
1	40	Seat electrics
2	3	Lumbar support - pump
3	3	Lumbar support - solenoid

# Bulb replacement

REPLACEMENT BULBS	Watts
Headlight unit: Dip/main headlights	60/55
Front side lights	5
Front direction indicators	21
Side marker lights	
Front fog lights	55
Rear light unit: 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
Number plate lights	5
Interior light	5
Interior courtesy lights	10
Vanity mirror lights	1.2
Glovebox light	5

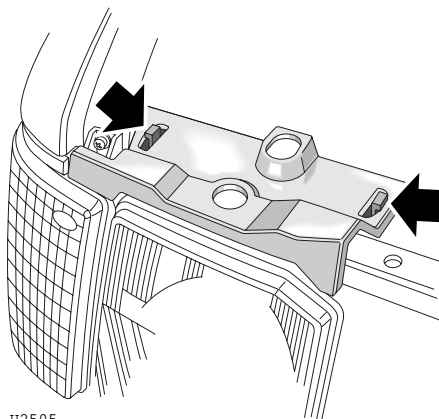
**NOTE:** All bulbs must be rated at 12 volts.

## IMPORTANT INFORMATION

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

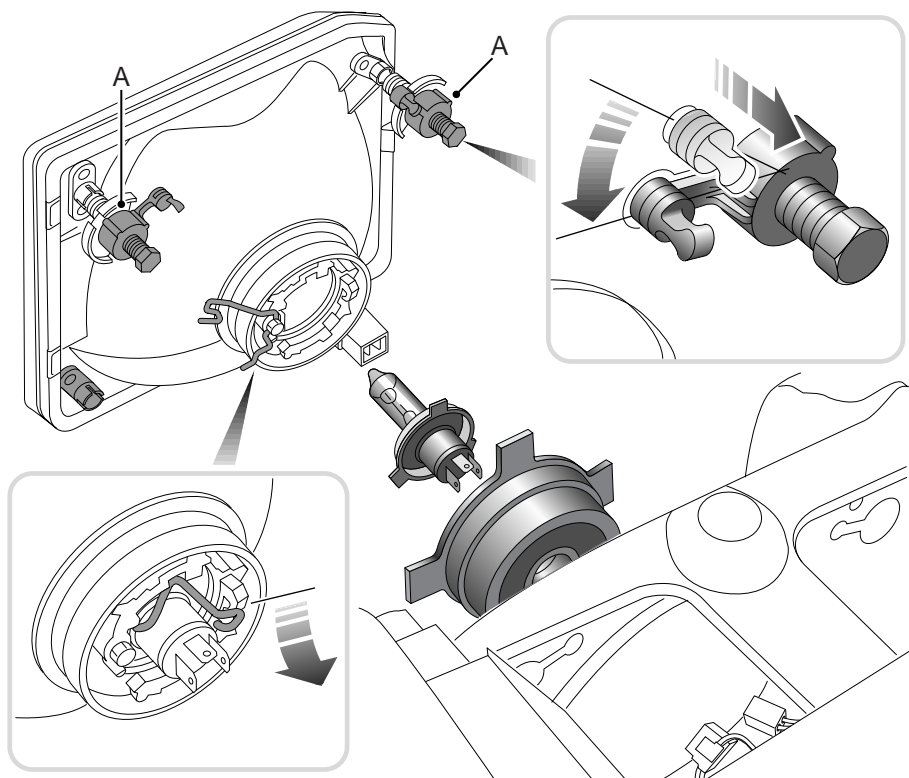
### Halogen bulbs

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.





# Bulb replacement



H2657

## HEADLIGHT AND SIDELIGHT

### Light unit removal

First remove the access panel set into the bonnet locking platform above each headlight (see previous page). To replace either the headlight or sidelight bulb, remove the light unit as follows:

Disengage the retaining clips 'A' and rotate them approximately 10 degrees (see inset) until they align with the slots in the headlight mounting panel. The light unit can now be released forward.

### WARNING

**DO NOT screw or unscrew the retaining clips more than described - their position affects the alignment of the headlights.**

# Bulb replacement

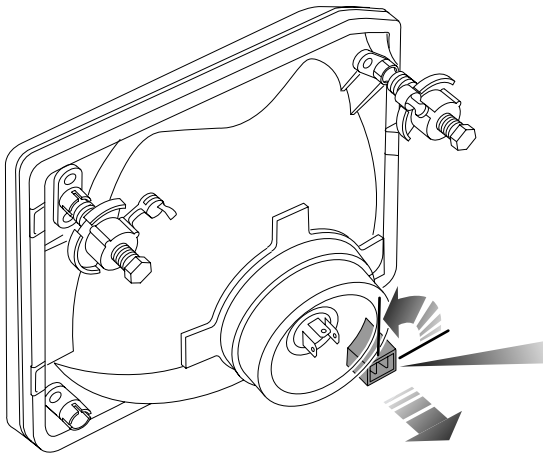
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## Headlight bulb replacement

Disconnect the electrical multi-plug and remove the rubber cover. Release the spring clip which holds the bulb and withdraw the bulb from the light unit. When replacing the bulb, ensure that the larger tab is pointing towards the top of the headlight.

Replace the spring clip and 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.

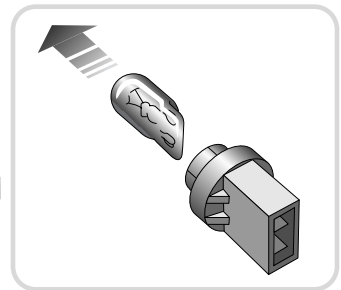
**NOTE:** Do not touch the bulb glass with your fingers. If necessary, clean the bulb with isopropyl rubbing alcohol.



H2461

## Replacing the headlight unit

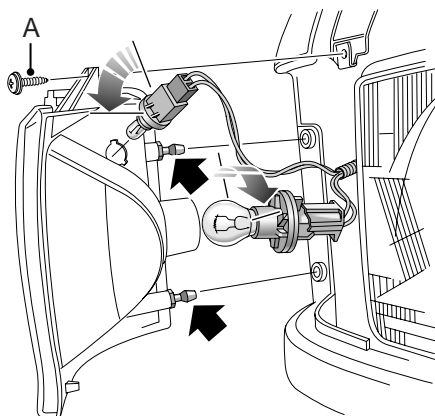
Replacement is a reversal of the removal procedure.



## Sidelight bulb replacement

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

# Bulb replacement



H2504

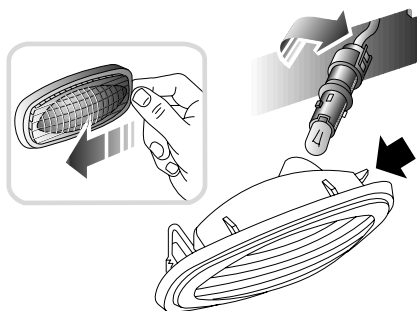
## FRONT DIRECTION INDICATOR AND SIDE MARKER LIGHT

Remove the retaining screw 'A', then ease the light unit forward to release it from the vehicle.

Both the small side marker light and larger direction indicator bulb holders are released from the light unit by twisting anti-clockwise.

Pull the side marker bulb to remove. Push and twist the direction indicator bulb to remove.

To replace the light unit, insert the two location pins (arrowed) on the outer side of the light unit into the vehicle body, push firmly into position and, finally, replace the retaining screw.



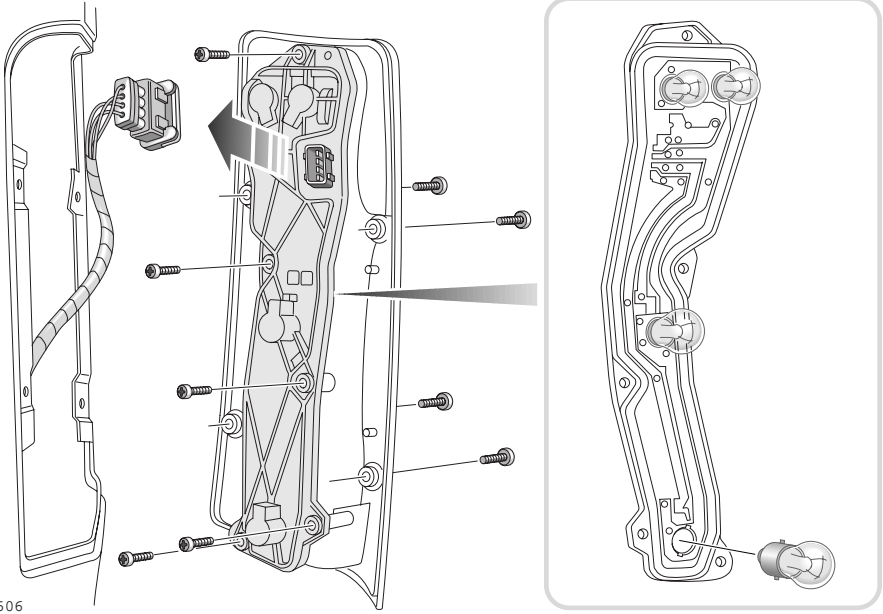
H2520

## SIDE REPEATER LIGHT

Push the lens firmly in the direction of the small arrow moulded on the lens and withdraw the light unit from the wing. Twist to release the bulb holder from the lens unit, then pull the bulb from its socket.

When refitting, ensure that the little tabs (arrowed in illustration) are pointed to the right and are inserted into the aperture before pushing the light unit into position in the wing.

# Bulb replacement



H2506

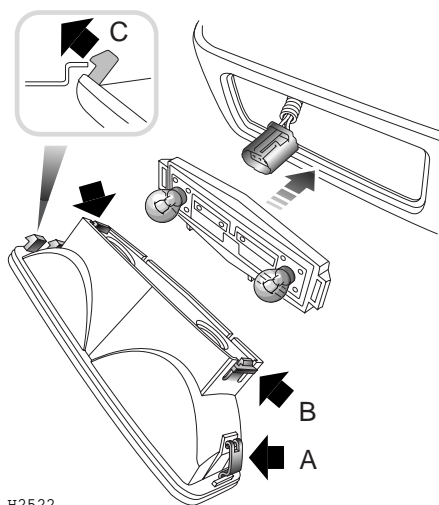
## REAR LIGHT CLUSTER

(Tail, stop & reverse lights)

From outside the vehicle remove the four retaining screws to release the light unit from the vehicle, then detach the electrical multi-plug connector, by pressing the metal retaining spring.

To gain access to the bulbs, remove the five screws from the rear of the light unit and detach the bulb holder. Push and twist to release each bulb.

# Bulb replacement



## BUMPER MOUNTED LIGHTS (Fog guard lights & direction indicators)

### WARNING

***If the engine is warm, the exhaust system may be hot - to prevent personal injury, avoid contact with a hot exhaust system when reaching behind the bumper.***

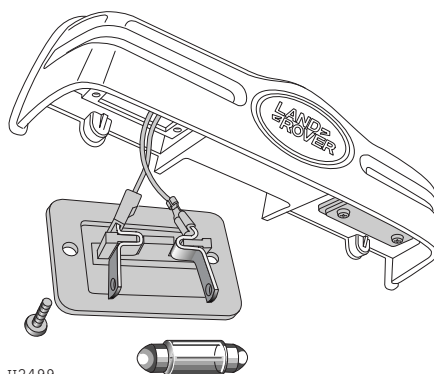
Reach behind the bumper and press the spring clip 'A' to release the light unit.

Squeeze both levers 'B' to release the bulb holder from the lens. Push and twist to release the bulbs.

**NOTE:** *If necessary, the light unit can first be detached from the electrical harness by releasing the multi-plug from the rear of the bulb holder.*

Before reassembling the light unit, make sure the seal (between holder and lens) is in place.

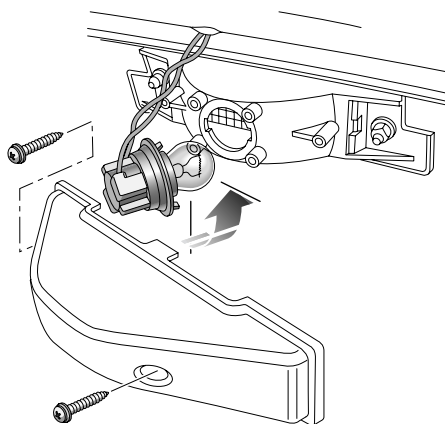
To replace the light unit, first locate the hooks 'C' in the bumper aperture and firmly push the other side of the light against spring pressure until it clicks into place.



## NUMBER PLATE LIGHTS

Remove both screws to release the light unit. Ease the light unit from its recess and pull the bulb to remove.

# Bulb replacement



H2501

## HIGH MOUNTED STOP LIGHT

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

## FRONT FOG LIGHTS

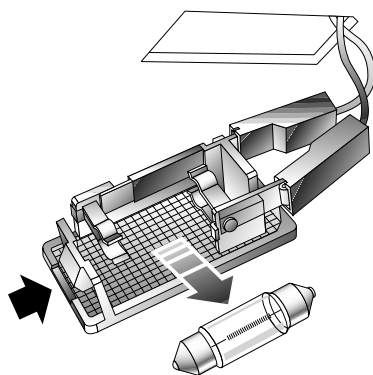
The front fog lights are mounted on the rear of the bumpers and are shielded from the rear by the lower wheelarch liner.

Access to the bulb is possible, but will entail lying beneath the centre of the vehicle at the front and reaching between the wheelarch liner and the back of the fog light.

Twist the cover on the rear of the fog light anti-clockwise.

Unhook the spring retaining clips to release the bulb. Pull the bulb from the connector. To ensure correct refitting of the light unit, owners are advised to entrust bulb changing to a Land Rover dealer.

**NOTE:** Do not touch the bulb glass with your fingers. If necessary, clean the bulb with isopropyl rubbing alcohol.



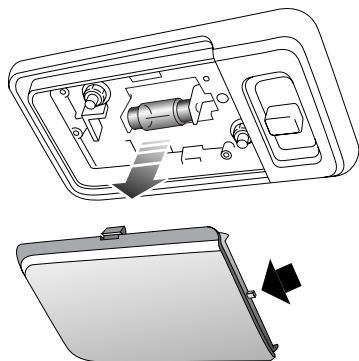
H2611

## GLOVEBOX LIGHT

Insert a small flat-bladed screwdriver (preferably with a short handle, due to limited access) into the indent (arrowed in illustration) on the left hand side of the light unit, and carefully prise the unit from the glovebox panel. Remove the bulb from its clips.

# *Bulb replacement*

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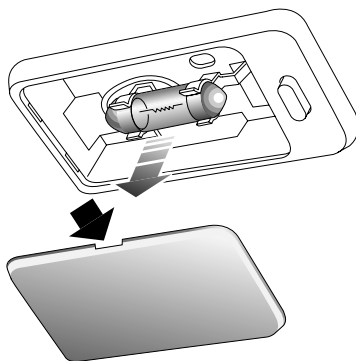


H2462

## **Interior courtesy lights**

Insert a small flat-bladed screwdriver into the indent on the side of the lens and carefully prise the lens from the light unit, then pull the bulb to remove.

When replacing the lens, first locate the lug (arrowed in illustration), then push the lens into position.



H2463

## **Interior light**

Insert a small flat-bladed screwdriver into the indent on the side of the lens (where arrowed) and prise the lens from the light unit, then pull the bulb out from the clips.

# Cleaning & vehicle care

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H2575

## WASHING YOUR VEHICLE

### WARNING

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

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

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

### Underbody maintenance

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

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

When using a hose, do not direct the jet into the 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.



# *Cleaning & vehicle care*

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## **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, to prevent corrosion.

## **Removing tar spots**

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

## **Body protection**

After washing, inspect the paintwork for damage. Any stone chips, fractures or deep scratches in the bodywork should be repaired promptly. Bare metal will corrode quickly and can develop into major repair expense. Some exterior panels of your vehicle are made of aluminum which will not corrode in the same manner as steel. However, any damage should still receive prompt attention. Minor chips and scratches can be repaired with touch-up materials available from your dealer. Larger areas of damage need to be corrected to professional standards immediately.

## **Polishing**

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

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

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

## **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.

## **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.

## **Glass and mirrors**

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

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

# *Cleaning & vehicle care*

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## **CLEANING THE INTERIOR**

### **Plastic materials**

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

### **Leather**

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!

### **Carpet and fabrics**

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

### **Instrument pack, clock and radio**

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

### **Seat belts**

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

## **WARNING**

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

---

### **Airbag module covers**

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

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

### **Heated rear screens**

The following precautions must be taken, to avoid irreparable damage being caused to the printed circuit which is 'baked' on to 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.



# ***SECTION 5***

## ***General data***

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# General data

## LUBRICANTS AND FLUIDS

Recommendations for all climates and conditions.

COMPONENTS Specification	SAE	AMBIENT TEMPERATURE ° C								
		-22	-4	14	32	50	68	86	104	122
Engine sump Oil to meet API service level SG, SH or SJ	5W/30 5W/40, 5W/50 10W/30 10W/40 10W/50 10W/60									
Automatic gearbox ATF Dexron III										
Transfer gearbox API GLS MTI fully synthetic	75W/90R									
Axles API GLS MTI fully synthetic	75W/90R									
Power steering & ACE Texaco Cold Climate PAS fluid 14315										

**NOTE:** Recommended oils are complete in themselves and additives should not be used.

**NOTE:** It is essential to change oil much more frequently if the vehicle is operated under severe conditions, especially if deep wading is carried out.

# *General data*

---

## **Brake reservoir**

Universal brake fluids or any brake fluid having a minimum boiling point of 500° F (260° C) and complying with FMVSS 116 DOT4.

## **Windscreen washers**

Windscreen washer solvent.

## **Engine cooling system**

Use carboxylate formula/organic acid technology (OAT) based coolant. This is an extended life ethylene glycol based coolant containing no phosphates, silicates, borates, nitrates, amines or methanol. Use one part anti-freeze to one part water for protection down to -33° F (-36° C).

## **Air conditioning refrigerant**

R134A

## **Inertia reel seat belts**

**DO NOT LUBRICATE.** These components are lubricated for life during manufacture.

# General data

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## CAPACITIES

The following capacities are approximate and provided as a guide only. All oil levels must be checked using the dipstick or level plugs as applicable.

	<b>US Units</b>	<b>Imperial</b>	<b>Metric</b>
Fuel tank .....	25.0 US gal	21 Imp gal	95 litre
Engine sump .....	6.9 US quarts	11.5 Imp pt	6.6 litre
Engine oil refill and filter change .....	6.1 US quarts	10.1 Imp pt	5.8 litre
Automatic gearbox .....	10.3 US quarts	17.20 Imp pt	9.80 litre
Transfer box .....	2.2 US quarts	3.7 Imp pt	2.10 litre
Front differential .....	1.8 US quarts	2.9 Imp pt	1.70 litre
Rear differential .....	1.8 US quarts	2.9 Imp pt	1.70 litre
Washer reservoir .....	6.3 US quarts	10.5 Imp pt	6.00 litre
Cooling system .....	13.7 US quarts	22.75 Imp pt	13 litre
Cooling system refill .....	8.4 US quarts	14 Imp pt	8 litre



## *General data*

---

### **Engine - V8 petrol (high compression)**

Bore .....	3.700 in (94.0 mm)
Stroke .....	2.800 in (71.04 mm)
Number of cylinders .....	8
Cylinder volume (engine displacement) .....	241 in <sup>3</sup> (3950 cm <sup>3</sup> )
Compression ratio .....	9.35:1
Firing order .....	1, 8, 4, 3, 6, 5, 7, 2
Spark plug type .....	Champion RC11PYPB4
Spark plug gap .....	0.038 in ± 0.004in(1.00 mm ± 0.1 mm)
Idle speed .....	660 ± 50 rev/min
Maximum power .....	188 bhp

# General data

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## STEERING

Turns lock to lock .....	3.5 turns
Camber angle .....	Zero
Castor angle .....	3.6° - 3.8°
King pin inclination .....	13°
Front wheel toe-out included angle .....	0° 5' ± 2 <sup>1</sup> / <sub>2</sub> ' - individual (0° 10' ± 5' total)
Turning circle between kerbs (all models) .....	39.1 ft (11,9 metres)

## ELECTRICAL SYSTEM

Type .....	Negative earth
Voltage .....	12
Battery type .....	Group 24 (130 amp/hr)
Charging circuit .....	Alternator

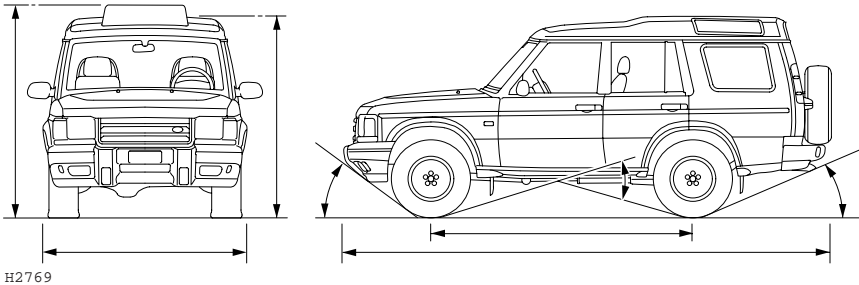
## REPLACEMENT BULBS

## Watts

Headlight unit:	
Dip/main headlights	60/55
Front side lights	5
Front direction indicators	21
Side marker lights	
Front fog lights	55
Rear light unit:	
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
Number plate lights	5
Interior light	5
Interior courtesy lights	10
Vanity mirrors lights	1.2
Glovebox light	5

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

# General data



## DIMENSIONS

Overall length (including spare wheel) .....	185.2 in (4705 mm)
Overall length (including tow hitch) .....	185.2 in (4705 mm)
Overall width (with mirrors folded) .....	74.4 in (1890 mm)
Overall height (air suspension in normal mode) ....	77.5 in (1969 mm)
Overall height (open sunroof) .....	78.0 in (1980 mm)
Wheelbase .....	100.0 in (2540 mm)
Track - front .....	61.6 in (1540 mm)
Track - rear .....	61.4 in (1560 mm)

**NOTE:** Operating height of vehicle may vary - see information on underside of drivers sun visor.

## OFF-ROAD PERFORMANCE

### Approach angle \*

- Coil spring .....	30.9°
- Air spring .....	31.2°
- Air spring (in off-road mode) .....	30.3°

### Departure angle \*

- coil spring .....	22.1°
- air spring .....	21.4°
- Air spring (in off-road mode) .....	24.2°

### Breakover angle \*

- coil spring .....	25.9°
- air spring .....	25.4°
- Air spring (in off-road mode) .....	27.2°

Wading depth .....

Min. ground clearance (unladen) .....

\* Data measured with vehicle at EEC kerbweight (curb weight, plus 165 lb (75 kg) payload).

# General data

---

## TOWING WEIGHTS

Maximum permissible towed weights	On-road	Off-road
Unbraked trailers .....	1653 lb (750 kg)	1653 lb (750 kg)
Trailers with brakes (low range gears) .....	7716 lb (3500 kg)	2204 lb (1000 kg)
Roof rack load .....	110 lb (50 kg)	66 lb (30 kg) **
Maximum permissible tongue weight .....	550 lb (250 kg)	550 lb (250 kg) *

**NOTE:** All weight figures are subject to local restrictions. It is the owner's responsibility to ensure that all regulations with regard to towing are complied with. This also applies when towing in other countries - contact an appropriate motoring organisation for relevant information.

\* Refer to the Towing section of this Handbook, for specific loading conditions, including recommended tongue weight.

\*\* Driving off-road with a loaded roof rack is not recommended (see 'Roof rack' in the 'Load carrying' section of the handbook).

## VEHICLE WEIGHTS

### Curb weight (excluding options)

Coil spring vehicles .....	4576 - 4853 lb (2070 - 2195 kg)
Air suspension vehicles .....	4630 - 4908 lb (2095 - 2220 kg)

### Maximum gross vehicle weight:

- All 5 seat vehicles (coil suspension) .....	6,063 lb	2750 kg
- Air suspension vehicles .....	6,228 lb	2825 kg

### Maximum front axle weight:

- All vehicles .....	2,646 lb	1200 kg
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### Maximum rear axle weight:

- Coil spring vehicles .....	3792 lb	1720 kg
- Air suspension vehicles .....	3968 lb	1800 kg

### NOTE:

**CURB WEIGHT:** equals the minimum unladen vehicle weight plus a full fuel tank.

**GROSS VEHICLE WEIGHT:** equals the maximum weight with driver, passengers, payload equipment and towing attachment load (where applicable).

**GROSS VEHICLE WEIGHT CONDITION:** The maximum axle weights are individual axle loadings which allow for the fitting of optional equipment. Loading both axles to their respective maximums **MUST BE AVOIDED**, as the overall maximum vehicle weight would then be exceeded.

**NOTE:** The individual maximum axle weights and gross vehicle weight must not be exceeded.

# General data

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## FUEL

**Gasoline** ..... Premium unleaded gasoline with a CLC or AKI octane rating of 90 or 92 (95 or 96 RON) is preferred. Lower octane fuel can be used, but performance and economy may suffer.

## WHEELS AND TYRES

Alloy wheels:

8J x 16 ..... use with 255/65 R16 Goodyear Wrangler HP 109 H  
or 255/65 R16 Michelin XPC\* 109H

8J x 18 ..... use with 255/55 R18 Goodyear Wrangler HP 109 H

Road wheel nut torque ..... 140 Nm                      103 lbf/ft

Tyre pressures:

All tyres (normal operating conditions)	Front:	28 lbf/in <sup>2</sup>	2.0 kgf/cm <sup>2</sup>
	Rear:	38 lbf/in <sup>2</sup>	2.6 kgf/cm <sup>2</sup>

All tyres (vehicle loaded to maximum gross vehicle weight)	Front:	28 lbf/in <sup>2</sup>	2.0 kgf/cm <sup>2</sup>
	Rear:	46 lbf/in <sup>2</sup>	3.2 kgf/cm <sup>2</sup>

### WARNING

*Tyre pressures must be checked with the tyres cold, as the pressure is about 3 psi (0.2 kg/cm<sup>2</sup>) higher at running temperature. If the vehicle has been parked in the sun or high ambient temperatures, DO NOT reduce the tyre pressures, move the vehicle into the shade and wait for the tyre to cool before checking the pressures.*

---

### WARNING

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

*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.*

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

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# ***SECTION 6***

## ***Parts & accessories***

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# Parts & accessories

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## PARTS AND ACCESSORIES

Your Land Rover Discovery has been designed, manufactured and proven to cope with the most rigorous driving conditions. As such, fitting parts and accessories that have been developed and tested to the same stringent standards is essential to guarantee the continued reliability, safety and performance of the vehicle.

To augment the vehicle's already awesome ability, a comprehensive and versatile range of quality spare parts and accessories are available to fulfil a wide variety of roles, both enhancing and protecting the Discovery in the many tasks to which it can be applied.

Genuine Land Rover Parts are the ONLY parts built to original equipment specifications AND approved by Land Rover designers - this means that every single replacement part and accessory has been rigorously tested by the same engineering team that designed and built the vehicle and, with the exception of maintenance items that are designed to be replaced sooner, is fully guaranteed for 12 months or 12,000 miles (20,000 km).

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

Always consult a dealer for advice regarding the approval, suitability, installation and use of any parts or accessories, before fitting.

## WARNING

***DO NOT fit unapproved accessories or conversions, as they could affect the safety of the vehicle.***

***Land Rover will not accept any liability for death, personal injury or damage to property which may occur as a direct result of fitment of non-approved accessories or the carrying out of non-approved conversions to Land Rover vehicles.***

***Land Rover North America Inc. strongly advises against making any modifications to the suspension or steering system. This could seriously affect the handling and stability of the vehicle leading to loss of control or rollover.***

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# Parts & accessories

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## Electrical equipment

### WARNING

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

*Always consult your Land Rover dealer before fitting any electrical accessory.*

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

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Always consult your Dealer for advice regarding the approval, suitability, installation and use of any parts or accessories before fitting.

### Travelling abroad

In certain countries, legislation prohibits the fitting of parts not built to the vehicle manufacturers' specification.

Owners purchasing accessories while travelling away from their own country, should ensure that the accessory, its location and method of fitment will conform to the legal requirements of their own country when they return home.

## SRS/Airbag

### WARNING

*The components that make up the SRS/airbag are sensitive to electrical or physical interference, either of which could easily damage the system and cause inadvertent operation or a malfunction of the airbag module.*

*To prevent any SRS/airbag malfunction, ALWAYS consult a Land Rover dealer before fitting any of the following:*

- *Electronic equipment such as a mobile phone, two-way radio or in-car entertainment system.*
  - *Accessories attached to the front of the vehicle.*
  - *Any modification to the front of the vehicle.*
  - *Any modification involving the removal or repair of any wiring or component in the vicinity of any of the SRS components (yellow wiring harness), including: the steering wheel, steering column, instrument and fascia panels.*
  - *Any modification to the fascia panels or steering wheel.*
-

# **SECTION 7**

## ***On-road driving***

---

*In this section of the handbook you will find basic information about what you will need to drive safely on the road.*

*For your own safety, it is most important to read this section fully and to gain a thorough understanding of all aspects before driving.*

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Vehicle stability .....	185
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Breakdown safety .....	186



# On-road driving

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## Instruments and warning lights

Before driving it is important to fully understand the function of the instruments and warning lights described in 'section 2'.

**NOTE:** *Red warning lights are of particular importance, illumination indicating that a fault exists. If a red light illuminates, always stop the vehicle and review the specific instructions contained in the warning lights section before proceeding.*

## Power assisted steering

The hydraulic power-assisted is progressively geared; when steering straight ahead gearing is relatively low, but becomes progressively higher as the steering wheel is turned.

**NOTE:** *Power assistance is dependent on the engine running. If the engine is not running, greater effort will be required to steer the vehicle.*

## WARNING

***Under no circumstances must the steering wheel be held on full lock for more than thirty seconds in any one minute, otherwise the steering assembly may be damaged.***

---

## Warming-up

DO NOT warm-up the engine by allowing it to idle at a slow speed. labouring the engine before the normal operating temperature has been reached can damage the engine.

## WARNING

### Vehicle stability

Your vehicle has a higher ground clearance and, hence, a higher centre of gravity than ordinary passenger cars to enable the vehicle to perform in a wide variety of different off-road applications. An advantage of the higher ground clearance is a better view of the road, allowing the driver to more easily anticipate problems. Inexperienced drivers should take additional care, remembering that the Discovery is not designed for cornering at the same speeds as conventional passenger cars, any more than a low slung sports car is designed to perform satisfactorily in off-road conditions. If at all possible, avoid sharp turns and abrupt manoeuvres. As with other vehicles of this type, failure to operate the Discovery correctly may result in loss of control or even vehicle rollover.

### Vehicle height

The overall height of your vehicle exceeds that of ordinary passenger cars (The height is shown on the underside of the sun visor). Always be aware of the height of your vehicle and check the available headroom before driving through low entrances. This is particularly important if the vehicle is fitted with a roof rack or if a sunroof is open.

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# On-road driving

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## FUEL ECONOMY

Fuel consumption is influenced by two major factors:

- How your vehicle is maintained.
- How you drive your vehicle.

To obtain optimum fuel economy, it is essential that your vehicle is maintained in accordance with the manufacturer's service schedule.

Items such as the condition of the air cleaner element, tyre pressures and wheel alignment will have a significant effect on fuel consumption. But, above all, the way in which you drive is most important. The following hints may help you to obtain better value from your motoring:

- Avoid unnecessary, short, start-stop journeys.
- Avoid fast starts. Instead, accelerate gently and smoothly from rest.
- Do not drive in the lower gears for longer than necessary.
- Decelerate gently and avoid sudden and heavy braking.
- Anticipate obstructions and adjust your speed accordingly well in advance.

## IMPORTANT INFORMATION

### Remember the breakdown safety code

If a breakdown occurs while travelling:-

- Wherever possible, consistent with road safety and traffic conditions, the vehicle should be moved off the main thoroughfare onto the shoulder as far as possible. If breakdown occurs on a freeway, pull well over to the inside of the hard shoulder.
- Switch on hazard lights.
- If possible, position a warning triangle or flashing amber light, at an appropriate distance from the vehicle to warn other traffic of the breakdown (note the legal requirements of some areas).
- Consider evacuating passengers through the right hand doors away from the road as a precaution in case your Discovery is struck by another vehicle.

# SECTION 8

## *Off-road driving*

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*This section of your handbook is devoted to the vehicle's superb off-road driving capabilities.*

*Before venturing off-road, it is **absolutely essential** that inexperienced drivers become fully familiar with the vehicle's controls, in particular the transfer gearbox, and also study the off-road driving techniques described on the following pages.*

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# Off-road driving

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## WARNING

***Off-road driving can be hazardous! DO NOT take unnecessary risks and be prepared for emergencies at all times.***

***Your Discovery has a higher ground clearance and hence a higher centre of gravity than an ordinary passenger car. An abrupt manoeuvre at an inappropriate speed or on an unstable surface could cause the vehicle to go out of control.***

***Familiarise yourself with the recommended driving techniques in order to minimise risks to yourself, your vehicle AND your passengers.***

***Always ensure that seat belts are worn for personal protection while either on-road, or off-road driving.***

---

## WARNING

***DO NOT drive if the fuel level is low - undulating ground and steep inclines could cause fuel starvation to the engine and consequent damage to the catalytic converter.***

***DO NOT drive off-road alone or without letting someone know where you are going and when you plan to return.***

---

## IMPORTANT INFORMATION

As a precaution against accidental loss, remove the towing eye cover from the front spoiler before driving off-road (see 'Vehicle recovery', in Section 3).

## BASIC OFF-ROAD TECHNIQUES

These basic driving techniques are an introduction to the art of off-road driving and do not necessarily provide the information needed to successfully cope with every single off-road situation.

We strongly recommend that owners who intend to drive off-road frequently, should seek as much additional information and practical experience as possible.

Before driving off-road it is important that you check the condition of the wheels and tyres and that the tyre pressures are correct. Worn or incorrectly inflated tyres will adversely affect the performance, stability and safety of the vehicle.



# Off-road driving

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## **Gear selection**

With the main selector lever set at 'D', the gearbox automatically provides the correct gear for the appropriate gear range selected (HIGH or LOW). Remember that position '1' will hold the gearbox in first gear to give maximum engine braking when required.

HIGH range gears should be used whenever possible - only change to LOW range when ground conditions become very difficult.

## **Braking**

As far as possible, vehicle speed should be controlled through correct gear selection and the use of Hill Descent Control (HDC). Application of the brake pedal should be kept to a minimum. In fact, if the correct range of gears and HDC have been selected, braking will be largely unnecessary.

If the brake pedal is depressed when HDC is active, HDC is overridden and the brakes will perform as normal. If the brake pedal is then released, HDC will recommence operating, if necessary,

## **'Manual' mode**

Press the mode switch whilst the gearbox is in Low range to select 'Manual' mode; this enables the transmission to function as a manual gearbox locking the gearbox into whichever gear position has been selected ('D' = 4th gear), providing maximum vehicle control and engine braking - ideal for use in severe off-road conditions.

**NOTE:** *Changing from Low to High range will automatically cancel 'Manual' mode.*

## **Use of engine for braking**

Before descending steep slopes, stop the vehicle at least its length before the descent, engage LOW range and then select gear selector position '1' or '2' in the main gearbox depending on the severity of the incline.

While descending the slope it should be remembered that the engine will provide sufficient braking effort to control the rate of descent, and that the brakes should not be applied.

## **Accelerating**

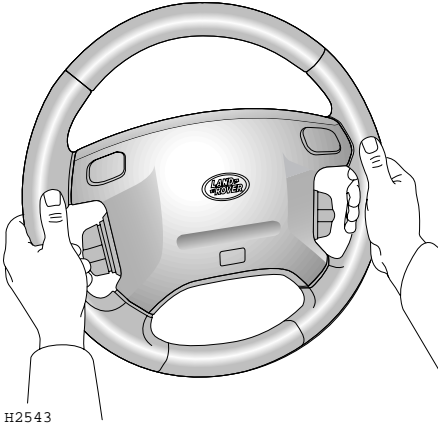
Use the accelerator with care - any sudden surge of power may induce wheel spin and, therefore, invoke unnecessary operation of traction control, or in extreme conditions could lead to loss of control of the vehicle.

## **CD Autochanger**

Playing CDs while negotiating arduous off-road terrain is not recommended. Severe jolting of the vehicle may disturb the operation of the autochanger, causing the disc to 'jump or skip'.

# Off-road driving

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H2543

## Steering

### WARNING

***DO NOT hold the steering wheel with your thumbs inside the rim - a sudden 'kick' of the wheel as the vehicle negotiates a rut or boulder could seriously injure them. ALWAYS grip the wheel on the outside of the rim (as shown) when traversing uneven ground.***

---

## Survey the ground before driving

Before negotiating difficult terrain, it is wise to carry out a preliminary survey on foot. This will minimise the risk of your vehicle getting into difficulty through a previously unnoticed hazard.

## Ground clearance

Don't forget to allow for ground clearance beneath the chassis, axles and under the front and rear bumpers. Note that the axle differentials are situated **BELOW** the chassis and are positioned slightly to the right of the centre of the vehicle. Note also that there are other parts of the vehicle which may come into contact with the ground - take care not to ground the vehicle.

Ground clearance is particularly important at the bottom of steep slopes, or where wheel ruts are unusually deep and where sudden changes in the slope of the ground are experienced.

On soft ground the axle differentials will clear their own path in all but the most difficult conditions. However, on frozen, rocky or hard ground, hard contact between the differentials and the ground will generally result in the vehicle coming to a sudden stop.

ALWAYS attempt to avoid obstacles that may foul the chassis or axle differentials.

## Self-levelling suspension

On vehicles equipped with self-levelling suspension, the rear suspension can be raised to increase departure angles and ground clearance at the rear of the vehicle (see '*self-levelling suspension*'). *More information can be found in the 'Towing' section.*

# Off-road driving

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## Loss of traction

If the vehicle is immobilised due to loss of wheel grip, the following hints could be of value:

- Avoid prolonged wheel spin; this will only make matters worse.
- Remove obstacles rather than forcing the vehicle to cross them.
- Clear clogged tyre treads.
- Reverse as far as possible, then attempt an increased speed approach - additional momentum may overcome the obstacle.
- Brushwood, sacking or any similar material placed in front of the tyres may improve tyre grip.

## IMPORTANT INFORMATION

### After driving off-road

Before rejoining the public highway, or driving at speeds above 25 mph (40 km/h), consideration should be given to the following:

- Wheels and tyres must be cleaned of mud and inspected for damage - ensure there are no lumps or bulges in the tyres or exposure of the ply or cord structure.
- If wheels and tyres are not cleaned properly, damage to the wheels, tyres, braking system and suspension components could occur.
- Brake discs and calipers should be examined and any stones or grit that may affect braking efficiency removed.

### Servicing requirements

Vehicles operated in arduous conditions, particularly on dusty, muddy or wet terrain, and vehicles undergoing frequent or deep wading conditions will require more frequent servicing. See 'Owner maintenance' and contact a Land Rover dealer for advice.

After wading in salt water or driving on sandy beaches, use a hose to wash the underbody components and any exposed body panels with fresh water. This will help to protect the vehicle's cosmetic appearance.

# *Off-road driving*

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## **DRIVING ON SOFT SURFACES & DRY SAND**

The ideal technique for driving on soft sand requires the vehicle to be kept moving at all times - soft sand causes excessive drag on the wheels resulting in a rapid loss of motion once driving momentum is lost. For this reason, gear changing should be avoided.

Select the highest suitable gear and REMAIN in that gear until a firm surface is reached. It is generally advisable to use LOW range gears, as they will enable you to accelerate through worsening conditions without the risk of being unable to restart.

### **Stopping the vehicle on soft ground, in sand or on an incline**

If you do stop the vehicle, remember:

Starting on an incline or in soft ground or sand may be difficult. Always park on a firm level area, or with the vehicle facing downhill.

To avoid wheel spin, select 'D' and use the MINIMUM throttle necessary to get the vehicle moving.

If forward motion is lost, avoid excessive use of the throttle - this will cause wheel spin and tend to dig the vehicle into the sand. Clear sand from around the tyres and ensure that the chassis and axles are not bearing on the sand before again attempting to move.

If the wheels have sunk, use an air bag lifting device or high lift jack to raise the vehicle, and then build up sand under the wheels so that the vehicle is again on level ground. If a restart is still not possible, place ladders or other load spreading aids beneath the wheels to improve traction.

## **DRIVING ON SLIPPERY SURFACES (ice, snow, mud, wet grass)**

- Select the highest gear possible.
- Drive away using the MINIMUM throttle possible.
- Drive slowly at all times, keeping braking to a minimum and avoiding violent movements of the steering wheel.

## **DRIVING ON ROUGH TRACKS**

Although rough tracks can sometimes be negotiated in normal drive, on very rough tracks, engage LOW range to enable a steady, low speed to be maintained without constant use of the brake and clutch pedals.

# Off-road driving

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## CLIMBING STEEP SLOPES

ALWAYS follow the fall line of the slope - travelling diagonally could encourage the vehicle to slide broadside down the slope.

Steep climbs will usually require the LOW gear range. If the surface is loose or slippery, use sufficient speed in the highest practical gear to take advantage of your vehicle's momentum. However, too high a speed over a bumpy surface may result in a wheel lifting, causing the vehicle to lose traction. In this case try a slower approach. Traction can also be improved by easing off the accelerator just before loss of forward motion.

If the vehicle is unable to complete a climb, do not attempt to turn it around while on the slope. Instead, adopt the following procedure to reverse downhill to the foot of the slope.

1. Hold the vehicle stationary using both foot and hand brakes.
2. Restart the engine if necessary.
3. Engage reverse ('R') and LOW range.
4. Select hill descent control (HDC).
5. Release the handbrake. Then release the foot brake and allow the vehicle to reverse down the slope using engine braking and HDC to control the rate of descent.

6. Unless it is necessary to stop the vehicle to negotiate obstructions, DO NOT apply the brake pedal during the descent - even a light application may cause the front wheels to lock, rendering the steering ineffective.
7. If the vehicle begins to slide, accelerate slightly to allow the tyres to regain grip.

When the vehicle is back on level ground or where traction can be regained, a faster approach will probably enable the hill to be climbed. However, DO NOT take unnecessary risks, if the hill is too difficult to climb, find an alternative route.

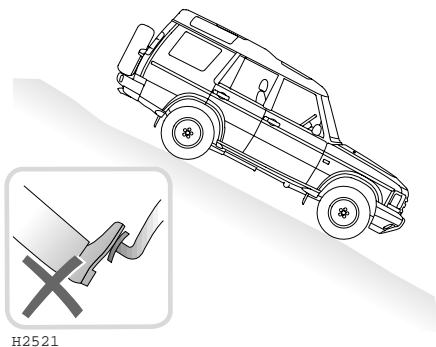
### WARNING

***DO NOT attempt to reverse down a slope without the engine running, - HDC and the braking effect of the gearbox will be lost.***

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# Off-road driving

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## WARNING

***Failure to follow these instructions may cause the vehicle to roll over.***

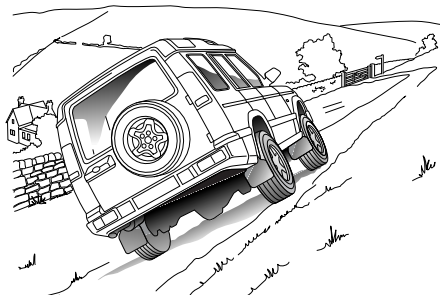
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### DESCENDING STEEP SLOPES

1. Stop the vehicle at least a vehicle length before the start of the slope and engage first gear ('1'), LOW range and hill descent control.
2. Unless it is necessary to stop the vehicle in order to negotiate obstructions, **DO NOT** touch the brake pedal during the descent - the engine and HDC will limit the speed, keeping the vehicle under perfect control provided the front wheels are rotating. If the vehicle begins to slide, the limits of adhesion have been reached, and it may be impossible to maintain the minimum speed relative to the gear selected. In this case, HDC may automatically accelerate the vehicle sufficient to maintain directional stability. **DO NOT** use the accelerator or the brakes or attempt to change gear. HDC will automatically slow the vehicle down again as soon as possible.
3. Once level ground is reached, select a suitable gear for the next stage of your journey.

# Off-road driving

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H2531

## TRAVERSING A SLOPE

### WARNING

***Failure to follow these instructions may cause the vehicle to roll over***

Before crossing a slope ALWAYS observe the following precautions:

- Check that the ground is firm and not slippery.
- Check that the wheels on the downhill side of the vehicle are not likely to drop into depressions in the ground and that the 'uphill' wheels will not run over rocks, tree roots, or similar obstacles that could suddenly increase the angle of tilt.
- Ensure that passenger weight is evenly distributed, that all roof rack luggage is removed and that all other luggage is properly secured and stowed as low as possible. Always remember; any sudden movement of the load could cause the vehicle to overturn.

- Where possible, rear seat passengers should sit on the uphill side of the vehicle or, in extreme conditions, should vacate the vehicle until the sloping ground has been safely negotiated.

### NEGOTIATING A 'V' SHAPED GULLY

Observe extreme caution! Steering up either of the gully walls could cause the side of the vehicle to be trapped against the opposite gully wall.

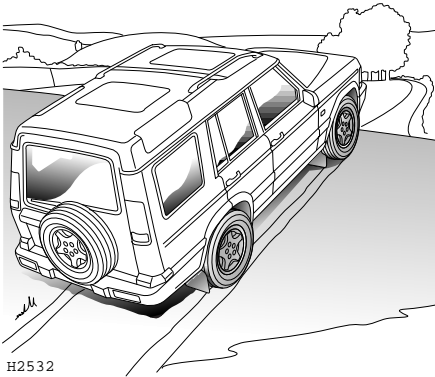
### DRIVING IN EXISTING WHEEL TRACKS

As far as possible allow the vehicle to steer itself along the bottom of the ruts. However, always keep a light hold of the steering wheel to prevent it from spinning free.

Particularly in wet conditions, if the steering wheel is allowed to spin free, the vehicle may appear to be driving straight ahead in the ruts, but in actual fact (due to the lack of traction caused by the wet ground) is unknowingly on full right or left lock. Then, when level ground is reached, or if a dry patch of ground is encountered, the wheels will find traction and cause the vehicle to suddenly veer to left or right.

# Off-road driving

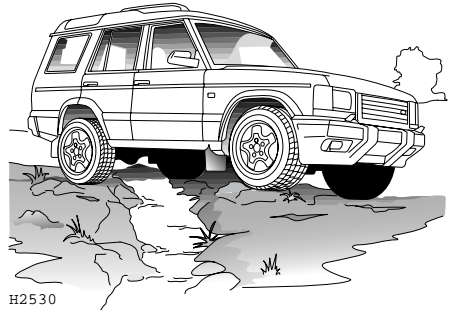
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H2532

## **CROSSING A RIDGE**

Approach at right angles so that both front wheels cross the ridge together - an angled approach could cause traction to be lost through diagonally opposite wheels lifting from the ground at the same time.



H2530

## **CROSSING A DITCH**

Cross ditches at an angle so that three wheels always maintain contact with the ground. If a ditch is approached head on, both front wheels will drop into the ditch together, possibly resulting in the chassis and front bumper being trapped on opposite sides of the ditch. On vehicles equipped with self-levelling suspension, and if the severity of terrain makes this inevitable, manually operating the self-levelling suspension to increase clearance between the ground and the rear of the vehicle may help.



# Off-road driving

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## WADING

### WARNING

**The maximum advisable wading depth is 20 inches (0,5 m).**

**Severe electrical damage may occur if the vehicle remains stationary for any length of time when the water level is above the door sills.**

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If the water is likely to exceed 20 inches (0,5 m), the following precautions should be observed:

- Fix a plastic sheet in front of the radiator grille to prevent water from soaking the engine and mud from blocking the radiator.
- Remove the CD autochanger (if fitted).
- Ensure that the silt bed beneath the water is free of obstacles and firm enough to support the vehicle's weight and provide sufficient traction.
- Ensure that the engine air intake is clear of the water level.
- Select a low gear and maintain sufficient throttle to prevent the engine from stalling. This is particularly important if the exhaust pipe is under water.
- Drive slowly into the water and accelerate to a speed which causes a bow wave to form; then maintain that speed.

At all times, keep all the doors fully closed.

## After wading

- Drive the vehicle a short distance and apply the foot brake to check that the brakes are fully effective.
- DO NOT rely on the handbrake to hold the vehicle stationary until the transmission has thoroughly dried out; in the meantime, leave the vehicle with the gearbox selector moved to park ('P').
- Remove any protective covering from in front of the radiator grille.
- If the water was particularly muddy, remove any blockages (mud and leaves) from the radiator to reduce the risk of overheating.
- If deep water is regularly negotiated, check all oils for signs of water contamination - contaminated oil can be identified through its 'milky' appearance. In addition, check the air filter element for water ingress and replace if wet - consult a Land Rover dealer if necessary.
- If salt water is frequently negotiated, thoroughly wash the underbody components and exposed body panels with fresh water.

**NOTE:** *Vehicles required to undergo frequent or deep wading conditions will require more frequent servicing. Contact a Land Rover dealer for advice.*

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