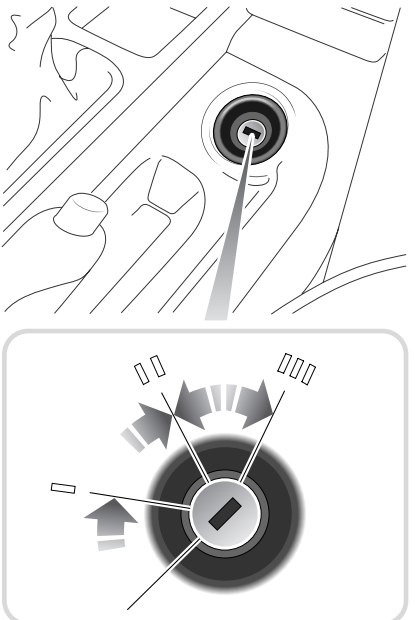
STEERING COLUMN LOCK



H3924

The starter switch and steering column lock is located on the centre console, forward of the handbrake.

To unlock the steering column

Insert the key into the starter switch.

To lock the steering column

Remove the key from the starter switch.

Note: *The gear selector MUST be in the* ***P*** *(Park) position, before the starter key can be removed.*

WARNING

Once the steering lock is engaged, it is impossible to steer the vehicle. DO NOT remove the key while the vehicle is in motion.

Note: *Once removed, the starter key should not be left in close proximity to the starter switch. This can lead to the steering column lock operating repeatedly, discharging the vehicle battery.*

STARTER SWITCH

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

Position 0

- Steering locked (if key is removed).
- Most lighting circuits are operational, including: side lamps, headlamps and hazard warning lamps.
- With the driver's door open, seat switches and seat memory facility operational.

Position I

- Steering unlocked.
- Steering wheel adjusts to set driving position.
- Clock, audio system and cigar lighter can now be operated.

Position II

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

Position III

- The starting sequence is initiated. Note that operation of position **I** electrical functions will be interrupted during engine cranking.

Note: *The gear selector must be in either* ***P*** *or* ***N*** *must be selected before the engine will start.*

STARTING - Petrol models

WARNING

Never start or leave the engine running in an unventilated building - exhaust gases are poisonous and contain carbon monoxide, which can cause unconsciousness and may even be fatal.

Before starting the engine and driving, ENSURE you are familiar with the precautions shown under **CATALYTIC CONVERTER, 149**.

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.

1. Check that the handbrake is applied and that the gear selector is in the **P** (Park) or **N** (Neutral) position.
2. Switch off all unnecessary electrical equipment.
3. Turn the starter switch to position **II** and then on to position **III** to operate the starter motor. DO NOT press the accelerator pedal while starting, and RELEASE THE KEY as soon as the engine starts cranking (the engine will automatically continue cranking until the engine starts).

If the engine stalls or fails to start, you MUST return the starter switch to position **I** before attempting to restart; the engine will not start by turning the starter switch from position **II**.

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

Cold climates

In very cold climates the oil pressure warning indicator may take several seconds to extinguish. Similarly, engine cranking times will also increase. At -25°C (-13°F) the starter motor may operate 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 to maximise the available battery effort for starting.

After starting

Ensure that the handbrake and foot brake are firmly applied and the accelerator pedal is not depressed while moving the gear selector lever from **N** or **P**, otherwise, the vehicle may move immediately the selector lever is moved to one of the drive positions (**D** or **R**). This is particularly important when the engine is cold, because the engine will be idling at a faster speed than normal.

Note: *The foot brake MUST be applied, before the gear selection lever can be moved out of **P** or **N** into a drive position.*

STARTING - Diesel models

WARNING

Never start or leave the engine running in an unventilated building - exhaust gases are poisonous.

Before starting the engine and driving, ENSURE you are familiar with the precautions shown under **CATALYTIC CONVERTER, 149**.

1. Check that the handbrake is applied and that the gear selector is in the **P** (Park) or **N** (Neutral) position.
2. Switch off all unnecessary electrical equipment.
3. Insert the starter key and turn the switch to position **II**. Wait until the glow plug warning indicator extinguishes.

   Note: *The waiting time will vary according to the engine coolant temperature (when the engine is hot, the glow plug warning indicator will extinguish almost immediately, or may not illuminate at all).*
4. Turn the key 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.

If the engine stalls or fails to start, you MUST return the starter switch to position **I** before attempting to restart; the engine will not start by turning the starter switch from position **II**.

In temperate climates DO NOT operate the starter for longer than 10 seconds. If the engine fails to start, switch off and wait 10 seconds before re-using the starter.

Note: *Continued use of the starter will not only discharge the battery, but may cause damage to the starter motor.*

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

Caution: The diesel engine must not be run above idle speed until the oil pressure warning indicator extinguishes. This will ensure that the engine and turbo-charger bearings are properly lubricated before being run at speed.

Similarly, ALWAYS allow the engine to idle for 10 seconds before switching off.

Cold climates

In very cold climates the oil pressure warning indicator may take several seconds to extinguish. Similarly, engine cranking times will also increase. At -25°C (-13°F) 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.

After starting

Ensure that the handbrake and foot brake are firmly applied and the accelerator pedal is not depressed while moving the gear selector lever from **N** or **P**, otherwise, the vehicle may move immediately the selector lever is moved to one of the drive positions (**D** or **R**). This is particularly important when the engine is cold, because the engine will be idling at a faster speed than normal.

Note: *The foot brake MUST be applied, before the gear selection lever can be moved out of **P** or **N** into a drive position.*

GENERAL DRIVING ADVICE

Instruments and warning indicators

Before driving it is important to fully understand the function of the instruments and warning indicators. See **INSTRUMENT PANEL, 70**.

Caution: Red warning indicators are of particular importance, their illumination indicating that a fault exists. If a red indicator illuminates, always stop the vehicle and seek qualified assistance before continuing.

Power assisted steering

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

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 foot brake 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.

Running-in

Proper running-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. During the first 800 km (500 miles), it is essential to drive with consideration for the running-in process and heed the following advice:

- Limit maximum road speed to 110 km/h (70 mph) or 3 000 rev/min. 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.
- Remember! Regular servicing is vital to ensure that the brake pads are examined for wear and changed periodically to ensure long term safety and optimum performance.

Servicing requirements

Vehicles which operate in arduous conditions, particularly on dusty, muddy or wet terrain and vehicles which undergo frequent or deep wading conditions, will require more frequent servicing. Contact a Land Rover Dealer/ Authorised Repairer for advice.

After wading in salt water or driving on sandy beaches, wash the underbody components and exposed panels with fresh water. This will help to protect the vehicle's cosmetic appearance and prevent impairment of parkbrake efficiency.

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 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 **N** (Neutral) to improve fuel economy and air conditioning performance.
- Turn off air conditioning when not required.

Vehicle height

Caution: 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.

Vehicle stability

WARNING

Utility vehicles have a significantly higher roll-over rate than other types of vehicles. Since these vehicles are designed to be operated off-road, these vehicles have a higher ground clearance and hence a higher centre of gravity. Such a feature has been associated with an increased risk of vehicle roll-over. An advantage associated with higher ground clearance vehicles is a better view of the road, allowing the driver to anticipate problems. Another factor shown to significantly increase roll-over risk is unauthorized vehicle modifications such as fitting incorrect specification tyres, (see WHEELS AND TYRES, 266) oversize tyres, body lifting, incorrect springs/ dampers, incorrect vehicle loading/trailer towing.

However, on-road crash data also indicates that driver behaviour is a greater factor than a high centre of gravity in determining a vehicle's overall roll-over rate. The single most effective driver behaviour that can reduce the risk of injury or death in all crashes including roll-over, is to ALWAYS WEAR YOUR SEAT BELT and to properly restrain all child passengers in the rear seat in an appropriate child safety seat. In a roll-over crash, an unbelted person is significantly more likely to die than a person wearing a seat belt.

Other measures that can reduce the risk of injury and death from vehicle crashes and roll-over are:

- Limit speed. Posted speed limits should never be exceeded, and you should always drive below these limits whenever traffic, weather, road or other conditions dictate. Always use your common sense and good judgement.
- Take curves at reasonable speeds, avoiding unnecessary braking.
- Drive defensively. Be aware of traffic, road and weather conditions. Avoid risk taking behaviour such as following too close, rapid lane changing or abrupt manoeuvres.
- Assume that pedestrians or other drivers are going to make mistakes. Anticipate what they might do. Be ready for their mistakes.
- Avoid distractions such as cellular phone calling, reading, eating, drinking or reaching for items on the floor.
- Before changing lanes, check your mirrors and use the direction indicators.
- Always leave room for unexpected events such as sudden braking.
- Never operate your vehicle when you have consumed alcohol, are sleepy or fatigued or have taken any medications that affect judgement, reflexes or alertness.

WARNING

Many vehicle roll-overs occur when a driver attempts to bring a vehicle back onto the road after some or all of the wheels drift onto the shoulder of the road, especially when the shoulder is unpaved. If you find yourself in such a situation, do not initiate any sharp or abrupt steering and/or braking manoeuvres to re-enter the roadway. Instead, let the vehicle slow down as much as safely possible before attempting to re-enter the roadway and keep your wheels as straight as possible while re-entering the roadway.

Breakdown safety

If a breakdown occurs while travelling:

- Wherever possible, consistent with road safety and traffic conditions, the vehicle should be moved off the main highway, preferably onto the shoulder as far as possible.
- Switch on hazard warning lamps.
- If possible, position a warning triangle or a flashing amber lamp at an appropriate distance from the vehicle to warn other traffic of the breakdown (note the legal requirements of some countries).
- Consider evacuating passengers through the doors facing away from traffic, to a safe area away from the vehicle, as a precaution in case your vehicle is accidentally struck by another vehicle.

BEFORE DRIVING OFF-ROAD

Before driving off-road, it is absolutely essential that drivers become familiar with the vehicle's controls, in particular the transfer gear switch, Commandshift and Hill Descent Control (HDC).

Basic information and Off-Road driving techniques can be found in the Off-Road driving handbook, available on-line at:
http://www.ownerinfo.landrover.com

It is strongly recommended that off-road driver training is undertaken by anyone intending to drive off-road. Training is available ate your nearest Land Rover Experience centre. More details can be found at:
http://www.landroverexperience.com

Wading

Caution: The maximum advisable wading depth is 500 mm (20 in.). Wading at a depth greater than the maximum wading depth regularly, is not recommended.

If the vehicle remains stationary for any length of time, in water above the level of the door sills, severe electrical damage may occur.

Do not switch off the engine during wading. If the engine stalls during wading, re-start immediately. Should the engine stall, get it checked by Land Rover Dealer/Authorised Repairer as soon as possible.

If during wading, water enters the engine air intake, switch off immediately. The vehicle should be towed from the water and recovered to a Land Rover Dealer/Authorised Repairer.

EMISSION CONTROL SYSTEM

WARNING

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

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

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

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

It is important to remember that all Land Rover Dealers/Authorised Repairers are properly equipped to perform repairs and to maintain the emission control system on your vehicle.

CATALYTIC CONVERTER

WARNING

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

The exhaust system incorporates a catalytic converter, which converts poisonous exhaust emissions from the engine into environmentally less harmful gases. It cannot, however, remove all harmful exhaust emissions.

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

Fuel

ONLY use fuel recommended for your vehicle. See **ENGINES, 266**.

Starting the engine

- DO NOT continue to operate the starter after a few failed attempts (unburnt fuel may be drawn into the exhaust system, thereby poisoning the catalyst), and do not attempt to clear a misfire by pressing the accelerator pedal - seek qualified assistance.
- When starting a COLD engine, DO NOT drive if a misfire is suspected and do not attempt to clear a misfire by pressing the accelerator - seek qualified assistance.
- Do not attempt to push or tow-start the vehicle.

Driving

- If a misfire is suspected, or the vehicle lacks power while driving, provided the engine has reached its normal operating temperature, it may be driven SLOWLY (at risk of catalyst damage) to a Land Rover Dealer/Authorised Repairer for assistance.
- NEVER allow the vehicle to run out of fuel (the resultant misfire could damage the catalyst).
- Consult your Dealer/Authorised Repairer if your vehicle is burning excessive oil (blue smoke from the exhaust), as this will progressively reduce catalyst 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.
- DO NOT switch off the engine when the vehicle is in motion with a drive gear selected.

Vehicle maintenance

- 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/Authorised Repairer.
- 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.

SAFETY ON THE FORECOURT

WARNING

Petroleum gases are highly inflammable and, in confined spaces, are also extremely explosive.

Always take sensible precautions when refuelling:

- Switch off the engine.
- Switch off mobile phones.
- Do not smoke or use a naked flame or light.
- Take care not to spill fuel.
- Do not overfill the tank.

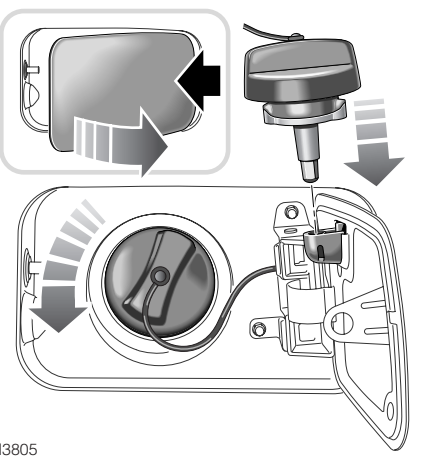
Always ensure that the fuel burning heater IS NOT operating when refuelling the vehicle. See **TIMED CLIMATE CONTROL, 119**.

FUEL FILLER

WARNING

To avoid any sudden discharge of fuel caused by excessive fuel vapour pressure, DO NOT fully remove the filler cap until any captive tank pressure has been released.

Take careful note of warning labels located around the filler cap.



H3805

The fuel filler is located in the rear right-hand wing. With the vehicle fully unlocked (all doors and tailgate), press the right side of the fuel filler flap to open (shown in inset).

Carefully turn the cap anticlockwise and allow any fuel tank pressure to be released. Once the pressure is released, it is safe to fully remove the filler cap. When refuelling, insert the filler cap in the socket on the back of the filler flap (see illustration).

When replacing, tighten the cap clockwise until you hear the fuel cap ratchet click once.

TYPE OF FUEL

Fuel specification - petrol engines

See **ENGINES, 266** for the recommended fuel specification.

Caution: On petrol engine vehicles fitted with a catalytic converter, serious damage to the catalyst will occur if LEADED fuel is used!

The RON value (octane rating) and type of petroleum, available at garage forecourts will vary in different parts of the world.

During manufacture, engines are tuned to suit the fuel supplies commonly available in the country for which the vehicle is destined. However, if a vehicle is later exported to a different country, or is used to travel between different territories, the owner should be aware that the available fuel supplies may not be compatible with the engine specification. If in doubt, seek advice from the territory concerned.

Your vehicle will run on a lower grade of fuel but performance and fuel economy will be reduced.

Using petrol with a lower octane rating than 90 RON, however, can cause persistent, heavy engine knock (a metallic rapping noise). If severe, this can lead to engine damage.

If heavy engine knock is detected when using the recommended octane rated fuel, or if steady engine knocking is present while maintaining a steady speed on level roads, contact your dealer for advice.

Note: *An occasional, light, engine knock while accelerating or climbing hills is acceptable.*

Fuel specification - diesel engines

See **ENGINES, 266** for the recommended fuel specification.

Caution: This vehicle is NOT compatible with Bio-diesel fuel.

The quality of diesel fuel (Derv) can vary in different countries and only clean, good quality fuel should be used. It is important that the sulphur content of diesel fuel does not exceed 0.3%. In Europe all supplies should be within this limit, but in other parts of the world, you should check with your supplier.

In markets where the sulphur content exceeds 0.3%, more frequent engine oil and filter changes will be required.

Caution: If the fuel tank is accidentally filled with petrol, it is ESSENTIAL that you contact your Dealer/Authorised Repairer BEFORE attempting to start the engine. Serious damage will occur to the engine and fuel system if the engine is started with the wrong fuel.

FUEL FILLING

WARNING

DO NOT attempt to fill the tank to its maximum capacity. If the vehicle is to be parked on a slope, in direct sunlight, or high ambient temperature, expansion of the fuel could cause spillage.

Filling station pumps are equipped with automatic cut-off sensing to avoid fuel spillage. Fill the tank SLOWLY until the filler nozzle automatically cuts-off the supply. DO NOT attempt to fill the tank beyond this point.

Petrol engine vehicles

In markets where unleaded petrol is available, the fuel filler neck will accept ONLY a narrow filler nozzle of the type found on pumps that deliver UNLEADED fuel.

In markets where only leaded petrol is available, the filler neck is designed to accept a leaded filler nozzle.

Diesel engine vehicles

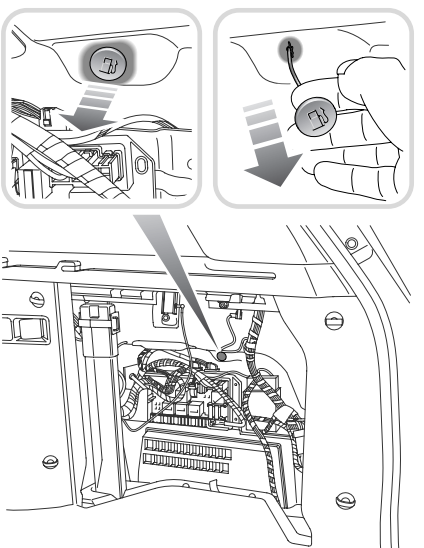
The diesel pumps on garage forecourts fill at a maximum of 45 litres (12 gallons) per minute. Use of commercial vehicle diesel pumps with a higher fill rate, may result in premature pump cut-off and fuel spillage.

EMPTY FUEL TANK

Caution: DO NOT RUN THE FUEL TANK DRY.

Running the fuel tank dry could create an engine misfire capable of damaging the engine, catalytic converter or the fuel pump.

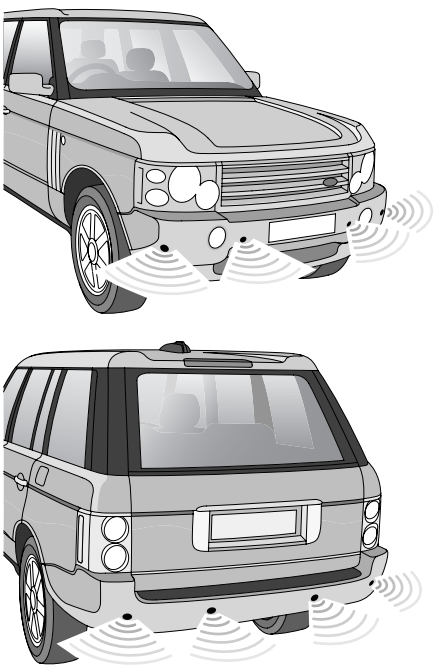
FUEL FILLER FLAP EMERGENCY RELEASE



H4050

If the vehicle battery has been disconnected or has discharged, the fuel filler flap can be opened manually. Open the rear loadspace access hatch. See **REAR LOADSPACE ACCESS HATCH, 137**. Pull the green release handle (as illustrated in the insets) to open the filler flap.

USING PARK DISTANCE CONTROL (PDC)



H6529R

Caution: The parking aid is not infallible, it is for guidance only. The sensors may not be able to detect certain types of obstruction (narrow posts or small narrow objects, small objects close to the ground and some objects with dark, non-reflective surfaces, for example).

Park Distance Control (PDC) is a system that assists the driver when manoeuvring the vehicle into a parking space, or anywhere there are obstacles that need to be avoided, warning the driver accordingly.

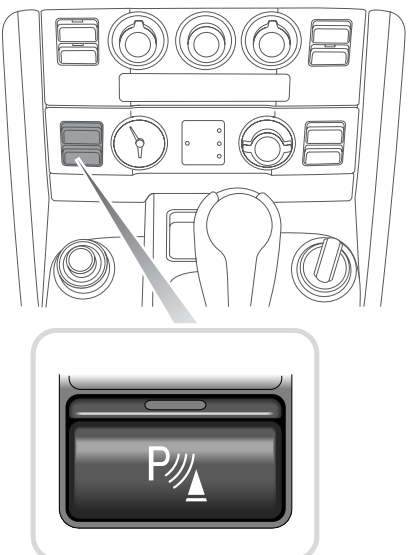
The vehicle is fitted with four ultrasonic sensors on each of the bumpers.

The range of the front sensors, and the two sensors on the corners of the rear bumper is approximately 600 mm (2 feet). The two centre rear sensors have a range of approximately 1 500 mm (5 feet).

Caution: Keep the sensors free from dirt, ice and snow. If deposits build up on the surface of the sensors, their performance may be impaired. When washing the vehicle, avoid aiming high pressure jets directly at the sensors at close range.

Activating PDC

PDC is automatically activated whenever **R** (Reverse) is engaged. When the starter switch is turned on, the indicator in the switch illuminates and a short tone sounds after 1 second as confirmation.



H4880

PDC can also be manually selected by pressing the switch (illustrated) on the centre front facia (the indicator light in the switch illuminates and a short tone sounds as confirmation). A second press of the switch deactivates the PDC system. If PDC has been manually switched off by pressing the switch, it will not activate automatically until either the switch has been pressed again, or the starter switch has been turned off and on again.

Note: *The confirmation tone only sounds the first time that PDC is selected (either by selecting reverse, or by pressing the switch), unless the starter switch has been turned off between uses.*

If a long, high pitched tone sounds and the switch indicator light flashes when PDC is activated, then a fault in the system has been detected - contact your dealer for assistance.

PDC in operation

The distance from an obstruction is identified by an intermittent tone sounding (higher pitch for the front sensors and a lower pitch for the rear). As the vehicle moves closer to an obstruction, the frequency of the tone increases proportionally.

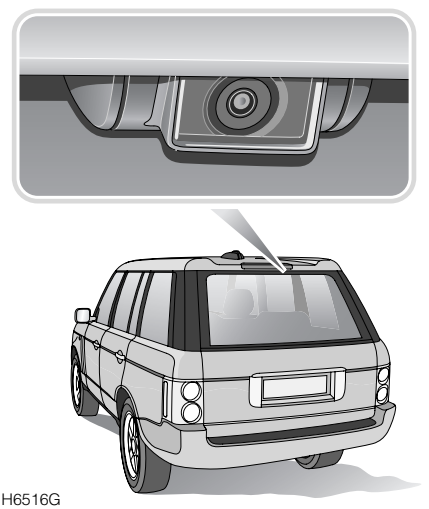
When the distance between the sensor and the obstruction is less than approximately 300 mm (1 foot), the tone becomes continuous.

PDC will remain active until the vehicle speed exceeds approximately 32 km/h (20 mph) or until the vehicle has travelled approximately 50 metres (165 feet), when it will automatically deactivate.

REAR VIEW CAMERA

The system provides a rear view image to assist in reversing the vehicle.

The camera is integrated in the rear spoiler and when reverse gear is selected, it automatically displays a wide angle, colour picture of the view from the back of the vehicle. The picture is displayed on the touch screen used for the navigation system.



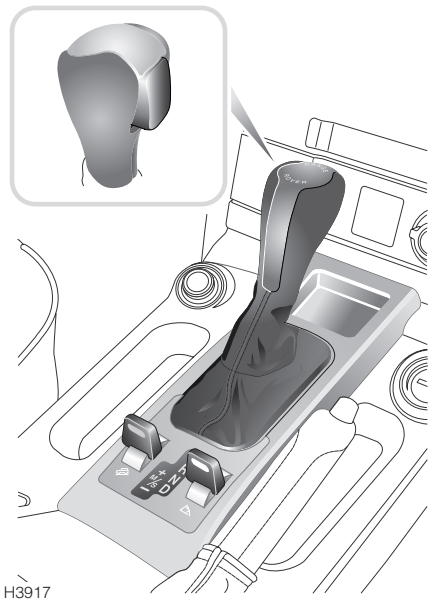
H6516G

The rear view image will not be displayed when any of the following apply:

- Drive is selected and the vehicle speed is greater than 16 km/h (10 mph).
- Drive is selected for longer than 15 seconds (the approximate time out period), and the vehicle speed is less than 16 km/h (10 mph).

Note: *In the top right corner of the display, there is a back-up soft key, which takes the user back to the previously viewed screen.*

GEAR SELECTOR



The CommandShift™ transmission provides both automatic and manual operation of the gears.

Automatic operation

The transmission is naturally in automatic mode. With the engine started, gear selection can be made by moving the selector backward or forward to the appropriate position in a similar manner to other automatic gearboxes.

GEAR SELECTOR LEVER

Selector release button

The gearbox is fitted with a locking mechanism, designed to minimise the risk of accidental selection of the **P** (Park) and **R** (Reverse) positions.

The selector release button (see inset) must be pressed while selecting **P** and **R**, and also to enable the lever to be moved between the **P** and **R** positions.

Note: *With the engine running, or the starter switch in position **II**, the selector lever cannot be moved into a drive position unless the foot brake is applied.*

Caution: DO NOT select P or R if the vehicle is moving.

DO NOT select a forward drive gear when the vehicle is moving backwards.

Keep engine speed as low as possible when moving the selector between R and a forward gear.

Note: *The gear selector lever MUST be in the **P** position before the starter key can be removed.*

Selector lever positions

An indicator on the selector panel and a number or letter on the gear selector display in the instrument panel, identify the selected gear position.

P - Park: This position mechanically locks the transmission and should be selected before switching the engine off. To avoid transmission damage, ensure the vehicle is completely stationary, with the handbrake applied, before selecting **P**.

The selector release button MUST be pressed, in order to move the selector lever out of the Park position.

R - Reverse: Before selecting reverse, ensure the vehicle is stationary, with the brakes applied. Press the selector release button in order to move the selector lever into **R**.

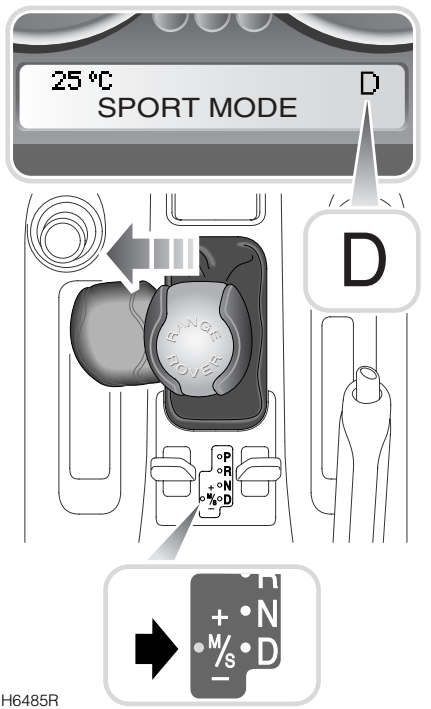
N - Neutral: Select neutral when the vehicle is stationary and the engine is required to idle for a brief period (at traffic lights, for example). In neutral, the transmission is not locked, so the handbrake must be applied whenever **N** is selected.

Press the selector release button to move from neutral to reverse.

D - Drive: Select for all normal driving; full automatic gear changing occurs on all six forward gears, according to road speed and accelerator position.

Note: *Hill Descent Control can be selected with the selector lever in any position. See* ***HILL DESCENT CONTROL (HDC), 172****.*

Sport mode



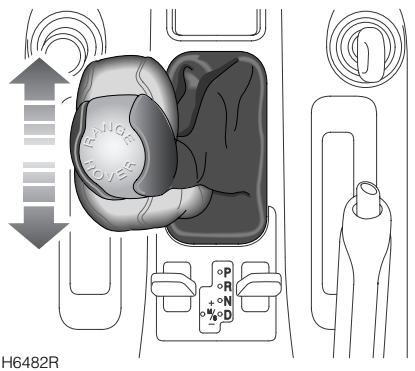
H6485R

In Sport mode, full automatic progression through the gear ratios is retained and the transmission will stay in the lower gears for longer. This improves mid-range performance with downshifts occurring more readily.

To select Sport mode, move the gear lever sideways across the gate from the **D** - Drive position towards the left hand side of the vehicle (see illustration). The word **SPORT** will appear in the transmission message centre (for approximately 6 seconds), the LED in the selector display to the rear of the selector lever (arrowed in inset) illuminates and **SPORT MODE** is displayed in the main message centre for 6 seconds.

Sport mode can be deselected at any time, by returning the lever to the **D** position.

MANUAL CommandShift™ GEAR SELECTION



H6482R

CommandShift gear selection can be used as an alternative to fully automatic transmission and is particularly effective when rapid acceleration or engine braking into corner and descents are required.

There are six gears, all of which are selected sequentially by a single forward or rearward movement of the gear selector lever, as follows:

1. With **D** (Drive) selected, move the gear selector lever sideways from the **D** position towards the left hand side of the vehicle (this is exactly the same as selecting Sport mode). **SPORT MODE** is displayed in the main message centre for 6 seconds.
2. The transmission then automatically selects the ratio most appropriate to the vehicle's road speed and accelerator depression.
3. A single forward (**+**) movement of the selector lever will change the transmission to a higher gear, while rearward (**-**) movement of the lever will change down to a lower gear. Repeated forward or rearward movements of the lever can be made until the desired gear ratio has been selected. The selected gear will be indicated in the digital display in the instrument panel (see inset).

   Note: *The transmission will automatically change to a higher gear if engine speed is increased beyond a certain level.*
4. To deselect manual mode, simply move the selector lever sideways, back to the **D** position. Automatic gear changing will then resume.

Note: *In manual mode, kick-down is still available for increased acceleration. See* ***Kick-down, 160****.*

Using CommandShift in HIGH range

If manual mode is selected in HIGH range, **1**st gear must be selected to move off from stationary, normal sequential gear changing can be utilised once the vehicle is moving.

Using CommandShift in LOW range

If manual mode is selected in LOW range, the vehicle can move off from stationary in **1**st, **2**nd or **3**rd gear - this is particularly useful to improve traction when driving off-road.

USING AN AUTOMATIC GEARBOX

The following information is particularly important for drivers who are unfamiliar with the techniques required to drive vehicles with automatic transmission.

Starting

The engine can only be started with the selector lever in the **P** (Park) or **N** (Neutral) positions.

- ALWAYS apply the handbrake and foot brake before starting the engine.
- KEEP THE BRAKES APPLIED while moving the selector lever into a drive position (the selector lever cannot be moved from the **P** position unless the foot brake is applied).
- DO NOT rev the engine or allow it to run above normal idle speed while selecting **D** or **R**, or while the vehicle is stationary with any gear selected.
- ALWAYS keep the brakes applied until you are ready to move off - remember, once a drive gear has been selected an automatic transmissioned vehicle may creep forward (or backward if reverse is selected).
- DO NOT allow the vehicle to remain stationary for any length of time with a drive gear selected and the engine running (always select **N** if the engine is to idle for a prolonged period).

Caution: Vehicles fitted with an automatic transmission must NOT be push or tow started.

Driving in D or Sport mode

When driving, the transmission will automatically adjust to the most appropriate gear ratio, according to accelerator position, vehicle speed and terrain (whether the vehicle is driving uphill, downhill or on the flat).

Gear change speeds

With **D** selected, the road speeds at which gear changes take place will vary according to the position of the accelerator pedal: minimum acceleration will result in gear changes at low road speeds, while larger throttle openings will cause the gearbox to delay gear changes until faster road speeds have been reached (thereby increasing the rate of acceleration). Depending on vehicle speed, moderate pressure of the accelerator pedal may result in a downshift in gear, further increasing the rate of acceleration.

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

Kick-down

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

Note: *Moderate accelerator pressure may also result in a downshift in the transmission, depending on vehicle speed.*

Kick-down in manual CommandShift mode:

When in manual CommandShift mode, kick-down overrides the manual gear selection, to provide increased acceleration. The characteristics of kick-down operation differs according to the gear range selected (HIGH or LOW).

Up to a certain speed, this will cause an immediate downshift to the lowest appropriate gear, followed by rapid acceleration. Once the pedal is relaxed, normal gear selection will resume.

Parking

After bringing the vehicle to a stop, ALWAYS apply the handbrake and select **P**, before releasing the foot brake and switching off the engine. The starter key can only be removed if **P** is selected.

ELECTRONICALLY SELECTED AUTOMATIC MODES

The transmission control system electronically selects different gear change modes, listed below, designed to suit a variety of driving conditions.

Note: *The electronic modes described below are selected automatically by the transmission control unit. They cannot be selected by the driver.*

Hill ascent, trailer and high altitude mode

A suitable gear change pattern is selected which retains lower gears for longer when climbing hills or towing a trailer or caravan. This gear change pattern is also selected at high altitudes to combat reduced engine torque.

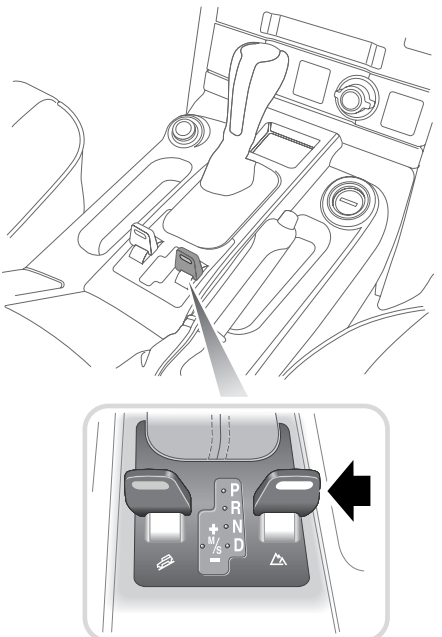
Hill descent mode

The transmission controller will sense when the vehicle is travelling down a steep gradient and will assist the braking effort by selecting a suitable lower gear.

High coolant temperature mode

In high ambient temperatures, during extreme load conditions, the transmission will select a gear change pattern designed to aid the cooling process.

TRANSFER GEAR SWITCH



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The second gearbox (known as the transfer box) provides the high and low gear ranges. The appropriate gear range is selected using the transfer gear switch (arrowed).

High range

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

Low range

Use the low range ratio ONLY in situations where low speed manoeuvring is necessary, such as reversing a trailer or negotiating a boulder strewn river bed; also use low range for more extreme off-road conditions where progress in high range cannot be maintained. DO NOT attempt to use the LOW range ratio for normal road driving.

USING THE TRANSFER GEARBOX

Your vehicle is equipped with an electronically controlled transfer gearbox. There are two ways of operating the transfer gear switch:

- Vehicle stationary - recommended for inexperienced drivers
- Vehicle on the move - for experienced drivers.

Caution: DO NOT attempt to use LOW range gears for normal road driving. Doing so will limit the vehicle's top speed and may damage drivetrain components.

RANGE CHANGING WHEN STATIONARY

With the vehicle stationary and the engine running, apply the foot brake and then move the automatic gearbox selector to the **N** (neutral) position before moving the transfer gear switch (arrowed) fully rearwards. When the switch is released, it returns to the default position.

RANGE CHANGING ON THE MOVE

Note: *If the vehicle speed is too great when a range change is requested, a warning chime sounds and* ***SPEED TOO HIGH FOR RANGE CHANGE*** *appears in the message centre. Slow down to allow the new range to be engaged.*

If a range change is requested when the shift lever is not in neutral, the message ***SELECT NEUTRAL FOR RANGE CHANGE*** *is displayed and a warning chime sounds.*

If the vehicle speed is too high for a range change and the shift lever is not in neutral, there will be no message or warning chime.

Note: *If the vehicle is travelling at 3.2 km/h (2 mph) or less, then any change of ratio is to be carried out as if the vehicle is stationary (i.e. apply the foot brake and select* ***N****, before moving the transfer gear switch). This is necessary to prevent the interlock feature locking the selector lever in* ***N****. It is not necessary to being the vehicle to a complete halt however.*

Changing from high to low

With the vehicle slowing down and travelling NO FASTER THAN 40 km/h (24 mph) for petrol vehicles, and 16 km/h (10 mph) for diesel vehicles, select **N** (Neutral) in the main gearbox, then move the transfer gear switch fully rearwards (the switch returns to the default position when released).

The low range indicator light in the gear selector display flashes while the range change is occurring. When the range change is complete, the light illuminates constantly, a warning chime will sound and **LOW RANGE SELECTED** is displayed in the message centre for a few seconds.

Now select **D** (Drive) or manual CommandShift mode. The transmission interlock prevents the engagement of a drive gear until the range change is complete.

Changing from low to high

With the vehicle travelling NO FASTER THAN 60 km/h (38 mph) for petrol vehicles, and 48 km/h (30 mph) for diesel vehicles, select **N** in the main gearbox, then move the transfer gear switch fully rearwards (the switch returns to the default position when released).

The low range indicator light in the gear selector display flashes while the range change is occurring. When the range change is complete, the light extinguishes, a warning chime will sound and **HIGH RANGE SELECTED** is displayed in the message centre for a few seconds.

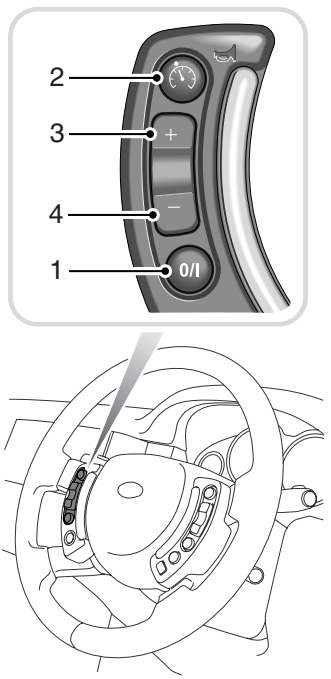
Now select **D**. The transmission interlock prevents the engagement of a drive gear until the range change is complete.

AUXILIARY EQUIPMENT

Caution: DO NOT use auxiliary equipment such as roller generators that are driven by only one or two wheels of the vehicle, as they will cause failure of the transfer gearbox.

CRUISE CONTROL

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



The cruise control system has four switches:

1. **Master** switch (On/Suspend/Off)
2. **Resume** switch
3. **+** Accelerate/Set switch
4. **-** Decelerate switch

WARNING

DO NOT use cruise control on winding or slippery road surfaces, or in traffic conditions where a constant speed cannot be easily maintained.

Caution: Always observe the following precautions:

- **DO NOT use cruise control when using reverse gear.**
- **DO NOT use cruise control in off-road conditions such as rough tracks or on sand.**
- **Use of Sport mode is not recommended when cruise control is selected.**
- **ALWAYS switch off the master switch when you no longer intend to use cruise control.**

Note: *Cruise control is NOT available when the vehicle is being driven in LOW range gears.*

To operate

1. Press the master switch (warning indicator in the instrument panel illuminates).
2. Accelerate until the desired cruising speed is reached. This must be above the system's operational minimum speed of 32 km/h (20 mph).
3. Press the **+** switch (3) to set the vehicle speed in the system's memory. Cruise control will now maintain that road speed without the need for operation of the accelerator pedal.

The warning indicator in the instrument pack illuminates when cruise control is operating.

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

To reduce the cruising speed

Press and hold the Decelerate (-) switch (4); the vehicle speed will decrease. Release the switch as soon as the desired speed is reached. The vehicle speed at the point of switch release becomes the new set speed.

Alternatively, the set speed can be decreased incrementally by tapping the Decelerate (-) switch. Each press of the switch will decrease the speed by 2 km/h (1.2 mph).

Note: *Cruise control will not operate at speeds below 32 km/h (20 mph).*

To increase the set cruising speed:

WARNING

When setting cruise control to the speed limit, it is important to remember that it is possible for the vehicle speed to increase when travelling downhill. This may result in the vehicle exceeding the speed limit.

The driver must ALWAYS ensure that a safe speed is maintained below the speed limit, taking account of traffic and road conditions.

Press and hold the **+** switch (3); the vehicle will accelerate. Release the switch as soon as the desired speed is reached.

The vehicle speed at the point of switch release becomes the new set speed.

Alternatively, the set speed can be increased incrementally by tapping the **+** switch. Each press of the switch will increase the speed by 2 km/h (1.2 mph).

A further alternative is to increase speed by normal use of the accelerator. When the desired speed is reached, press the **+** switch (3) to set the cruise control.

Suspending cruise control

Cruise control will suspend when the gear selector is moved into neutral, or when the brake pedal is pressed or if HDC or DSC becomes active. Cruise control can also be suspended by a single press of the **Master** switch.

To resume cruise control at the previously set speed, press the **Resume** switch.

Switching off cruise control

To switch off cruise control, press the **Master** switch once to suspend cruise control and then press and hold the switch again until the warning indicator in the instrument panel extinguishes.

Note:

Petrol Engine Models

*The set speed held in the cruise control memory will be erased when either the **Master** switch or the starter switch is turned off.*

Diesel Engine Models

*The set speed will NOT be erased by pressing the **Master** switch. The set speed will ONLY be erased when the starter switch is turned to position **O**.*

FOOT BRAKE

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 allow the vehicle to freewheel with the engine turned off as braking assistance will not be available. The pedal brakes will still function, but more pressure will be required to operate them.

If the RED brake warning indicator should illuminate while the vehicle is in motion, bring the vehicle to a halt as quickly as traffic conditions and safety allow and seek qualified assistance before continuing. See Warning Indicators, 92.

Never place a non-approved floor matting or any other obstructions under the brake pedal. This restricts pedal travel and braking efficiency.

The hydraulic braking system operates through dual circuits. If one circuit should fail, the other will continue to function.

However, in the event of brake failure where only one circuit is operational, the vehicle should only be driven at slow speed to the nearest Land Rover Dealer/Authorised Repairer.

In these circumstances, exercise extreme caution and be aware that increased brake pedal travel, greater pedal pressure, and longer stopping distances will be experienced.

Servo assistance

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

- ALWAYS take particular care when being towed with the engine turned off.
- If the engine should stop for any reason while the vehicle is in motion, bring the vehicle to a halt as quickly as traffic conditions safely allow and DO NOT pump the brake pedal, as the braking system may lose any remaining assistance available.

Wet conditions

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

Brake pads

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

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

ANTI-LOCK BRAKING SYSTEM (ABS)

WARNING

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

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

The 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.

The anti-lock brake system (ABS) helps the driver to maintain full steering and directional stability during emergency braking, by preventing the road wheels from locking and skidding. ABS constantly monitors the speed of each road wheel and varies brake pressure to each, according to the available grip. ABS optimises the tyre-to-road adhesion under maximum braking.

When ABS is activated, you will feel a pulsating effect on the brake pedal. This is normal and you must **maintain maximum pressure** on the brake pedal.

No matter how hard you brake, dependent on road conditions, you should be able to continue steering the vehicle as normal.

ABS will enable you to steer around obstacles during emergency braking. ABS will not eliminate dangers inherent when;

- driving too close to the vehicle in front of you.
- aquaplaning.
- cornering with excessive speed.
- negotiating poor road surfaces.

Precautions:

- DO NOT pump the brake pedal at any time; this will interrupt operation of the system and may increase the stopping distance.
- NEVER place additional floor matting or any other obstruction under the brake pedal. This restricts pedal travel and may impair brake efficiency.

Note: *On diesel models, if the vehicle power supply has been interrupted, ABS will be de-activated. ABS can be reactivated by driving a short distance, or by turning the steering wheel from one limit position to the other while the vehicle is stationary and with the engine running. The ABS warning indicator will extinguish when the system is reactivated.*

Warning indicator

If a fault is detected in the ABS, the ABS warning indicator will illuminate. Drive with care if the ABS warning indicator illuminates or remains on after the bulb check cycle. The brake system will continue to function normally, but without ABS braking.

WARNING

If the ABS warning indicator illuminates when driving, avoid heavy braking. Seek qualified assistance as soon as possible. Failure to follow this instruction may lead to personal injury or loss of vehicle control.

Off-road driving

While anti-lock braking will operate in off-road driving conditions, on certain surfaces total reliance on the system may be unwise. It cannot reliably compensate for driver error or inexperience on difficult off-road surfaces.

Note the following:

- On soft or deep surfaces such as powdery snow, sand or gravel, and on extremely rough ground, the braking distance required by the anti-lock braking system may be greater than for normal braking, even though improved steering would be experienced. This is because the natural action of locked wheels on soft surfaces is to build up a wedge of surface material in front which assists the wheels to stop.
- If the vehicle is stopped on a very steep slope where little traction is available, it may slide with the wheels locked because there is no wheel rotation to provide a signal to the ABS. To counteract this, briefly release the brakes to permit some wheel movement, then re-apply the brakes to allow ABS to gain control.
- Before driving off-road, read and thoroughly understand the **Off-road driving** section of this handbook.

CornerIng Brake Control (CBC)

Cornering brake control (CBC) is an advanced form of ABS, which maintains vehicle stability and steering control during braking whilst cornering or changing lanes at speed.

Emergency Brake Assist (EBA)

If the brake pedal is depressed rapidly, EBA automatically boosts the braking force to a maximum and thus helps to stop the vehicle. Also, if the driver brakes more slowly, but with sufficient brake pressure to activate ABS on both front wheels, the system automatically increases the braking force so that all four wheels are in ABS control, optimising the performance of the ABS system.

Pressure should be maintained on the brake pedal during the entire brake application. If the brake pedal is released, EBA will cease operation.

A fault with the EBA system is indicated by illumination of the amber brake warning indicator. See **Warning Indicators, 92**.

Electronic Brake Distribution (EBD)

Your vehicle is equipped with Electronic Brake Distribution (EBD), which balances the distribution of braking forces between front and rear axles to maintain maximum braking efficiency under all vehicle loading conditions.

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

A fault with the EBD system is indicated by illumination of the red brake warning indicator. See **Warning Indicators, 92**. If this illuminates while the vehicle is being driven, gently stop the vehicle as soon as safety permit and seek qualified assistance.

HANDBRAKE

To engage the handbrake, pull the lever up (the handbrake warning light illuminates).

To release, pull the lever up slightly, depress the button and lower the lever (the handbrake warning light extinguishes).

Always apply the handbrake fully whenever you park.

When parking on a slope, do not rely on the handbrake alone to hold the vehicle, always select **P** (Park) for extra security.

Ensure the parking pawl of the gearbox has fully engaged by carefully releasing the foot brake and allowing the vehicle to rock into **P**. This is particularly important when LOW range is selected.

WARNING

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

In exceptional cases, if the handbrake has to be used to slow or stop the vehicle, do not pull the lever up too hard. Keep the button on the lever depressed the whole time.

Too violent an application of the handbrake could over-brake the rear wheels and cause the rear of the vehicle to skid.

DO NOT rely on the handbrake to operate effectively if the vehicle has been subjected to immersion in mud and water see Wading, 148.

Note: *The brake lamps do not illuminate when the handbrake is applied.*

DYNAMIC STABILITY CONTROL

Dynamic Stability Control (DSC) optimises vehicle stability, even in critical driving situations. The system controls dynamic stability when accelerating and when starting from a standstill. Additionally, it identifies unstable driving behaviour, such as understeer and oversteer and helps to keep the vehicle under control by manipulating the engine output and applying the brakes at individual wheels. Some noise may be generated when the brakes are applied. The system is ready to operate each time the engine is started.

WARNING

Dynamic Stability Control (DSC) is unable to compensate for driver misjudgement. It remains the driver's responsibility to adopt a suitable driving style in every driving situation. Risks should never be taken on account of the additional security afforded by the DSC system.

Warning indicator

Illuminates as a bulb and system check when the starter switch is turned to position **II** and should extinguish when the engine is running.

If the warning indicator flashes, the system is active, regulating engine output and brake forces.

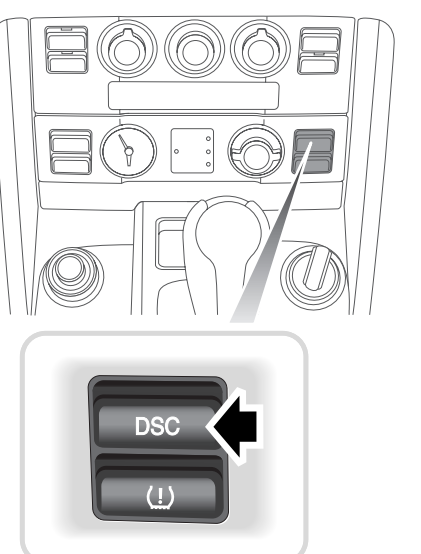
If the indicator fails to extinguish when the engine is started, or illuminates when driving, a fault in the system has been detected or DSC has been manually deselected. The vehicle can still be driven with care, but be aware that driving characteristics of the vehicle may change in adverse conditions.

Deactivating DSC operation

Land Rover recommend that DSC is operational in all normal driving conditions.

In some driving conditions, where forward traction should be maximised, it may be beneficial to deactivate DSC. Such conditions include:

- To rock the vehicle out of a hollow or out of a soft surface.
- Starting in deep snow or on a loose surface.
- Driving in deep sand.
- Driving on tracks with deep longitudinal ruts.
- Driving through deep mud.



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To deactivate DSC, press the DSC switch on the facia (the DSC warning indicator will illuminate continuously). Deactivating DSC has no affect on traction control operation.

Note: *Driving with DSC deactivated, may add additional loads on the brakes - always drive with DSC switched on if possible.*

Reactivating DSC

To reactivate DSC, press the DSC switch on the facia. DSC will automatically reactivate when the engine is started.

Note: *On diesel models, if the battery is discharged or has been disconnected, the DSC and ABS warning indicators will illuminate constantly as a reminder that the system is not active. To reactivate the DSC system, either turn the steering wheel from lock to lock (with the engine running and the vehicle stationary), or drive the vehicle for a short distance around a curve. When the system is reactivated, the warning indicators will extinguish and the system will be fully active.*

ELECTRONIC TRACTION CONTROL (ETC)

ETC is continuously available to boost vehicle traction when one or more wheels has a tendency to spin, while the others have more grip. It operates in conjunction with the DSC system.

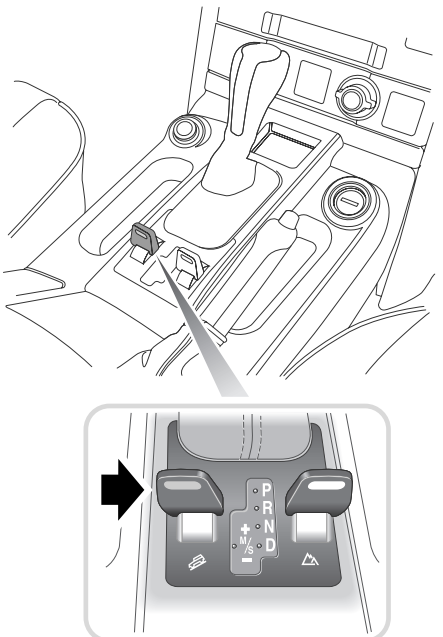
If a wheel is spinning, ETC automatically brakes that wheel until it regains grip. This braking activity causes the engine power to be transferred to the remaining wheels. Some noise may be generated when the brakes are applied.

Warning indicator

A fault with the ETC system is indicated by illumination of the DSC warning indicator. This could also indicate that the DSC has been manually deactivated. See **Warning Indicators, 92**.

If the indicator illuminates constantly, and does not extinguish when the DSC switch is pressed, a fault has been detected in the system. Any fault will deactivate ETC. Drive with care and seek qualified assistance as soon as possible.

HILL DESCENT CONTROL (HDC)



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

To select HDC

HDC can be selected at any speed if LOW range is selected in the transfer gearbox, and can be selected at up to 33 km/h (21 mph) if the vehicle is in HIGH range. The HDC warning indicator in the instrument pack will illuminate when HDC has been successfully selected.

Move the switch (arrowed) fully rearwards to select HDC.

If the vehicle speed is too high when an attempt to select HDC is made, **NO HDC - SLOWDOWN** appears in the message centre and the HDC warning indicator will extinguish when the switch is released.

To deselect HDC, move the switch rearwards (the warning indicator will extinguish). If HDC is deselected when HDC is operating, the warning indicator will flash as the system fades out - allowing the vehicle to gradually increase in speed.

When used in LOW range, HDC controls the vehicle speed more aggressively. Use LOW range gears when steep descents are to be attempted.

Note: *If the vehicle speed exceeds 60 km/h (37 mph) when in HIGH range, HDC will be automatically deselected (warning indicator extinguishes). HDC is also automatically deselected if the vehicle ignition is switched off for more than 6 hours.*

Hill Descent Control in action

HDC can be used with the transmission in CommandShift mode, in **R** (Reverse) and **D** (Drive). When in **D**, the vehicle will automatically select the most appropriate gear.

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

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

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

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

In extreme circumstances, the HDC system may cause brake temperatures to exceed their pre-set limits. If this occurs, **HDC TEMP. NOT AVAIL.** will be displayed in the message centre. HDC will then fade out (warning indicator flashes) and then become temporarily inactive. HDC will not be available until the brakes reach an acceptable temperature, at which time the warning message will disappear from the message centre and HDC will, if required, resume operating.

If a fault is detected in the HDC system, **HDC INACTIVE** will appear in the display. Do not attempt a steep descent when HDC is unavailable. If a fault has been detected, consult your Land Rover Dealer/Authorised Repairer at the earliest opportunity.

HDC fade-out

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

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

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

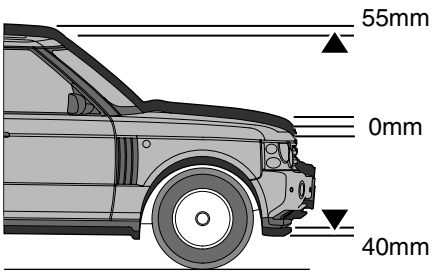
HDC information indicator - GREEN

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

If HDC is selected and the operating conditions are met, the indicator will illuminate continuously.

If the indicator flashes while HDC is active, normal functionality may cease and HDC fade-out may be induced.

AIR SUSPENSION



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The air suspension system maintains the correct vehicle height by controlling the quantity of air in the vehicle's air springs.

Unless stated otherwise, height changes may only be made while the engine is running and the driver and passenger doors are closed.

When the air suspension system lifts the vehicle, it normally uses compressed air stored in its reservoir. The suspension will rise much more slowly if this reservoir is depleted due to repeated raising and lowering of the suspension.

On-road height

The normal height for the vehicle.

Off-road height

This is 55 mm (2.2 in.) higher than On-road height. It provides improved ground clearance and approach, departure and break-over angles. See **VEHICLE DIMENSIONS, 269**.

Off-road height can be selected at any speed up to 40 km/h (24 mph). When the system is at Off-road height, the system will automatically select On-road height if the vehicle speed exceeds 50 km/h (30 mph).

Access height

This is 40 mm (1.5 in.) lower than On-road height. It provides easier entry, exit and loading of the vehicle.

Access height can be selected at any time, but the system response will depend on the vehicle's speed:

- If the vehicle speed is greater than 20 km/h (12 mph), the suspension will wait for up to one minute for the vehicle to slow down. If the vehicle does not slow down to below 20 km/h (12 mph) within this time, the Access height request will be cancelled.
- If the vehicle speed is less than 20 km/h (12 mph), the suspension will move to a part-lowered height and remain at this height for up to one minute. If the vehicle does not slow down to 8 km/h (5 mph) within this time, the Access height request will be cancelled.
- If the vehicle speed is lower than 8 km/h (5 mph), the suspension will be lowered to Access height immediately.

Access height may be selected up to 40 seconds after the ignition is turned off, provided that the driver's door has not been opened within this time.

WARNING

The driver should ensure that the vehicle is clear of obstacles and people before lowering the vehicle. Remember that, for example, the clearance under the floor and bumpers, and in the wheel arches, will be 95 mm (3.75 in.) less at Access height than at Off-road height.

The suspension will automatically rise from Access height when the vehicle speed exceeds 10 km/h (6 mph).

If Access height was selected directly from Off-road height, the system will return to Off-road height when the vehicle speed exceeds 10 km/h (6 mph). Otherwise the system will lift the suspension to On-road height.

High speed suspension height

This vehicle has a feature that lowers the suspension ride height by 20 mm if the vehicle exceeds 160 km/h (100 mph). The driver has no control over this and is designed to improve high speed stability.

Note: *NEVER exceed the speed limits.*

Crawl (locked at Access height)

This mode enables the vehicle to be driven at low speeds at Access height to give increased roof clearance in low car parks, etc.

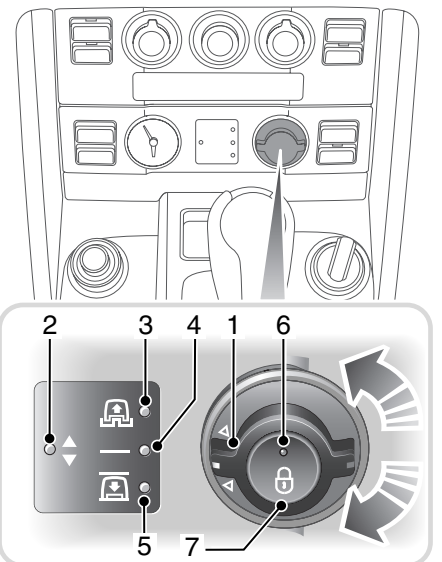
Crawl can be selected when the vehicle speed is below 35 km/h (22 mph). When the vehicle is in Crawl, On-road height will be selected automatically if the vehicle speed exceeds 40 km/h (24 mph).

Messages

A message centre is fitted to the vehicle, in which messages relating to the air suspension system may be displayed.

For an explanation of those messages, see **MAIN MESSAGE CENTRE, 82**.

Using the suspension control



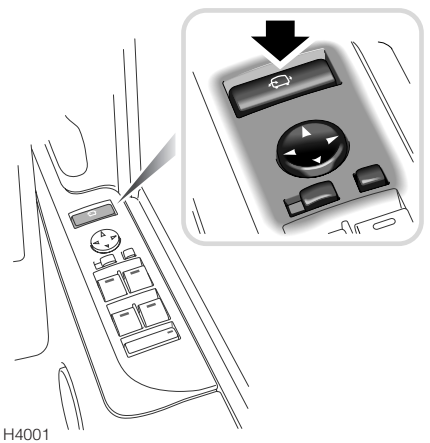
H6501R

1. Raise/lower switch.
2. Height-changing symbol.
3. Off-road symbol.
4. On-road symbol.
5. Access symbol.
6. Lock symbol.
7. Hold switch.

Suspension heights

The Raise/lower switch (1) is used to move up or down through the suspension heights. LEDs (3), (4) or (5) will be lit to show the height selected.

Access height may be selected directly by pressing the Access switch on the driver's door panel.



H4001

LED (2) will be lit to show that the height is changing. It extinguishes when the height change movement is completed.

If a height change is requested that is not allowed, such as attempting to raise the height of the vehicle with the engine not running, LED (2) will flash twice and a chime will sound. A message will be displayed on the message centre.

A flashing LED (2) indicates that the system is in a waiting state or shows that it will automatically override the driver's choice if speed criteria are exceeded.

Selecting Access height

If Access height is selected above 20 km/h (12 mph), LEDs (2) and (5) will flash while the system waits for the vehicle to slow down.

When the vehicle slows down to 20 km/h (12 mph), LED (4) will extinguish as the system goes to the part-lowered height. LED (5) will be lit and LED (2) will continue to flash.

When the vehicle slows down to 8 km/h (5 mph), LEDs (2) and (5) will be lit. When Access height is reached, LED (2) will extinguish.

Selecting and cancelling Crawl (locked at Access height)

When the suspension is at Access height and the vehicle speed is below 10 km/h (6 mph), press the Hold switch (7). LEDs (5) and (6) will be lit to confirm the selection.

Crawl can be cancelled manually by pressing the Hold switch (7). LED (6) will extinguish.

Note: *When Crawl is cancelled, the suspension will rise to On-road height if the vehicle speed is greater than 10 km/h (6 mph).*

Selecting Access height directly from Off-road height

When the suspension is at Off-road height, press the Access height switch in the driver's door panel or press switch (1) down, then press it again before LED (2) goes out.

The system will remember to return the suspension to Off-road height automatically if the vehicle is driven above 10 km/h (6 mph).

Automatic height change warnings

When the suspension is at Off-road height, Access or Crawl, the suspension height will change automatically when vehicle speed exceeds predetermined levels.

When the suspension is at Off-road height or Crawl, it warns the driver that the vehicle is approaching a speed threshold. A chime will sound, a message will be displayed on the message centre and LEDs (2) and (4) will flash.

If the vehicle slows down, the Off-road height or Crawl speed warning will disappear.

Door open override

If a door is opened during a height change while the vehicle is at rest, the height change will be restricted.

The LED for the target height (3, 4 or 5) will remain lit and the height-change LED (2) will flash.

The height change will resume if all of the doors are closed within 90 seconds.

If the doors are not closed within this time, LED (2) will extinguish and the LEDs indicating the heights above/below the current position will be illuminated. Selecting a new height using switch (1), or driving off, will reset the system.

Extended mode

If the vehicle is grounded and wheel spin is induced, the system automatically pumps air into the air springs to raise the vehicle clear of the obstruction. Extended mode is activated automatically and cannot be selected manually.

When Extended mode is activated, LED (3) will flash if the suspension is above Off-road height. LEDs (3) and (4) will flash if the suspension is between Off-road and On-road heights. LEDs (4) and (5) will flash if the suspension is between On-road and Access heights. A message will be displayed on the message centre. Whilst the vehicle is being lifted, the LED (2) will be illuminated.

To exit Extended mode, either press the switch (1) briefly up or down, or drive the vehicle at a speed greater than 5 km/h (3 mph) for 30 seconds.

Additional lift whilst in Extended mode

When Extended mode has been invoked and the automatic lifting of the vehicle has been completed, the driver can request an additional lift of the vehicle. This can be particularly useful when Extended mode has been invoked on soft surfaces.

To request additional lifting wait for LED (2) to extinguish, then press and hold the Up switch for 3 seconds whilst ALSO pressing the brake pedal. A chime will sound to confirm that the request has been accepted. LED (2) will be illuminated while the vehicle is being lifted.

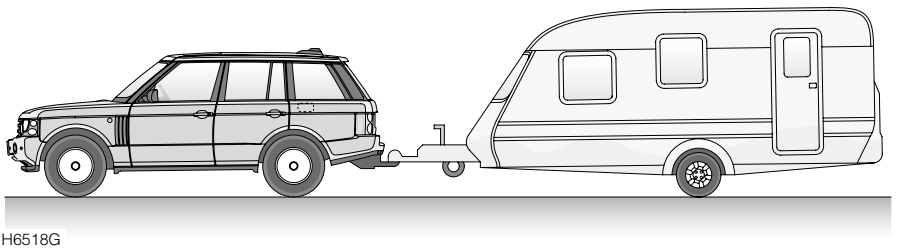
This action can be cancelled by moving the Raise/lower switch up or down.

Suspension freeze

If the system is attempting to change the suspension height and it detects that the suspension is prevented from moving, the system will freeze all movements.

This can be caused by attempting to lower the vehicle onto an obstacle or attempting to lift the vehicle against an obstruction.

The symbols behave in the same way described in Extended mode and the same message will be displayed on the message centre. As in Extended mode, to exit this freeze state, either press the switch (1) up or down, or drive the vehicle at a speed greater than 20 km/h (12 mph).



H6518G

TOWING

The torque ranges of Land Rover engines allow maximum-weight loads to be pulled smoothly from standstill, and reduce gear changing on hills or rough terrain. A smoother start can be achieved with trailers over 2 000 kg (4 400 lb) by moving off in low range then changing to high range while on the move.

WARNING

To preserve vehicle handling and stability, only fit towing accessories that have been designed and approved by Land Rover.

DO NOT use lashing eyes or vehicle recovery towing eyes to tow a trailer. Use of the towing eyes for purposes other than their designed intention could result in damage or injury.

It is the driver's responsibility to ensure that the towing vehicle and trailer/caravan are loaded and balanced so that the combination is stable when in motion. When preparing your vehicle for towing, pay attention to any instructions provided by the trailer/caravan manufacturer as well as to the information that follows.

Balancing the combination

To ensure optimum stability, it is essential that the trailer adopts a level aspect. In other words, the trailer must be level with the ground, with the towing hitch and trailer drawbar set at the same height (note the illustration above). This is particularly important when towing twin axle trailers! Adjust the height of the hitch point if necessary.

With the engine running and all doors closed, the suspension will automatically be set to standard height when the towing electrical socket is utilised and is designed to cope with a heavy trailer load without upsetting the balance or feel of the vehicle.

To maintain standard suspension height without connecting to the electrical socket, press the suspension inhibit switch. See **AIR SUSPENSION, 174**.

- The trailer should be level with the ground when loaded.
- The height of the draw bar hitch point should be set so that the trailer is level when connected to the loaded vehicle.

Points to remember:

- When calculating the laden weight of the trailer, remember to include the weight of both the trailer and its load.
- The trailer nose weight plus the combined weight of the rear seat passengers and the vehicle's load carrying area must never exceed the GVW or the individual maximum axle loads.

  Note: *When towing, European legislation allows for the GVW to be exceeded by 100 kg (220 lb). See* ***Weights, 268****.*
- Where the luggage load can be divided between trailer and tow vehicle, loading more weight into the vehicle will generally improve the stability of the combination. However, ensure that the GVW and maximum rear axle load are not exceeded and that the combination remains level.
- For maximum stability, ensure that loads are properly secured and unable to shift position during transit. Also, position loads so that most of the weight is placed close to the floor and, where possible, immediately above or close to the trailer axle(s).
- Towing regulations vary from country to country. Always ensure national regulations governing towing weights and speed limits are observed (refer to the relevant national motoring organisation for information). The vehicle's maximum permissible towed weight refers to its design limitations and NOT to any specific territorial restriction. See **TOWING, 268**.

Note: *When towing, do not exceed 97 km/h (60 mph). Additionally, if the temporary spare wheel is in use, do not exceed 80 km/h (50 mph).*

Vehicle weights

When loading a vehicle to its maximum (GVW), take account of the load distribution to ensure that axle loads 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 GVW are exceeded. The most accurate method of determining load distribution is by using a public weighbridge.

Nose weight should be approximately 7% of the actual trailer laden weight to maintain optimum stability. Nose weight can be measured using a proprietary brand of nose weight indicator.

WARNING

In the interest of safety, the gross vehicle weight, maximum rear axle weight, maximum trailer weight and tow hitch load (nose weight) must not be exceeded.

Electronically selected gearbox modes

A suitable gear change pattern for trailer towing, hill ascent and high altitude is selected electronically and retains lower gears for longer. This feature is enabled to counter momentum loss caused by more frequent gear changing, which can occur when climbing hills or when towing a trailer or caravan. This gear change pattern is also selected at high altitudes to combat reduced engine torque.

Gearbox overheating

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

Towing on severe inclines

If a journey includes severe inclines and the Gross Train Weight (the maximum permissible weight of vehicle, plus trailer - see **TOWING, 268**) is towed, ensure that the grille and radiator are free from obstruction and that only high quality fuel is used. This enables the engine and the cooling system to operate more efficiently.

Trailer socket

The vehicle connector provides a 5 amp output, which must NOT be exceeded. If it is required to exceed 5 amps, a 12S and a 13 pin accessory harness kit is available from your Land Rover Dealer/Authorised Repairer, increasing the output to 15 amps.

Tachographs

In some circumstances it is necessary for a tachograph to be fitted. In Europe, this is usually when the vehicle is used for business purposes and the combined maximum weights of vehicle and trailer exceed 3 500 kg (7 716 lb).

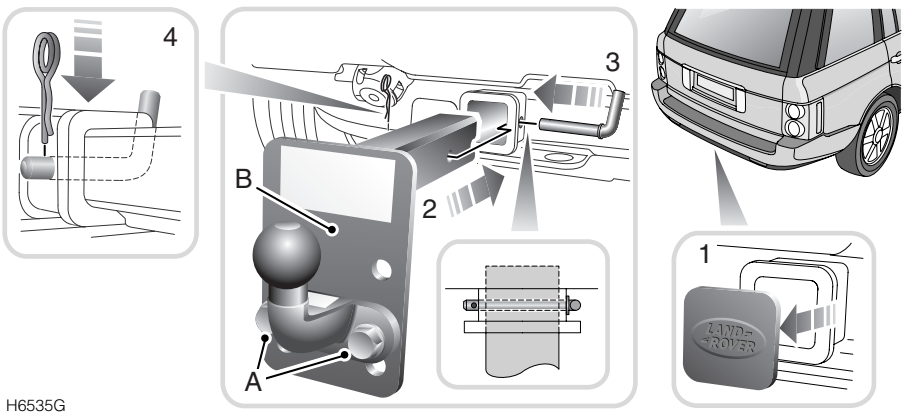
Please contact your local Department of Transport for detailed information.

ESSENTIAL TOWING CHECKS	
Tyre pressures:	Increase rear pressures of towing vehicle to those for Maximum Gross Vehicle Weight conditions. See **Tyre pressures, 215**. Ensure trailer/caravan tyres are at the pressures recommended by the trailer manufacturer.
Nose weight:	If the vehicle is loaded to the Gross Vehicle Weight (GVW), the nose weight is limited to 150 kg (330 lb). If a trailer with over-run brakes is used the nose weight can be increased up to 250 kg (550 lb) total nose weight. However, vehicle payload **MUST BE RESTRICTED** by at least the same weight to ensure that the GVW and rear axle weights are not exceeded. See **Weights, 268**.
Breakaway cable or secondary coupling	A breakaway cable or secondary coupling **MUST** be attached. If the trailer/caravan is fitted with brakes, it is usual for an attached breakaway cable to operate the brakes in the event of the coupling becoming detached. See your trailer manufacturers literature. If your trailer does not have a breakaway cable, a secondary coupling must be attached. Use a suitable point on the towing bracket to securely attach the coupling. It is not advisable to loop cables or couplings around the neck of the tow ball as they could slide off.

TOW BAR FITMENT

There are two different types of tow bar that can be fitted to your vehicle. The following pages give you the information to fit and remove both types.

Drop plate tow bar



1. Remove the plastic protective cover (marked with the Land Rover logo) from the tow bar mounting aperture.
2. Insert the stock of the tow bar assembly into the mounting aperture.
3. Insert the securing bar, so that it passes through the walls of the aperture and through the tow bar assembly stock.
4. Insert the straight part of the retaining pin through the securing bar.

Removal of the tow bar is the reverse of the fitting procedure. Once the tow bar is removed, ensure that it is returned to its protective case and that it is secured in such a way that it cannot move around inside the vehicle. Remember to refit the plastic protective cover into the tow bar mounting aperture.

Drop plate height adjustment

Remove the two bolts (A) securing the tow bar to the drop plate (B).

Reposition the tow bar on the drop plate so that it aligns with one of the other two height settings and secure the two bolts. Tighten the bolts to a torque of 170 Nm.

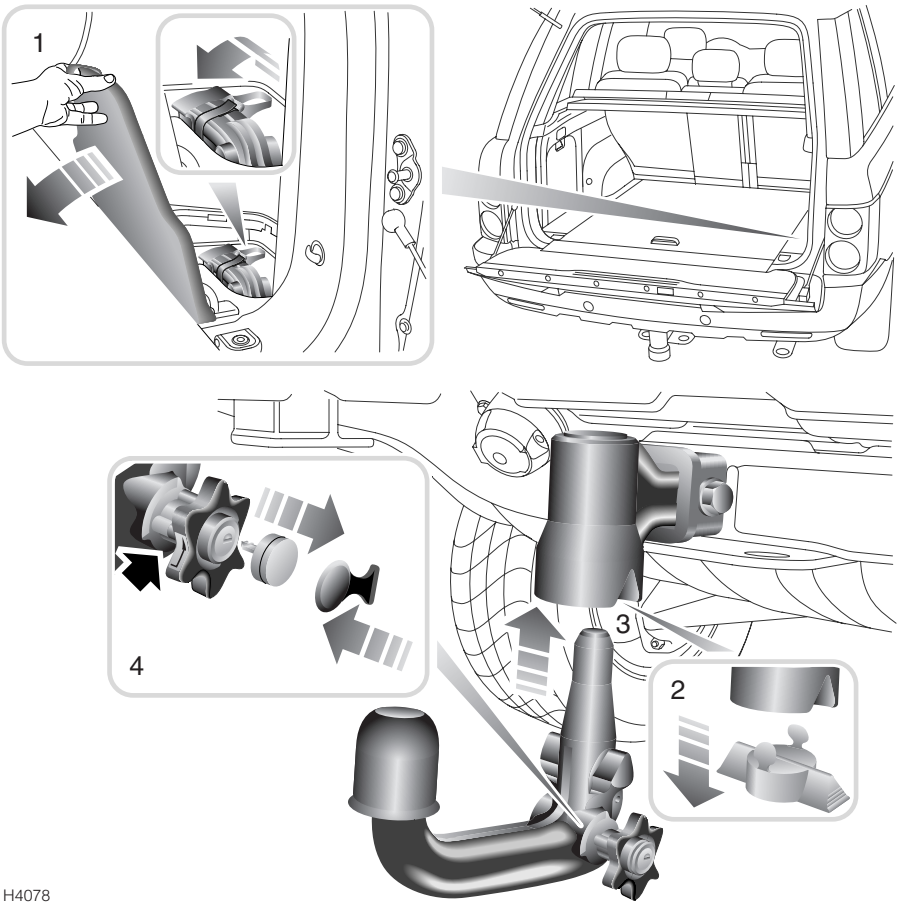
WARNING

Before towing, ALWAYS check that the retaining pin is firmly in place through the securing bar.

NEVER leave the tow bar loose in the vehicle, where it could become a projectile in the event of heavy braking or an accident.

The drop plate tow bar is stowed in a bag and should be strapped to one of the luggage anchorage points in the rear loadspace.

Detachable tow bar



The detachable tow bar is located under an access hatch on the right hand side of the rear loadspace floor.

1. Lift up the access hatch, release the Velcro strap and remove the tow bar.
2. Remove the protective plastic cover from the tow bar mounting.

Note: *The protective cover can be stowed in the tow bar stowage area, whilst the tow bar is installed.*

The tow bar should be in the unlocked position, this can be determined by a red marker on the handwheel lining up with a green bar on the body of the tow bar (arrowed in inset 4). If this is not the case (a green marker lines up with the green bar), refer to the procedure for unlocking the tow bar, detailed later on this page. The tow bar can only be installed when in the unlocked position.

3. Insert the tow bar bolt into the tow bar mounting and push firmly upwards until the tow bar locks in position. When the towbar locks, the green marker on the handwheel will line up with the green bar on the tow bar.
4. Turn the key anticlockwise to lock the handwheel, then remove the key and fit the protective cover onto the handwheel lock.

Note: *Store the key in the tow bar stowage area for safe keeping.*

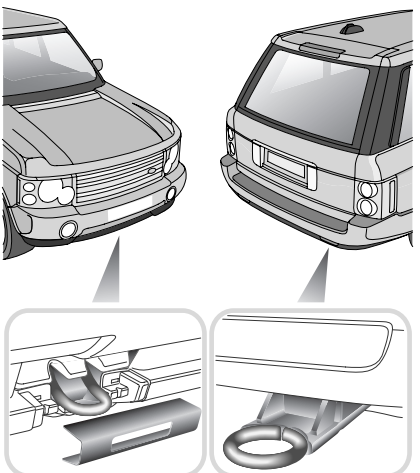
Removing the tow bar mounting for off-road

Remove the cover from the handwheel lock, insert the key and turn it clockwise.

To remove the tow bar, it is necessary to unlock it using the handwheel. Pull the handwheel out, then rotate it clockwise, until a click sounds - the red marker on the handwheel should now line up with the green bar. The tow bar is now unlocked.

Carefully lower the tow bar and place the cover over the handwheel key. Ensure that the tow bar is securely strapped into its stowage area under the loadspace floor and remember to refit the red protective plastic cover into the tow bar mounting.

TOWING EYES



H6527G

WARNING

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

Front

A single towing eye, set behind a removable panel in the front spoiler is provided at the front of the vehicle for on-road recovery.

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

Removing the panel: Using both hands, one either side of the towing eye, squeeze the cover and pull away from the vehicle. To replace the cover, push it firmly back into position.

Rear

The towing eye provided at the rear of the vehicle can be used for towing your vehicle or towing another vehicle in recovery situations.

TOWING FOR RECOVERY

Caution: Under no circumstances must your vehicle be towed with only two wheels in contact with the ground. It must be towed with all four wheels on the ground, recovered onto a trailer, or have a combined wheel lift and towing dolly arrangement to lift it clear of the ground.

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

Towing the vehicle on all four wheels

Caution: ALWAYS adhere to the following procedure when towing the vehicle with all four wheels on the ground. Failure to do so could result in unintended vehicle movement or unanticipated vehicle conditions.

When preparing to tow the vehicle on four wheels, it is essential that neutral is selected on the transmission. If the main gearbox cannot be set in neutral, the vehicle must not be towed under any circumstances.

Before selecting neutral, ensure that the handbrake is properly and securely applied.

Note: *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.*

Leaving the starter switch in position ***I*** *or* ***II*** *for extended periods may drain the vehicle battery.*

Petrol engines:

1. Secure the towing attachment from the recovery vehicle to the front towing eye, see **TOWING EYES, 185**.
2. With the handbrake applied, insert the starter key and turn it to position **II**.
3. Place the gear lever in **N** (Neutral).
4. Turn the starter switch to position **I**. Do not turn the starter switch to position **0**.
5. If required, the starter switch may be turned to position **II** to operate the brake lamps and direction indicators.
6. Release the handbrake before towing the vehicle.

WARNING

DO NOT remove the key or turn the starter switch to position 0 while the vehicle is in motion.

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

If the above conditions are met, and the transfer box remains in gear, petrol vehicles may only be towed for a distance of 50 km (30 miles) at a maximum speed of 50 km/h (30 mph).

Diesel engines:

1. Secure the towing attachment from the recovery vehicle to the front towing eye. See **TOWING EYES, 185**.
2. With the handbrake applied, insert the starter key and turn it to position **II**.
3. Place the gear lever in **N** (Neutral).
4. Turn the starter switch to position **0**.
5. Insert a fuse (5 amps) into position 37 of the passenger compartment fuse box. See **PASSENGER COMPARTMENT FUSE BOX, 241**.
6. Turn the starter switch to position **II**. The transfer gearbox will automatically select transfer neutral - wait until **TRANSFER NEUTRAL** is displayed in the message centre.
7. Turn the starter switch to position **I**. Do not turn the starter switch to position **0**.

   Note: *The transfer gearbox is now in neutral and the steering wheel is unlocked. The vehicle MUST remain in this condition while being towed on all four wheels.*
8. If required, the starter switch may be turned to position **II** to operate the brake lamps and direction indicators.
9. Release the handbrake before towing the vehicle.

WARNING

DO NOT remove the key or turn the starter switch to position 0 while the vehicle is in motion.

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

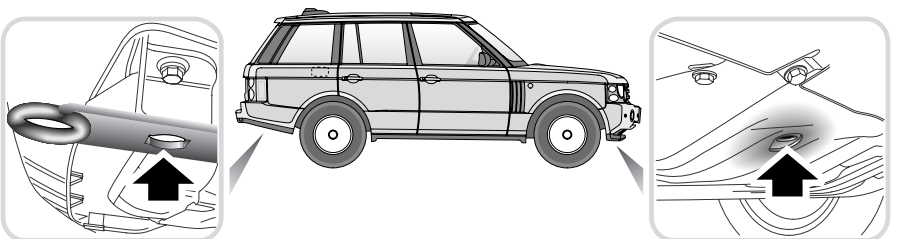
If the above conditions are met, Diesel vehicles, with the transfer box in neutral and the fuse in position 37 of the fuse box, can be towed for 6 hours at 50 km/h (30 mph).

After towing on four wheels (diesel vehicles only)

To engage the transfer gearbox after towing, perform the following steps:

1. Apply the handbrake and verify that **N** is selected in the main gearbox.
2. Turn the starter switch to position **0**.
3. Remove the fuse from position 37 of the passenger compartment fuse box.
4. Turn the starter switch to position **II**. The transfer gearbox will engage and **TRANSFER NEUTRAL** will extinguish from the message centre display. Press the range change switch to select either HIGH or LOW range.
5. Select **P** (Park) in the main gearbox.
6. Turn the starter switch to position **0**.

TRANSPORTER OR TRAILER LASHING



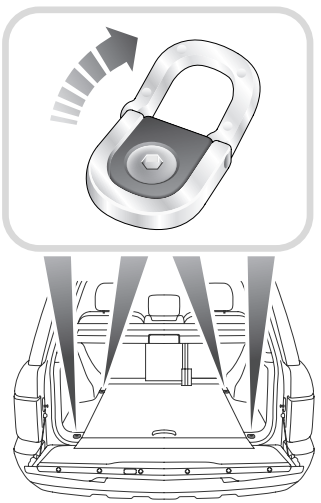
H6520G

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

Note: *The front and rear lashing eyes are for lashing only and must NOT be used for towing.*

IMPORTANT INFORMATION
Once the vehicle is loaded onto the trailer and if the vehicle electronics are operational, the electronic air suspension (EAS) must be set to Access height. This should be done BEFORE securing the vehicle to the trailer.

LUGGAGE ANCHOR POINTS



H4185

Four fixing points are provided in the rear luggage compartment floor, to assist in safely securing large items of luggage. Land Rover provide a range of approved luggage retention accessories.

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.

ROOF RACKS

A range of roof rack systems is available as Land Rover approved accessories. For further information about roof rack systems approved for use with your vehicle and advice as to which system would suit your requirements best, please consult your Land Rover Dealer/ Authorised Repairer.

Always observe the following precautions:

- The **MAXIMUM** load for approved roof rack systems is 100 kg (220 lb) for normal road use and 50 kg (110 lb) off-road. The above weights include the mass of the roof rack system.
- Only fit roof racks that have been designed for your vehicle. If in doubt, consult your Land Rover Dealer/Authorised Repairer.
- All loads should be evenly distributed, side to side, with any weight bias towards the front of the roof rack. system.
- Ensure all loads are secured within the periphery of the roof rack system.
- Check to ensure the roof rack and load are secure after 50 km (30 miles) of any journey.

WARNING

To avoid the risk of personal injury or death, DO NOT permit children or any other person to travel on the roof rack (or access ladder) whilst the vehicle is in motion.

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

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.

FRONT LIGHTING SYSTEMS

There are three types of headlamps systems:

- Halogen high/low beam main lamp with a fill-in high beam halogen lamp alongside
- Bi-Xenon high/low beam main lamps with a fill-in high beam halogen lamp alongside.
- An Adaptive Front Lighting System (AFS).

Bi-Xenon headlamps

Bi-Xenon headlamp units use Xenon bulb for both high and low beam, while a halogen bulb is used for high beam fill-in. A shutter, operated by a solenoid, changes the direction of the Xenon lamp beam to give either low or high beam.

The operational life of a Bi-Xenon lamp is significantly longer than that of a conventional or halogen bulb.

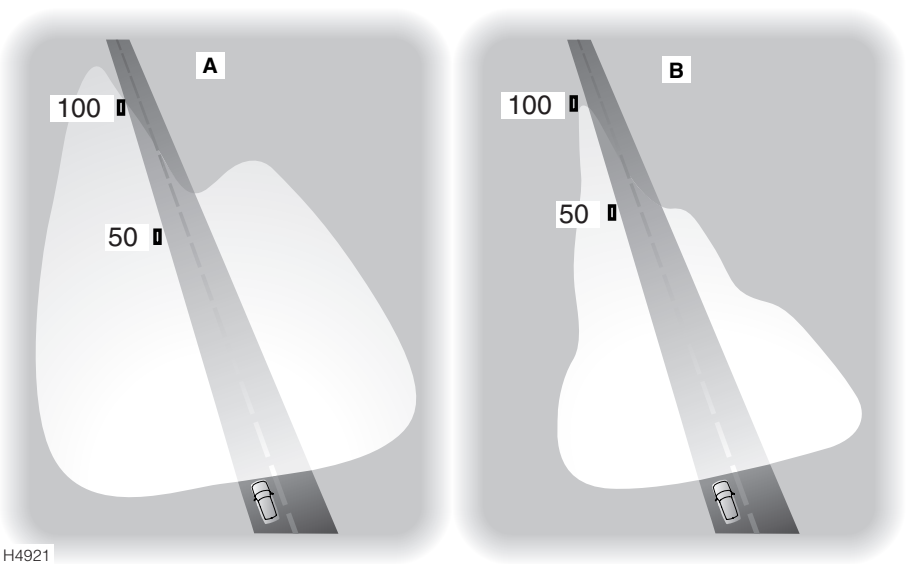
WARNING

Bi-Xenon lamp units operate at a very high temperature. If they have recently been in use, allow sufficient time for the to cool before touching them.

Used Xenon lamp units contain Mercury, which is hazardous and can be injurious to health.

A very high voltage is required to ignite the gas and metal vapour used to power Xenon lamps. Contact with this voltage could cause very serious injury.

Replacement or maintenance of Xenon lamps should be carried out only by qualified personnel.



A. *Bi-Xenon lamps, with improved visibility.* ***B.*** *Halogen lamps*

Adaptive Front Lighting System (AFS)

AFS is a new lighting system designed to give the driver improved visibility. It has two main components: a swivelling headlamps unit and a static bending lamp, with a beam set to 45 degrees from the centre line of the vehicle.

The headlamps units can swivel left or right, to improve light spread on bends in the road and they operate throughout the vehicle speed range. They also react in the vertical plane to the vehicle's braking or acceleration to maximise headlamp performance.

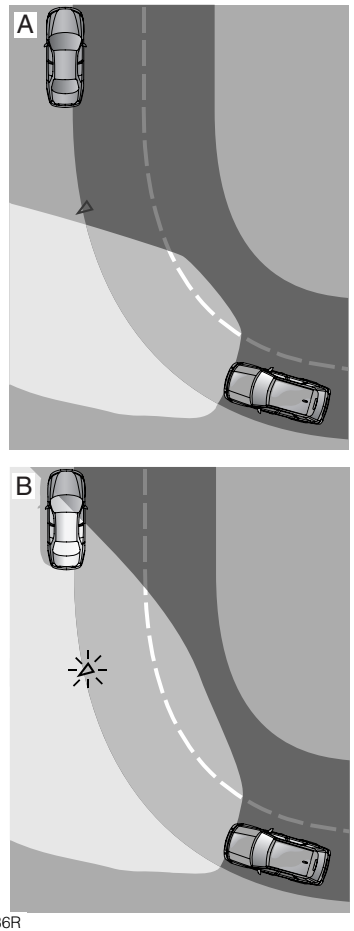
These units operate when the engine is running and the lamps master switch is in position **3**. They will also operate with the lamps master switch in position **4** (Auto), if the ambient light has fallen below a preset level.

The system takes inputs from the vehicle's road speed and steering angles to determine the amount of horizontal swivel. The amount of swivel is highest at low manoeuvring speeds, and reduces as speed increases.

If reverse gear is selected, the lamps return to the central position and the unit's swivelling capability is disabled.

When the engine is started, the headlamps can be seen to swivel as they go through a self-calibration for a few seconds.

The AFS advantage



H6236R

A. Shows the light spread of a vehicle not fitted with AFS.

B. Shows the light spread of a vehicle fitted with AFS.

Static Bending Lamps (SBL)

Additional lighting comes from the static bending lamps which have a beam set to 45 degrees from the centre line of the vehicle.

These lamps broaden the beam of the headlamps when cornering during normal driving.

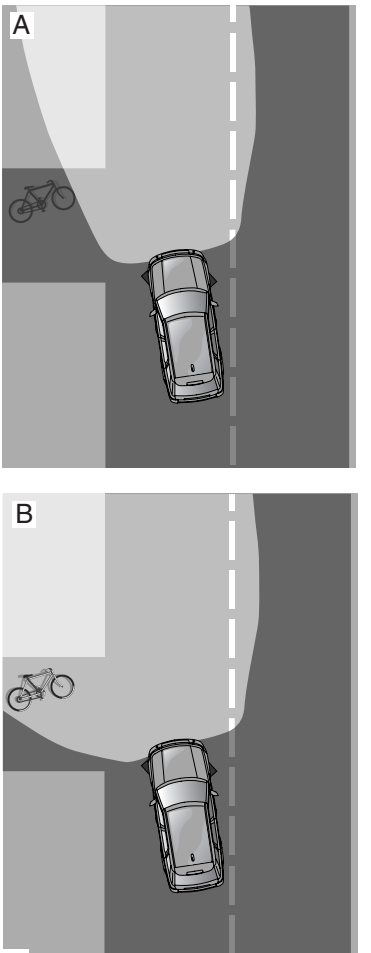
The system receives signals for the vehicle's road speed and the steering angle. Based upon these signals, the lighting system can determine in which direction the vehicle is turning, and illuminate the respective SBL.

A. Shows the light spread of a vehicle not fitted with SBL.

B. Shows the light spread of a vehicle fitted with SBL.

Static bending lamps operate when the system detects a steering wheel rotation of 70 degrees or more.

Static bending lamps will be deactivated when the vehicle's speed exceeds 70 km/h (44 mph), and will only be reactivated when the speed reduces to 60 km/h (37 mph).



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