

**RANGE ROVER**

**OWNER'S MANUAL**





# RANGE ROVER

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



# SECTION 1

## Introduction

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### OWNER'S HANDBOOK

*This handbook together with the Passport to Service, provides all the information that you will need to derive maximum pleasure from owning and driving your new Range Rover.*

*For convenience, the handbook is divided into sections, each dealing with a particular aspect of driving or caring for the vehicle. Sections are listed on the contents page and you will find it worthwhile to take a little time to read each one, and to get to know your Range Rover as soon as you possibly can.*

*Remember, the more you understand before you drive, the greater the satisfaction when you are seated behind the steering wheel.*

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*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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## **PASSPORT TO SERVICE**

Your new Range Rover is covered by the following warranties:

- Land Rover New Vehicle Limited Warranty
- Land Rover Corrosion Perforation Limited Warranty
- Land Rover Vehicle Emission Control System Warranty (U.S.A.)
- Land Rover U.S. Emissions Performance Warranty

Detailed information on these warranties can be found in the Passport to Service included in your literature pack. The Passport to Service also contains important vehicle identification information and useful consumer advice.

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

## **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.

# Introduction

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## 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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## WARNING

*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 off-road applications. An advantage of the higher ground clearance is a better view of the road allowing you to anticipate problems. The Range Rover 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. As with other vehicles of this type, failure to operate the Range Rover correctly may result in loss of control or vehicle rollover.*

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# Introduction

## WARNING LABELS ATTACHED TO THE VEHICLE



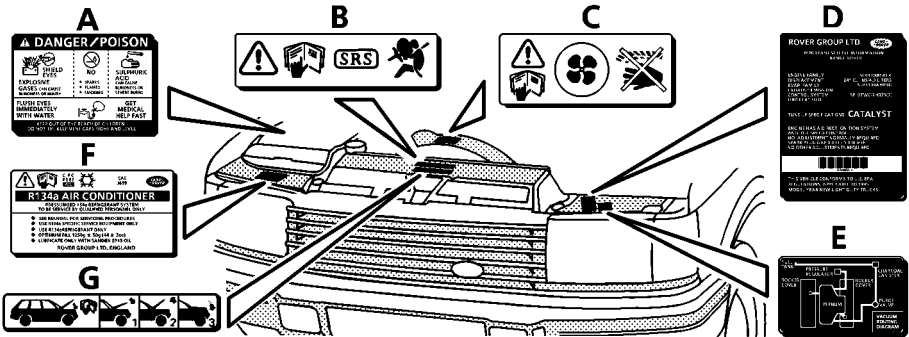
Warning labels attached to your vehicle bearing this symbol mean: **DO NOT touch or adjust components until you have read the relevant instructions in the handbook.**



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!**

## INFORMATION LABELS ENGINE COMPARTMENT

Various labels are fixed to your vehicle to draw your attention to specific safety and emission information. This illustration is for general guidance only as the position of the components and the extent of labels and other visual warnings could vary from model to model.



P0284

- A. BATTERY WARNING LABEL
- B. AIRBAG SRS WARNING LABEL
- C. KEEP CLEAR OF ROTATING PARTS
- D. EMISSION CONTROL LABEL
- E. VACUUM ROUTING DIAGRAM
- F. AIR CONDITIONING LABEL
- G. HOOD CLOSING INSTRUCTIONS

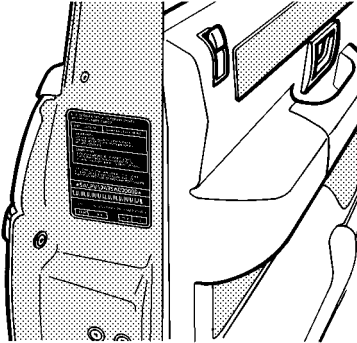


# Introduction

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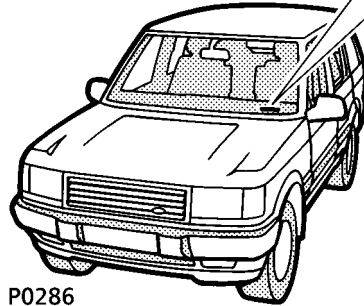
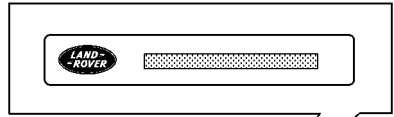
## VEHICLE IDENTIFICATION

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



P0285

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



P0286

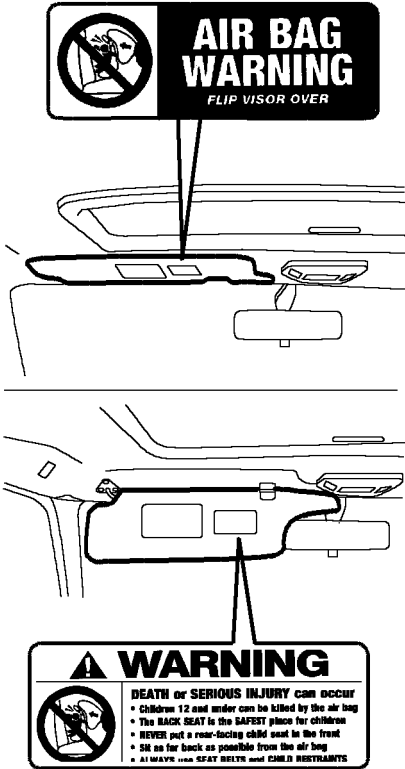
In addition, the Federal VIN plate is mounted to the vehicle body in such a position that it is visible from the outside through the bottom corner of the windscreen on the driver's side.

### **WARNING**

***DO NOT exceed gross weight or axle loads described on the vehicle certification identification label.***

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# Introduction



P0398

## SRS/Airbag systems

Take note of the warning information fixed to the underside of both sun visors, as follows:

### WARNING!

**DEATH or SERIOUS INJURY can occur**

- Children 12 and under can be killed by the airbag
- The BACK SEAT is the SAFEST place for children
- NEVER put a rear-facing child seat in the front
- Sit as far back as possible from the airbag
- ALWAYS use SEAT BELTS and CHILD RESTRAINTS

# Introduction

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## ANTI-THEFT PRECAUTIONS

While it may be difficult 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 'four point' drill whenever you leave your vehicle - even for just a few minutes:

1. Fully close all the windows (and the sunroof).
2. Remove your valuable belongings (or hide them out of sight).
3. Remove the starter key.
4. Superlock the vehicle using the remote handset.

Thieves are attracted by 'vulnerable' vehicles. Even if you have followed the 'four 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 be easily 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 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 safety and traffic conditions, the vehicle should be moved off the main thoroughfare, preferably onto the shoulder as far as possible. If a breakdown occurs on a freeway, pull well over to the inside of the hard shoulder.
- Switch on hazard lights.
- If possible, position the warning triangle (located on the underside of the loadspace floor panel - see '*Warning triangle*') or a 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 to a safe area away from the vehicle as a precaution in case your Range Rover 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 on your vehicle.*

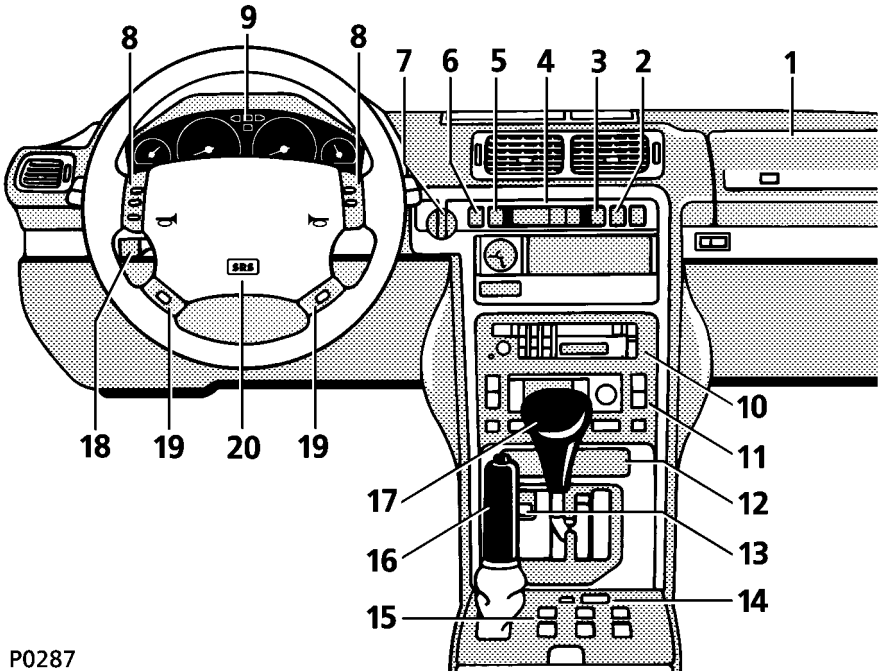
*For your own safety, it is most important to read this section fully and to gain a thorough understanding of all the controls before driving.*

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# Controls

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P0287

- |   |   |
|---|---|
| 1. Passenger airbag SRS                     | 11. Heater/air-conditioning controls      |
| 2. Cruise control master switch             | 12. Ashtray/cigar lighter                 |
| 3. Hazard warning switch                    | 13. Automatic gearbox mode switch         |
| 4. Air suspension switches                  | 14. Exterior mirror operating switches    |
| 5. Rear fog guard light switch              | 15. Window and sunroof operating switches |
| 6. Front fog light switch                   | 16. Parking brake                         |
| 7. Lighting switch                          | 17. Automatic gear selector               |
| 8. Remote radio/cassette/CD player switches | 18. Steering column adjustment lever      |
| 9. Instrument panel                         | 19. Cruise control switches               |
| 10. Radio/cassette/CD player                | 20. Driver's airbag SRS                   |

# Security Card

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The security card, supplied with the literature pack, contains important emergency information. It is ESSENTIAL that you keep the card safe from theft and ensure that it is passed to the new owner if you sell the vehicle.

- **Key number:** This is the number of the starter/door key - essential if you ever need to obtain a replacement.
- **VIN (vehicle identification number):** This identity number is unique to your vehicle and is essential proof of its specification. The number can also be found in various locations around the vehicle (see '*Vehicle Identification*' in Section 1).
- **Radio security code number:** This unique code must be entered into the radio whenever the power supply has been disconnected. Without this code, the radio unit will not operate (see '*Security code*' in the '*In-Car Entertainment*' book).

## WARNING

*Never leave the security card inside the vehicle when it is unattended.*

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# Locks & alarm

Your vehicle is fitted with a sophisticated electronic anti-theft alarm system. In order to ensure maximum security, you are advised to gain a full understanding of the system by thoroughly reading this section of the handbook.

## LOCKING THE VEHICLE AND ARMING THE ALARM

You have been supplied with two handset/keys (numbered 1 and 2). While both are identical in operation, they transmit two different sets of information (see 'Key activated memory seats'). Replacement handsets are only available from a Land Rover dealer. Up to two further handsets (3 and 4) can also be obtained.

There are four methods for securing your vehicle:

1. 'Superlocking' using the handset - (recommended high security method).
2. 'Superlocking' using the key.
3. Locking using the handset.
4. Locking using the key.

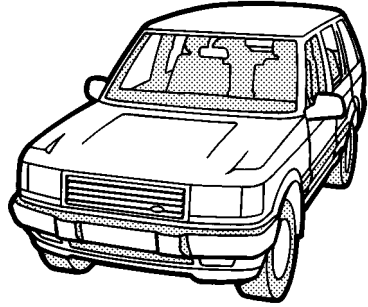
### FOR MAXIMUM SECURITY, ALWAYS 'SUPERLOCK' THE VEHICLE USING THE HANDSET

(except when the vehicle is to be locked with passengers or animals inside).

#### IMPORTANT INFORMATION

##### Emergency keys

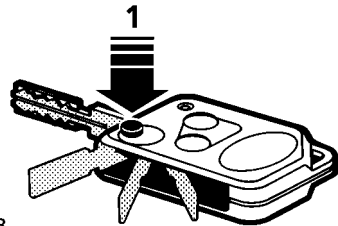
In addition to the two handsets, you have also been supplied with two separate keys. These keys perform the same functions as the key part of the handset and are intended for emergency use only. DO NOT keep the keys inside the vehicle.



P0025

#### The handset

The radio remote handset has three buttons (described below). By pressing the appropriate button, the handset can be used either as a conventional key, or as a remote handset to either lock or 'superlock' the vehicle.

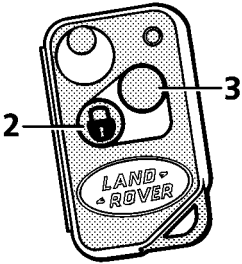


P0023

1. Key release button.
  - Press to release the key, which can then be used as a conventional key to operate the starter switch, glovebox and door locks.



# Locks & alarm



P0022

2. Lock button (padlock symbol)
  - press once to lock.
  - press twice to 'superlock'.
3. Unlock button
  - press once to unlock.
  - press and hold to operate the 'Key activated memory seats' facility (see 'Key activated memory seats').

Once the security system is armed, the following features are activated:

- The central locking system locks all the doors and the tailgate.
- The perimeter alarm (protecting the doors, hood and tailgate) is armed.
- If 'handset superlocking' is activated, the volumetric alarm is also armed (a sensor inside the passenger compartment monitors the interior space and activates the alarm if an intrusion into the passenger compartment is detected).

The volumetric sensor will enter a self-check mode each time you turn the starter switch off. It will remain active for 60 seconds, or until:

1. The driver's door is opened and closed.
2. The vehicle is locked with the handset or key.

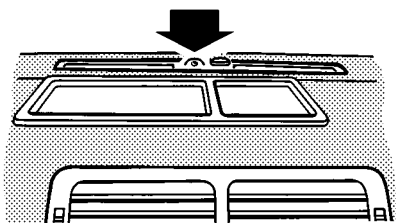
**NOTE:** If the sensor fails its self-check five times consecutively, only the 'perimetric' elements of the security system will be active (doors, hood and tailgate). Any attempt to 'superlock' with the handset will result in 'ALARM FAULT' being displayed on the message centre and a mislock occurring (see 'Mislock'). Seek qualified assistance to rectify the fault.

**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.

# Locks & alarm



P0167

## Anti-theft alarm indicator light

After locking the vehicle, the RED indicator light (arrowed in illustration) flashes rapidly for ten seconds to confirm that the security system has been successfully armed. After ten seconds, the indicator light adjusts to a slower frequency, and then continues to flash as an anti-theft deterrent until such time as the security system is disarmed.

If, while operating the handset (or key), the alarm sounds, this indicates that one of the doors, the hood or the tailgate is not properly closed (the message centre display will confirm which aperture is not secure).

Although the handset can be successfully operated from a significant distance from the vehicle, when locking it is wise to be close enough to visually confirm that the door locking buttons have dropped into place and that the indicator light confirms a successful lock.

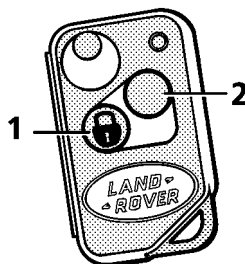
**NOTE:** Occasional atmospheric conditions can significantly reduce the effective range of handset operation. If this occurs, operate the handset closer to the vehicle. In the most extreme cases, it may be necessary to touch the handset against the radio aerial 'fired' onto one of the rear side windows.

If the message centre displays 'KEY BATTERY LOW', this indicates that the handset batteries need replacing (see 'Handset batteries').

## SUPERLOCKING

If the vehicle is 'superlocked' (with either the handset, or the key), the doors CANNOT be unlocked or opened from inside the vehicle.

For this reason DO NOT superlock the vehicle with passengers inside.



P0200

## 'Superlocking' using the handset:

Press and release the 'lock' button (1) on the handset twice (within 1½ seconds). After 15 seconds you will hear 'superlocking' engage.

If any door, the hood or tailgate is left open, a mislock will occur (see 'Mislock').

If a window or sunroof is open, superlocking will engage immediately, however volumetric protection will not be activated.

## To unlock:

Press and release the 'unlock' button (2) on the handset once.

If the handset is inoperative, the vehicle can be unlocked by using the key in the driver's door lock.

# Locks & alarm

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## **'Superlocking' using the key:**

Wherever possible the handset **MUST** be used to 'superlock' the vehicle. However, if the handset is inoperative, the key can be used as follows:

Turn the key in the driver's door towards the rear of the vehicle (and release) twice within 1<sup>1</sup>/<sub>2</sub> seconds.

**NOTE:** 'Superlocking' the vehicle using the key will provide perimeteric protection only - volumetric protection (protection of the interior space inside the vehicle) **WILL NOT BE ACTIVE!** If any door, the hood, or the tailgate is left open, a mislock will occur (see 'Mislock').

## **To unlock:**

Wherever possible use the handset to unlock the vehicle - press and release the 'unlock' button.

If necessary, the key can also be used to unlock a 'superlocked' vehicle.

## **WARNING**

**NEVER 'superlock' the vehicle if passengers are to be left inside - 'superlocking' prevents door locks from being operated from INSIDE as well as outside the vehicle!**

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**NOTE:** If the handset 'lock' button or the door key are operated once, the central locking will be activated, but the alarm will only be in 'perimeteric' mode and the doors and locks **CAN** be opened from the inside. **ALWAYS**, where possible secure the vehicle by 'superlocking'.

## **'Sill' locking**

To operate the central locking from inside the vehicle, push down either front door sill button.

**The security system will NOT be armed.**

**NOTE:** 'Sill' locking is **NOT** possible from outside the vehicle.

## **IMPORTANT INFORMATION**

If unattended passengers are to be left in the vehicle, it is recommended that they should lock the vehicle from inside by pressing down the driver's door sill button.

If animals are to be left in the vehicle, volumetric protection **MUST NOT** be activated - any movement inside the vehicle could trigger the alarm.

**DO NOT** leave children unattended in the vehicle!

# Locks & alarm

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## MISLOCK

A mislock will occur if:

- A door, hood or tailgate are left open.
- The key is left in the starter switch.
- An incomplete 'all close' is attempted. The message centre will indicate the cause of a mislock e.g. 'SUNROOF BLOCKED'.

If a mislock occurs, a warning 'bleep' will sound in which case you should unlock the vehicle, rectify the cause of the mislock and then re-lock the vehicle.

## 'ALL CLOSE' FEATURE

The key activated 'all close' feature enables you to use the key to close the windows and sunroof at the same time as you secure the vehicle.

### **To operate:**

1. Ensure the doors, hood and tailgate are properly closed.
2. Turn and hold the key in the 'lock' position (turn twice and hold on the second turn if 'Superlocking').

The doors and tailgate will lock and the windows, followed by the sunroof will close.

**NOTE:** *If a window or the sunroof detects an obstruction, a mislock occurs and the locking sequence will stop. Remove the obstruction before trying to use the 'all close' feature again.*

## KEY ACTIVATED MEMORY SEATS

This feature enables the handsets to be used to recall the pre-set electric seat/mirror positions when you UNLOCK the door. The two handsets are separately identified by different labels and by grey and black battery covers - key 1 corresponds to driver's seat memory 1, and key 2 to seat memory 2 (see 'Seats').

**NOTE:** *If additional handset/keys have been obtained (key 3 & key 4), they are not linked to the memory seat system.*

Press and hold the 'unlock' button on the handset for 1½ seconds (the indicator light on the handset flashes rapidly), and then release. The driver's seat and both mirrors will move to the positions programmed into the relevant seat memory.

**NOTE:** *This feature will only operate if volumetric protection was activated when the vehicle was locked (ie. by 'superlocking' using the handset).*

*It will not function if the alarm system has already been triggered since it was last set, and will be cancelled if a door is opened, or if the vehicle is relocked.*

# Locks & alarm

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## AUTO RELOCK

Auto relock ensures that, if the vehicle is unlocked accidentally, the vehicle will relock itself automatically after a 60 second delay.

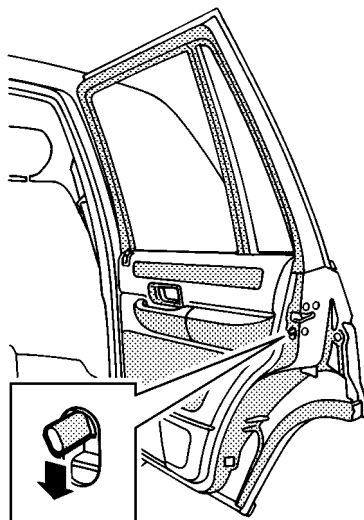
Once the 'unlock' button on the handset has been pressed, the alarm system will monitor the vehicle for 60 seconds. If any of the following occur during this period, the vehicle will remain unlocked:

- A door or the tailgate is opened.
- Interior movement is detected.
- The key is inserted into the starter switch, or the switch is turned to position 'I'.

However, if none of the above has occurred within 60 seconds, then the vehicle will automatically return to its previous 'locked' state.

## OPENING THE DOORS

When opening a door from outside the vehicle, it is recommended that the moving part of the handle is held by the fingers and that the door catch is operated by pushing with the thumb against the fixed part of the handle.



P0019

## CHILD-PROOF LOCKS (rear doors only)

Move the lever downwards (arrowed in illustration) to engage.

With the child-proof locks engaged, the rear doors cannot be opened from inside the vehicle, thereby avoiding the risk of a door being opened accidentally while the vehicle is moving.

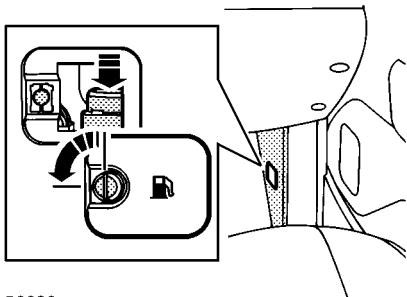
## WARNING

*Never leave children unsupervised in the vehicle.*

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# Locks & alarm

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P0020

## INERTIA CUT-OFF SWITCH

This switch is a safety device that automatically unlocks the doors in the event of an accident or sudden impact (provided the starter switch is turned on). In addition, the inertia switch inhibits power to the electric fuel pump, turns off the heating and air conditioning fans, and turns on the hazard warning lights, which continue flashing until either the starter switch is turned off or the inertia switch is reset.

The switch is located behind the vertical panel in the right hand footwell. Remove the cover by using a coin to rotate the turnbuckle anti-clockwise and then prise the cover off.

When the switch is tripped, the message centre will alternately display; 'REFER HANDBOOK' and 'INERTIA SWITCH'.

To reset the switch, press the rubber top (arrowed in illustration).

**NOTE:** The vehicle can be secured even if the switch has been tripped by removing the starter key, opening and closing one of the front doors and then locking the vehicle.

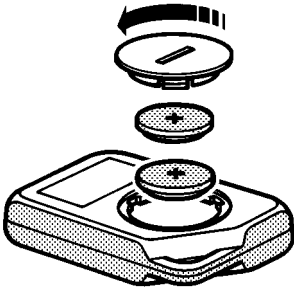
## WARNING

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

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# Locks & alarm

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P0024

## Handset batteries

When the batteries need replacing, the message centre will display 'KEY BATTERY LOW'. To replace:

- Remove the battery cover by turning the cover anti-clockwise with a coin.
- Taking care not to touch the circuit board, prise the batteries from the cover and fit new ones (with the positive side facing the cover), and replace the cover.

The batteries should be replaced within 1 minute of removing the old ones, otherwise it may be necessary to re-synchronise the handset (see '*Handset synchronisation*'). New batteries are available from your dealer.

**NOTE:** *Finger marks on the batteries will adversely affect battery life. If possible, avoid touching the surface of the batteries, and wipe clean before fitting.*

## Handset synchronisation

The handset transmits a coded message, which changes each time a button is pressed. If a handset is operated too many times out of range of the vehicle or if the handset batteries are removed for longer than a minute, it may need to be re-synchronised.

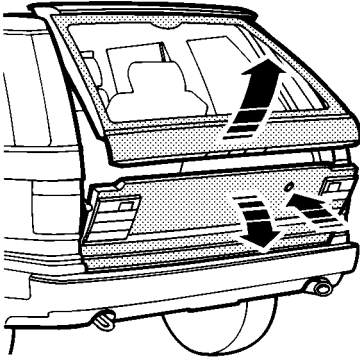
### To synchronise:

- If the vehicle is locked, press the 'unlock' button on the handset and then unlock the vehicle using the key.
- If the vehicle is unlocked, press the 'lock' button on the handset and then lock the vehicle using the key.

**NOTE:** *Handset synchronisation cannot be achieved if the vehicle alarm is armed or if the handset batteries need replacing.*

# Tailgate

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P0026

## OPENING THE TAILGATE

With the vehicle unlocked, press the release button once to release the upper tailgate.

**NOTE:** *There is a handle built into the lower edge of the upper tailgate to assist in opening and closing.*

With the upper tailgate open, press the release button again to release the lower tailgate, which can then be lowered to the horizontal position.

**NOTE:** *The tailgate can not be opened if the vehicle battery is flat or disconnected; emergency access to the loadspace can only be achieved, by folding the rear seats from inside the vehicle, (see 'Seats').*

## WARNING

*Do not drive with the tailgate open; poisonous carbon monoxide fumes will enter the vehicle.*

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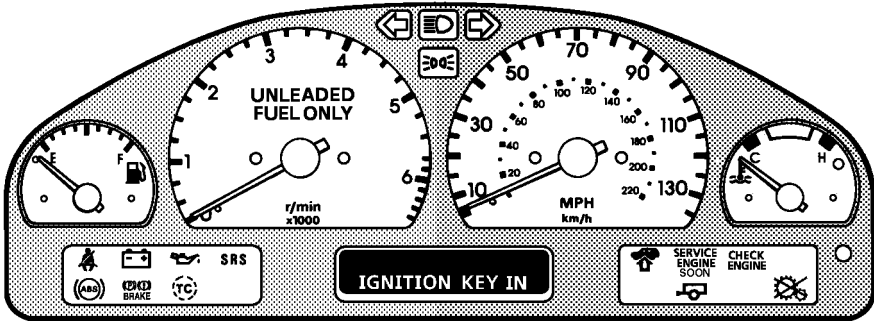
## CLOSING THE TAILGATE

Raise the lower tailgate first and close firmly. Then lower and close the upper tailgate.

Always check that the tailgate is secure before driving and before leaving the vehicle unattended.



# Message centre



P0288B

Driver warning and information messages are displayed on the message centre in the lower part of the instrument pack. Messages have different priority levels and are grouped into the following categories.

## CRITICAL WARNINGS

Critical warning messages are accompanied by an audible warning (three beeps). Messages are displayed continuously while the starter switch is turned on, and remain displayed while the fault persists.

**DO NOT ignore these messages - TAKE CORRECTIVE ACTION IMMEDIATELY!**

Critical warnings are displayed continuously, normally on the lower line of the message centre, but if more than one message is to be displayed, then the upper display line will also be used.

## WARNINGS

Warning messages are non-critical, but must be treated with some urgency. They will also be accompanied by an audible warning (three beeps) each time the message is displayed.

**DO NOT ignore these messages - TAKE CORRECTIVE ACTION IMMEDIATELY.**

Warning messages are displayed for approximately 4 seconds. If other warning messages are pending, the display time will be reduced to approximately 2 seconds.

## INFORMATION MESSAGES

### General

All information messages are displayed for approximately 4 seconds. If other messages are pending, the display time will be reduced to approximately 2 seconds. Note that 'Critical Warning' and 'Warning' messages always override 'Information' messages.

These information messages are grouped into three categories:

### Category 1

Messages in this category will be accompanied by a single beep when the message is displayed for the first time, and also when the starter switch is turned on or off. At any other time, only the message will be presented - TAKE CORRECTIVE ACTION AS SOON AS POSSIBLE.

### Category 2

Messages in this category will be accompanied by a single beep each time the message is displayed - TAKE CORRECTIVE ACTION AS SOON AS POSSIBLE.

### Category 3

Messages in this category are NOT accompanied by an audible warning. Only the message will be displayed - TAKE CORRECTIVE ACTION AS SOON AS POSSIBLE.

# Message centre

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The following are CRITICAL WARNING messages and are listed in order of priority.

Message	Meaning	What to do?
MARKET NOT SET	the language for the message centre is not set	seek qualified assistance
SEAT BELT PLEASE	you have not fastened your seat belt	fasten your seat belt
INERTIA SWITCH*	the fuel cut-off switch has been tripped	reset the switch - see ' <i>Locks &amp; alarm</i> '
GEARBOX OVRHEAT *	automatic gearbox oil temperature too high	reduce speed or select lower gear. If message persists, stop vehicle and allow gearbox to cool; seek qualified assistance if message resumes.
TRANSFER OVRHEAT*	transfer gearbox oil temperature too high	reduce speed or select lower gear. If message persists, stop vehicle and allow gearbox to cool; seek qualified assistance if message resumes
DOOR OPEN RH-R	the right hand rear door is open	close the door
DOOR OPEN LH-R	the left hand rear door is open	close the door
DOOR OPEN LH-F	the left hand front door is open	close the door
DOOR OPEN RH-F	the right hand front door is open	close the door
BONNET OPEN	the hood is open	close the hood
IGNITION KEY IN	you have left the key in the starter switch	remove the key
LIGHTS ON	you have left your lights on	switch off the lights

\* These messages alternate with the message 'REFER HANDBOOK'. When this is displayed, refer to the appropriate section in this handbook for further information.

## *Message centre*

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Message	Meaning	What to do?
HEADLIGHT DELAY	you have selected headlight delay - headlights will switch off automatically	
SLOW: 35 MPH MAX	air suspension fault	slow down to less than 35 mph and seek qualified assistance
ENG OIL OVERHEAT	engine oil temperature is too high	stop and allow the engine to cool; if the problem persists, do not drive - seek qualified assistance
AIRBAG FAULT	there is a problem with the airbag	seek qualified assistance
RH FRONT WINDOW LH FRONT WINDOW RH REAR WINDOW LH REAR WINDOW	alternates with one of the following: WINDOW NOT SET, WINDOW BLOCKED, ANTI-TRAP OFF, or WINDOW OPEN	refer to the description given for the alternating message
SPEED LIMIT---	you have exceeded your preset speed limit	reduce your speed or cancel the function
SPEED LIMIT OFF	the preset speed limit has been cancelled	
FUEL GAUGE FAULT	as message suggests	seek qualified assistance
TEMP GAUGE FAULT	as message suggests	seek qualified assistance
LH SEAT HEATER	the fuse has blown	fit a new fuse - this message alternates with the fuse number message
RH SEAT HEATER	as above	as above
SUNROOF	the 'ANTI-TRAP' function is overridden (alternates with message ANTI-TRAP OFF)	refer to 'ANTI-TRAP OFF' message
TRANSFER NEUTRAL	the transfer box has moved to the neutral position	remove fuse 11 if transfer neutral is no longer required

# *Message centre*

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<b>Message</b>	<b>Meaning</b>	<b>What to do?</b>
BONNET	opening the hood was the cause of the alarm system triggering	check that the vehicle is secure - message alternates with the ALARM TRIGGERED message
LH FRONT DOOR RH FRONT DOOR LH REAR DOOR RH REAR DOOR	opening this door was the cause of the alarm system triggering	check that the vehicle is secure - message alternates with ALARM TRIGGERED message
IGNITION TAMPER	turning the starter switch on was the cause of the alarm system triggering	as above
TAILGATE	opening the tailgate was the cause of the alarm system triggering	as above

The following are **WARNING** messages;

<b>Message</b>	<b>Meaning</b>	<b>What to do?</b>
TAILGATE OPEN	the tailgate is open	close the tailgate
WINDOW BLOCKED	the anti-trap function has detected an obstruction while the window is being closed	this message will alternate with another one to indicate which window is affected - remove the obstruction
SUNROOF BLOCKED	the anti-trap function has detected an obstruction while the sunroof is being closed	remove the obstruction before trying to reclose the sunroof
ALARM FAULT	the alarm system has a fault	seek qualified assistance
ANTI-TRAP OFF	the anti-trap function for one or more windows or the sunroof is disabled - message alternates with another to indicate which anti-trap function is disabled	ensure that there are no obstructions in the aperture
EAS FAULT	there is a fault with the air suspension system	seek qualified assistance
ABS FAULT	there is a fault with the anti-lock braking system	seek qualified assistance

# Message centre

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Message	Meaning	Action
SLOW: 20 MPH MAX	your road speed is too high for the current ride height	slow down to less than 20 mph
SLOW: 35 MPH MAX	your road speed is too high for the current ride height	slow down to less than 35 mph

## FUSE FAILURE MESSAGES

The following fuse failure messages are INFORMATION CATEGORY 1 messages. (see 'Fuses' for fuse replacement information).

Message	Meaning	Action
FUSE 2 to 22 FAILED	Fuse blown	Fit a new fuse

### Notes:

1. The fault messages for fuses 10 and 20 may also be displayed in conjunction with the messages 'RH SEAT HEATER' and 'LH SEAT HEATER'. This will occur if the seat heater affected by the relevant blown fuse is operated.
2. The fault message for fuse 12 may also be displayed in conjunction with the message 'HEATED REAR WINDOW'. This will occur if the heated rear screen is operated after fuse 12 has blown.
3. In all cases, the fuse failed message will alternate with the appropriate description message e.g. 'FUSE 10 FAILED', followed by 'RH SEAT HEATER'.
4. Fuse 1 covers the instrument pack. If this fuse fails, replace the fuse (no message can be given because the message centre is controlled by the instrument pack).
5. The message centre responds to multiple fuse failures by displaying separate messages, one after the other.

# *Message centre*

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## **BULB FAILURE MESSAGES**

The following are INFORMATION CATEGORY 1 messages. (see '*Bulb replacement*').

<b>Message</b>	<b>Meaning</b>	<b>What to do?</b>
RH DIP BEAM	Bulb failed	Replace bulb
LH DIP BEAM	Bulb failed	Replace bulb
RH MAIN BEAM	One or both bulbs failed	Replace bulb
LH MAIN BEAM	One or both bulbs failed	Replace bulb
RH SIDE LIGHT	Bulb failed	Replace bulb
LH SIDE LIGHT	Bulb failed	Replace bulb
FRONT INDICATOR	One or both bulbs failed	Replace bulb
RH FRONT FOG	Bulb failed	Replace bulb
LH FRONT FOG	Bulb failed	Replace bulb
RH TAIL LIGHT	Bulb failed	Replace bulb
LH TAIL LIGHT	Bulb failed	Replace bulb
RH BRAKE LIGHT	Bulb failed	Replace bulb
LH BRAKE LIGHT	Bulb failed	Replace bulb
REAR INDICATOR	One or both bulbs failed	Replace bulb
RH REAR FOG	Bulb failed	Replace bulb
LH REAR FOG	Bulb failed	Replace bulb
RH REVERSE	Bulb failed	Replace bulb
LH REVERSE	Bulb failed	Replace bulb
NUMBER PLATE	Bulb failed	Replace bulb

The message centre will respond to multiple bulb failures by displaying separate messages, one after the other.

All bulb failure messages will be displayed when the starter switch is turned on or off and when the system affected by the relevant bulb failure is operated. The message 'BULB FAILURE' will alternate with the appropriate bulb description message, e.g. 'BULB FAILURE' followed by 'RH REAR FOG'.

# Message centre

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## MISCELLANEOUS FAULT MESSAGES

The following are INFORMATION CATEGORY 1 messages.

Message	Meaning	What to do?
LOW SCREEN WASH	as message suggests	fill the screenwash reservoir
GEARBOX FAULT	as message suggests	seek qualified assistance
TRACTION FAILURE	as message suggests	seek qualified assistance
LOW BRAKE FLUID	as message suggests	top-up the fluid reservoir and/or seek qualified assistance
ODOMETER ERROR	as message suggests	seek qualified assistance
KEY BATTERY LOW	as message suggests	fit new batteries in the handset

The following are INFORMATION CATEGORY 2 messages.

Message	Meaning	What to do?
MEMORY 1 STORED	you have stored the seat and mirror positions into memory store 1	no action required
MEMORY 2 STORED	you have stored the seat and mirror positions into memory store 2	no action required
REAR WINDOWS ON	you have enabled the rear door window operating switches	no action required
ALARM TRIGGERED	the alarm has been triggered since the ignition was last turned off	no action required - was your vehicle secure when you returned to it?
MIRROR DIP STORE	you have stored the reverse dip positions of the door mirrors in memory	no action required
WINDOW NOT SET	the one-touch and anti-trap functions are not set	set the one-touch and anti-trap functions see ' <i>Electric windows</i> '

# *Message centre*

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<b>Message</b>	<b>Meaning</b>	<b>What to do?</b>
SUNROOF NOT SET	the one-touch and anti-trap functions are not set	set the one-touch and anti-trap functions see <i>'Electric sunroof'</i>
WINDOW SET	you have successfully set the one-touch and anti-trap functions	no action required
SUNROOF SET	you have successfully set the one-touch and anti-trap functions	no action required
TRACTION OVRHEAT	the warning light will flash. Traction control has been disabled to prevent overheating of the system's braking components, and will be re-enabled when the braking components have cooled	prevent wheel spin condition by easing off the throttle
INT LIGHTS OFF	auto function has been turned off	see <i>'Interior equipment'</i>
INT LIGHTS ON	auto function has been turned on	see <i>'Interior equipment'</i>
EAS MANUAL	you have locked the air suspension in ACCESS ride height	CAUTION the vehicle is being driven on its bump stops
ALTERNATOR FAULT	as message suggests	seek qualified assistance
MIRROR DIP ON	the door mirror dip function for driving in reverse gear has been turned on	no action required
MIRROR DIP OFF	the door mirror dip function for driving in reverse gear has been turned off	no action required



# *Message centre*

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The following are INFORMATION CATEGORY 3 messages;

<b>Message</b>	<b>Meaning</b>	<b>What to do?</b>
SUNROOF OPEN	you have removed the starter key and opened the drivers door with the sunroof still open	if you are leaving the vehicle, close the sunroof
RIGHT PARK LIGHT	you have set the right hand front and rear side lights as parking lights	turn the lighting switch off if parking lights are not required
LEFT PARK LIGHT	you have set the left hand front and rear side lights as parking lights	turn the lighting switch off if parking lights are not required
PARK LIGHTS	you have set the right and left hand front and rear side lights as parking lights	turn the lighting switch off if parking lights are not required
MOVEMENT DETECT	the alarm system is sensing movement in the vehicle when you are trying to 'Superlock'	isolate the cause of the movement and try again - do not attempt to 'Superlock' with people or animals inside the vehicle
SELECT NEUTRAL	you have made an attempt to change gear ranges without the gearbox being in NEUTRAL	select neutral
SLOW DOWN	your current road speed is too high to perform a transfer box range change	stop the vehicle before changing range

# Seats

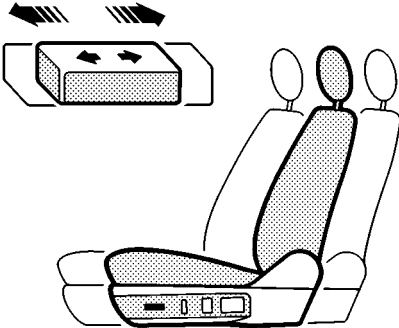
## FRONT SEATS

Seat adjustment is only possible when the starter switch is turned to positions 'I' or 'II', or with a front door open when the switch is at position '0'.

### 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 and **ENSURE** that the adjustable backrests are not reclined by more than 15 degrees when the vehicle is in motion.

The following functions are available:



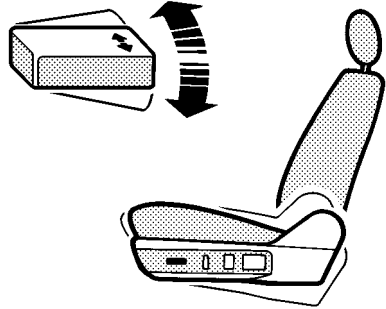
P0265

### Seat forward & rearward

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

### WARNING

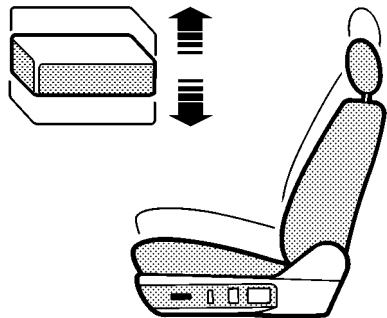
Your vehicle is fitted with side impact airbags, refer to the Airbag SRS section of this handbook before fitting seat covers, or carrying out any repair or retrimming operations to the seat or seat covers.



P0266

### Seat cushion angle

Twist the switch forward or back to tilt the front or rear of the seat cushion to the desired position.

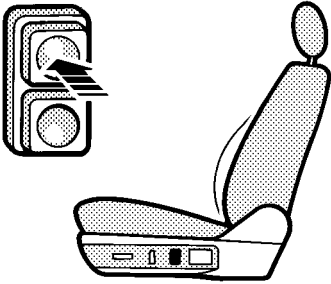


P0267

### Seat cushion height

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

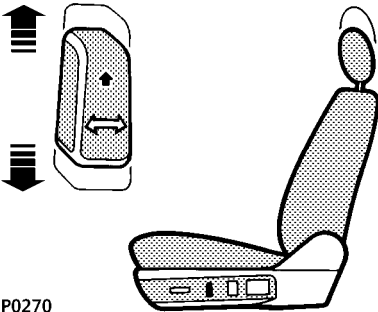
# Seats



P0268

## Lumbar support adjustment

Press the upper button to increase, and the lower button to reduce, lumbar support.



P0270

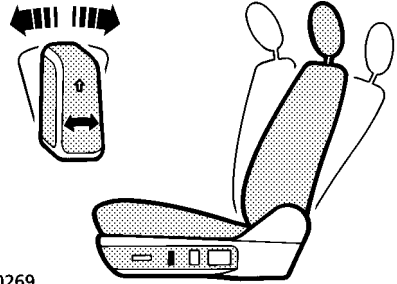
## Head restraint adjustment

Raise or lower the switch, until the head restraint 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 the head restraints removed.*



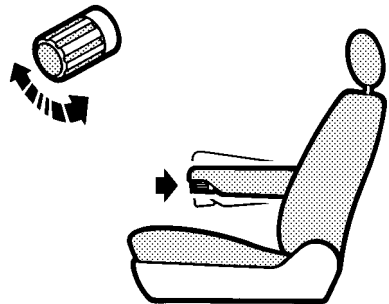
P0269

## Seat back adjustment

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

### WARNING

*DO NOT allow occupants to travel with the seat backs reclined steeply rearwards. Optimum benefit is obtained from the seat belt, with the seat back angle set to 15 degrees from the upright (vertical) position.*

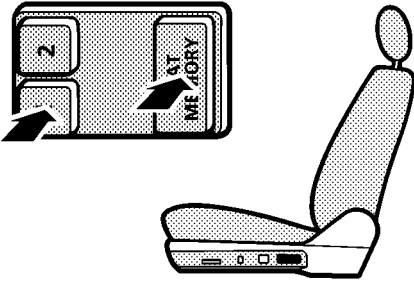


P0264

## Folding armrests

An adjustable folding armrest is fitted to the inboard side of the front seats.

Pull the armrest down into the horizontal position, then turn the knob at the end of the armrest to set the desired angle.



P0271

## DRIVER'S SEAT/MIRRORS MEMORY FACILITY

### WARNING

*Before activating the seat/mirror memory, ensure that the area immediately surrounding the seats is clear of obstructions.*

Your vehicle can memorise two different driver seating and mirror positions. To store the positions in the system memory, the starter switch must be turned to either position 'I' or 'II' and the transmission must NOT be in reverse gear.

Set the driver's seat and both door mirrors to the required positions and store the settings by pressing and holding the SEAT MEMORY switch, together with either switch 1 or 2, for 2 seconds. 'MEMORY 1 STORED' or 'MEMORY 2 STORED' will be displayed on the message centre to confirm the storing action.

To recall your stored position, after the seat or mirrors have been moved by another driver, press and hold the appropriate switch (1 or 2); the seat and mirrors will return to the position stored by that memory switch. Once they have reached their memory positions, a tone will sound to confirm that the operation is complete.

**NOTE:** *If the memory positions are stored whilst the lights are on, the illumination level of the instrument panel will also be stored in the memory.*

## Driver's seat one-touch operation

The one-touch function is operated by briefly pressing the relevant memory switch (1 or 2). The seat will then automatically move to the memory position.

'One touch' operation can be cancelled at any time by pressing either of the memory switches or any of the seat axis switches. Pressing either of the seat memory switches stops all movement immediately; pressing one of the axis switches cancels the memory seat movement, but starts the seat moving in the direction of the switch which is pressed. Release the switch to stop all movement.

- **Automatic transmission:** the one-touch function is NOT available when the engine is running and the gearshift lever is out of 'P' (park).

## Key activated memory seats

The key activated memory seat facility enables the handsets to be used to recall seat and mirror positions when you UNLOCK the doors.

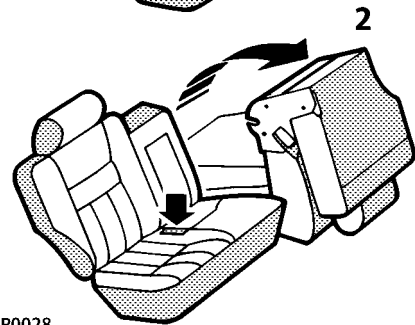
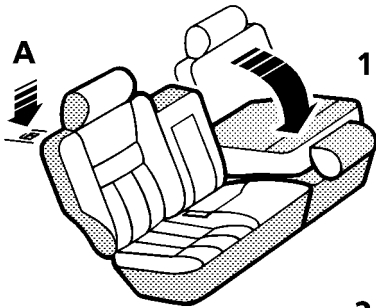
If the vehicle had been superlocked using a handset, then pressing the UNLOCK BUTTON on handset 1 for more than  $1\frac{1}{2}$  seconds, causes the driver's seat and both mirrors to move to the position stored by memory switch 1. Pressing the UNLOCK BUTTON on handset 2 for more than  $1\frac{1}{2}$  seconds, causes the driver's seat and both mirrors to move to the position stored by memory switch 2.

## Passenger seat memories

The operation of the passenger seat memories is the same as that for the driver's, apart from the following:

- One-touch operation is available whenever normal memory operation is available.
- Passenger seat memories do not include the mirror positions or instrument panel illumination levels.
- The message centre will not confirm the storing of a memory position.

# Seats



P0028

## REAR SEAT

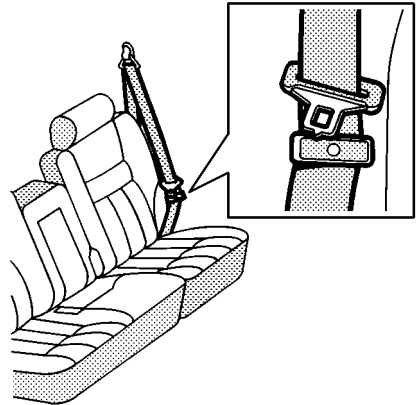
### WARNING

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

Ensure your fingers are clear of the seat latches when folding the rear seats.

### Folding the rear seats

One, or both parts of the split rear seat, can be either partially folded to provide a useful horizontal surface, or fully folded to further increase the rear loadspace.



P0276

Before folding either part of the rear seat, ensure that the outer rear seat belts are correctly stowed in their belt clips (see illustration). To avoid damaging the centre seat belt, roll the buckle neatly and stow it in the space provided at its anchor point in the centre of the rear seat.

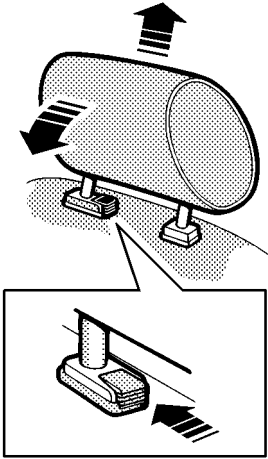
To fold either part of the rear seat, press the appropriate release button 'A', then fold the backrest down to position 1. To further increase the loadspace, fold the backrest and seat base together to position 2.

When returning the rear seat to its normal position, ensure that the backrest is securely latched in place before driving.

**NOTE:** If the seat base is not fully latched in position, it will not be possible to raise the backrest.

### WARNING

When the seat is returned to the upright position the latching mechanism should be visually checked and physically tested, to ensure that the latch is secure before driving.



P0029

### Rear head restraint adjustment

Head restraints are designed to restrain rearward movement of the head in the event of a collision.

Lift to raise the head restraint. Depress the button to lower or remove the head restraint.

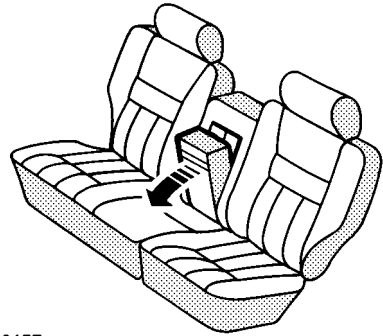
Tilt the angle of the restraint to ensure it is as close to the back of the head as possible.

### WARNING

*Always adjust the height of the head restraint level with the back of the head, not the neck.*

*DO NOT carry passengers with the head restraints removed.*

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P0157

### Rear seat armrest

Pull on the tab at the top of the armrest and fold down to the horizontal position.

# Seat belts

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## SEAT BELT SAFETY

### WARNING

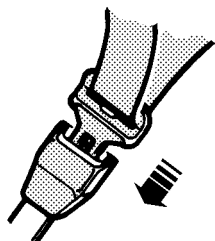
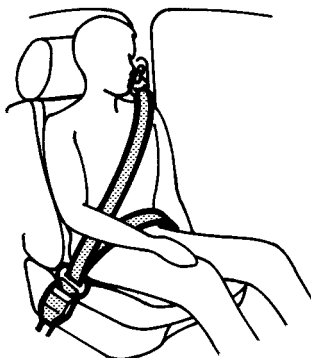
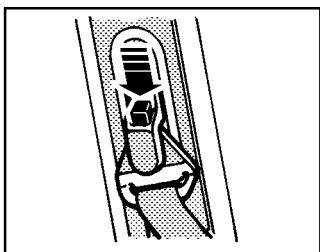
*Seat belts are life saving equipment. In a collision, occupants not wearing a seat belt will be thrown around inside, or possibly thrown out of the vehicle. This is likely to result in more serious injuries than would have been the case had a seat belt been worn. It may even result in loss of life!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



P0041

### Fastening the inertia reel belts

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 (see also 'Seating positions' in the 'Airbag SRS' section of this handbook).

### Upper anchorage adjustment

The height of the seat belt upper anchorage can be adjusted for comfort AND safety. Press and hold the button (arrowed in upper illustration) 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.

For children and young adults where the seat belt cannot be properly positioned, the use of a booster seat appropriate to the age of the child is recommended.

# Seat belts

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P0156

## Lap belts

The rear central seating position is fitted with a lap belt. To adjust, pull the slider (arrowed in illustration) along the belt and feed the webbing through the buckle until the belt is comfortably tight. Insert the metal tongue plate into the lock nearest the centre of the seat, and fit as low as possible on the hips (never on the abdomen).

## 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.*
- *ALWAYS ensure that any adjustable seat back is never reclined more than 15 degrees from the upright position, when the vehicle is in motion. Seat belts are only effective when they are properly positioned on the body - a reclined seat could allow a passenger to slip under either the shoulder or the lap belt.*

# Seat belts

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## 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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## 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

The seat belt pre-tensioners will only be activated once and then **MUST BE REPLACED**. Failure to replace the pre-tensioners will reduce the effectiveness of the vehicle's restraint systems.

After any frontal impact, the seat belts and pre-tensioners must be checked and, if necessary, replaced. Also, after a period of 15 years, the pre-tensioners must be examined and replaced.

In the interests of safety, it is recommended that removal or replacement of the front seats, seat belts and pre-tensioners should only be carried out by a Land Rover dealer.

### Disposing of vehicles

If you sell your vehicle, be sure to inform the new owner that the vehicle is fitted with pre-tensioners, and make the new owner aware that the pre-tensioners must be examined and replaced by qualified personnel after a period of 15 years.

If your vehicle is to be scrapped, unactivated pre-tensioners are potentially very dangerous and must be safely deployed in a controlled environment by qualified personnel, before a vehicle is scrapped.

# Seat belts

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## CHILD RESTRAINTS FOR SMALL CHILDREN AND BABIES

Children are more likely to receive injuries from inflating airbags than taller occupants (see 'Airbag SRS'). For this reason, it is strongly recommended that infants and children too small for adult seat belts should be restrained in the rear of the vehicle 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 infant and child restraint systems are designed to be secured in vehicle seats by means of a lap belt or the lap portion of a lap/shoulder belt. Always ensure that the manufacturer's fitting instructions are followed exactly.

A range of safety seats, approved for use in your vehicle, is available from your Land Rover dealer.

**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.*

## WARNING

- **UNDER NO CIRCUMSTANCES SHOULD A REARWARD FACING CHILD SEAT BE INSTALLED IN ANY FRONT PASSENGER SEAT POSITION.**
  - *Accident statistics show that children are safer when properly restrained in the rear seating positions than in the front.*
  - *Children could be endangered in a crash if their child restraints are not properly secured.*
  - *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.*
  - *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 locking mechanism**

The seat belts fitted to the front passenger seat and two outer rear 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. Ensure that the child restraint is held securely in place; if not, unlatch the belt and repeat steps 1 to 6.

The centre rear seating position is fitted with a lap belt which can be manually tightened to secure the infant or child restraint system. Older children should use the lap/shoulder belt fitted to the outer seating positions.

# 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.

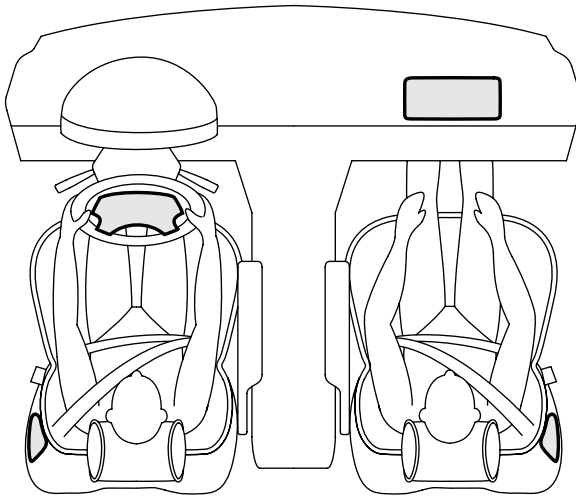
# *SRS/Airbag*

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The airbag SRS (supplementary restraint system) incorporates front and side airbags for both the driver and front seat passenger.

Provided the front seat occupants are correctly seated with seat belts properly worn, the airbags provide additional protection to the chest and facial areas in the event of the vehicle receiving a severe frontal impact, and to the side of the body facing the impact, if a severe side collision occurs.

The front airbags are located in the centre pad of the steering wheel and in the fascia panel above the glovebox. Side airbags are positioned in the backrest padding on the outward side of both front seats (see illustration).



PO407



# 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.*
- 

## 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 effects 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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# SRS/Airbag

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To ensure correct deployment of the airbags, it is essential that obstructions are not allowed to intervene between an airbag and the occupant. The following are examples of the type of obstructions that could either, impede correct operation of the airbags, or jeopardise personal safety in the event of an airbag deployment:

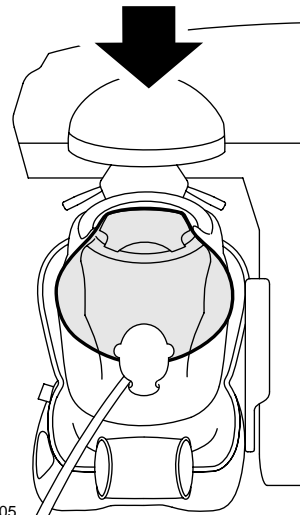
- Accessories attached to an airbag cover.
- Items of hand luggage or other objects placed on an airbag cover.
- Feet, knees or any other part of the anatomy in contact with, or in close proximity to, a front airbag cover.
- Head, arms or any part of the anatomy in contact with, or in close proximity to, a side airbag.
- Items of clothing or cushions draped over the part of a front seat containing the airbag.
- Non-approved, seat covers fitted over a front seat (in particular, be aware that seat covers approved for use with Range Rover vehicles prior to the introduction of side airbags will NOT be suitable for vehicles equipped with side airbags! If in doubt, seek advice from a Land Rover dealer).

## How the airbag SRS works

In the event of a collision, the airbag control unit monitors the rate of deceleration induced by the collision to determine whether the airbags should be deployed.

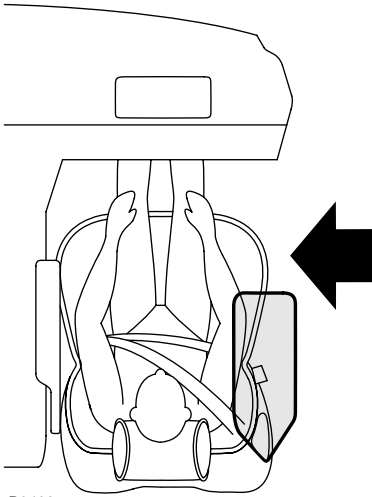
In the case of a severe frontal collision, both front airbags will be deployed. In the case of a severe side collision, only the airbag on the impact side of the vehicle will inflate.

However, there may also be impact conditions whereby one side and both front airbags deploy at the same time, or where front and side airbags respond separately as a result of a secondary impact occurring after the initial collision has taken place.



P0405

# SRS/Airbag



Airbag inflation is virtually instantaneous and occurs with considerable force accompanied by a loud noise. The inflated airbag, together with the seat belt restraint system, limit the occupant's movement, thereby reducing the risk of injury to the head and upper torso.

When an airbag inflates, a fine powder is released. This is not an indication of a malfunction, however the powder may cause irritation to the skin and should be thoroughly flushed from the eyes and any cuts or abrasions of the skin. After inflation, an airbag deflates immediately. This provides a gradual cushioning effect for the occupant and also ensures that the driver's forward vision is not impaired.

## IMPORTANT INFORMATION

The airbag SRS is not designed to operate as a result of rear collisions, minor frontal or minor side impacts, or if the vehicle overturns; nor will it operate as a result of heavy braking or driving over bumps and potholes.

Operation of the airbag SRS is dependent entirely on the acceleration or deceleration forces that are applied to the vehicle's passenger compartment as a result of a collision. The circumstances affecting different collisions (vehicle speed, angle of impact, type and size of object hit for example), vary considerably and will affect the rate of acceleration or deceleration accordingly.

It follows, therefore, that in some instances, significant superficial damage can occur to the vehicle without the airbags deploying and, conversely, that in other circumstances, the airbags will deploy even though the vehicle has experienced relatively small amounts of damage.

**Airbags will only deploy when they are required to supplement the restraining force of the seat belts.**

## WARNING

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

## Side airbags

Side airbags are designed to protect the thorax region of the torso and will only deploy in the event of a severe side impact. They will NOT inflate as a result of frontal or rear impacts.

In the event of a severe side collision, the airbag on the impact side of the vehicle breaks through the seat covering, rapidly inflating to form a cushion between the occupant and the side of the vehicle.

Note that a part of the outer side of the seat trim (identified by the woven 'airbag' label) is manufactured with a specially constructed seam which enables the airbag to break through. The manufacture and materials of the seat are critical to the performance of the airbag. For this reason, non-approved seat covers must NEVER be fitted, and it is recommended that any repair or replacement to the front seats be carried out by a Land Rover dealer (see 'Service information').

## Airbag SRS warning light

A warning light, mounted on the instrument pack, will alert you to any malfunction which might prevent the airbag SRS from operating correctly in the event of an impact. The system should always be checked by a dealer if any of the following symptoms occur:

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

**NOTE:** After the starter switch is turned to position 'II', the system's diagnostic control unit checks its own memory and the warning light bulb for faults. If a fault is found, the warning light will illuminate.

## Seating positions

In order to provide optimum protection in the event of a severe vehicle impact, it is necessary for the airbags to deploy with considerable speed.

An inflating airbag can cause facial abrasions and other injuries if the occupant is too close to the airbag at the time of its deployment.

## WARNING

*To minimise the risk of accidental injury from inflating airbags, seat belts should be correctly worn at all times. In addition, both driver and front seat passenger should adjust the seat to provide the maximum practical distance from the front airbags, and also ensure that a gap is maintained between the upper torso and the side of the vehicle to enable unobstructed inflation of the side airbags.*

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## CHILD SEATS

Children aged 12 years and under are more likely to receive injuries from inflating airbags than adult occupants. For this reason, it is recommended that children should always be seated in the rear of the vehicle 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 SEAT LOCATION. If the passenger airbag inflates, it could impact with the child restraint causing serious injury to the child.**

**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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## Service information

After a period of time (10 years for front airbags, and 15 years for side airbags) from the original date of registration (or the installation date of a replacement airbag module), some components will need to be replaced. Note the 'airbag module replacement date' shown on page 2 of the Service Portfolio book. To ensure absolute safety, it is recommended that this work is carried out by a Land Rover dealer who should stamp and sign the appropriate page of the Service Portfolio book once the work is complete.

In addition, ALWAYS contact your dealer if:

- an airbag inflates
- the front or side of the vehicle is damaged, even if the corresponding airbag has not inflated.
- any part of an airbag module cover shows signs of deterioration or damage.

### WARNING

**DO NOT attempt to service repair, replace, modify or tamper with any part of the airbag SRS, or wiring in the vicinity of an airbag SRS component; this could cause the system to activate, resulting in personal injury.**

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## IMPORTANT INFORMATION

The components that make up the airbag SRS are sensitive to electrical or physical interference, either of which could easily damage the system and cause inadvertent operation or a malfunction of any 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 components (yellow wiring harness), including: the steering wheel, steering column, front seats, instrument and fascia panels.
- Installation of electronic equipment such as a mobile telephone, two-way radio or in-car entertainment system.
- Attachment of accessories to the front or side of the vehicle.
- Modification to the front or side of the vehicle.
- Removal or replacement or retrimming of a front seat or seat cover.

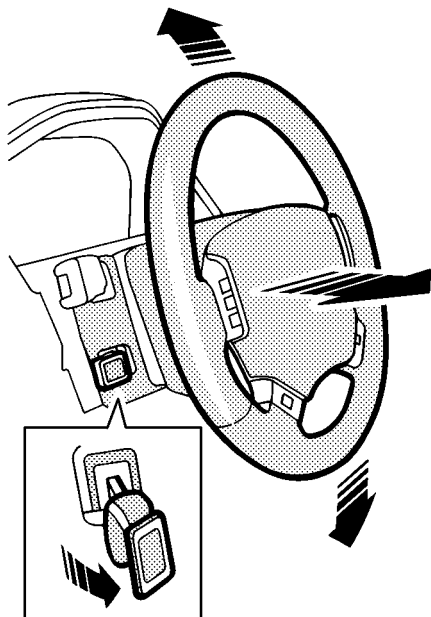
## Disposing of vehicles

If you sell your vehicle, be sure to inform the new owner that the vehicle has an airbag SRS, and make the new owner aware of the airbag module replacement date shown on page 2 of the Service Portfolio book.

If the vehicle is to be scrapped: uninflated airbags are potentially very dangerous and must be safely deployed in a controlled environment by qualified personnel BEFORE a vehicle is scrapped.

# Steering column

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P0096

## WARNING

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

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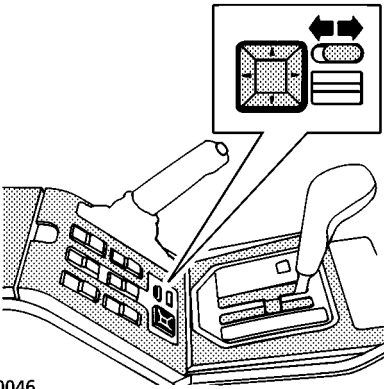
## STEERING COLUMN ADJUSTMENT

Adjust the angle and height of the steering column to suit your driving position:

1. Fully withdraw the lever and then pull it towards the steering wheel rim.
2. Keeping the lever in this position, tilt the steering column up or down to the required angle and pull or push to extend or retract the steering wheel.
3. Release the lever to lock the column in position once a comfortable driving position has been achieved.

# Door mirrors

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P0046

## ELECTRICALLY-OPERATED DOOR MIRRORS

1. Slide the switch left or right to select the appropriate mirror.
2. With the starter switch turned to position 'I' or 'II', press the appropriate side of the rocker switch to tilt the mirror glass up/down/left or right.

**NOTE:** The mirror positions can be set in conjunction with the driver's seat positions (see 'Seats').

**NOTE:** Door mirrors have integral heating elements which disperse ice or mist from the glass. This function operates continuously while the engine is running.

## Automatic dipping for reverse gear selection

The mirror memory has a pre-stored function which causes the mirrors to dip automatically whenever reverse gear is selected. If necessary the 'dipped' mirror positions can be altered as follows:

1. Turn the starter switch to position 'I' or 'II' (do not start the engine).
2. Select reverse gear.
3. Adjust either or both mirrors to the desired positions.
4. Press the seat MEMORY STORE switch together with either switch 1 or 2 (whichever corresponds with the driver's seat memory) for 2 seconds (the message centre displays 'MIRROR DIP STORE').

**NOTE:** The right-hand exterior driving mirror is convex and objects in this mirror are closer than they appear.



# Door mirrors

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## ***To disable the dip function:***

Turn the starter switch to position 'I' or 'II' (do not start the engine) and select reverse gear.

Press and hold the seat MEMORY STORE switch for 2 seconds, the message centre displays 'MIRROR DIP OFF' and a tone sounds.

## ***To restore the dip function:***

Turn the starter switch to position 'I' or 'II' (do not start the engine), and select reverse gear.

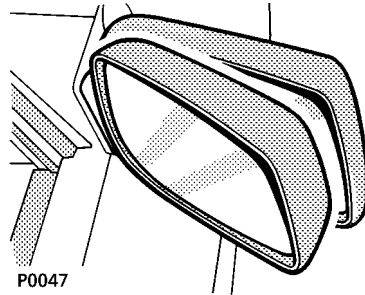
Press and hold the MEMORY STORE switch for 2 seconds and the message centre briefly displays the message 'MIRROR DIP ON' (returning the mirrors to either the factory or your own pre-set positions).

**NOTE:** *The mirror dip function can be individually disabled or restored for each seat memory position (1 and 2). Select the appropriate memory before disabling or restoring the function.*

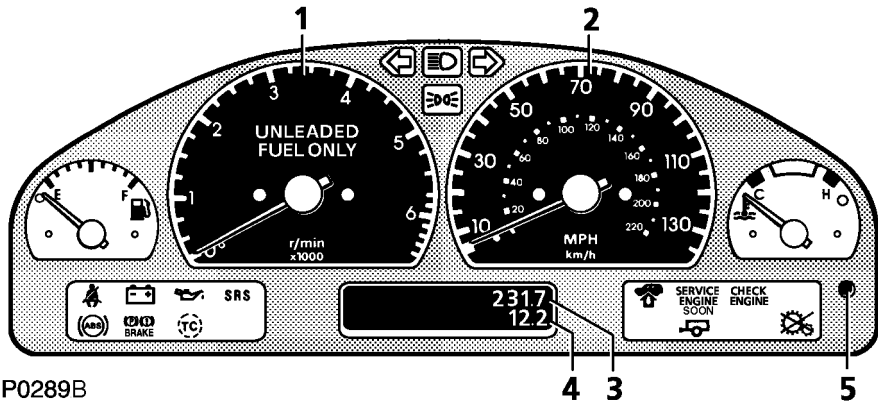
## **Manual adjustment**

Each door mirror assembly can be moved through four positions.

The fully forward and rearward positions, enable the mirror body to fold almost flat against the side of the vehicle and are useful for negotiating narrow openings. The two intermediate positions, enable the mirror body to be adjusted to suit the differing requirements of either the passenger or driver's side of the vehicle - the forward intermediate position should be used for the driver's side, and the rearward intermediate position used for the passenger side.



# Instruments



P0289B

## 1. Tachometer

Indicates engine speed in revolutions per minute.

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

Engine speed restriction limit: 5,500 rpm

## 2. Speedometer

Indicates road speed in miles and/or kilometres per hour.

## 3. Total distance recorder

Indicates the total distance travelled by the vehicle. (Turn the starter switch to position II to illuminate display).

## 4. Trip recorder (trip 1)

Records individual journey distances (see also 'Trip computer'). (Turn the starter switch to position II to illuminate display).

## 5. Trip recorder reset button (trip 1)

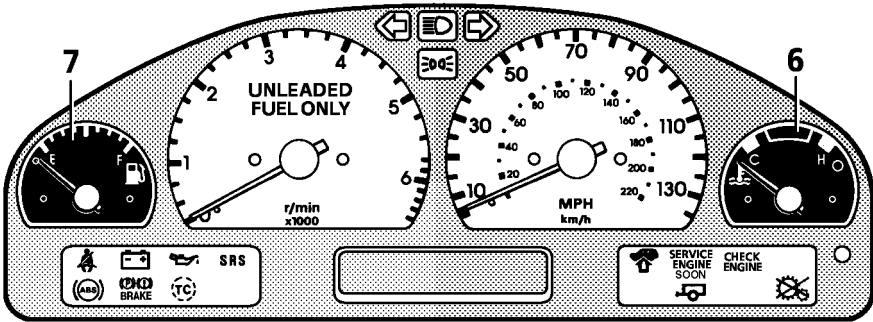
Press to return the trip recorder to zero.

### WARNING

*DO NOT attempt to open the instrument pack or change the instrument bulbs - warranty cover may be invalid if the pack has been tampered with.*

# Instruments

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P0290B

## 6. Temperature gauge

Once the engine coolant has reached its normal operating temperature, the pointer should be almost vertical (the precise position will vary depending on the ambient temperature). If the pointer moves towards the RED segment, a RED warning light in the temperature gauge illuminates. Should the pointer move INTO the red segment, stop the vehicle as soon as safety permits and seek qualified assistance before continuing.

## 7. 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 changes to reflect the increase of fuel in the tank.

**NOTE:** The gauge may not indicate fuel level increases of 4 US gallons (15 litres) or less.

When the fuel remaining in the tank is a minimum of 2.4 gallons (9 litres), the AMBER warning light will illuminate. If the light illuminates, refuel at the first opportunity.

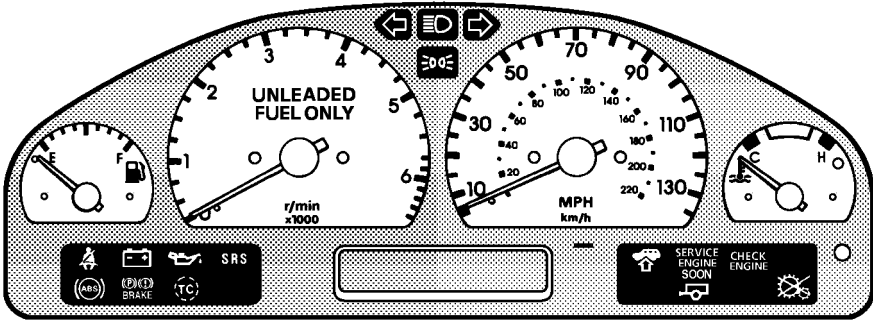
Fuel tank capacity is approximately 25 usable US gallons (93 litres).

### WARNING

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

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# Warning lights



P0291B

Some warning lights may also be accompanied by a message which will appear in the message centre display on the instrument pack. (see 'Message centre' for details).

The warning lights are colour coded as follows:

GREEN & BLUE lights indicate that a unit is operating.

AMBER & YELLOW lights are cautions.

RED lights are warnings.

## WARNING

**DO NOT drive if a RED warning light remains on once the engine is running or illuminates whilst driving.**



**Parking brake/brake system - RED.**

Illuminates for 3 seconds as a bulb check when the starter switch is turned to position 'II' and also illuminates when the parking brake is applied and the starter switch is in position 'II'.

The light should extinguish when the parking brake is fully released or after the bulb check if the parking brake is off. If the light illuminates whilst driving, a fault is indicated. Stop the vehicle as soon as safety permits and seek qualified assistance before continuing.

**NOTE:** *If the vehicle has been standing for some time, it may take up to 40 seconds before the light extinguishes (in this case, ABS and TC warning lights will also be illuminated).*

# Warning lights

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## Seatbelt - RED.

The light illuminates for 6 seconds when the starter switch is turned to position 'II'. ALWAYS fasten your seat belt BEFORE driving.



## Battery charging - RED.

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



## Trailer direction indicators - GREEN.

This light is only operative when a trailer is connected to the vehicle via a multi-pin socket. The light flashes in conjunction with the vehicle direction indicators, thus confirming that the trailer indicator lights are operating correctly. In the event of the failure of a trailer direction indicator light, the warning light will not illuminate.



## Low engine oil pressure - RED.

Illuminates as a bulb check when the starter switch is turned to position 'II', and extinguishes when the engine is running. If it remains on when the engine is started, or comes on during a journey, stop the vehicle as soon as safety permits and seek qualified assistance before continuing. Always check the oil level when this light illuminates.

**NOTE:** At very low ambient temperatures, the light may take several seconds to extinguish.



## Transfer gearbox - AMBER.

The light starts flashing when the selector lever is moved across the 'H-gate', and continues flashing until the transfer gearbox has completed a change from one range of gears to another.

DO NOT release the brakes or move the selector lever out of 'N' into one of the drive positions until the light stops flashing.



## ABS - YELLOW.

This light illuminates for approximately 1 second when the starter switch is turned to position 'II', and then briefly extinguishes before coming on again. The warning light will then remain illuminated until the vehicle is driven above approximately 5 mph (7 km/h). If the light does not extinguish and then illuminate again, then a fault has occurred with the ABS system and you should consult your Land Rover dealer at the earliest opportunity.

If the light remains illuminated once a speed of 5 mph (7km/h) has been reached, or subsequently illuminates whilst driving, a fault has been detected by the self-monitoring system. The message centre will display 'ABS FAULT'; this means that full ABS control may not be available, and you should consult your dealer at the earliest opportunity.



## Airbag SRS - RED.

The light illuminates when the starter switch is turned to position 'II', and extinguishes after approximately 8 seconds. If the light illuminates at any other time, a fault is indicated (see 'Airbag SRS'). Seek qualified assistance urgently.

# Warning lights

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## **Traction control (TC) - AMBER.**

Illuminates for three seconds after the starter switch is turned

on and the ABS and traction control systems have completed their self-checks.

Whilst driving, the TC light will illuminate (for a minimum of two seconds), whenever traction control is active; the light extinguishing as soon as traction control ceases. The light flashing (for at least ten seconds), indicates that the system has been over-used; it will be available again once the system components have cooled.

If the light illuminates continuously, a fault with the system is indicated; seek qualified assistance.



## **Direction indicators - GREEN.**

The left or right warning light flashes in time with the

corresponding left or right direction indicators, whenever they are operated. A warning light flashing at twice the normal speed, indicates that a direction indicator bulb has failed (the message centre will indicate which bulb is faulty). If a trailer is connected and a rear indicator bulb fails, then the message will not be displayed. When the hazard switch is pressed, both warning lights will illuminate in conjunction with the indicator lights.



## **Headlight high beam - BLUE.**

This light illuminates whenever the high beam headlights are on.



## **Lights on - GREEN.**

This light illuminates when the sidelights and/or headlights are switched on. It will not illuminate when parking lights or headlight delay are in operation.



## **Air suspension - AMBER.**

Illuminates as a bulb check when the starter switch is turned on and remains illuminated until two seconds after the engine has started.

In addition, the light will illuminate whilst driving whenever 'High' or 'Extended' ride heights are selected, and also if a fault with the air suspension system is detected.

# Warning lights



## Check engine - 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 'Check engine' 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 'Check engine' indicator will illuminate.

### If 'Check engine' 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.

**NOTE:** An incorrectly fitted fuel filler cap may cause the Check Engine light to illuminate.

### If 'Check engine' flashes and/or the vehicle does not drive normally:

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



## Service engine soon - AMBER.

Illuminates briefly (for 3 seconds) as a bulb check when the starter switch is turned to position 'II'.

Illuminates continuously when the vehicle reaches 82,500 miles (130,000 km) approx. When this occurs, take the vehicle to a Land Rover dealer for a special emission related service to be carried out.

## AUDIBLE WARNINGS

### Starter key warning.

An audible warning sounds if the key is left in the starter switch when the driver's door is opened, if the engine is not running. It will cease, as soon as the key is removed or the driver's door is closed.

This is accompanied by the message centre displaying 'IGNITION KEY IN'.

### Lights on warning.

An audible warning (3 beeps) sounds if the driver's door is opened whilst the headlights or park lights are turned on and after the key is removed from the starter switch. It will cease as soon as the lights are switched off, or when the driver's door is closed. The warning is accompanied by the message centre displaying 'LIGHTS ON' or 'PARK LIGHTS'.

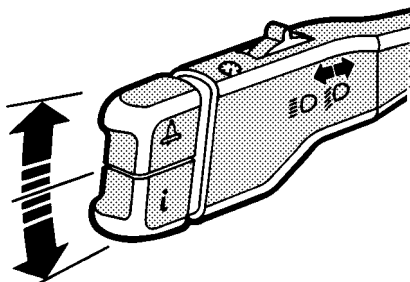
### Driver's seat belt reminder.

A continuous audible warning sounds and the message centre displays 'SEAT BELT PLEASE' for a 6 second period, or until the seat belt is latched.

### High/low range change warning

An audible warning will sound whilst a change from one gear range to another is attempted. The warning will cease, once the change is complete or cancelled.

# Lights & indicators

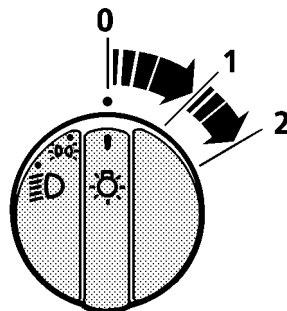


P0067

## 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.



P0149

## LIGHTING SWITCH



**Side, tail and instrument panel lights**

Insert the starter key and turn the lighting switch to position '1'.



**Headlights**

Turn the lighting switch to position '2'.

## Headlight courtesy delay

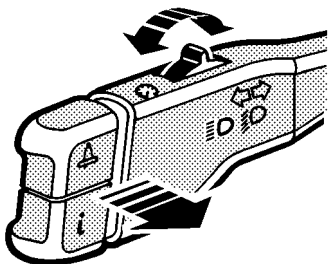
To illuminate the drive way after leaving the vehicle, the headlight courtesy delay can be operated, as follows:

1. Turn the lighting selector switch to position '2' and the starter switch to position 'II'.
2. Turn the starter switch back to position '0', remove the key, and turn the lighting switch from position '2' to '0'.
3. The headlights will remain on for approximately 25 seconds and the message centre will display 'HEADLIGHT DELAY'.



# Lights & indicators

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P0071

## Headlight main and dipped beams

Pull the lever fully towards the steering wheel to change from dipped beam to main beam (BLUE warning light on the instrument panel glows when the headlights are on main beam).

To flash the headlights, pull the lever part-way toward the steering wheel (to the first position) and release.

## Parking lights

With the lighting switch in position '1' and the starter key removed, move the direction indicator lever fully DOWN to illuminate the left hand side and tail lights, or UP to illuminate the right hand side and tail lights (lights on both sides will remain on if the lever is in its CENTRAL position). To switch off, turn the lighting switch to position '0'.

## Daylight running lights (Canada only)

With the lighting switch off, the daylight running light system illuminates the headlight low beams, as soon as engine speed exceeds 500 rpm. The instrument panel illumination remains off.

The daytime running lights will extinguish when the parking brake is applied and also when 'P' (park) is selected.

## Instrument dimmer control

Rotate the rocker switch to the left or right to reduce or increase the intensity of instrument panel illumination. The dimmer also controls the illumination level of switches and (where fitted) the intensity of the air conditioning LCD display.

The instrument dimmer also controls the intensity of the message centre display. However, note that if the illumination level is set to its maximum (rotate rocker switch to the right and hold), then a momentary press of the rocker switch to the left will dim the message centre display, but leave the instrument illumination at maximum.

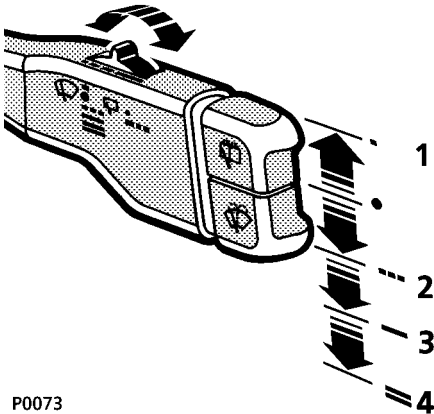
**NOTE:** *If the side lights are switched on when a driver's seat position is stored in the seat memory, then the illumination level of the instrument panel will be stored at the same time.*

# Wipers & washers

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## WINDSCREEN WIPERS

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



P0073

## WARNING

*To prevent possible overload damage to the linkage or the wiper motors, in either freezing or extremely hot conditions, care must be taken to ensure that the wiper blades are not adhering to the glass before operating the wipers.*

---

## FRONT SCREEN

To operate the front screen wipers only, the lever must be pushed away from the steering wheel.

### Single wipe

Raise the lever to position '1' and release.

### Intermittent wipe

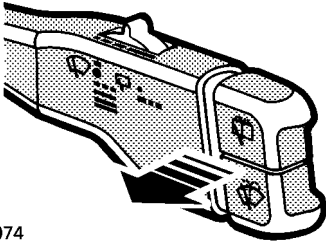
Lower the lever to position '2' to engage intermittent wipe. Rotate the thumb wheel left or right, to reduce or increase the delay between wipes.

### Normal/fast speed wipe

Lower the lever to position '3' for normal, and to position '4' for fast, continuous wipe speed.

# Wipers & washers

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P0074

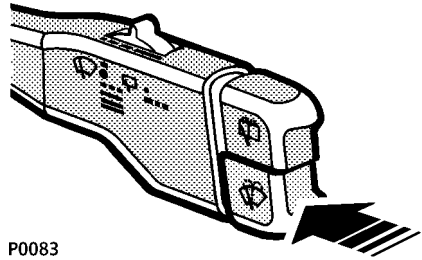
## REAR SCREEN

Pull the lever towards the steering wheel for rear screen intermittent wipe.

All front wiper functions are also available in this position, using the four positions described on the previous page.

If the front wipers are operating in intermittent mode, then the rear wiper will wipe on every second operation of the front wipers. If the front wipers are operating in continuous mode, then the thumbwheel controls the delay of the rear wiper.

## WINDSCREEN WASHER



P0083

## Front screen wash/wipe

Press and hold the lower button to operate the front screen wash/wipe. The washers will continue operating for as long as the button is pressed. After releasing the button, the wipers will complete 3 full wipes before either parking or continuing with any other selected wiper function.

A momentary press on the lower button, will initiate a programmed wash/wipe. The washers will operate briefly and then stop automatically, the wipers then completing 3 full wipes before either parking or continuing with another function. Moving the lever to any other front wipe position during the programmed wash/wipe, will cancel the remainder of the programme.

**NOTE:** If the wiper system senses a low fluid level in the washer reservoir, then the programmed wash/wipe will only operate for as long as the button is pressed, i.e. there will be no timed wash and no additional 3 wipes.

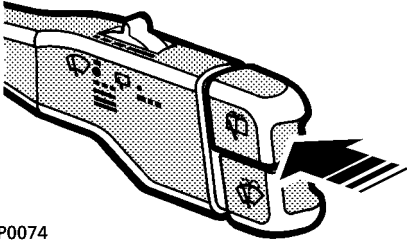
# Wipers & washers

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## Washer jets

To adjust the front screen washer jets, insert a needle into the jet orifice and use it to position the jet so that the spray is directed towards the horizontal centre line of the windscreen.

If the jets become obstructed, a needle or strand of wire can be used to clear the blockage.



P0074

## Rear screen wash/wipe

Press and hold the upper button to operate the rear screen wash/wipe. The washer will continue operating for as long as the button is pressed. After releasing the button, the wiper will complete 3 full wipes before either parking or continuing with any other selected function.

A momentary press on the upper button will initiate a programmed wash/wipe. The washer will operate briefly and then stop automatically, the wiper then completing 3 full wipes before either parking or continuing with another function. Moving the lever to any other rear wipe position during the programmed wash/wipe will cancel the remainder of the programme.

The rear wiper will operate automatically whenever reverse gear is selected, provided the front screen wipers are operating in either intermittent, or continuous mode.

## HEADLIGHT WASH/WIPE

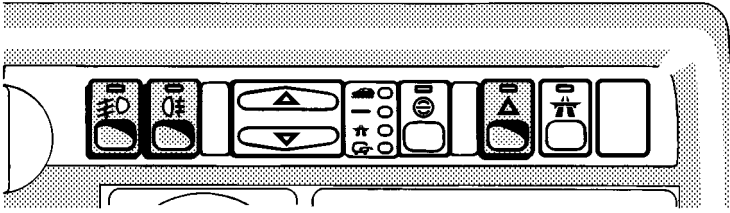
Headlight wash/wipe is controlled by a timer unit, and operates automatically on every second wash of the front screenwash system when the headlights are switched on.

**NOTE:** If the wiper system registers a low screen wash fluid level the headlight wash/wipe will not operate at all.

## LOW SCREEN WASH FLUID

When the screen wash level is low, the message centre displays 'LOW SCREEN WASH'. The message appears whenever the front or rear wash/wipe systems are used and is also activated whenever the starter switch is turned to, or from, position 'II'. To reset the system the reservoir must be filled when the starter switch is turned off. (See 'Windscreen washer top-up')

# Switches



P0292

## DASHBOARD CENTRE CONSOLE SWITCHES

The following switches are located on the centre console between the driver and front seat passenger:



### Front fog lights

Press to switch on and off; the switch illuminates while the lights are switched on.

The lights operate only with the starter switch in position 'II' and the headlights switched on (low beam only). Note that the fog lights extinguish automatically if the headlights are changed to main beam, and will have to be re-selected if the headlights or the starter switch have been turned off.

DO remember to switch off as soon as visibility is clear.



### Rear fog guard lights

Press to switch on and off; the switch illuminates while the lights are switched on. The rear fog guard lights will operate only when the starter switch is in position 'II', and when the headlights are switched on.

Note that the fog guard lights will have to be reselected if the headlights have been turned off.

**REMEMBER:** In clear conditions rear fog guard lights can dazzle other road users. Use only when visibility is severely restricted;



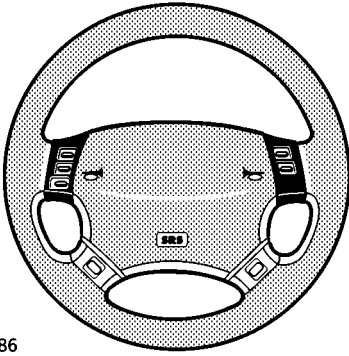
### Hazard warning lights

Press to operate; all the direction indicators, including those fitted to a trailer, will flash in conjunction with each other.

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.

**NOTE:** The functions of the electronic air suspension system switches are described under 'Air suspension'. The cruise control master switch is described under 'Cruise control.'

# Switches



P0086

## STEERING WHEEL SWITCHES

The following switches are located on the steering wheel:

### Cruise control

The functions of the cruise control switches 'SET+' and 'RES' are described under '*Cruise control*'.

### Mode switch

**Mode** Press the MODE switch to select either: radio, tape, or CD player (see '*In-car entertainment*').



### Seek/search forward

Press to select the NEXT preset station on the selected waveband. When tape or CD player are being used, seek/search is used to select the next track.



### Seek/search backward

Press to select the PREVIOUS preset station on the selected waveband. When tape or CD player are being used, seek/search is used to select the previous track.



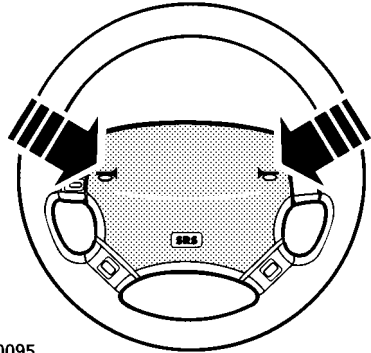
### Volume up

Press the positive switch to increase the volume.



### Volume down

Press the negative switch to decrease the volume.

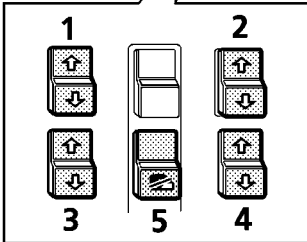
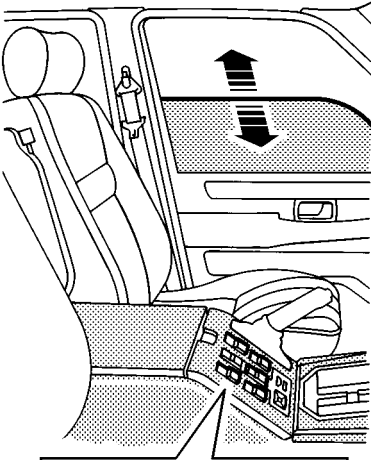


P0095

### Horn

To operate the horn press one of the horn symbols on the edge of the steering wheel pad.

# Electric windows



P0098

The switches on the centre console operate the following windows:

1. Right hand front window.
2. Left hand front window.
3. Right hand rear window.
4. Left hand rear window.
5. Switch to isolate rear door window switches (when carrying children).

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

## Operating the windows

The electric windows can be operated when the starter switch is in position 'I' or 'II' and for up to 45 seconds after the starter switch is turned off (provided neither front door is opened in the meantime).

**NOTE:** Only manual mode (not 'one-touch') is available for the 45 second period(s).

Press and hold the lower part of a switch to lower and the upper part to raise the window. The window will stop moving as soon as the switch is released.

## WARNING

*Accidental closing of a window on fingers, hands or any vulnerable part of the body, can result in serious personal injury.*

*Always observe the following precautions:*

- **ISOLATE** the rear window switches when carrying children.
- **ENSURE** children are kept clear when raising or lowering a window.
- **NEVER** leave children alone in the vehicle.
- **ENSURE** that all adult passengers are fully familiar with the controls and the potential dangers of electrically-operated windows.
- **ENSURE** the 'anti-trap' function is activated (see overleaf).

# *Electric windows*

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## **'One-touch' up & down**

By briefly pressing and then releasing a switch (within  $\frac{1}{2}$  second), a window can be opened or closed at a single touch. Window movement can be stopped at any time by pressing the opposing side of the switch.

## **'Anti-trap' function**

The 'anti-trap' function is a safety feature which prevents a window from closing when an obstruction is sensed ('WINDOW BLOCKED' appears in the message centre). It is recommended that this is set at all times, but particularly when carrying children.

**NOTE:** *If the 'one-touch' and 'anti-trap' functions have not been set, an audible warning sounds and 'WINDOW NOT SET' is displayed in the message centre whenever a window is closed and also whenever the starter switch is turned on or off.*

## **Setting the 'one-touch' & 'anti-trap' functions**

If the battery has been disconnected, it will be necessary to reset the 'one-touch' and 'anti-trap' functions on each window, using the following procedure:

1. FULLY open and close each window in one continuous operation (note that as the window is closing, an audible warning sounds and 'WINDOW NOT SET' is displayed in the message centre).
2. Once the window has been fully opened and closed, an audible warning sounds and 'WINDOW SET' (together with a window identifier message) is displayed in the message centre.

The 'one-touch' and 'anti-trap' functions will now be operational.

**NOTE:** *The 'one-touch' up function is available on front windows only.*



# *Electric windows*

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## **Overriding the 'anti-trap' function**

Under certain conditions, you may wish to override the 'anti-trap' function. If, for example, you attempt to operate the windows with the operating mechanism partially frozen, the 'anti-trap' function may falsely sense a trap situation and fail to close the window (always clear any ice from the window to prevent overloading the operating mechanism).

The 'anti-trap' function can be overridden as follows:

1. Using the centre console switches only, press and hold the upper part of the appropriate window operating switch within 10 seconds of the window backing off (after it has falsely sensed a trap situation).
2. Continue to hold the switch until the window is either closed or has reached the desired position (note that as the window is closing, an audible warning sounds and 'ANTI-TRAP OFF' is displayed in the message centre).

**NOTE:** *The 'anti-trap' function will be operational again, as soon as the window operating switch is released.*

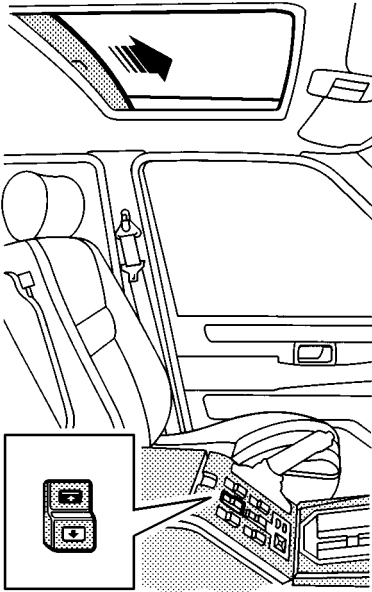
## **Rear window isolation switch**

Press the bottom of the switch to isolate the rear window controls (a tone will sound and the message centre displays 'REAR WINDOWS OFF'); press the top of the switch to restore independent control.

Always isolate the rear window switches when carrying children.

# Electric sunroof

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P0100

The sunroof can be operated when the starter switch is in position 'I' or 'II' and for up to 45 seconds after the starter switch is turned off (provided neither front door is opened in the meantime).

**NOTE:** Only manual mode (not 'one-touch') is available for the 45 second period(s).

**NOTE:** The sunroof blind can be opened and closed manually, but will retract automatically when the sunroof is opened.

The sunroof opens and closes in two separate phases as follows:

## To TILT the roof:

With the sunroof closed, press and hold the lower part of the switch, releasing when the sunroof is at the desired angle. Press and hold the upper part of the switch to close the sunroof.

## To OPEN the roof:

Press and hold the upper part of the switch, releasing when the sunroof is in the desired position. Press and hold the lower part of the switch to close the sunroof.

## WARNING

*Accidental closing 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** that passengers are kept clear when closing the sunroof.
- **NEVER** leave children alone in the vehicle.
- **ENSURE** that all adult passengers are fully 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 while the vehicle is moving.
- **ENSURE** the 'anti-trap' function is activated whenever possible.
- **DO NOT** operate the sunroof in freezing conditions or when the roof panel is covered with ice or snow.

# Electric sunroof

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## 'One-touch' operation

Briefly press and then release the upper part of the switch (within  $\frac{1}{2}$  second): The sunroof will open to a pre-set position which minimises air turbulence (and noise) within the vehicle. To fully open the sunroof, press and release the switch for a second time.

Press and release the lower part of the switch (within  $\frac{1}{2}$  second) to close the sunroof at a single touch.

Sunroof movement can be stopped at any time by pressing the opposing part of the switch.

## 'Anti-trap' function

The 'anti-trap' function is a safety feature which prevents the sunroof from closing when an obstruction is sensed (message centre shows 'SUNROOF BLOCKED'). It is recommended that this is set at all times, but particularly when carrying children.

**NOTE:** *If the 'one-touch' and 'anti-trap' functions have not been set, an audible warning sounds and 'SUNROOF NOT SET' is displayed in the message centre whenever the sunroof is operational and also whenever the starter switch is turned on or off.*

## Setting the 'one-touch' & 'anti-trap' functions

If the battery has been disconnected, it will be necessary to reset the 'one-touch' and 'anti-trap' functions using the following procedure.

1. FULLY open and close and then FULLY tilt and close the sunroof in one continuous operation; an audible warning sounds, and 'SUNROOF NOT SET' is displayed in the message centre whilst the sunroof is in motion.

2. Once this operation has been successfully completed, an audible warning sounds and 'SUNROOF SET' is displayed in the message centre.

The 'one-touch' and 'anti-trap' functions will now be operational.

## Overriding the 'anti-trap' function

Under certain conditions you may wish to override the 'anti-trap' function. If, for example, you attempt to operate the sunroof with the operating mechanism partially frozen, the 'anti-trap' function may falsely sense a trap situation and fail to close the sunroof (it is recommended that you clear any ice from the sunroof to prevent overloading the operating mechanism).

The 'anti-trap' function can be overridden as follows:

1. Press and hold the appropriate (upper or lower) part of the switch within 10 seconds of the sunroof backing off (after it has sensed a trap situation).
2. Continue to hold the switch until the sunroof is closed; an audible warning sounds and 'ANTI-TRAP OFF' and 'SUNROOF' are displayed in the message centre.

The 'anti-trap' function will be operational again, as soon as the switch is released.

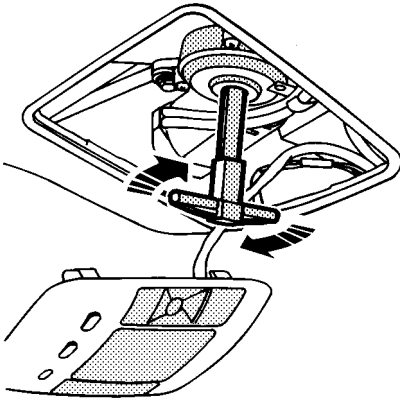
## Leaving the vehicle

The message centre will show 'SUNROOF OPEN' if the starter key is removed and the driver's door opened with the sunroof still open.

If you are leaving the vehicle ALWAYS close the sunroof.

# Electric sunroof

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P0208

## Emergency operation

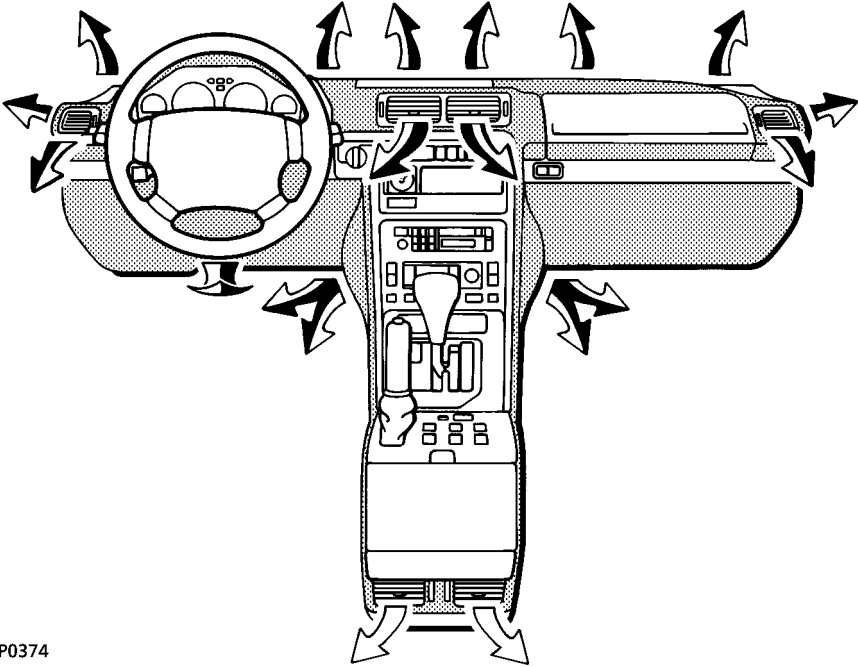
If sunroof operation should fail, first check the fuse and renew if necessary.

If necessary, the emergency operating key (stowed in the glovebox) can be engaged in the sunroof motor spindle and used to manually turn the spindle clockwise to close the sunroof (see illustration).

The spindle is accessible by prising the front courtesy light unit from the headlining.

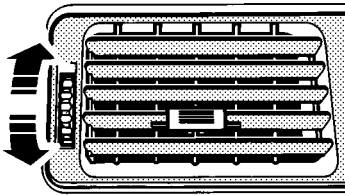
On completion of manual operation, the spindle must be turned back one quarter of a turn to re-engage the drive mechanism.

# Heating & ventilating



P0374

The heating and ventilation system provides fresh, heated or de-humidified air through air vents at the windscreen, face and foot levels and to the rear passenger compartment where shown in the illustration.



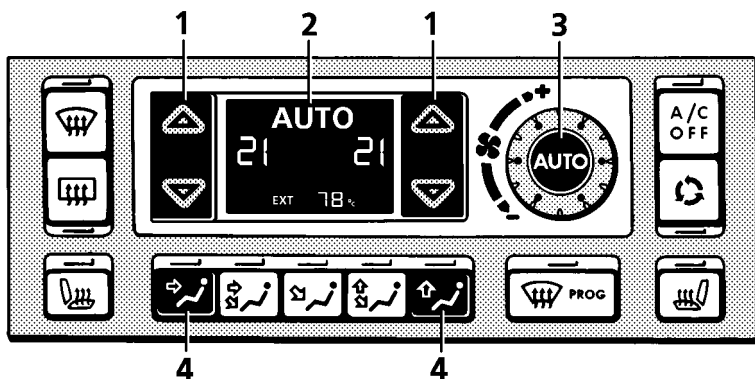
P0125

## Face level vents

Push the thumbwheel down/up to open/close the vent. Direct the airflow by moving the slider in the centre of the vent. Fully opening the driver's outboard vent also opens the lap cooler outlet.

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

# Heating & ventilating



P0102

## AUTOMATIC TEMPERATURE CONTROL (ATC)

Automatic temperature control consists of a computer controlled heating and air conditioning system. It is programmed to reach and then maintain optimum levels of comfort within the vehicle, irrespective of climatic conditions.

### FULLY AUTOMATIC OPERATION

With the engine running, press the 'Auto' button (3) ('Auto' appears in the display) and then press the rocker switches (1) either side of the display (2) to adjust the temperature for the corresponding side of the vehicle, until an agreeable comfort level (about 21°C or 70°F is recommended) is reached. 'HI' or 'LO' will appear in the display when the maximum/minimum temperatures are selected, in which case the system will not function automatically.

To change the temperature scale to either Centigrade or Fahrenheit press the two outermost air distribution buttons (4) simultaneously for approximately 4 seconds.

**NOTE:** The automatic temperature control system will not achieve temperatures on the passenger side of the vehicle that are more than 11°F (6°C) greater or less than the temperature set for the driver's side.

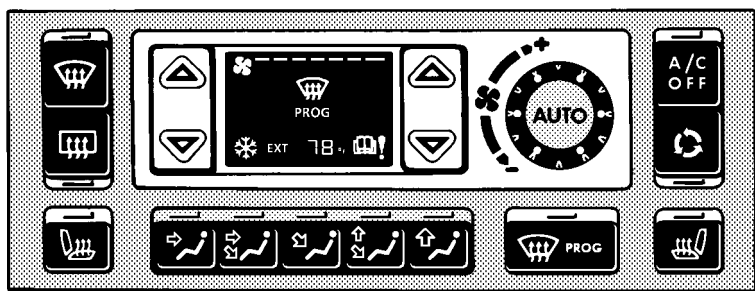
For optimum comfort, ensure all the vents, including those in the rear, are open and that the slider in the centre of each vent is in its central position.

**NOTE:** For ATC to function correctly, all windows should be closed and the air intake at the base of the windscreen must be free from ice, snow, leaves or other debris.

### WARNING

**To reduce the risk of accidents caused by poor visibility, always remove frost and snow from all glass surfaces and clear snow from hood and roof panels before driving.**

# Heating & ventilating



P0207

## Programmed defrost/demist



With the engine running, press the 'PROG' button to

clear frost or mist at the beginning of a journey (indicator light illuminates and the 'PROG' symbol appears in the display).

The 'programmed defrost' facility automatically activates the following:

- The most efficient heater settings to clear the windscreen and front side windows
- The heated rear screen - for a maximum of 16 minutes
- The heated windscreen - for a maximum of 4 minutes

Press the button again to deactivate 'programmed defrost' and restore the original settings.

## Recirculation



Press to recirculate air inside the vehicle interior (indicator light illuminates) - useful to prevent traffic fumes from entering the passenger compartment. Press again to cancel recirculation.

## WARNING

*Prolonged recirculation may cause the windows to mist. If this happens, switch off air recirculation immediately.*

## Air conditioning 'off'



Press to switch the air conditioning off (indicator light illuminates). With air conditioning off, the ATC will function in a semi-automatic mode with minimal disturbance to your comfort. When the ATC can no longer achieve comfort without assistance from the air conditioning, the air conditioning indicator light will flash for 10 seconds. Press again to restore the previous air conditioning settings.

**NOTE:** *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; misting will clear after a few seconds once the air conditioning system is operating.*

# Heating & ventilating

## SEMI AUTOMATIC OPERATION

The system will operate in a semi automatic mode ('Auto' extinguishes from the display) and the air distribution and blower controls can be operated manually.

Full automatic mode can be restored by pressing the 'Auto' button again.

### Air distribution

Press the appropriate button to direct air as required (the corresponding indicator light above the switch illuminates).



Air to face vents.  
(To ensure best performance, the face level vents must be open).



Air to face vents and foot outlets.  
(To ensure best performance, the face level vents must be open).



Air to foot outlets.



Air to foot outlets and windscreen  
(recommended if mild misting of the windscreen occurs when in 'Auto' mode).



All air to windscreen and side window outlets. Recommended if heavy misting of the windscreen occurs.



### Fan speed control

Turn clockwise to increase and anti-clockwise to decrease airflow from the vents. Bars appear in the display, the number of which increases or decreases with increasing/decreasing fan speed.

## OTHER FEATURES

### Front and rear screen heaters



As well as being activated by 'Programmed defrost', both front and rear screen heaters can be operated individually by pressing the appropriate button (press again when no longer required). The rear screen heater switches off automatically after 16 minutes, and the windscreen heater automatically ceases after 4 minutes.

### WARNING

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



### Heated front seats

Press to heat seats (indicator light illuminates) - press again to switch off.



### Low temperature warning

If the outside temperature is approximately 3°C or less, and there is a possibility of ice, then a snowflake symbol appears in the display.

### External temperature

The external temperature is continuously displayed in the lower part of the display.



### Self diagnostics

The air conditioning system has the ability to constantly diagnose itself for faults. If a fault is detected, the 'handbook symbol' appears in the display. Contact your dealer for assistance.



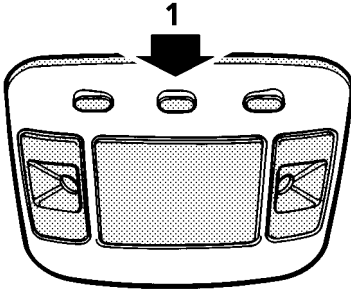
# Interior equipment

## COURTESY AND MAP READING LIGHTS

### Manual operation

Press the appropriate switch to turn the lights on - press a second time to turn off.

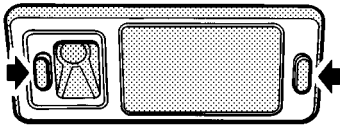
**NOTE:** The front courtesy light switch (arrowed) will also operate the rear courtesy lights.



P0113

Front

**NOTE:** If the rear courtesy lights or map reading lights are left on after being manually operated, they will NOT extinguish automatically.



P0114

Rear

### Automatic operation

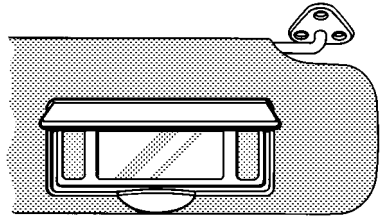
The front and rear courtesy lights illuminate automatically whenever a door or tailgate is opened, and remain illuminated for approximately 15 seconds after the doors and tailgate are closed or until the starter switch is turned on.

If a door or the tailgate remains open for ten minutes or more, a 'time out' function will extinguish the courtesy lights in order to prevent the battery from discharging.

### To cancel automatic operation:

Press and hold the front courtesy light switch (1) until a tone sounds and the message centre displays 'INT LIGHTS OFF'.

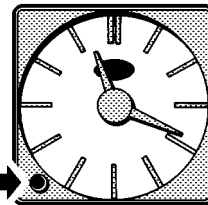
Repeat the procedure to re-activate automatic operation (a tone sounds and the message centre displays 'INT LIGHTS ON').



P0115

## SUN VISOR VANITY MIRROR ILLUMINATION

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.



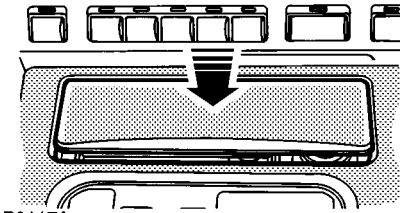
P0116

## CLOCK

To adjust the time, press and release the button to increment by one minute; press continuously to 'fast forward' the hands.

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

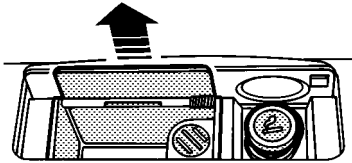
# Interior equipment



P0117A

## FRONT ASHTRAY

Press the leading edge of the ashtray lid to open. The compartment contains the cigar stubber, the ashtray and the cigar lighter.



P0118

To empty the ashtray, lift the inner tray from the surround.

DO NOT use the ashtray for disposing of waste paper or other combustible materials.

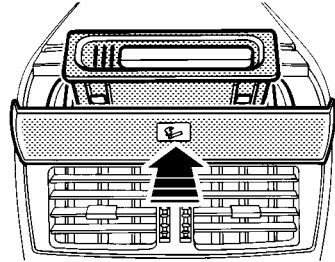
## CIGAR LIGHTER

The cigar lighter is located in the front ashtray compartment.

With the starter switch turned to position 'I', 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.



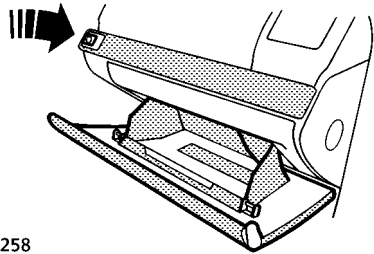
P0119

## REAR ASHTRAY

Press the cigarette symbol to open.

To empty the ashtray, open the lid and remove the inner tray.

DO NOT use the ashtray for disposing of waste paper or other combustible materials.



P0258

## GLOVEBOX

Press the button to release the catches and lower the lid.

The glovebox light illuminates automatically when the lid is opened and the side lights are on, and extinguishes when the lid is closed.

**NOTE:** The glovebox lock is operated with the starter key. Turn the key a quarter turn to the left to lock.

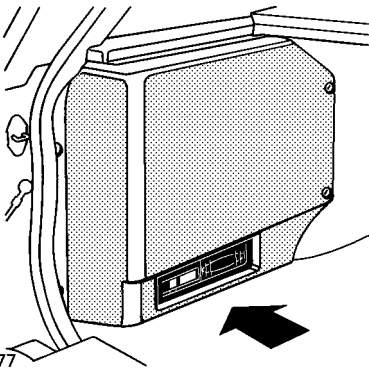
# Interior equipment



P0121

## CUBBY BOX

Press the button (arrowed) and lift to open the lid which can be rotated (see inset) to form a cup holder. Press down on the front of the lid to close and ensure that the latch has fully engaged before using the lid as a cup holder.

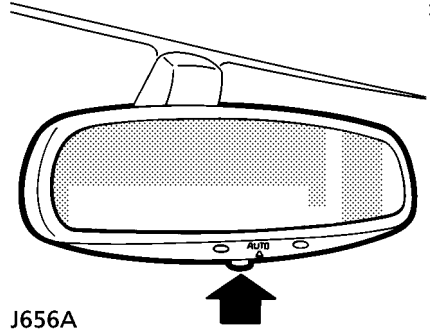


P0377

## CD AUTOCHANGER

The CD autochanger is located in the rear loadspace where shown.

Operation of the CD autochanger is covered fully in the 'In-car entertainment' section.



J656A

## INTERIOR REAR-VIEW MIRROR

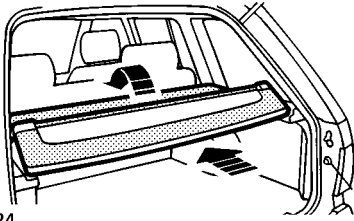
### Automatic mirror

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 following vehicles at night. Press the 'auto' button again and the mirror assumes its normal reflective state.

# Interior equipment

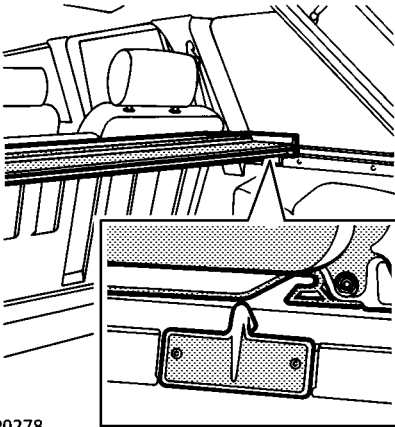
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P0124

## LOADSPACE COVER

Fold the rear loadspace cover by pushing upward and forward (arrowed) into the vehicle. Lay the rear section of the cover on the forward section.



P0278

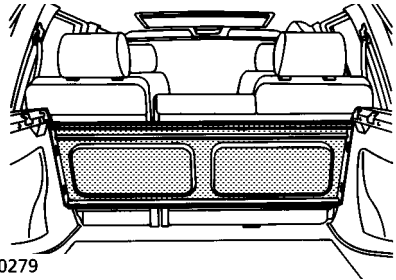
The loadspace cover can be removed by pulling on the rear to disengage it from the side spigots and stored in the forward area of the loadspace; a channel is formed in both of the loadspace side panels immediately behind the rear seats to accommodate the folded loadspace cover.

## WARNING

*DO NOT* carry luggage or loose items on 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 load area should be secured to minimise the risk of injury to the driver and passengers in the event of an accident or emergency manoeuvre.*

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P0279

# *In-Car Telephones*

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## **WARNING**

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

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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.

# ***SECTION 3***

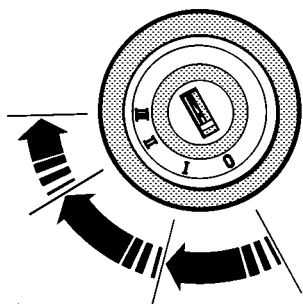
## ***Driving & operating***

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# Starter switch & steering lock



P0150

## STEERING COLUMN LOCK

### To unlock the steering column

Insert the ignition key FULLY and turn the starter switch to position 'I'

### To lock the steering column

Turn the starter switch to position '0', select 'P' (park) and withdraw the key from the starter switch.

## 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). Fuel filler flap can be opened.

Most lighting circuits are operational, including: park lights, headlights and hazard warning lights.

### Position 'I'

Steering unlocked.

Radio/cassette/CD player, electric windows, wipers and washers can be operated.

### Position 'II'

All instruments, warning lights and electrical circuits are operational.

### Position 'III'

Starter motor operates.

Release the starter 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:** Gearbox position 'P' or 'N' must be selected before the engine will start.

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



# Starting the engine

---

## STARTING

### 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 and driving, ENSURE that 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 procedure

1. Check that the parking brake is applied and that the gear selector is in 'P' or 'N'.
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. RELEASE THE KEY as soon as the engine is running.

In temperate climates DO NOT operate the starter for longer than 5 seconds; if the engine fails to start, switch off and wait for 10 seconds before re-using the starter. Note that continued use of the starter will discharge the battery. In temperate climates the battery charging and oil pressure warning lights should extinguish as soon as the engine is running.

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.

### 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 tailgate door open.
  - DO NOT modify the exhaust system from the original design.
  - Repair exhaust system or body leaks immediately.
  - If you think exhaust fumes are entering the vehicle have the cause determined and corrected immediately.
- 

### Cold climates

In very cold climates the oil pressure warning lights may take several seconds to extinguish. Similarly, 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.

Additionally, in very cold temperatures, use of a 110V AC block heater will improve the engine's starting characteristics. Only approved block heaters, restricted to a maximum of 400W, should be used. Block heaters that exceed this output may damage the emission control components. Your Land Rover dealer can advise you about the supply and use of a block heater.

# Starting the engine

---

## DRIVING

### WARNING

*Your vehicle has a higher ground clearance and, therefore, 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. The Range Rover 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. As with other vehicles of this type, failure to operate the Range Rover correctly may result in loss of control or vehicle rollover.*

---

### 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.

### Instruments & 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 indicates that a fault exists. If a red light illuminates always stop the vehicle and seek qualified assistance before continuing.

## Shift interlock

Your vehicle is fitted with gear changing interlocks, which require the starter switch to be turned on and the brake pedal depressed, before the gear selector can be moved from the 'P' (Park) position.

### WARNING

*When the engine has started, BEFORE moving the gear selector lever out of 'P' or 'N', it is important that both parking brake and footbrake are firmly applied and that the accelerator pedal is not depressed - otherwise, the vehicle may move immediately if the gear 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 footbrake to control the vehicle, until the engine is warm and running at normal speed.*

---

# 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 or 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.

## Vehicle height

The overall height of your vehicle exceeds that of an ordinary car (even when ACCESS ride height is selected). Always be aware of the height of your vehicle and check the available clearance before driving through low entrances. This is particularly important if the vehicle is fitted with a roof rack or if the sunroof is open.

## Power assisted steering

The hydraulic power-assisted steering is equipped with a positive 'centre feel' characteristic, which gives enhanced vehicle stability at high speeds and in cross winds.

Power assistance is progressively applied the more the steering wheel is turned. For example: where manual steering effort would normally be greatest (at slow speeds on maximum lock), power assistance is at its greatest. Similarly, where only minimal steering effort would normally be required (at high speed with the wheels straight ahead), then power assistance is also minimal, thus enabling the driver to benefit from apparently consistent steering effort at all times.

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

## Auxiliary equipment

### WARNING

**Do NOT use auxiliary equipment, such as a roller generator, which is driven by one wheel of the vehicle, as this could cause failure of the gearbox differential. In some cases the vehicle may attempt to drive itself forward.**

**Some local jurisdictions require emission testing using a two wheel roller dynamometer. The Range Rover 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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# Starting the engine

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## Parking

After bringing the vehicle to a stop, ALWAYS apply the parking brake and select 'P' before releasing the footbrake and switching off the engine.

## Switching off

After selecting gear position 'P', return the starter switch to position 'I' and then to position 'O' to remove the key.

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

## 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 motoring. It is, therefore, essential to drive with consideration for the breaking-in process for at least the first 500 miles (800 km) and observe the following advice:

- LIMIT maximum road speed to 70 mph (110 km/h). Initially, drive the vehicle on a light throttle and only increase engine speeds gradually once the running-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.

## 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.

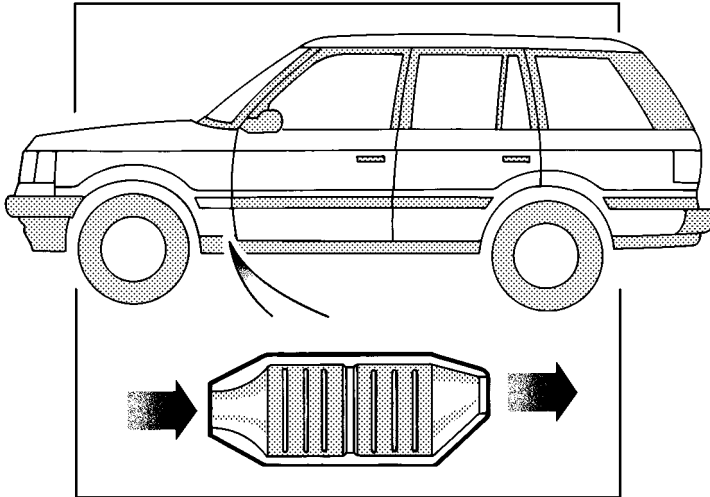
Driving with the gearshift in 'D' in the HIGH range, but not in 'sport' mode, will provide the best fuel economy.

Items such as, the condition of the air cleaner element, tyre pressures and wheel alignment can 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 even better value from your motoring:

- Avoid unnecessary, short, start-stop journeys.
- Avoid fast starts by accelerating 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.
- When stationary in traffic, select neutral to improve fuel economy and air conditioning performance.

# Catalytic converter

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P0177

## CATALYTIC CONVERTER

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

### WARNING

*The catalytic converter 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.

### 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 damaging the catalyst); seek qualified assistance.
- When starting a cold engine, DO NOT drive if a misfire is suspected; seek qualified assistance.

# Catalytic converter

---

## Driving

- Provided the engine has reached its normal operating temperature, if a misfire is suspected, or if the vehicle lacks power while driving, it may be driven SLOWLY (at risk of damaging the catalyst) to a Land Rover dealer for assistance.
- NEVER allow a vehicle to run out of fuel (the resultant misfire could destroy the catalyst).
- Engines burning excessive oil (blue smoke from the exhaust) will progressively reduce catalytic efficiency.
- 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.

## Switching off

- DO NOT switch off the engine while a forward or reverse drive gear is selected.

## Vehicle maintenance

- Any engine misfire which causes the Check Engine indicator 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.

## 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 very dry weather a fire could result).*

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# Fuel

---

## USE ONLY UNLEADED FUEL

### Octane requirements

Always use PREMIUM UNLEADED GASOLINE with a CLC or AKI octane rating of 90 or 92 (95 or 96 RON).

**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.**

---

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!

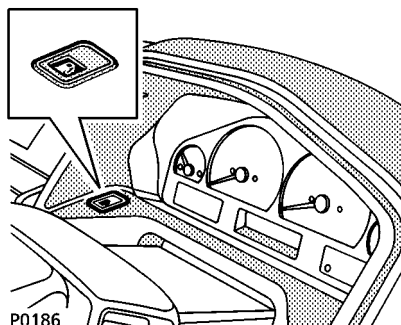
## Octane enhancers

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 avoid methanol from coming into contact with the skin.***



## FUEL FILLER FLAP

The fuel filler is located in the rear right-hand fender. Press the fuel filler switch (shown in illustration) to open the filler flap.

The fuel filler switch may only be operated with the starter key turned to position '0'. It will not operate when the engine is running.

## 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 use a naked flame or light.
- Take care not to spill fuel.
- Do not overfill the tank.



# Fuel

## 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 pressure has been released. Place the cap in the retaining bracket on the rear of the flap whilst refuelling. Unless absolutely necessary, the fuel filler cap should not be removed unless the vehicle is standing on level ground. DO NOT OVERFILL!

## WARNING

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.

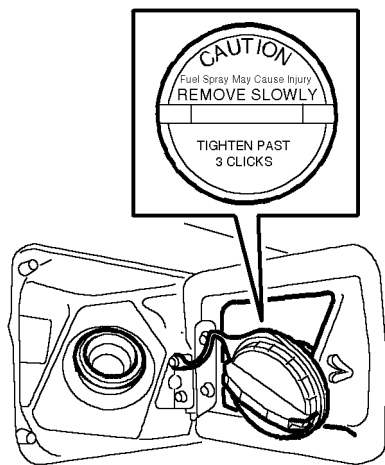
## WARNING

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.

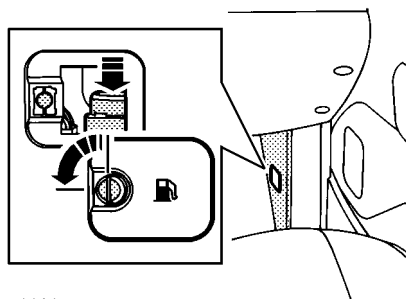


P0396

## Fuel filling

Filling station pumps are equipped with automatic cut-off sensing to avoid fuel spillage; 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 deliver unleaded fuel.

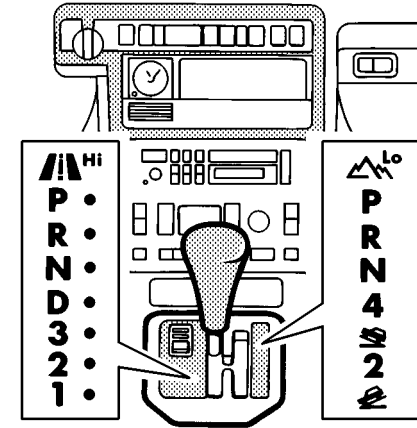


P0020

## INERTIA SWITCH

For information about the operation of the inertia switch see 'Locks & alarm'.

# Automatic transmission



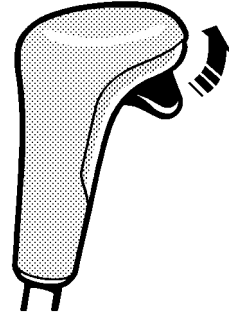
P0145

## AUTOMATIC TRANSMISSION

The automatic transmission features an 'H-gate' gear selector mechanism. This combines the operating mechanism of both the main gearbox and the transfer gears, and enables the gear selector positions, for both the high and low gear ranges, to be located side by side.

### Gear selector lever

Move the selector lever forward or back along the driver's side of the 'H', to select the high range of gears. Similarly, by moving the lever to the passenger side, the low range can be selected instead. The 'H-gate' illumination is colour coded to identify the two ranges: high range illumination is green and low range is amber.



P0151

A spring loaded catch built into the handle of the gear selector lever, restricts movement of the lever, thereby preventing inadvertent gear selection. The catch has two pressures:

- the first pressure enables gear changes to be made within a single range of gears (High range OR Low range).
- the second pressure enables the selector to be moved from one range of gears to another (ie. from High TO Low).

**NOTE:** Gear selection between 'D' and '3' (High range) or '4' and '3' (Low range) may be made without pressing the catch.

## HIGH RANGE GEARS

Use the high range for road driving and also for off-road driving across dry, level terrain. The message centre will momentarily display 'HIGH', as soon as High range is selected, and then display the gear selected (eg. '3').

## WARNING

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

# *Automatic transmission*

---

## **LOW RANGE GEARS**

ONLY use low range gears 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.

When low range is selected, the message centre displays 'LOW' momentarily, and then 'L' is displayed along with the relevant gear selected (eg. 'L2').

### **High/low range change warning**

An audible warning will sound whilst a change from one gear range to another is attempted. The warning will cease once the change is complete or cancelled.

### **Using the 'H-gate'**

To make a change from high to low or vice versa, **the vehicle must be stationary!**

- Apply the brakes and select 'N'.
- Ensure the vehicle is stationary, then fully depress the catch built into the handle of the selector lever and move the lever across the cross-piece of the 'H-gate'. On reaching the required gear range position, the 'H'-gate illumination and the transfer gearbox warning light (in the instrument pack) start to flash and the audible warning sounds.
- Wait until illumination of the new gear range selector positions is constant and the transfer gearbox warning light extinguishes (the audible warning will silence and High or Low is displayed in the message centre), before selecting the desired gear in the new range and releasing the brakes.
- If the vehicle is moving when a transfer gear change is attempted, the message centre will display 'SLOW DOWN' and the audible warning will sound.
- If the gear range is changed and forward or reverse drive engaged without first waiting in 'N' for the illumination to stop flashing and the audible warning to stop, the message centre will display 'SELECT NEUTRAL' and a warning will sound - reselect 'N' and wait for range change completion before selecting the required driving gear.

## **WARNING**

*To avoid personal injury and possible damage to the transmission, it is essential to ensure that any change of gear range is fully completed before releasing the brake and driving, i.e:*

- *Illumination of the gear range selector positions is continuous.*
  - *The transfer gearbox warning light has extinguished.*
  - *The audible warning is silent.*
  - *The message centre displays the appropriate message - 'HIGH' or 'LOW'.*
-

# *Automatic transmission*

---

## **Selector lever positions (high range)**

### **'P' Park**

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

### **'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 'D' for all normal driving on good road surfaces; fully automatic gear changing occurs on all 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 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.

**NOTE:** If position '2' or '1' is selected from 'D' or '3' while the vehicle is travelling at high speed in high range, then, depending on vehicle speed, third gear will immediately engage. Progressive deceleration will then cause downshifts into second and then first gear when appropriately low road speeds are reached.

## **WARNING**

**When parked always leave the vehicle with the gear selector in 'P' (Park), and the parking brake applied, even when the starter key is not removed.**

---

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

# *Automatic transmission*

---

## **Starting and driving**

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

- Before starting the engine, ensure that both footbrake and parking brake are applied.
- After starting the engine, KEEP THE BRAKES APPLIED 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).
- 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 changing in high range**

The road speeds at which gear changes take place vary according to the position of the accelerator; minimum acceleration will result in gear changes at low road speeds, while greater 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 different road speeds, depending on accelerator pedal pressure.

On long inclines, an automatic 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. Excessive gear changing is wasteful of fuel and results in a loss of momentum; 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, 'kick' 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 on road speed and accelerator pedal position).

# Automatic transmission

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## MODE SWITCH

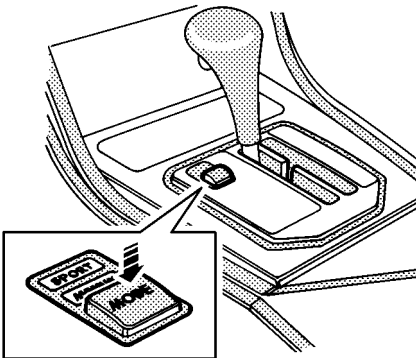
In High range, the mode switch is used to select 'Sport' mode.

In Low range, pressing the same switch selects 'Manual' mode.

Pressing the switch a second time returns the gearbox to its normal operation.

## 'Sport' mode

When accelerating in 'Sport' mode, gear changing is delayed to make optimum use of the engine's power. Select when increased acceleration is required, or when negotiating long inclines or twisting roads. However, you should be aware that driving in 'Sport' mode will increase fuel consumption.



P0172

To select 'Sport' mode, press the 'Mode' switch once whilst the gearbox is in High range (the message centre will display 'S' along with the selected gear, eg. 'S3').

## '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, providing maximum vehicle control and engine braking - ideal for use in severe off-road conditions (the message centre displays 'LM' along with the selected gear, eg. 'LM3').

**NOTE:** Changing from High to Low range (or vice versa) will automatically cancel 'Sport' or 'Manual' mode.

## Towing for recovery

If it is necessary for the vehicle to be towed on all four wheels, transfer neutral MUST be selected. (See 'Emergency towing').

# Braking system

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## FOOT BRAKE

As a safety precaution, the hydraulic braking system operates through dual circuits. If one circuit fails the other will continue to function, but increased brake pedal travel, greater pedal effort and longer stopping distances will be experienced.

### Brake Pads

Brake pads require a period of bedding in. You should avoid heavy braking except in emergencies for at least the first 500 miles (800 km).

Remember that 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 obstruction 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.***

---

## Brake warning light

### WARNING

***If the warning light comes on when driving, and the parking brake is fully released, a fault is indicated. Be prepared for increased brake pedal travel and then stop the vehicle and seek qualified assistance before continuing.***

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## PARKING BRAKE

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

Apply the parking brake by pulling back the lever. To release, pull the lever back slightly and hold the release button depressed while allowing the lever to fully return to its off position.

### 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).***

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# Braking system

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## Wet conditions

### WARNING

*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.*

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## ANTI-LOCK BRAKING

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

### 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 the prevailing weather and traffic conditions.*

*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.*

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ABS incorporates a monitoring system which checks that all the electrical components are in working order before each journey and also at frequent intervals while the vehicle is in use. The warning lights on the instrument panel are part of this system and it is essential that the driver observes these and fully understands their functions - these are fully described in Section 2 of the handbook under 'Warning lights'.

### WARNING

*DO NOT drive until the red brake warning light has extinguished (with the parking brake released). If the light stays on or illuminates whilst driving, this indicates either a malfunction of the system or low fluid level in the reservoir. In this case ABS control is not available. Stop as soon as safety permits and seek qualified assistance before continuing.*

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# *Braking system*

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## **ABS in action!**

Under normal driving conditions (where sufficient road surface friction exists to reliably bring the vehicle to a halt without the wheels locking), ABS will not be brought into operation.

However, should the braking force exceed the available adhesion between the tyres and the road surface, then ABS will automatically come into operation; brake pedal 'feel' will harden, and the sound of solenoid cycling may be heard as the ABS regulates braking pressure to ensure wheel rotation.

Little further pedal travel will be possible at this point, but effort on the pedal can be varied to influence braking while the ABS retains control.

During braking, some vibration may be felt through the brake pedal. This is a normal result of the system regulating braking pressure. However, frequent vibration indicates a hazardous surface under the road wheels and is a warning to the driver to adjust speed to suit the road surface and traffic conditions.

When ABS stops operating, extra initial pedal travel will be experienced and the 'feel' of the brake pedal will revert to its non-ABS condition.

## **WARNING**

*Do not pump the brake pedal at any time, as this will interrupt ABS operation and may increase braking distance.*

*Ensure there are no obstructions beneath the brake pedal, which may prevent full travel, ie. additional floor mats.*

*Drivers who become accustomed to driving a vehicle equipped with ABS, should exercise caution when driving a non-ABS vehicle.*

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# Braking system

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## Additional operating information

- Under ABS control, heavy braking on a dry road may produce tyre noise and slight marking of the road surface. Neither need cause concern.
- Solenoid cycling may sometimes be heard when driving on very rough roads or while 'feathering' (light braking) over irregular or pitted surfaces. This is part of the normal ABS function.
- If excessive pedal travel is experienced, full braking will still be available; push the pedal through the free movement until resistance is felt, then apply the necessary force to obtain braking. However, as soon as safety permits, stop the vehicle and seek qualified assistance before continuing.
- On soft surfaces such as powdery snow, sand or gravel, and also on very rough surfaces, braking distances with ABS may be greater than those achievable with a non-ABS system. This is because the natural action of locked wheels on soft surfaces is to build up a wedge of material in front of the wheels which assists in stopping (however, ABS will continue to provide better stability and steering control).
- If the vehicle is brought to rest on a steep slope which has a very low-friction surface, the vehicle may slide with the wheels locked because there is no wheel rotation to signal movement to the ABS. If this occurs, momentarily release the brakes (to permit some wheel rotation), before re-applying them to allow ABS to regain control. Where a slow descent is necessary, engage a LOW range gear with the engine running to allow a controlled descent (see '*Off-road driving*' for further information).

### WARNING

*ABS is designed to operate only with genuine Land Rover parts, and the tyres and wheels specified in 'General data'. 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.*

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# *Traction control*

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## **ELECTRONIC TRACTION CONTROL**

The purpose of electronic traction control, is to aid traction when one wheel on an axle spins whilst the other still has good grip, e.g, if one side of the vehicle is on ice and the other is on tarmac. The system works by applying the brake to a spinning wheel in order to transfer torque to the other side of the axle.

**NOTE:** *Traction control only operates below approximately 60 mph (100 km/h).*

The instrument panel has a traction control warning light (TC) and, when appropriate, traction control messages will also be displayed in the message centre.



The warning light illuminates whenever the system is active (for a minimum of 2 seconds)

and is accompanied by the message centre displaying 'TRACTION'. In the unlikely event that traction control is used continuously for too long (in excess of approximately 1 minute), then the control unit shuts down to allow cooling and the warning light flashes for at least ten seconds; this is accompanied by the message centre displaying 'TRACTION OVERHEAT'.

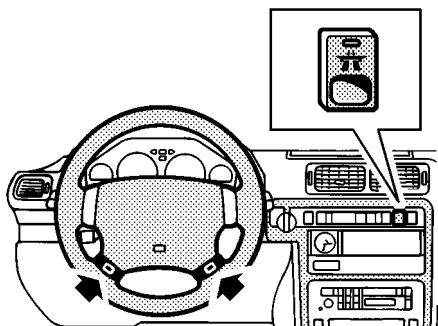
If there is a fault with the system, then the warning light will illuminate continuously and the message centre displays 'TRACTION FAILURE'. If this occurs, you should contact a Land Rover dealer at the earliest opportunity.

# Cruise control

## WARNING

- **DO NOT use cruise control when using low range transfer gears 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.**
- **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.**

**NOTE:** Selecting Cruise control while the gearbox is in 'Sport' mode will result in more frequent and harsher acceleration and gear changing. This is not recommended.



P0175

## 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 fascia panel and two control switches, marked 'SET+' and 'RES' (arrowed in illustration), mounted in the steering wheel.

### To operate

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

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

# *Cruise control*

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## **To reduce the cruising speed**

Use the brake pedal to slow the vehicle, until the required speed has been reached, then press the 'SET+' switch to establish a new cruising speed. Remember that cruise control will not operate at speeds below 28 mph (45 km/h).

Alternatively, briefly press the 'RES' switch once to cut off cruise control; if the brake pedal is not used, the vehicle will slow down gradually. When the desired speed has been reached, press the 'SET+' switch to establish the new cruising speed.

## **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. For each five taps, the speed will increase by 5 mph (8 km/h).

## **Disengaging cruise control**

Cruise control will automatically disengage if the brake pedal is pressed, or when the gear selector lever is moved into 'N'.

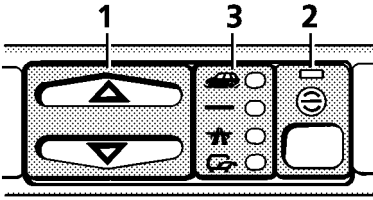
Alternatively, briefly press the 'RES' switch once to cut off cruise control; this allows the vehicle to slow down gradually.

If required, press the 'RES' switch again to re-engage cruise control at the previously-set speed.

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

**NOTE:** *Cruise control will disengage automatically, if your road speed falls to less than 75 per cent of the set speed (this could occur when towing uphill).*

# Air suspension



## P0176

Your vehicle is fitted with an electronically controlled air suspension system (EAS) which provides five different ride height settings including an 'Access' mode. These settings increase or decrease the height and ground clearance of your vehicle to cope with different driving conditions.

In addition, the EAS also provides automatic suspension levelling.

### Before operating EAS

Remember, even if a change of ride height is selected, it will NOT take place:

- If the tailgate or any door is open.
- Whilst the footbrake is continuously applied for less than 3 minutes.
- If the engine is not running (except for selection of 'Access' within 40 seconds of switching off).

If the 'Access' mode is required, ensure the parking brake is applied and that the gear selector lever is moved to position 'P'.

**NOTE:** Frequent changes between ride heights could cause the compressor to overheat. If this occurs, EAS will be fully operational again after a few minutes when the compressor has cooled.

## CONTROLS

### Ride height selector (1)

Press and release the upper or lower arrow on the rocker switch to raise or lower the vehicle to the next ride height setting (the relevant indicator light will illuminate).

### 'Inhibit' switch (2)

The indicator light in the switch illuminates as a bulb check when the starter is initially turned to position 'II'.

- Press the switch to select 'Inhibit' mode (indicator light illuminates). This will prevent automatic changes between Standard and Low ride height.
- Press the switch again to switch off.

**NOTE:** Even in 'Inhibit' mode, the ride height can automatically change from 'Access'/'Crawl' to the 'Low' ride height and from Extended or High profile to High or Standard.

### Ride height indicator panel (3)

All indicator lights illuminate as a bulb check when the starter switch is initially turned to position 'II' and remain illuminated until the engine is started.

Each indicator light illuminates separately while a height setting is in operation. When a change in height is activated, the indicator lights illuminate in the following sequence:

- The new height indicator light flashes.
- When the new height is reached, its indicator light stops flashing and illuminates continuously (the previous indicator light extinguishes).

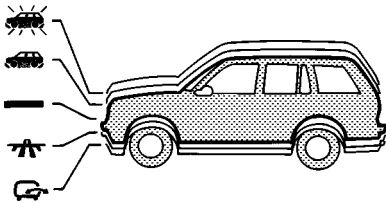
# Air suspension



## Air suspension warning light

The warning light on the instrument panel illuminates as a bulb check when the starter switch is turned on and remains illuminated until two seconds after the engine has started.

In addition, the light will illuminate whilst driving whenever 'High' or 'Extended' ride heights are selected, and also if a fault with the air suspension system is detected.



## HEIGHT SETTINGS



### Extended ride height

Approximately 2.75 in (70 mm) above 'Standard'. Extended ride height is selected automatically if the vehicle comes to a halt as a result of the chassis coming into contact with the ground. It CANNOT be selected manually ('High' indicator light flashes and the High suspension warning light illuminates).

'Extended' ride height is automatically sustained for 10 minutes after which it returns to 'High' unless the ride height selector is used to select a different setting.



### High ride height

Approximately 1.5 inches (40 mm) above 'Standard'. Improves approach and departure angles (off-road) and is also recommended for wading.

Can be selected manually under 35 mph (55 km/h). If this speed is exceeded EAS automatically returns to 'Standard'.

**NOTE:** The air suspension warning light illuminates when this height is selected.

## WARNING

**High ride height must not be selected for driving on the public highway.**

## Standard ride height

Suitable for most driving conditions and recommended for towing (see 'Towing with EAS').



## Low ride height

Approximately 1 in (25 mm) below 'Standard'. Selected automatically when speeds of over 50 mph (80 km/h) are sustained for over 30 seconds. This setting lowers the vehicle's centre of gravity, thereby improving the handling characteristics of the vehicle. The vehicle automatically returns to 'Standard' if speeds below 35 mph (50 km/h) are sustained for over 30 seconds. 'Low' can be manually selected at any speed when Inhibit mode has been selected.

## Access/Crawl ride height

### Access mode



Approximately 2.5 in (65 mm) below 'Standard', enabling easier access or loading. 'Access' can be selected with the engine running and for up to 40 seconds after it has been switched off provided:

- The vehicle is stationary.
- The parking brake is applied and gear selector moved to position 'P'.
- All doors and the tailgate are closed.
- The footbrake is NOT applied.

# Air suspension

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'Access' can also be preselected up to 40 seconds before the vehicle stops. However, the suspension will not begin to lower until the vehicle is stationary with the parking brake applied, the gear selector in the 'P' (park) position and the footbrake released. Preselection is automatically cancelled if the 40 second period is exceeded.

**NOTE:** *If a door/tailgate is opened or the footbrake is applied while the vehicle is changing height, the change will be interrupted.*

When moving off, vehicle height automatically returns to 'Standard' ('Low' if 'Inhibit' mode was operational BEFORE 'Access' was selected).

If 'Inhibit' mode is selected AFTER 'Access', 'Crawl' mode is selected (see 'Crawl' mode).

## WARNING

**Always take care when UNLOADING your vehicle in an area where height is restricted.**

**With the starter switch turned off, the suspension will automatically re-level the vehicle every time a door (or the tailgate) is opened and then closed (and every few hours thereafter).**

**After unloading, the height of the vehicle will therefore increase.**

---

## Crawl mode

If it is necessary to manoeuvre the vehicle in an area where height is restricted, 'Crawl' mode should be selected as follows:

- Select 'Access'.
- If the 'Inhibit' mode is already active, release the 'Inhibit' switch (indicator light extinguishes).
- Press the 'Inhibit' switch (indicator light illuminates).
- The message centre emits an audible warning and 'EAS MANUAL' is displayed.

## IMPORTANT INFORMATION

While in 'Crawl' mode: If the vehicle exceeds 10 mph (16 km/h), the message centre emits an audible warning and displays 'SLOW: 20 MPH MAX' ('SLOW: 40 KMH MAX').

If the vehicle exceeds 25 mph (40 km/h), the ride height automatically changes to 'Low'.

If the vehicle then slows to 20 mph (32 km/h), the EAS automatically returns to 'Crawl' mode.

If road speed reduces to 5 mph (8 km/h), the message centre emits an audible warning and displays 'EAS MANUAL'.

**If the engine is switched off in 'Crawl' mode, the vehicle will return to 'Access' mode when restarted. If 'Crawl' is still required, it MUST be reselected !**



# *Air suspension*

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## **EAS MESSAGES**

The following messages may appear in the message centre display. These are warnings to which the driver must respond.

<b>Message</b>	<b>Meaning</b>	<b>Solution</b>
'EAS MANUAL'	vehicle locked in 'Access'.	EAS WARNING! The vehicle is being driven on its bump stops.
'SLOW: 20 MPH MAX' ( 'SLOW: 30 KMH MAX' )	road speed too high for current ride height.	slow down to less than 20 mph (30 km/h).
'EAS FAULT'	there is a fault with the air suspension.	Consult your Land Rover dealer.
'SLOW: 35 MPH MAX' ( 'SLOW: 55 KMH MAX' )	Air suspension fault.	Slow to 35 mph (55 km/h) and seek qualified assistance

# Air suspension

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## EAS FUNCTIONS ('INHIBIT' MODE OFF)

### Down selections

**'Extended' to 'High'** after 10 minutes operation, or press the lower arrow on the ride height selector once.

**'Extended' to 'Standard'** speed above 35 mph (55 km/h), or press the lower arrow twice.

**'High' to 'Standard'** speed above 35 mph (55 km/h), or press the lower arrow once (if speed is less than 35 mph (55 km/h)).

**'Standard' to 'Low'** speed above 50 mph (80 km/h) for longer than thirty seconds.

**'Standard' to 'Access'** press the lower arrow once (see *'Access mode'*).

### Up selections

**'Low' to 'Standard'** speed below 35 mph (55 km/h) for over thirty seconds or press the upper arrow on the ride height selector when the vehicle is stationary.

**'Access' to 'Standard'** move off from stationary, or press the upper arrow once whilst stationary, or move automatic gearbox selector lever from Park and release the hand brake.

**'Standard' to 'High'** press the upper arrow once below 35 mph (55 km/h).

## EAS FUNCTIONS ('INHIBIT' MODE ON)

(indicator light illuminated)

### Down selections

**'Extended' to 'High'** after 10 minutes of operation, or press the lower arrow on the ride height selector once.

**'Extended' to 'Standard'** speed above 35 mph (55 km/h), or press the lower arrow twice.

**'High' to 'Standard'** speed above 35 mph (55 km/h), or press the lower arrow once.

**'Standard' to 'Access'** press the lower arrow twice.

**'Standard' to 'Low'** press the lower arrow once.

**'Low' to 'Access'** press the lower arrow once.

### Up selections

**'Access' to 'Low'** (not for 'Crawl') move off from stationary, or press the upper arrow once.

**'Low' to 'Standard'** press the upper arrow once.

**'Standard' to 'High'** press the upper arrow once below 35 mph (55 km/h).

# Air suspension

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## TOWING WITH EAS

When towing, it is recommended that the suspension is locked in 'Standard' ride height as follows;

- Press the 'Inhibit' switch (indicator light illuminates).
- Select 'Standard' (as described earlier in this section).

## FAULT DIAGNOSIS

If the EAS self-check detects a minor fault in the system, 'Standard' is automatically selected. No ride height changes are possible until the fault is rectified. The message centre emits an audible warning and 'EAS FAULT' is displayed. All the EAS indicator lights flash in unison for 30 seconds before they, and the High suspension warning light, illuminate continuously.

If a major fault is detected, the vehicle lowers to 'Access', and the message centre emits an audible warning and displays 'SLOW: 35 MPH MAX' ('SLOW: 55 KMH MAX').

If a second fault occurs, all the EAS indicator lights flash again.

## WARNING

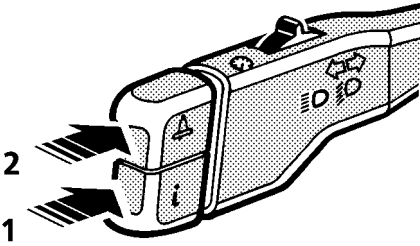
*If either a minor, or major fault develops, take your vehicle to your dealer as soon as possible. Only an authorised Land Rover dealer will be able to rectify faults.*

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**NOTE:** *Certain minor faults are rechecked after the EAS system is re-powered. If the message 'EAS FAULT' is displayed, switch off the engine and keep all doors and tailgate closed for at least 2 minutes, then re-start the engine.*

*If a fault is no longer present, normal operation is restored. However, a record of the fault is stored by the system's computer to aid your dealer.*

# Trip computer & overspeed warning



P0192

The trip computer provides valuable information to assist the driver to calculate fuel stops, journey times and distances.

The two push switches (illustrated) operate the trip computer and overspeed warning system, and messages from the trip computer and overspeed warning system are displayed in the message centre.

**NOTE:** *The message centre's primary function is to display warning messages generated by the vehicle's monitoring systems. Trip computer messages are of secondary importance and therefore automatically overridden when other, more important, information is required for display. The trip computer and overspeed warning messages resume when other messages are no longer valid.*

## TRIP COMPUTER

With the starter switch in position 'II', press switch (1) to scroll through the trip computer functions. These will appear in the following order:

- DISTANCE TO EMPTY
- AVERAGE FUEL CONSUMPTION
- AVERAGE SPEED
- TRIP DISTANCE TWO
- TRIP DISTANCE ONE

**NOTE:** *Trip Distance One is the computer's default position.*

### Distance to empty

This function is automatic and indicates the remaining distance you can travel before the fuel gauge reads empty - the message centre displays: 'RANGE - - -'.

If the estimated remaining distance falls below 50 miles (80 kilometres), the message centre will display 'REFUEL, RANGE ÷50', indicating that you should refuel at the earliest opportunity.

**NOTE:** *If a recalculation of the Distance To Empty function occurs when the range is between 50 - 56 miles (80 - 90 kilometres), the display will show the distance to empty message but NOT the refuel message. Take care not to run out of fuel!*

# *Trip computer & overspeed warning*

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## **Average fuel consumption**

This function is automatic and indicates the average fuel consumption since the last time the trip computer was reset (average fuel consumption is calculated by dividing the distance travelled by the amount of fuel used).

While the system is calculating the average fuel consumption, the display shows 'COMPUTING MPG'. Once the fuel consumption value is calculated, 'AVERAGE MPG' will be displayed, and a 3 digit fuel consumption value (shown in tens, units and tenths of a gallon) also appears in the display.

**NOTE:** *The displayed value will not change at a rate greater than 0.1 mpg per 3 seconds (0.1 litres/100 km per 6 seconds), and will be between 0 and 99.9 mpg (0 and 99.9 litres/100 km).*

## **Average speed**

This function is automatic and indicates the average speed since the last time the trip computer was reset (average speed is calculated by dividing the actual distance travelled by the accumulated time in which the starter switch has been turned on).

While the system is calculating the average speed, the display will show 'COMPUTING MPH'. Once the calculation has been made, the display changes to 'AVG. SPEED' followed by 3 digits indicating the average speed in hundreds, tens and units.

**NOTE:** *The Average Speed display will change at a maximum rate of 1 mph per 2 seconds.*

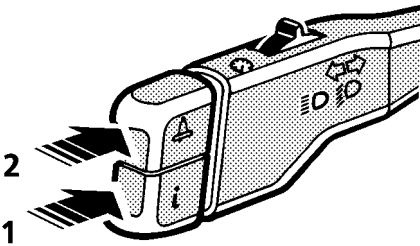
## **Trip distance two**

This function records the distance over which the average fuel consumption and speed have been calculated, and will always be the distance the vehicle has travelled since the computer was last reset. The message centre displays 'TRIP2---'.

## **Trip distance one**

This is a standard trip recorder of the type fitted to most motor vehicles and records the distance travelled since the reset button (on the right of the instrument pack) was last pressed. Press the reset button to zero the trip recorder. If the message display shows an internal or trip computer message, it can be changed to display the Trip Distance One function by operating the trip recorder reset button. The message centre displays the distance only (without 'TRIP1---').

# Trip computer & overspeed warning



P0192

## Resetting the trip computer

With the starter switch turned to position 'II', press and hold switch 1 for at least 2 seconds:

- Distance To Empty and Average Fuel Consumption functions both reset. The display will show 'COMPUTING RANGE' and 'COMPUTING MPG' until a distance of 0.6 miles (1 kilometre) has been travelled, after which the computer will once again be able to calculate an average fuel consumption figure.
- Average Speed is reset. The display will show 'COMPUTING MPH' until the vehicle has travelled far enough (0.6 miles or 1 kilometre) for an average speed to be available.
- Trip Distance Two function resets to zero

**NOTE:** The Trip Distance One function is not affected by resetting the trip computer.

## TRIP COMPUTER OVERSPEED WARNING

The overspeed warning function is an aid to keeping within speed limits, and is selected by pressing switch 2 ('bell' symbol).

To set the speed limit, press the switch (once or twice) until 'SPEED LIMIT - - -' is displayed, and then hold the switch until the required speed appears in the display (speeds will scroll upwards in increments of 5 mph from 20 mph (30 km/h) to 100 mph (140 km/h)).

**NOTE:** The display will start scrolling from which ever speed was previously set in the system memory.

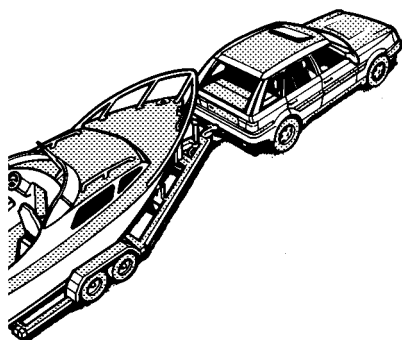
As soon as the required speed appears in the display, release the switch. That speed will then be set in the system memory.

Whilst driving, if you exceed the pre-set speed, 'SPEED LIMIT - - -' will be displayed in the message centre and an audible warning will sound.

To cancel the speed you have set, press switch 2 again (the message 'SPEED LIMIT OFF' will appear).

# Towing & load carrying

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P0211

## TOWING WITH YOUR VEHICLE

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.

Towing weights are listed in 'General data'.

### Trailer hitch

Range Rovers are equipped with a trailer hitch receiver as standard equipment. When selecting a drawbar, do not exceed a drop in height of  $1\frac{1}{2}$  inch (12 mm) or a rise in height of  $4\frac{3}{4}$  inches (120 mm) from the centre of the drawbar to the centre of the ball, nor exceed a hitch length of  $10\frac{1}{2}$  inches (266 mm).

An equalizing or other form of weight distributing hitch should not be used with a Range Rover.

## WARNING

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

*When preparing your vehicle for towing, always pay careful attention to the trailer manufacturer's recommendations and the following guidelines.*

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- Set the electronic air suspension to 'INHIBIT', select STANDARD ride height and maintain that setting whilst towing.
- Ensure that the vehicle and trailer tyre pressures are as recommended by the trailer manufacturer.
- Check the operation of trailer brakes and lights.
- For maximum stability, ensure that loads are properly positioned and secured to eliminate shifting during transit. Trailer loads should be positioned so that most of the weight is placed as low as possible and close to/over the trailer axle(s).
- After loading the trailer check that the weight on the hitch point (this is called the draw-bar loading weight, or tongue weight), is in accordance with the manufacturer's recommendations.
- **Trailers should never be towed when the tongue/draw bar rises up on its own when disconnected from the tow vehicle.**

# Towing & load carrying

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- When calculating the laden weight of the trailer, remember to include the weight of the trailer PLUS the load.
- Where the load can be divided between trailer and tow vehicle, loading more weight into the vehicle than the trailer 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.*

## TONGUE WEIGHT

The recommended maximum trailer tongue weight is 550 lb (250 kg).

### WARNING

***The tongue weight plus the combined weight of the vehicle's load carrying area and rear seat passengers, must NOT EXCEED the maximum rear axle load, or the gross vehicle weight (as shown in 'General data').***

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## 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').

If very heavy trailer loads are towed (particularly at high altitude or in hot climates), the 'GEARBOX OVERHEAT' warning may appear in the message centre.

This warning indicates that the gearbox oil is too hot, in which case you should reduce road speed, manually select a lower gear, or transfer to the LOW range of gears. If the message persists, stop the vehicle and allow the gearbox to cool. If the message resumes after cooling, seek qualified assistance before continuing.

**NOTE:** *When towing at altitudes above 1,000 feet (300 metres), engine performance can be adversely affected causing overheating.*

### 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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# Towing & load carrying

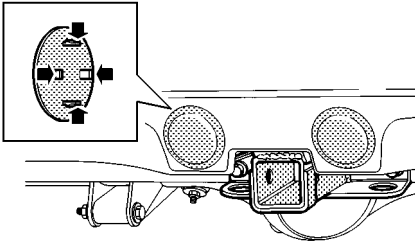
## TRAILER SOCKET

Incorporated in the Range Rover's electrical harness is the facility to fit a pair of multi-pin trailer lighting sockets.

Pick-up points for attaching a trailer lighting harness are located behind the tail light access panels (see illustration) - the trailer tail lights, stop lights and direction indicators are fed from a connector located behind the right hand panel, while the supply for a reversing light and trailer auxiliary equipment is fed from a connector behind the left hand panel.

### To fit a trailer lighting socket

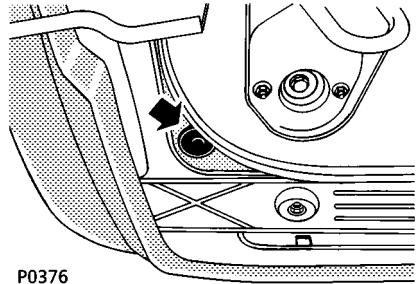
Before fitting trailer lighting equipment, ALWAYS disconnect the vehicle battery.



P0293

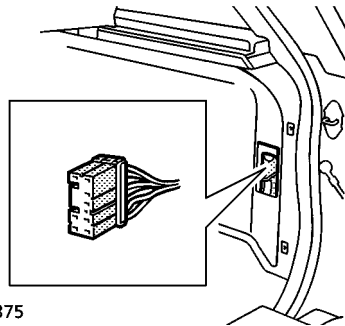
Detach both of the circular blanking covers from the bumper and feed the two parts of the main towing harness through the holes.

Fit the reinforcement plates and towing sockets to the bumper (the towing socket hinges must be uppermost), and then clip both parts of the main towing harness securely to the rear of the bumper along its full length (secure to the top of the bottom edge of the METAL bumper reinforcement).



P0376

From beneath the vehicle, remove the blanking grommets from the loadspace floor (one on each side - below each light unit). Then, via the tail light access panels, connect a genuine, Land Rover approved, linking harness to both harness connectors (on on each side of the vehicle). Each linking harness MUST be clipped securely to an adjacent body panel and then fed through the holes in the floor. Ensure the holes are properly sealed.



P0375

Connect both sides of the towing harness to the linking harness connectors protruding beneath the loadspace floor. Finally, reconnect the battery and check the operation of the trailer lights.

# Towing & load carrying

---

## WARNING

*It is ESSENTIAL that neither the towing harness, nor the linking harnesses, drop down below the level of the bumper, or are able to make contact with the exhaust system. Ensure that all harnesses are securely clipped to the bumper, or appropriate body panels, to prevent them from vibrating loose.*

---

## ROOF RACK

A Land Rover approved roof rack is available as an accessory. Fitting instructions and loading recommendations are detailed in the literature provided with the roof rack; observe all recommendations.

The total load must NOT exceed that given in 'General data', and must include the weight of the roof rack within the load.

## IMPORTANT INFORMATION

A loaded roof rack can reduce the stability of the vehicle, particularly when cornering and encountering cross winds.

All loads should be evenly distributed, and secured within the periphery of the rack.

Only fit roof racks that have been designed for your vehicle. If in doubt, consult your dealer.

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, all loads MUST be removed before traversing side slopes.

# Emergency starting

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## Starting an engine with a discharged battery

The ONLY recommended methods of restarting a vehicle with a discharged battery are:

- The use of a substitute battery fitted to the disabled vehicle.
- The use of booster cables to connect the battery from a donor vehicle to the discharged battery.

### WARNING

*A vehicle with automatic transmission cannot be restarted by pushing or towing.*

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## USING BOOSTER CABLES

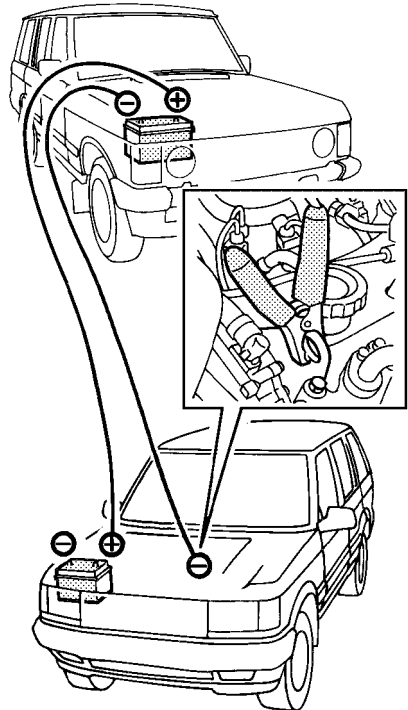
### WARNING

- *Batteries emit explosive hydrogen gas - keep sparks and naked lights away from the engine compartment.*
  - *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 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.*
-

# Emergency starting

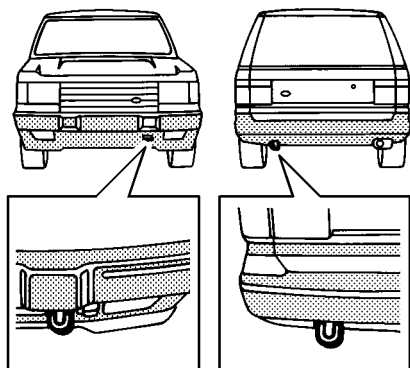
**Always adopt the following procedure when using booster cables:**

1. 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.
2. Apply the parking brakes and ensure that the transmission of both vehicles is set in neutral ('P' or Park for vehicles with automatic transmission).
3. Turn off the starter switch and ALL electrical equipment of BOTH vehicles.
4. Connect the RED booster cable between the positive (+) terminal of the donor battery and the positive (+) terminal of the discharged battery.
5. Connect the BLACK booster cable from the negative (-) terminal of the donor battery to the engine lifting ring (shown in illustration) on the disabled vehicle. **For safety reasons, DO NOT connect this cable to the negative terminal of the discharged battery. If in doubt, seek qualified assistance.**
6. Check that the booster cables are clear of any moving parts in either engine, then start the engine of the donor vehicle and allow it to idle for a few minutes.
7. Now start the vehicle with the discharged battery.
8. Once both engines are running normally, allow them to idle for two minutes before switching off the engine of the donor vehicle and disconnecting the booster cables. **DO NOT** switch on any electrical circuits on the previously disabled vehicle, until **AFTER** the booster cables have been removed.
9. Disconnecting the booster cables, must be an **EXACT** reversal of the procedure used to connect them, ie: first removing the **BLACK** cable clip from the lifting ring.



P0190B

# Emergency towing



P0132

## Towing eyes

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

**FRONT:** Use ONLY when the vehicle is to be towed with ALL four wheels on the ground (see *'Towing the vehicle on four-wheels'*).

**REAR:** Use ONLY when towing another vehicle.

## Long distance towing

Your vehicle can be towed behind a motorhome or other recreational vehicle. Follow the procedure for towing the vehicle on four wheels.

## Towing the vehicle on four-wheels

### WARNING

*Your vehicle has permanent four-wheel drive and is fitted with a steering lock. The following instructions must be carried out carefully to prevent damage to the vehicle.*

First, select transfer neutral as follows:

- Make sure the gear selector lever is in 'P' (Park).
- Remove the starter key, then insert a fuse (5 amps or greater) in fuse position 11 in the right hand seat fuse box. Insert key and turn the starter switch on; the transfer box will automatically select neutral (wait until the message centre displays 'TRANSFER NEUTRAL'), then turn the starter switch off.
- Turn the starter switch to position 'I' to unlock the steering, and then to position 'II' if it is necessary to operate the brake lights and direction indicators. Leave in this position while the vehicle is being towed.
- Leave the gear selector lever in 'P' (Park) at all times while the vehicle is being towed.
- To re-engage HIGH or LOW range after towing, turn the starter switch off, remove the fuse from position 11, then turn the starter switch on - the transfer box will engage the HIGH or LOW gear range.

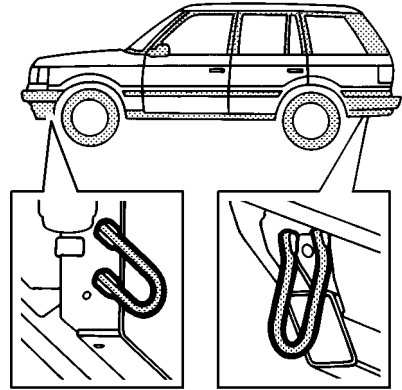
**NOTE:** *If, due to an accident or electrical fault, it is considered unsafe to turn the starter switch, the battery must be disconnected.*

# Emergency towing

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## WARNING

- **DO NOT** attempt to tow the vehicle unless the starter switch is turned to position 'I' (to unlock the steering).
- **DO NOT** attempt to remove the starter key, or turn the switch to position '0', while the vehicle is in motion.
- Without the engine running, the power steering pump and brake system cannot provide assistance. Greater steering effort and brake pedal effort will be required to safely control the vehicle.



P0133

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## Towing the vehicle on two-wheels

If it is necessary to recover the vehicle by towing on two wheels only, always adhere to the following:

Remove the propeller shaft from the axle which is to remain on the road.

The propeller shaft flange and shaft, must be marked before removal to ensure correct re-assembly. Secure the suspended propeller shaft safely to prevent damage.

## WARNING

**If the rear axle is to be raised, the steering wheel and/or linkage MUST be secured in a straight ahead position, but the steering lock MUST NOT be used for this purpose. The vehicle can then be attached to the towing truck.**

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## Transporter or trailer lashing

If your vehicle should require transporting on the back of a flatbed truck, then the air suspension must be set to 'ACCESS' before being lashed (see 'Air suspension'). Pairs of lashing eyes are provided at the front and rear (see illustration). **DO NOT** secure lashing hooks or trailer fixings to any other part of the vehicle.

If the air suspension cannot be set to the 'ACCESS' position, then your vehicle must be lashed by its wheels and **NOT** by the lashing rings referred to above.

**NOTE:** The lashing eyes are for lashing only and must **NOT** be used for towing.



# SECTION 4

## Owner maintenance

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

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

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

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# Owner maintenance

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## OWNER MAINTENANCE

In addition to the routine services, which should be carried out by your Land Rover dealer at the intervals shown in the Passport to Service, a number of simple checks (listed below) must be carried out by the owner or driver on a regular basis. These are fully described on the pages that follow.

### Daily or weekly checks

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

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

### WARNING

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

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

### IMPORTANT INFORMATION

#### Special operating conditions

When a vehicle is operated in extremely arduous conditions or on dusty, wet or muddy terrain, more frequent attention must be paid to servicing requirements.

For example; if your vehicle experiences deep wading conditions, even DAILY servicing could be necessary to ensure the continued safe and reliable operation of the vehicle.

Contact a Land Rover dealer for advice.

### WARNING

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

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# Owner maintenance

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## Planned maintenance

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

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

## Emission control

Your vehicle is fitted with various items of emission and evaporative control equipment, designed to meet specific territorial requirements.

You should be aware that unauthorised replacement, modification or tampering with this equipment by an owner or repair shop may be unlawful and subject to legal penalties.

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

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

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

### 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 practised by Land Rover dealers. Contact your Land Rover dealer for further information.*

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## Steering

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

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

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

# 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:

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

### WARNING

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

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## Poisonous liquids

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

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

## Used engine oil

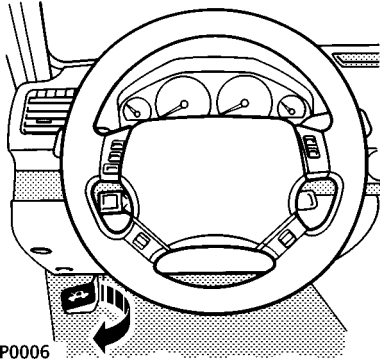
Prolonged contact with engine oil may cause serious skin disorders, including dermatitis and cancer of the skin. ALWAYS wash thoroughly after contact.

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

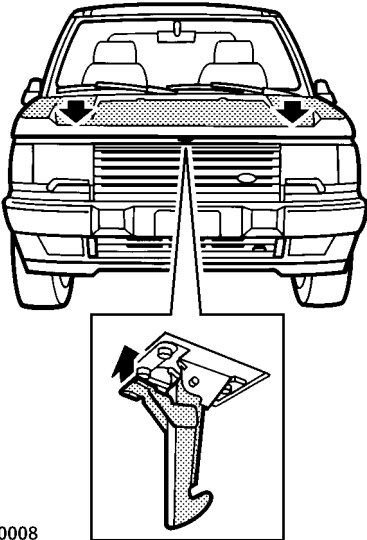
## PROTECT THE ENVIRONMENT!

# Hood opening

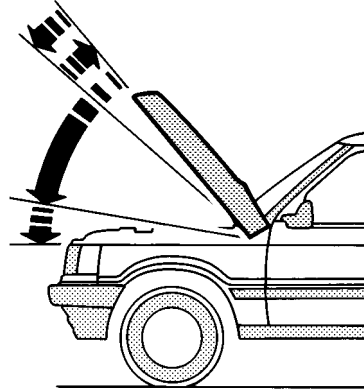
## OPENING THE HOOD



Pull the release lever.



Lift the safety catch and raise the hood.



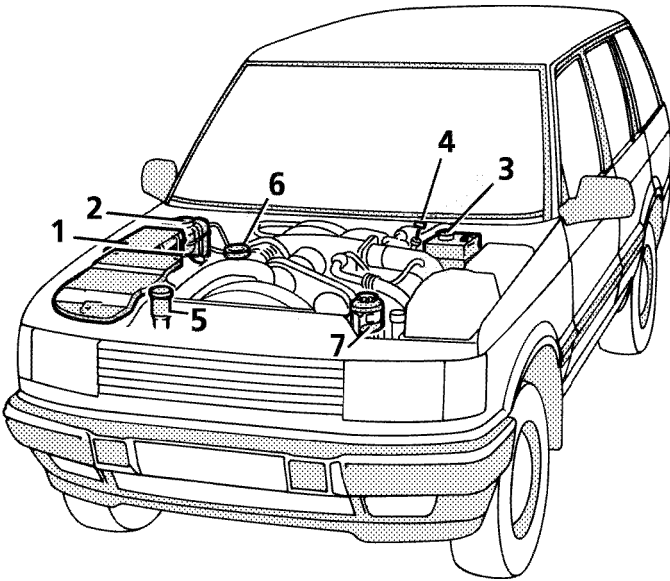
## Closing the hood

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

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

# Engine compartment

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P0004A

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

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

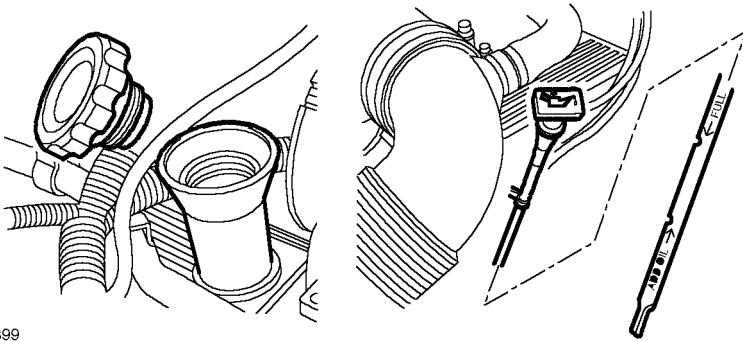
## **WARNING**

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

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# Engine compartment

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P0399

## ENGINE OIL LEVEL CHECK & TOP-UP

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

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

## DO NOT OVERFILL!

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

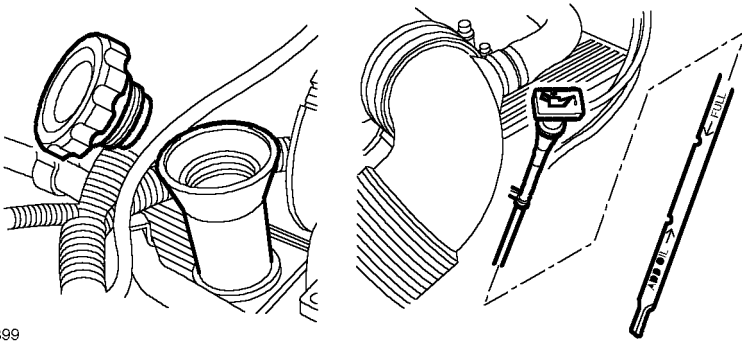
- is nearer to the upper mark than the lower, add no oil.
- is nearer to the lower mark than the upper, add 0.5 US quart (0.5 litre) of oil.
- is below the lower mark, add 1 US quart (1 litre) of oil and re-check the level after a further five minutes.

**NOTE:** If it is necessary to check the oil level when the engine is hot, switch off the engine and let the vehicle stand for five minutes to allow the oil to drain back into the sump. Then follow the procedure already described.

## Oil specification

It is essential to use an oil suitable for the climatic conditions in which the vehicle is to be operated. Precise specifications are shown in 'General data'. If in doubt, contact your Land Rover dealer.

# Engine compartment



P0399

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

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

## Engine oil drain and refill

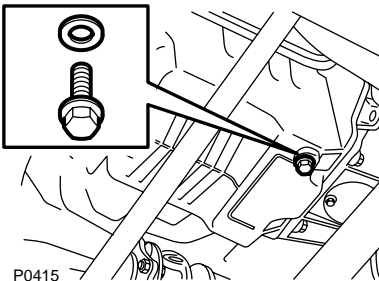
With the vehicle parked on firm, level ground, remove the filler cap and position a container of suitable size under the drain plug in the bottom of the sump.

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

## WARNING

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

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



P0415



# *Engine compartment*

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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.

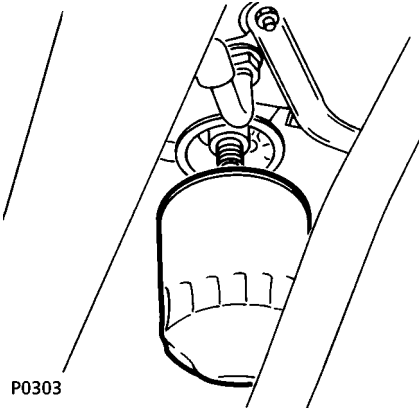
# *Engine compartment*

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## **Oil filter renewal**

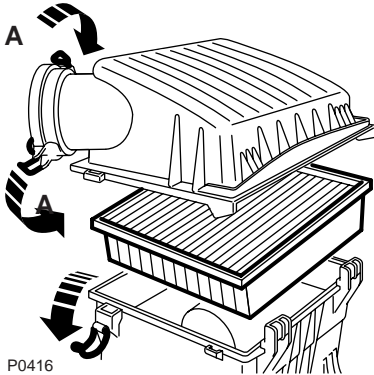
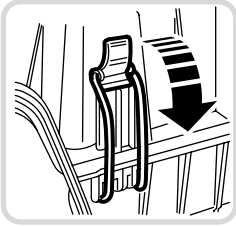
To avoid draining the oil pump, it is essential that the engine is filled with oil to the correct level **BEFORE** the filter is removed. It is therefore recommended that the engine oil is renewed before work on the filter commences.

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



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

# Engine compartment

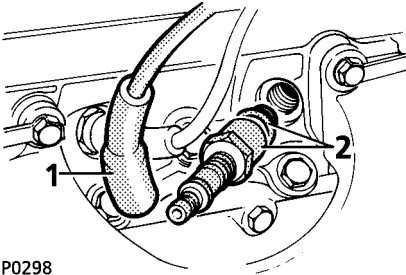


## Air cleaner element removal

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

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

# Engine compartment

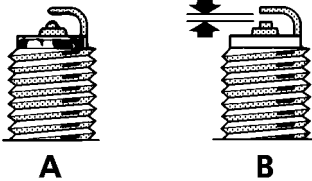


P0298

## Spark plug removal

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

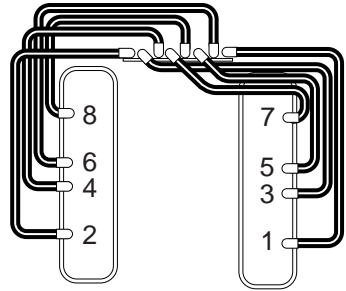
Ensure that the recesses around the plugs are free from debris (to avoid foreign matter accidentally entering the cylinder head), and use a suitable spark plug wrench to remove the plugs and washers (2).



P0299

## Cleaning and adjusting

Check or replace the spark plugs as applicable. If the plugs are in good condition but require adjusting, use a wire-brush to clean the threads and the electrode sparking surfaces (A). Then adjust the electrode gap to the recommended clearance (B) as shown in 'General data'.



P0417

## Refitting the plugs

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

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

## Refitting the high tension leads

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

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

# Engine compartment

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## COOLING SYSTEM TOP-UP

### WARNING

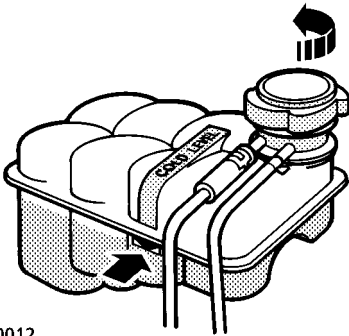
*NEVER remove the filler cap when the engine is hot; escaping steam or scalding water could cause serious personal injury.*

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

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

*NEVER run the engine without coolant.*

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P0012

Top-up to the arrowhead (next to the seam) on the side of the tank with a 50% mixture of anti-freeze and water. Ensure the cap is tightened fully after top-up is completed.

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

**DO NOT overfill !**

## Anti-freeze

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

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

### WARNING

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

# Engine compartment

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P0015

## WINDSCREEN WASHER TOP-UP

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

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

Top-up with a mixture of water and an approved screen washer solvent. In cold weather, to prevent freezing, **ALWAYS** use the recommended quantity of screenwash to help disperse ice and snow.

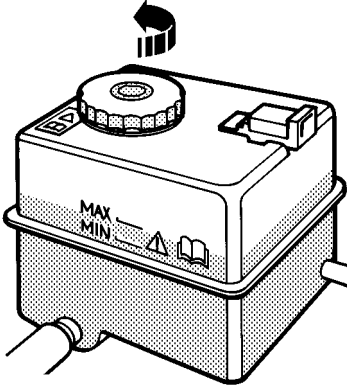
### WARNING

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

---

# Engine compartment

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P0013

## WARNING

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

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

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

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

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

---

## BRAKE FLUID CHECK

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

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

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

# Engine compartment

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## Topping-up

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

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

**DO NOT overfill!**

### **WARNING**

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

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

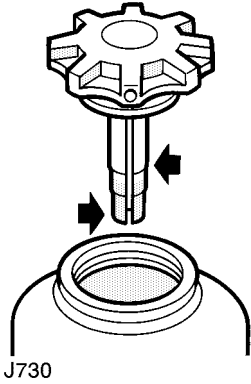
*At 90,000 mile (144,000 km) intervals or every 6 years, whichever is sooner, all hydraulic brake fluid, seals and flexible hoses should be renewed. All working surfaces of the caliper cylinders should be examined and the components renewed where necessary. Under arduous operating conditions, these intervals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

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# Engine compartment

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## POWER STEERING TOP-UP

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

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

Remove the filler cap and, using a lint-free cloth, wipe the dipstick clean. Refit the filler cap fully and remove it again to check the fluid level. Add fluid to the reservoir until the level is between the upper mark and the bottom of the dipstick (see 'General data' for recommended fluid).

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

## WARNING

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

---

## WARNING

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

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

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

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

---

# 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 given in the 'General data' section.

## WARNING

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

---

## Tyre wear

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

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

Tread depth must be checked regularly (at every maintenance service, or more frequently). Always replace a tyre before the tread reaches a remaining depth of 1/16 in. (1.6 mm). **DO NOT** drive with tyres worn to this limit; the safety of the vehicle and its occupants will be adversely affected.

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

## Valve caps

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

# Tyres

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## Replacement tyres

Wheel rims and tyres are matched to suit the handling characteristics of the vehicle. For safety, ALWAYS check that replacement tyres comply with the manufacturer's original specification and that the load rating shown on the side wall is the same as that of the original equipment. Contact your Land Rover dealer for further information or assistance.

### WARNING

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

***Do not replace wheels with any type other than genuine Land Rover parts. Wheels and tyres are designed for both off-road and on-road use and have a very important influence upon the correct operation of the suspension systems and vehicle handling. Alternative wheels, which do not meet original equipment specifications, should not be fitted.***

---

***NOTE:*** Tyre sizes and pressures are shown in 'General data'.

## Snow chains

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

- ONLY Land Rover approved chains may be fitted. They must be fitted in axle sets to the front wheels or to all four wheels.
- Always adhere to the snow chain fitting and retensioning instructions and the speed limitations recommended for varying road conditions. NEVER exceed 30 mph (50 km/h).
- To avoid tyre damage, do not drive over curbs, potholes or obstructions in the road and remove snow chains as soon as highway conditions allow.

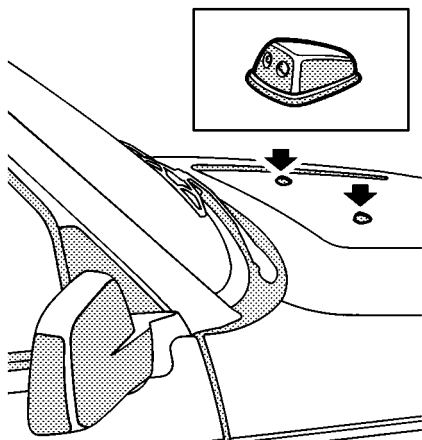
For further information about approved snow chains, consult your Land Rover dealer.

### WARNING

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

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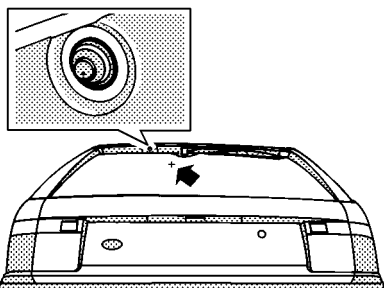
# Washer jets & wiper blades



P0188

## WASHER JETS

To adjust the front screen washer jets, insert a needle into the jet orifice and lever gently to position each jet, so that the spray is directed towards the horizontal centre line of the windscreen.

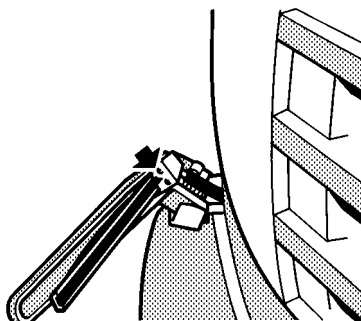


P0189

To adjust the rear screen washer jet, insert a long needle-like probe into the jet orifice and lever gently to position the jet, so that the spray is directed towards the 'cross' symbol printed on the screen glass.

## HEADLIGHT WIPERS

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



P0016

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

## REAR WIPER BLADE REPLACEMENT

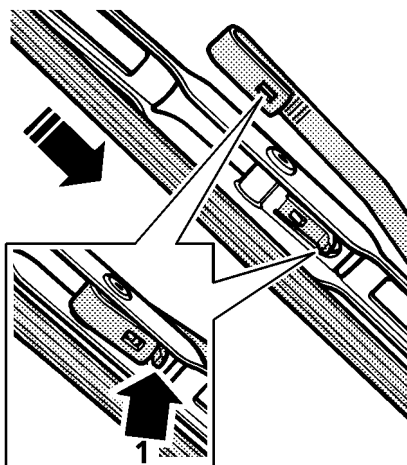
The rear wiper arm is inaccessible in its stowed position (under a cover at the top of the tailgate). To change the wiper blade, it is necessary to stop the wiper arm during its travel as follows:

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

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

# Washer jets & wiper blades

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P0210

## FRONT WIPER BLADE REPLACEMENT

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

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

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

# Battery

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## WARNING

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

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

*On clothing or the skin - remove any contaminated clothing immediately, flush the skin with large amounts of water and seek medical attention urgently.*

*In the eyes - flush with clean water immediately for at least 15 minutes. Seek medical attention urgently.*

*Swallowing battery acid can be fatal unless immediate action is taken - seek medical attention urgently.*

*During normal operation batteries emit explosive hydrogen gas; ensure sparks, flames and other ignition sources (i.e. cigarettes) 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.*

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

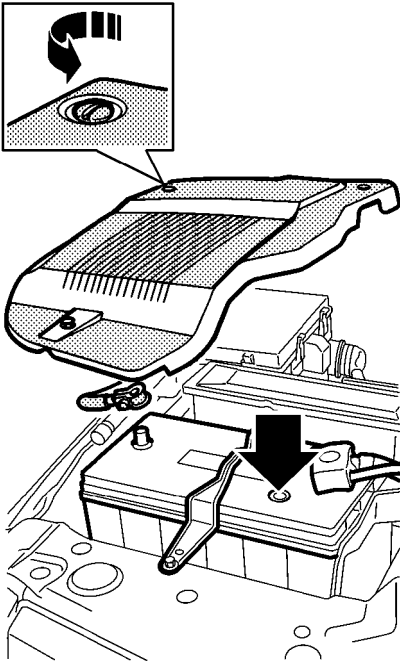
- GREEN - the battery is in a good state of charge.
- DARK (turning to black) - the battery needs charging.
- CLEAR (or light yellow) - the battery must be replaced. Do not charge the battery or jump start the vehicle in this condition.
- If the green dot is missing the battery needs charging.

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

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

# Battery

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P0193B

## Battery removal & replacement

### WARNING

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

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

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

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

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

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

### Replacement batteries

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

### Battery disposal

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

### WARNING

***Do not reverse the polarity of the battery - the electrical system may be damaged if the battery leads are connected to the wrong terminals.***

***Keep the battery upright at all times - damage will be caused if the battery is tilted more than 45 degrees.***

***DO NOT run the engine with the battery disconnected, or disconnect the battery while the engine is running.***

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# Battery

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## WARNING

- **DO NOT disconnect the battery when the security system is armed.**
- **DO NOT use a high speed battery charger as a starting aid.**
- **DO NOT charge the battery if it is connected to the vehicle - this may seriously damage the electrical system.**
- **DO NOT attempt to charge the battery if the battery condition indicator is clear or light yellow.**
- **DO NOT charge the battery if it is suspected of being frozen.**

---

## Cold climates

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

## BATTERY CHARGING

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

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



# Battery

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## EFFECTS OF BATTERY DISCONNECTION

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

### Radio/cassette & CD player

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

### Windows & sunroof

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

### Trip computer

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

### Trip odometer (trip 1)

This resets to zero.

## Handsets

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

# Wheel changing

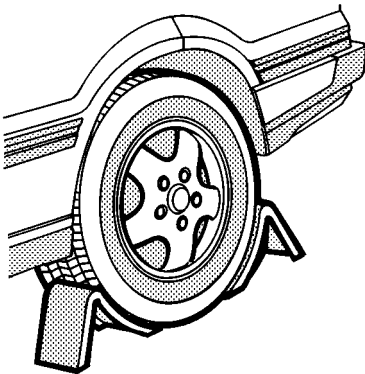
## WARNING

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

To 'lock' the suspension:

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

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



Using the wheel chocks

## WARNING

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

Always chock the front and back of the wheel diagonally opposite the one to be removed.

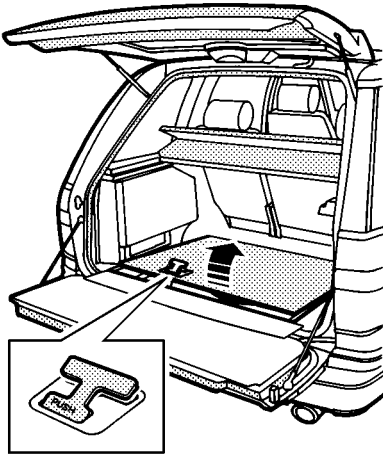
The wheel chocks are stowed with the jack, jack lever, wheel brace and steel spare wheel beneath the loadspace floor.

## IMPORTANT INFORMATION

Before jacking the vehicle always observe the following precautions!

- Park your vehicle away from the thoroughfare, and make your passengers wait in a safe area **AWAY** from the vehicle.
- Position the warning triangle at an appropriate distance from the vehicle to warn other traffic.
- Apply the parking brake and select gear position 'P' in Low or High range.
- Ensure the air suspension system is locked, and remove the starter key.
- **NEVER** jack the vehicle with passengers inside, or with a caravan or trailer connected!
- **NEVER** work beneath the vehicle with the jack as the only means of support. The jack is designed for wheel changing only!

# Wheel changing



P0078

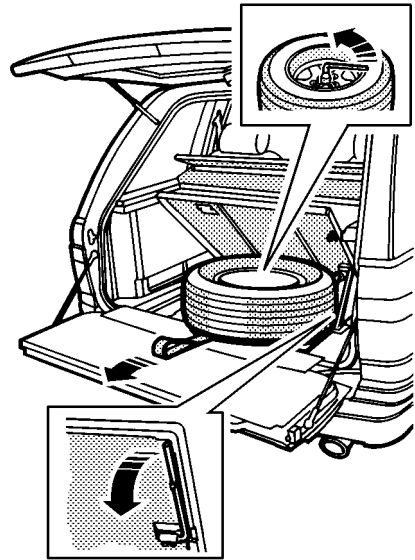
## Removing the spare wheel

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

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

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

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



## WARNING

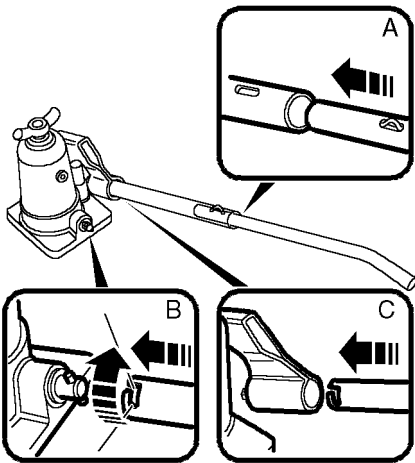
*The wheels are extremely heavy. Take care when lifting and particularly when removing the spare wheel from the loadspace.*

# Wheel changing

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## WARNING

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



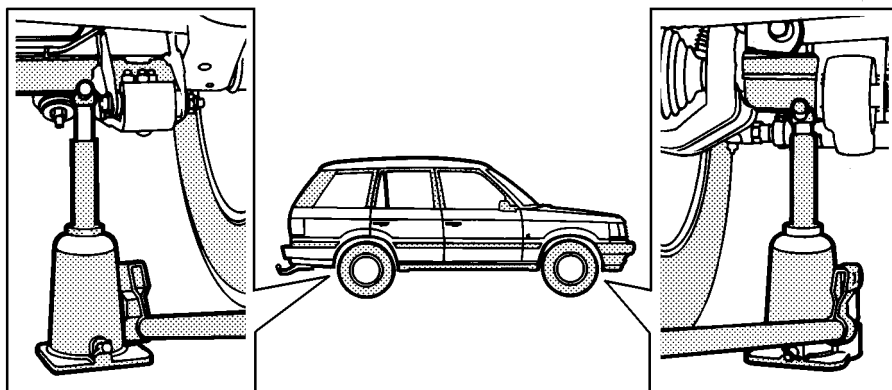
P0400

### Operating the jack

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

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

# Wheel changing



P0082

## Positioning the jack

Before positioning the jack, ensure that the air suspension system is 'locked' (key removed from starter switch, hazard lights switched on, and tailgate open). If the vehicle had previously settled to Low ride height (or Access), it will be necessary to improve access beneath the vehicle by starting the engine and raising the vehicle to Standard or High ride height before positioning the jack. Always position the jack from the front or rear of the vehicle directly in line with the jacking points.

## WARNING

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

## Rear jacking point:

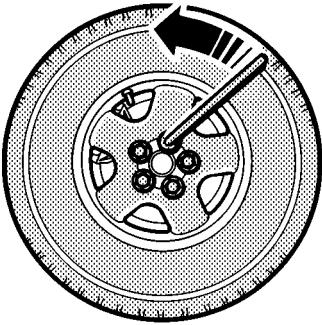
Push the mud flap up over the tyre to allow clear access. Position the jack so that, when raised, it engages with the rear axle casing immediately below the air spring and as close as possible to the shock absorber mounting bracket (see illustration).

## Front jacking point:

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

# Wheel changing

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P0142

## Changing a wheel

Before raising the vehicle, ensure that all the precautions listed at the beginning of this section have been observed.

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

### WARNING

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

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- Use the wheel brace to slacken the wheel nuts half a turn anti-clockwise.
- Raise the vehicle until the tyre is clear of the ground and remove the wheel nuts and wheel (DO NOT damage the surface of alloy wheels by placing them face down on the road).
- Use an approved anti-seize compound to treat the wheel-mounting spigot to minimise the tendency for adhesion between the wheel and the spigot. Ensure that no oil or compound comes into contact with the brake components. If, due to an emergency situation, this treatment is not practicable; refit the spare wheel for the time being, but remove and treat the wheel at the earliest opportunity.
- Fit the spare wheel and tighten the wheel nuts, ensuring they are firmly seated. DO NOT fully tighten whilst the tyre is clear of the ground.

### WARNING

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

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# Wheel changing

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

## Care of the jack

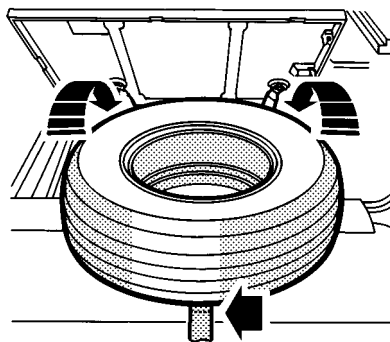
Examine the jack occasionally; clean and grease the moving parts, particularly the ram, to prevent corrosion.

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

## Wheel centre cap

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

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



P0165

## Replacing the spare wheel

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

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

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

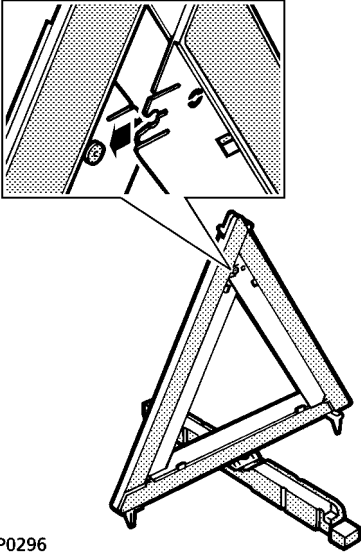
## WARNING

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

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# Warning triangle

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P0296

## Warning triangle

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

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



# Fuses

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

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

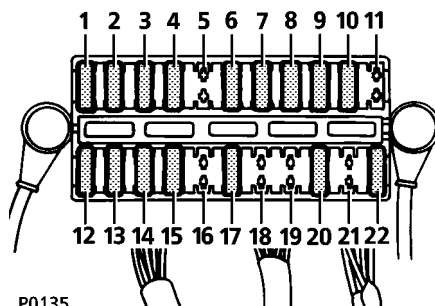
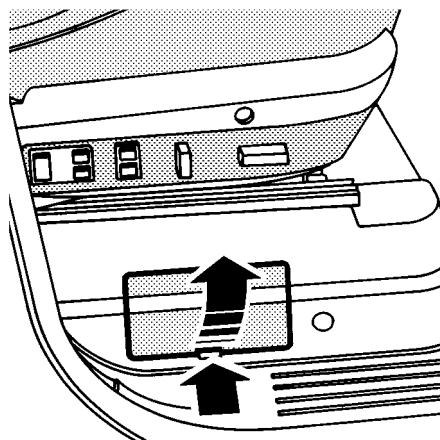
Fuses are colour-coded to help identify their amperage, as follows:

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

## WARNING

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

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



## RIGHT HAND SEAT FUSE BOX

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

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

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

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

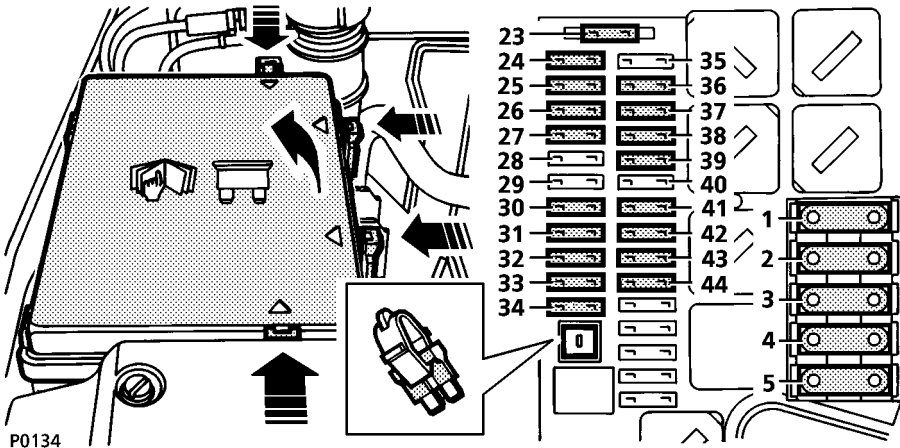
# *Fuses*

## RIGHT HAND SEAT FUSE BOX

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

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

# Fuses



P0134

## ENGINE COMPARTMENT FUSE BOX

### WARNING

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

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

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

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

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

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

### WARNING

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

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

# Fuses

## ENGINE COMPARTMENT FUSE BOX

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

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

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

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

# *Bulb replacement*

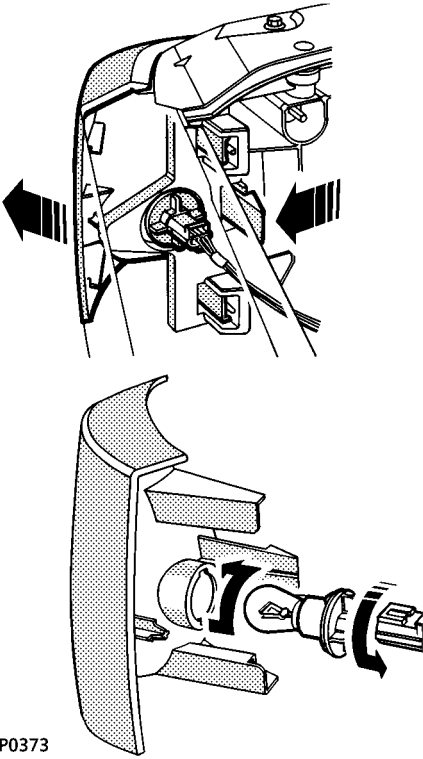
REPLACEMENT BULBS	Watts
Headlight units	
Front direction indicator/side marker light	21/5
Inboard main beam headlight	60
Dip/main headlight	60/55
Front fog lights	55
Rear clusters:	
direction indicator	21
tail light	5
stop light	21
Tailgate clusters:	
rear fog guard light	21
reversing light	21
High mounted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

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

IMPORTANT INFORMATION
<p>Before replacing a bulb, always switch off the starter switch and appropriate lighting switch to prevent any possibility of causing a short circuit. Only use new bulbs of the same type and with the same specification.</p> <p style="text-align: center;"><b>Halogen bulbs</b></p> <p>Halogen bulbs are used for dipped/main, supplementary main beam and front fog lights. Take care NOT to touch this type of bulb with your fingers; always use a cloth to handle them. If necessary, clean the bulb with methylated spirits to remove fingerprints.</p>

# Bulb replacement

---



P0373

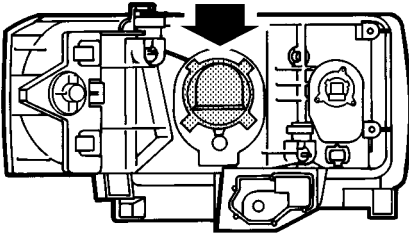
## Front direction indicators/Side marker lights

For right hand indicator: remove the battery cover.

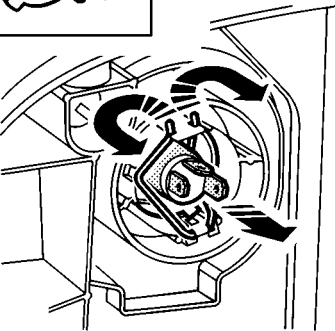
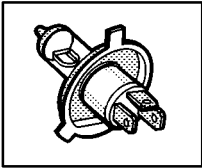
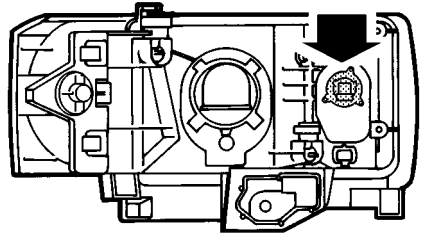
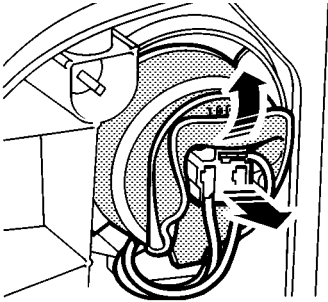
For both indicators: press the plastic lever (arrowed in top picture) to release the light unit from the front of the vehicle. Hold the light unit and rotate the bulb holder (see lower picture), then pull bulb holder to remove. Press and twist bulb to remove.

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

# Bulb replacement



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

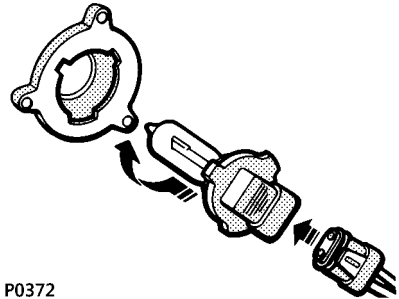


P0371

## Dipped and main beam

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

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

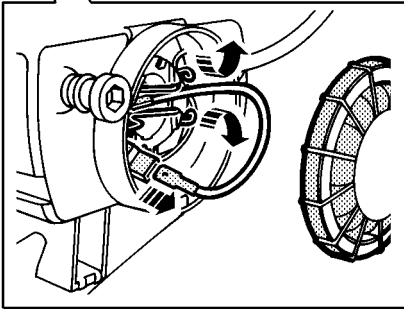
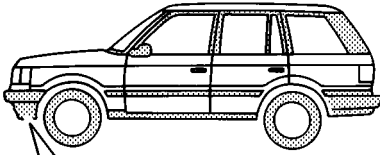


P0372

## Inboard main beam

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

# Bulb replacement



P0136

## Front fog lights

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

Replace the bulb and bulb holder as one assembly.

## Stop, direction indicator & tail lights

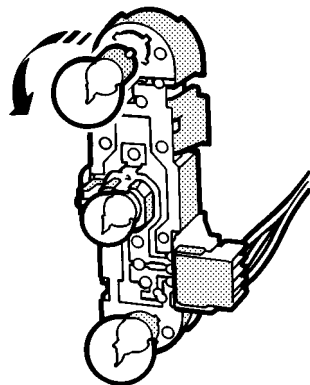
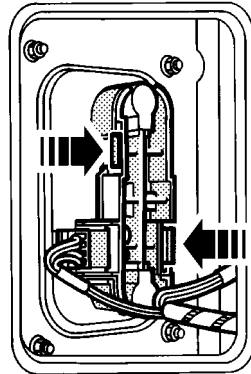
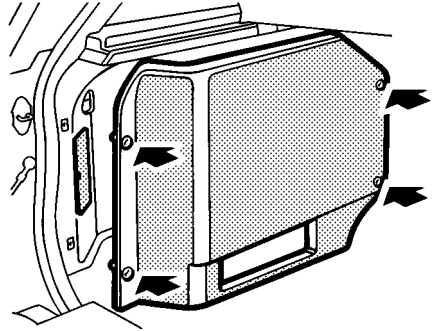
**NOTE:** If your vehicle is fitted with a CD autochanger, to access the left hand cluster, it will be necessary to remove the rear trim panel by releasing the four fasteners.

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

Top - direction indicator

Centre - tail light

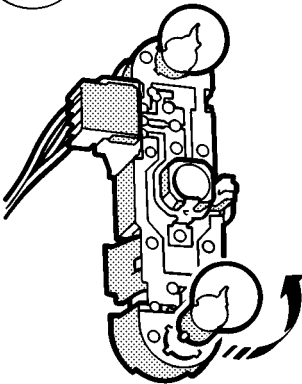
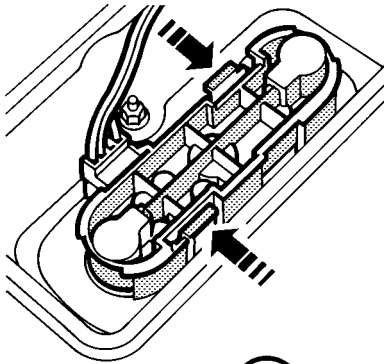
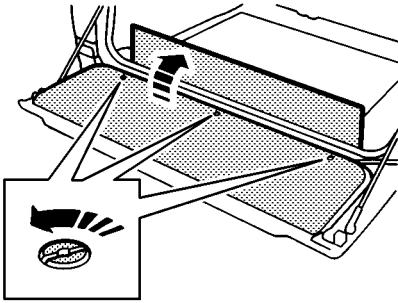
Bottom - stop light.



P0138



# Bulb replacement



P0137

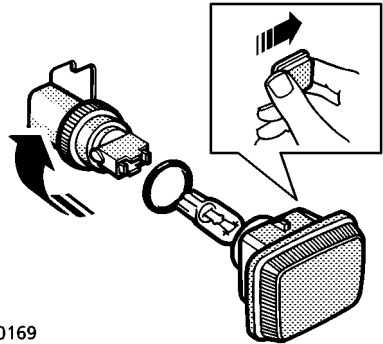
## Reversing & fog guard lights

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

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

Top - reversing light

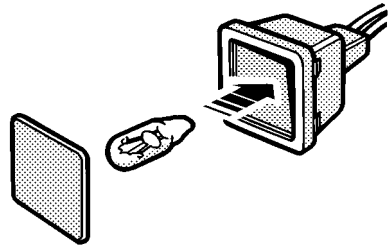
Bottom - fog light.



P0169

## Side repeater lights

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



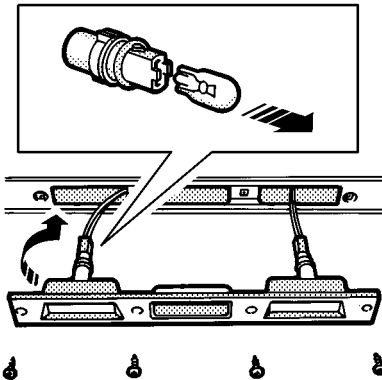
P0139

## Puddle lights

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

Fit lens to the light unit before refitting.

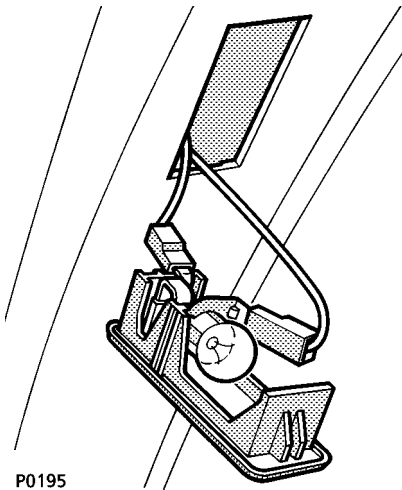
# Bulb replacement



P0164

## Number plate lights

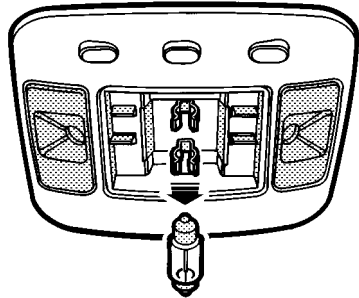
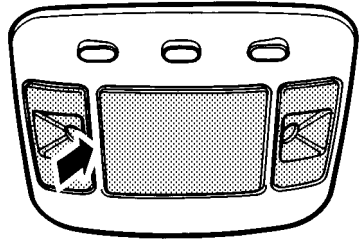
Open the upper tailgate, remove the screws and withdraw the light unit. Twist bulb holders to remove and pull out the bulbs.



P0195

## Loadspace light

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



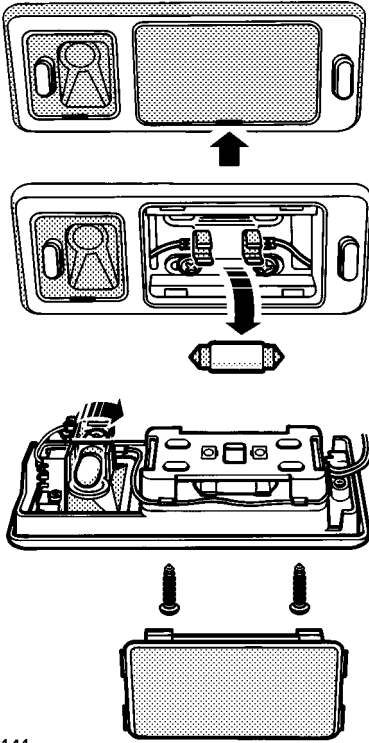
P0140

## Front courtesy & reading lights

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

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

# Bulb replacement

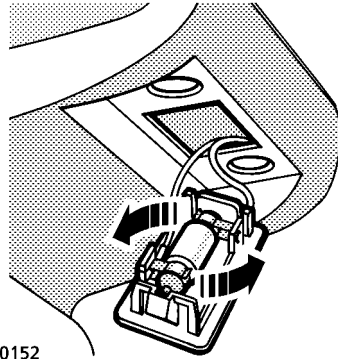


P0141

## Rear courtesy & reading lights

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

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

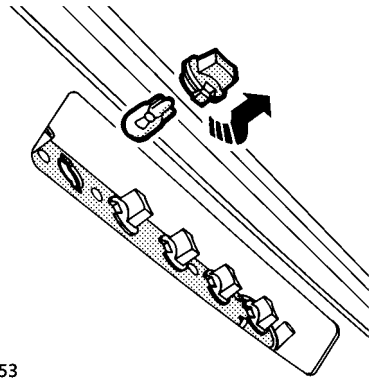


P0152

## Rear footwell light

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

Replace the bulb then refit assembly to the centre console.

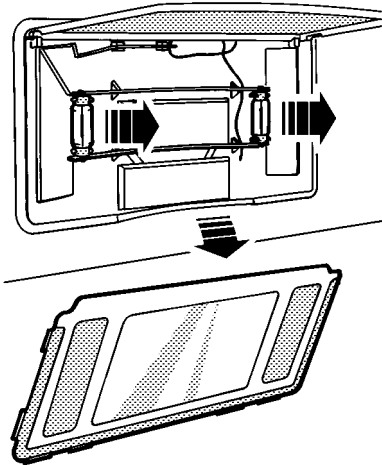


P0153

## High mounted stop light

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

# Bulb replacement

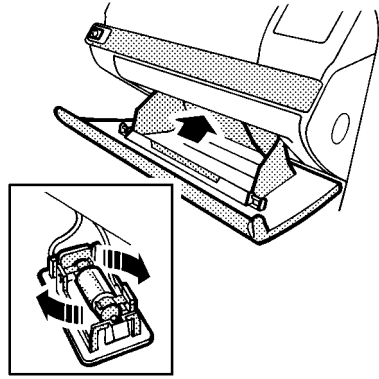


P0191

## Vanity mirror illumination

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

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



P0259

## Glovebox illumination

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

Replace the bulb then refit assembly to the glovebox.

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

# Cleaning & vehicle care

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## WASHING YOUR VEHICLE

Wash your car frequently using a sponge and generous quantities of cold or lukewarm water containing a car shampoo. Rinse and dry off with a chamois leather.

- Do not use hot water!
- Do not use detergent soap products or washing-up liquid!

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

### WARNING

*Some high pressure cleaning systems are sufficiently powerful to penetrate door and window seals and damage rubbing strips and locking mechanisms. Never aim the water jet directly at components that might easily be damaged.*

---

## Underbody maintenance

Corrosive materials used for snow and ice removal and dust control can collect on underbody parts. If these materials are not removed, accelerated rusting can occur on underbody parts such as the frame, floor pan and the exhaust system. Regularly flush these materials from the underbody with plain water. Take care to thoroughly clean any areas where mud and other debris can collect.

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

## Steam cleaning

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

## Removing tar spots

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

## Body protection

After washing, inspect the paintwork for damage. Any stone chips, fractures or deep scratches in the body work should be repaired promptly. Bare metal will corrode quickly and can develop into major repair expense. Some exterior panels of your vehicle are made of aluminum which will not corrode in the same manner as sheet steel. However, any damage should still receive prompt attention. Minor chips and scratches can be repaired with touch-up materials available from your dealer. Larger areas of damage need to be corrected to professional standards immediately.

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

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

## Cast alloy road wheels

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

# *Cleaning & vehicle care*

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## **Sunroof**

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

If in doubt, consult your dealer.

## **Mirrors**

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

## **LOOKING AFTER THE INTERIOR**

Clean plastic-faced or cloth covered surfaces with diluted upholstery cleaner.

Leather seats, steering wheel and trim features should be cleaned with a damp cloth moistened with undiluted upholstery cleaner. Leave for five minutes, and then repeat the operation using a clean, cloth and water, but avoid flooding the area! Dry and polish the leather with a dry, clean, lint-free cloth.

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

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

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

## **Seat belts**

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

## **Airbag SRS**

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

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

## **Heated rear screen**

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

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



# ***SECTION 5***

## ***General data***

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# *General data*

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## **Brake reservoir**

Universal brake fluids or any brake fluid having a minimum boiling point of 500°F (260° C) and complying with FMVSS 116 DOT 4.

## **Windscreen washers**

Screen washer fluid.

## **Engine cooling system (petrol and diesel models)**

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

## **Air conditioning refrigerant**

R134A

## **Inertia reel seat belts**

**DO NOT LUBRICATE.** These are lubricated for life during manufacture.

## **Battery terminals**

Petroleum jelly. DO NOT use silicone grease.

## **Door locks**

Lubricate at normal service intervals with FUCHS RENOCAL FN745.

# *General data*

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## CAPACITIES

The following capacities are approximate and provided as a guide only. All oil levels must be set using the dipstick or level plugs as applicable.

	<b>US units</b>	<b>Imperial</b>	<b>Metric</b>
Fuel tank	24.6 US gall	20.5 Imp gall	93,0 litre
Engine sump	7.0 US quarts	11.6 Imp pt	6,6 litre
Automatic gearbox	10.2 US quarts	17.0 Imp pt	9,7 litre
Transfer box	2.4 US quarts	4.0 Imp pt	2,3 litre
Front differential	1.8 US quarts	3.0 Imp pt	1,7 litre
Rear differential	1.8 US quarts	3.0 Imp pt	1,7 litre
Cooling system	12.0 US quarts	20.0 Imp pt	11,3 litre
Washer reservoir	6.3 US quarts	10.6 Imp pt	6,0 litre

# General data

---

## 4.0 ENGINE

Bore .....	3.7 in (94 mm)
Stroke .....	2.8 in (71 mm)
Number of cylinders .....	8
Compression ratio .....	9.34:1
Cylinder capacity .....	241 cu in (3950 cm <sup>3</sup> )
Firing order .....	1,8,4,3,6,5,7,2
Spark plug type .....	Champion RC11PYPB4
Spark plug gap .....	0.035 in (0.90 mm)
Tappets .....	hydraulic - self adjusting
Rev limiter (fuel cut-off point) .....	5,500 rev/min

## 4.6 ENGINE

Bore .....	3.7 in (94 mm)
Stroke .....	3.2 in (82 mm)
Number of cylinders .....	8
Compression ratio .....	9.35:1
Cylinder capacity .....	278 cu in (4555 cm <sup>3</sup> )
Firing order .....	1,8,4,3,6,5,7,2
Spark plug type .....	Champion RC11PYPB4
Spark plug gap .....	0.035 - 0.40 in (0.90 - 1.00 mm)
Tappets .....	hydraulic - self-adjusting
Rev limiter (fuel cut-off point) .....	5,500 rev/min

# General data

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## STEERING

Steering wheel turns lock to lock .....	3.2 turns
Camber angle .....	0°
Castor angle .....	4°
Swivel pin inclination .....	8°
Front wheel toe out .....	0.02 in to 0.07 in (0.6 mm to 1.8 mm)
Turning circle between kerbs .....	39 ft (11.9 m)

## ELECTRICAL SYSTEM

Type .....	negative earth
Voltage .....	12 volt
Battery .....	type 664 (107 amp/hr)
Charging circuit .....	AC Generator (alternator)
Ignition circuit .....	EMS - Programmed

## DIMENSIONS

Overall length (bumper to bumper) .....	185.6 in (4713 mm)
Overall width (excluding door mirrors) .....	74.4 in (1889 mm)
Overall height (at STANDARD ride height) .....	71.6 in (1818 mm)
Wheelbase .....	108.1 in (2745 mm)
Track - front .....	60.6 in (1540 mm)
rear .....	60.2 in (1530 mm)

# General data

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## APPROACH, DEPARTURE AND BREAKOVER ANGLES

**NOTE:** All figures are ride height figures for vehicles with 255/65 x16 tyres at curb weight, plus the weight of a 165 lb (75 kg) driver and are given in degrees.

### Front - approach angle

	CRAWL & ACCESS	LOW	STANDARD	HIGH
To bib spoiler*	24°	28°	31°	34°
To bumper	28°	32°	34°	38°

\* It is recommended that the bib spoiler is removed for all serious off-road driving.

### Rear - departure angle

	CRAWL & ACCESS	LOW	STANDARD	HIGH
To crossmember	24°	27°	29°	32°

### Breakover angle

	CRAWL & ACCESS	LOW	STANDARD	HIGH
	160°	156°	154°	151°

# General data

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## VEHICLE WEIGHTS

Curb weight .....	4787 lb	(2171 kg)
Max. front axle weight .....	2910 lb	(1320 kg)
Max. rear axle weight .....	4056 lb	(1840 kg)
Gross vehicle weight .....	6129 lb	(2780 kg)

**CURB WEIGHT:** equals the minimum unladen vehicle weight plus full fuel tank.

**GROSS VEHICLE WEIGHT:** equals the maximum all up weight with driver, passengers, payload equipment and towing attachment load (where applicable).

**GROSS VEHICLE WEIGHT CONDITION:** The maximum axle weights shown are individual axle loadings which allow for the fitting of optional equipment. The loading of both axles up to their respective maximum **MUST BE AVOIDED**, as the overall maximum vehicle weight would then be exceeded.

## TOWING WEIGHTS

	On-road		Off-road	
Unbraked trailers .....	1650 lb	(750 kg)	1100 lb	(500 kg)
Trailers with brakes (Low range) .....	7700 lb	(3500 kg)	2200 lb	(1000 kg)
Trailers with brakes (High range) .....	6500 lb	(2950 kg)	2200 lb	(1000 kg)
Maximum tongue weight .....	550 lb	(250 kg)		
Roof rack load .....	165 lb	(75 kg) **		

**NOTE:** All weight figures are subject to local restrictions. It is the owners responsibility to ensure that all territorial towing regulations are complied with.

\*\* Driving off-road with a loaded roof rack is not recommended (see 'Roof rack' in the 'Towing & load carrying' section of the handbook).



# General data

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## FUEL

### Gasoline (Minimum requirement)

Catalyst vehicles

High compression engines ..... Premium unleaded gasoline with a CLC or AKI octane rating of 90 or 92 (95 or 96 RON)

## WHEELS AND TYRES

Road wheel nut torque .....	80 ft.lb	
Wheel size .....	8J x 16	
	8J x 18	
Tyre size .....	255/65 R16	
	255/55 R18	
	<b>Front</b>	<b>Rear</b>
Tyre pressures (all load conditions) .....	28 psi	38 psi
	(2.0 kgf/cm <sup>2</sup> )	(2.7 kgf/cm <sup>2</sup> )

### WARNING

*Tyre pressures must be checked with the tyres cold, as the pressure is approximately 3 psi (0.2 kgf/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 tyres to cool before checking the pressures.*

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### 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 tubed tyre.*

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# ***SECTION 6***

## ***Parts & accessories***

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# Parts & accessories

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## PARTS & ACCESSORIES

Your vehicle 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 vehicle 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 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.

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

## 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.*

*Do not fit oversize tyres or body/suspension lift kits - this could seriously affect vehicle handling and stability.*

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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 or fuel 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.*

---

## 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, front seats, instrument and fascia panels.*
  - *Any modification to the fascia panels, steering wheel or front seats.*
- 

## Travelling abroad

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

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

## *Parts & accessories*

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## *Parts & accessories*

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## *Parts & accessories*

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# **SECTION 7**

## ***On-road driving***

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*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.*

<b>Section Contents</b>	<b>Page</b>
Instruments and warning lights .....	193
Power assisted steering .....	193
Warming up .....	193
Vehicle stability .....	193
Vehicle height .....	193
Fuel economy .....	194
Breakdown safety .....	194



# 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 seek qualified assistance before continuing.*

## 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.

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.

## 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 Range Rover 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. As with other vehicles of this type, failure to operate the Range Rover 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. 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 the handbook is devoted to your vehicle's superb off-road driving capabilities.*

*Before venturing off-road however, 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.*

Section Contents	Page
Basic off-road techniques .....	197
Driving on soft surfaces & dry sand .....	200
Driving on slippery surfaces .....	200
Driving on rough tracks .....	200
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Negotiating a 'V' shaped gully .....	203
Driving in existing vehicle tracks .....	203
Crossing a ridge .....	204
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Wading .....	204



# Off-road driving

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## WARNING

*Off-road driving can be hazardous!*

- *DO NOT take unnecessary risks.*
- *Be prepared for emergencies at all times.*
- *Your Range Rover has 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.*
- *Remove the CD autochanger before arduous off-road driving.*
- *Always ensure that seat belts are worn for personal protection in all off-road driving conditions.*
- *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.*

## 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.

### Gear selection

With the gearshift 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 the LOW range when ground conditions become very difficult. Uncontrolled spinning of individual wheels will be limited by the viscous coupling unit which is combined with the centre differential.

### Braking

As far as possible, vehicle speed should be controlled through correct gear selection.

Application of the brake pedal should be kept to an absolute minimum. Harsh braking on wet, muddy or loose surfaces could prove dangerous.

**NOTE:** *If the correct gear and gear range has been selected, braking will be largely unnecessary.*



# Off-road driving

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## Use of engine for braking

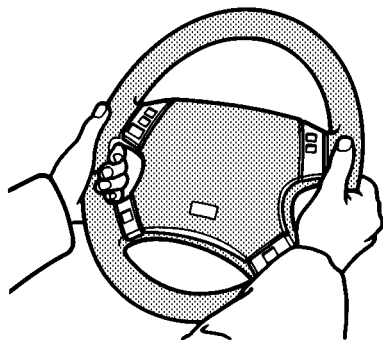
Before descending steep slopes, stop the vehicle at least its length before the descent, move the gearshift lever to 'N', engage LOW range and then select '1' or '2' in the main gearbox depending on the severity of the incline.

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 result in loss of control of the vehicle.

## Steering



P0168

### 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

For serious off-road driving ALWAYS remove the bib spoiler extension from the front bumper (if fitted).

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 LEFT of the centre of the vehicle. Note also that there are other parts of the vehicle which may come into contact with the ground; where possible attempt to avoid obstacles that may foul the chassis or differentials.

Ground clearance is particularly important at the bottom of a steep slope, 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, if the vehicle's progress is halted as a result of grounding of the chassis, this will cause the vehicle to rise automatically to the 'Extended profile' ride height position. (see 'Air suspension' for further details).

# Off-road driving

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## Loss of traction

If the vehicle is immobile due to loss of wheel grip, the following hints could be of value:

- Avoid prolonged wheel spin; this will only make matters worse. The electronic traction control (ETC) will prevent wheel spin; drive will be diverted from a spinning wheel and the remaining wheel will then provide the traction necessary to overcome difficult driving conditions.
- Remove obstacles rather than forcing the vehicle across 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.
- 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.

In addition:

After wading in salt water or driving on sandy beaches, use a hose to thoroughly 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 ground and dry sand requires the vehicle to be kept moving at all times; soft ground and 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 these will enable you to accelerate through worsening conditions without the risk of being unable to restart.

### **Stopping the vehicle on soft ground**

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' position (or '4' if in LOW range) and use the MINIMUM throttle necessary to get the vehicle moving. In LOW range, select MANUAL mode. (see '*Automatic transmission*' for further information).

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 not possible, place sand mats or ladders beneath the wheels.

## **DRIVING ON SLIPPERY SURFACES (ice, snow, mud or wet grass)**

Select 'D' (or '4' if in LOW range). In LOW range, also select MANUAL mode. (see '*Automatic transmission*' for further information).

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**

On very rough tracks, engage the LOW gear range to enable a steady, low speed to be maintained without constant use of the brake pedal.



P0178

## CLIMBING STEEP SLOPES

ALWAYS follow the 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 the 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 parking brakes.
2. Restart the engine if necessary.
3. Engage LOW range reverse gear.
4. Release the parking brake. Then release the foot brake and allow the vehicle to reverse down the slope using engine braking to control the rate of descent.

5. Unless it is necessary to stop the vehicle in order to negotiate obstructions, DO NOT apply the brake pedal during the descent.
6. If the vehicle begins to slide, accelerate slightly to allow the tyres to regain grip.

When the vehicle is back on level ground or 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.

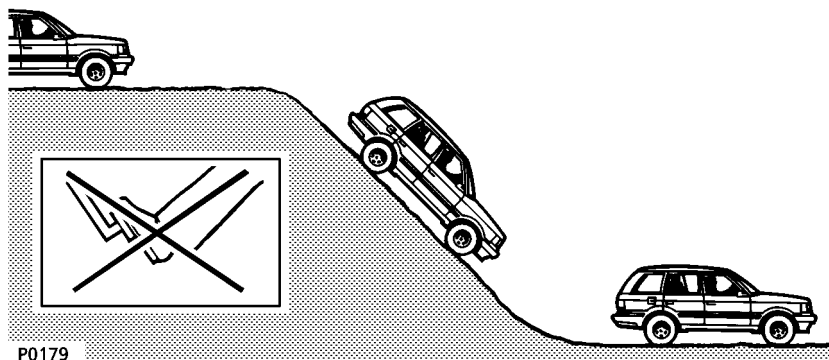
## WARNING

*The engine must be restarted before reversing down the slope as there will be no braking effect from the gearbox unless the engine is running.*

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# Off-road driving

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## DESCENDING STEEP SLOPES

- A. Stop the vehicle at least a vehicle length before the slope, engage LOW range and then select the lowest gear.
- B. Unless it is necessary to stop the vehicle in order to negotiate obstructions, **DO NOT** touch the brake pedal during the descent; the engine will limit the speed keeping the vehicle under control provided the front wheels are turning. If the vehicle begins to slide, accelerate gently to maintain directional stability. **DO NOT** use the brakes or attempt to change gears.

- C. Once level ground is reached, select a suitable gear for the next stage of the journey.

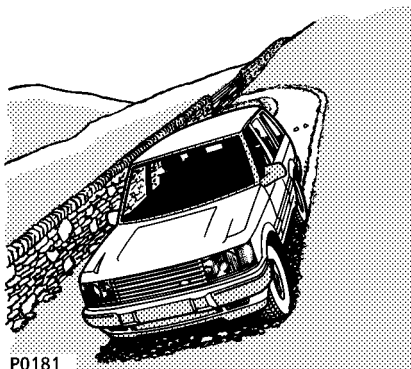
### WARNING

***Failure to follow these instructions may cause the vehicle to roll over.***

---

# Off-road driving

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P0181

## TRAVERSING A SLOPE

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 any 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.
- 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.

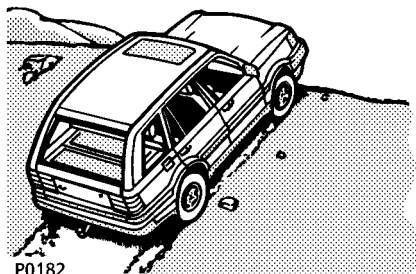
## DRIVING IN EXISTING VEHICLE TRACKS

As far as possible, allow the vehicle to steer itself along the bottom of the ruts. However, always keep a tight 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 wet ground) is unknowingly on full right or left lock. Then, when level ground is reached, or if a dry patch is encountered, the wheels will find traction and cause the vehicle to suddenly veer to the left or right.

# Off-road driving

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## 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.

## CROSSING A DITCH

Cross ditches at an angle so that three wheels always maintain contact with the ground (if 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).

## WADING

### WARNING

*The maximum advisable wading depth is 20 in. (0,5 metre).*

*Severe electrical damage may occur if the vehicle remains stationary for any length of time when the water level is above the door sills.*

---

Before wading, ensure the electronic air suspension is set in either 'Standard' or 'High' ride height.

If the water is likely to exceed 20 in. (0.5 metre) while the vehicle is moving, the following precautions **MUST** 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.
- Ensure that the silt bed below the water is free of obstacles, and firm enough to support the vehicle's weight and provide sufficient traction.
- Select 'High' ride height.
- Ensure that the engine air intake is above 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.

# Off-road driving

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## After wading

Drive the vehicle a short distance and apply the footbrake to check that the brakes are fully effective.

DO NOT rely on the parking brake alone to hold the vehicle stationary until the transmission and brakes have thoroughly dried out; in the meantime, use wheel chocks or leave the vehicle parked in gear.

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.

Vehicles required to undergo frequent or deep wading conditions will require more frequent servicing. See *'Owner maintenance'* and contact a Land Rover dealer for advice.

If salt water is frequently negotiated, thoroughly wash the underbody components and exposed body panels, with fresh water.

## BIB SPOILER

The vehicle has a bib spoiler extension fitted to the front bumper to improve air flow during normal driving conditions. This **MUST** be removed when considering serious off-road driving.

The bib spoiler is in two parts and is attached to the underside of the front bumper by six spring clips and eight plastic rivets.

### To remove:

Using a screwdriver, remove the inner locking pins from the studs, then remove the studs.

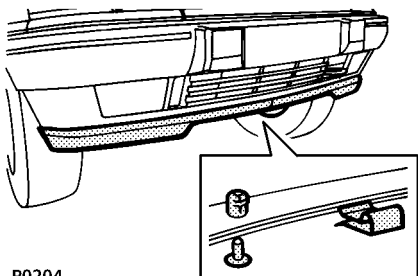
Slide the spring clips off the bib spoiler, then separate the two halves of the spoiler.

Store all parts in a suitable container pending refitment.

### To refit:

Place one half of the bib spoiler against the underside of the front bumper, install four studs and fit the locking pins and three spring clips.

Engage the other half of the bib spoiler with the first half, then fit the remaining studs and spring clips, ensuring that the locking pins are fitted to the studs.



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