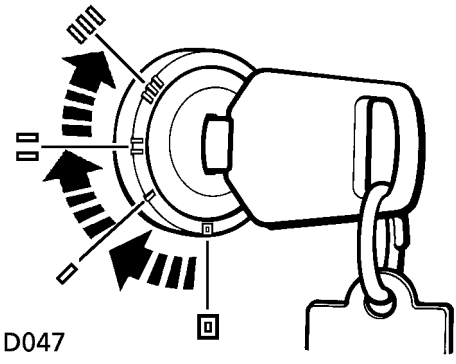
SECTION 3
Driving & operating

Section Contents **Page**

Starter switch & steering lock



To unlock the steering column

Insert the ignition key FULLY and turn the starter switch to position 'I', while turning the steering wheel slightly to disengage the lock.

To lock the steering column

Turn the starter switch to position '0' and withdraw the key from the starter switch. Turn the steering wheel towards the straight ahead position until the lock engages.

STARTER SWITCH

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

Position '0'

Steering locked (if key is removed).

Ignition key locked in position unless the gearshift is in 'P'.

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

Position 'I'

Steering unlocked.

Radio/cassette/CD player can be operated.

Position 'II'

All instruments, warning lights and electrical circuits are operational.

Position 'III'

Starter motor operates.

Release the key immediately the engine starts (the key will automatically return to position 'II').

Note that operation of position 'I' electrical functions will be interrupted during engine cranking.

NOTE: *The engine will not start unless 'P' or 'N' is selected in the main gearbox.*

STARTING

WARNING

Catalytic converters are easily damaged through improper use, particularly if the wrong fuel is used, or if an engine misfire occurs.

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

In particular, you should be aware that continued use of the starter, will result in unburnt fuel damaging the catalytic converter.

1. Check that the handbrake is applied and that the main gearshift is in 'P' or 'N'.
2. Check that the transfer lever is in either the 'H' or 'L' position.
3. Switch off all unnecessary electrical equipment.
4. Insert the starter key and turn the switch to position 'II' and then on to position 'III' to operate the starter motor. DO NOT press the accelerator pedal during starting and RELEASE THE KEY as soon as the engine is running.

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

NOTE: *If the engine fails to start, the starter key must be returned to position 'I' before another attempt is made.*

In temperate climates, the battery charging and oil pressure warning lights should extinguish as soon as the engine is running.

Cold climates

In very cold climates, the battery charging and oil pressure warning lights may take several seconds to extinguish. Similarly, engine cranking times will also increase; at -30° C (-22° 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.

Additionally, in very cold climates, use of a cylinder block heater will improve the engine's starting characteristics. Your Land Rover dealer can advise you about the supply and use of a cylinder block heater.

Moving off

Apply both the handbrake and the foot brake while selecting the required drive position and keep both brakes applied until you are ready to move off.

Warming up

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

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

Parking

After bringing the vehicle to a stop, ALWAYS apply the handbrake and select 'P' in the main gearbox and either High or Low in the transfer gearbox, before releasing the foot brake and switching off the engine.

Switching off

Return the starter switch to position 'I' and then to position '0' to remove the key.

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

- LIMIT maximum speed to 60 mph (95 km/h). Initially, drive the vehicle on a light throttle and only increase engine speeds 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.

EMISSION CONTROL SYSTEM

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

In many countries, it is against the law for vehicle owners to modify or tamper with emission control equipment, or to sanction the unauthorised replacement or modification of this equipment by a repair shop.

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 can have a significant effect on fuel consumption. But above all, the way in which you drive is most important. The following hints may help you to obtain even better value from your motoring:

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

DRIVE GENTLY - SAVE FUEL!

IMPORTANT DRIVING INFORMATION

Instruments & warning lights

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

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

Vehicle stability

Your vehicle has a higher ground clearance and, therefore, a higher centre of gravity than ordinary passenger cars. This will result in different handling characteristics. Inexperienced drivers should take additional care, particularly in off-road driving situations and when performing abrupt manoeuvres at inappropriate speeds or on unstable surfaces.

WARNING

Modifications to the suspension or steering systems could seriously affect the handling characteristics of the vehicle and are NOT recommended.

Vehicle height

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

Auxiliary equipment

WARNING

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

Power assisted steering

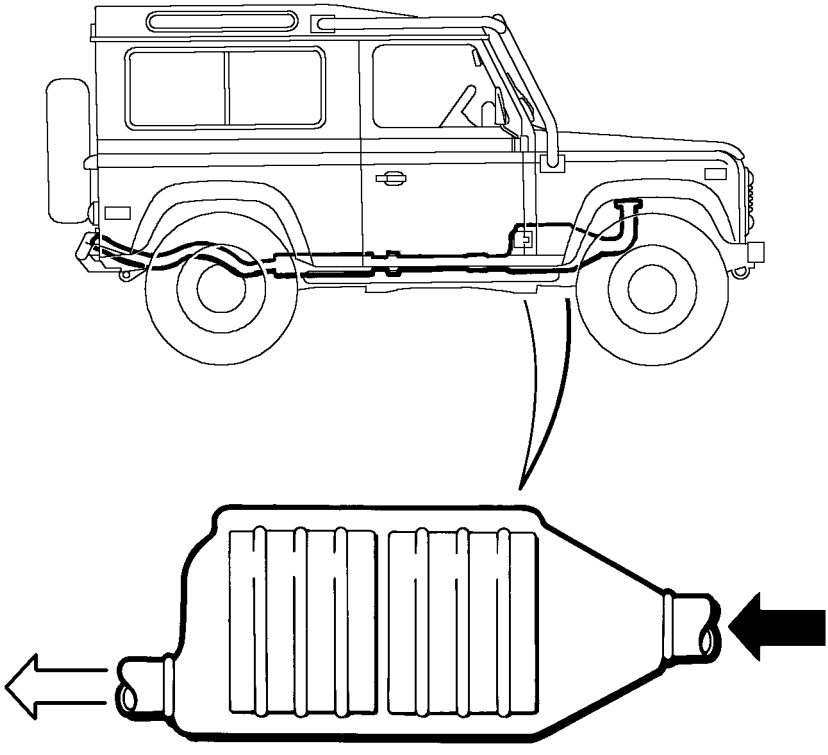
Power assistance is progressively applied, the more the steering wheel is turned. For example; where manual steering effort would normally be greatest (at slow speeds on maximum lock), power assistance is greatest. Similarly, where only minimal steering effort would normally be required (at high speed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

WARNING

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

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

Catalytic converter



D233

CATALYTIC CONVERTER

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

WARNING

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

Catalytic converter

Fuel

- Use ONLY fuel recommended for your vehicle.

Starting the engine

- DO NOT continue operating the starter if the engine fails to start after a few attempts (unburnt fuel may be drawn into the exhaust system, thereby poisoning the catalyst) - seek qualified assistance.
- When starting a COLD engine, DO NOT drive if a misfire is suspected - seek qualified assistance.

Driving

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

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).

Switching off

- DO NOT switch off the engine while a forward or reverse gear is selected or whilst the vehicle is in motion.

Vehicle maintenance

- Any engine misfire, loss of engine performance or engine run-on, could seriously damage the catalytic converter. For this reason, it is vital that unqualified persons do not tamper with the engine, and that regular systematic maintenance is carried out by a Land Rover dealer.
- DO NOT run the engine with a spark plug or H.T. lead removed, or use any device that requires an insert into a spark plug.

Fuel

USE ONLY UNLEADED FUEL

Octane requirements

ALways use UNLEADED PETROL with a rating of 95 RON minimum to EN228 specification.

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

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

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

WARNING

DO NOT use leaded fuel! Your engine is designed to use unleaded fuel ONLY. Unleaded fuel is essential for proper operation of the emission control system. It also reduces spark plug fouling, exhaust system corrosion and engine oil deterioration.

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

Fuel filling

Unlock the fuel filler cap using the small metal key marked 'FUEL'.

WARNING

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

Unless absolutely necessary, the fuel filler cap should not be removed unless the vehicle is standing on level ground.

DO NOT OVERFILL!

Most filling station pumps are equipped with automatic cut-off sensing to avoid fuel spillage - only fill the tank until the filler nozzle automatically shuts off. DO NOT attempt to fill the tank beyond this point, or spillage could result due to expansion of the fuel.

WARNING

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

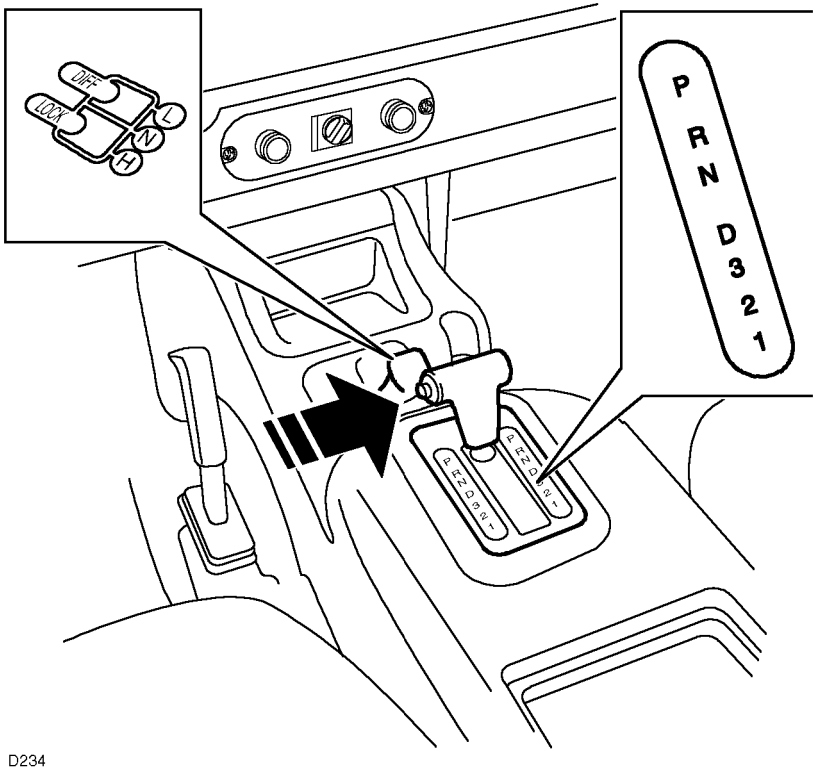
Empty fuel tank

DO NOT RUN THE FUEL TANK DRY!
Running the fuel tank dry could create an engine misfire capable of damaging the catalytic converter.

SAFETY ON THE FORECOURT

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

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



Left hand steering illustrated

AUTOMATIC TRANSMISSION

The automatic transmission features a four speed main gearbox with a torque converter and a two speed transfer box. A centre differential in the transfer box distributes power to both front and rear axles, providing permanent four wheel drive. Using the main gearbox in conjunction with the transfer gearing, produces eight forward and two reverse speeds.

Main selector lever

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

NOTE: *Gear selection between 'D' and '3' may be made without holding in the button.*

Automatic selector lever positions

'P' (Park)

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

'R' (Reverse)

Select ONLY when the vehicle is stationary.

'N' (Neutral)

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

'D' (Drive)

Select drive for all your normal driving on good road surfaces; fully automatic gear changing occurs on all forward gears according to vehicle speed and accelerator position.

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

Automatic gear changing is limited to first, second and third gears only. Use in congested traffic conditions and for town driving.

'2' (1st and 2nd gears)

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

NOTE: *If either '2' or '1' is selected from 'D' or '3' when the vehicle is travelling at high speed, third gear will immediately engage. Progressive deceleration will then cause downshifts into second then first gear at the appropriate road speeds.*

'1' (1st gear only)

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

WARNING

When parked, always leave the vehicle with the gear selector in 'P' and the handbrake applied.

Starting and driving

NOTE: *The engine will not start unless 'P' or 'N' is selected in the main gearbox.*

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

- Before starting the engine, ensure that both foot and handbrake are applied.
- After starting the engine, KEEP BOTH BRAKES APPLIED before and whilst moving the selector lever to the required drive position.
- Keep the brakes applied until you are ready to move - remember, once a drive gear is selected, an 'automatic' will tend to creep forward (or backward).
- Never 'rev' the engine while selecting a forward or reverse drive gear, or while the vehicle is stationary with a drive gear selected - remember, an 'automatic' will move immediately when the accelerator pedal is pressed.

Gear change speeds

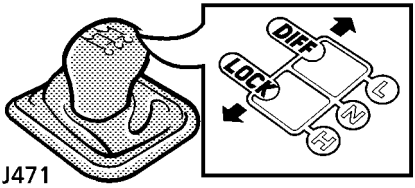
With 'D' selected, the road speed at which gear changes take place will vary according to the position of the accelerator. Minimum acceleration will result in low road speed gear changes, while larger throttle openings will cause the main gearbox to delay gear changes until faster road speeds have been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

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

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

'Kick-down'

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



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TRANSFER GEARBOX

The two speed transfer gearbox, is used to select either the high or low range of gears and, in addition, also controls the centre differential (known as the 'DIFF LOCK').

High range ('H')

Use high range for all normal road driving and also for off-road driving across dry, level terrain.

Low range ('L')

Use low range gears when moving off from rest when towing a heavy load, or in any situation where low speed manoeuvring is necessary, such as reversing a trailer or negotiating a boulder strewn river bed; also use low range for more extreme off-road conditions, where progress in high range cannot be maintained.

WARNING

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

Neutral ('N')

With the transfer lever in neutral, drive cannot be transmitted to the road wheels, regardless of the position of the main gear lever. Use transfer neutral when the vehicle has to be towed on four wheels, or when using winching facilities.

'Diff lock' centre differential

Use the 'unlocked' position for all normal driving, and use the 'DIFF-LOCK' position to improve traction in extreme conditions where wheel grip could be lost, such as: wet grass, mud, sand, ice or snow. Return to the 'unlocked' position as soon as dry, firm, ground is reached.

DO NOT use the 'diff lock' unnecessarily!

USING THE TRANSFER GEARBOX

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

Normal method

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

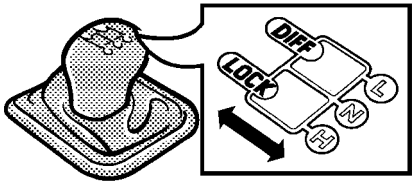
If there is resistance to the gear engaging, do not force the lever. Instead, with the engine running, apply the foot brake and handbrake, momentarily engage 'D' on the main gearbox then return it to the 'N' position and try again.

Advanced method

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

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

NOTE: *This operation applies to 'H' to 'L' and 'L' to 'H' changes equally.*



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THE DIFFERENTIAL LOCK

Unlike some four wheel drive vehicles, all Land Rover vehicles have permanent four wheel drive. This is achieved by the inclusion of a lockable differential between the front and rear drive shafts. With the differential locked, the drive shafts to front and rear axles are (in effect) joined together, causing both to rotate at the same speed. This is a normal feature with all four wheel drive vehicles and enhances traction on difficult off-road surfaces. However, with the differential unlocked the different running requirements of the two axles can be accommodated, thereby enabling Land Rover vehicles to operate permanently in four wheel drive for both normal AND off-road use.

'Diff lock' centre differential

Use the 'unlocked' position for all normal driving, and use the 'DIFF-LOCK' position to improve traction in extreme conditions where wheel grip could be lost, such as: wet grass, mud, sand, ice or snow. Return to the 'unlocked' position as soon as dry, firm, ground is reached.

DO NOT use the 'diff lock' unnecessarily!

Selecting diff lock

The diff lock can be engaged, or disengaged, either with the vehicle stationary, or when driving at any road speed. However, with the vehicle in motion, it is ESSENTIAL to be travelling on firm ground, in a straight line, and without wheel slip.

WARNING

DO NOT engage the diff lock if one or more wheels are slipping - this could damage the transmission. If wheels are slipping, ease off the accelerator before engaging the diff lock.

DO NOT engage the diff lock from the transfer neutral position.

To lock the differential:

Move the transfer gear lever to the left - from either 'H' (high) or 'L' (low) position (the warning light on the instrument panel will illuminate).

To unlock the differential:

Move the transfer gear lever to the right - to either 'H' (high) or 'L' (low) position as required; when the diff lock disengages the warning light will extinguish.

When to use the diff lock

As a general rule, the differential should only be locked in order to drive off-road on loose and slippery surfaces, or on-road where extreme ice or snow conditions are encountered.

ALWAYS unlock the differential for normal road driving, or as soon as a hard grippy surface is reached, whether high or low gears are selected.

NOTE: *A valuable introduction to off-road driving, which includes many useful references to the transfer gearbox and 'diff lock', is included in the 'Off-road driving' section of the handbook.*

WARNING

If the vehicle is driven on normal road surfaces with the differential locked, the steering will feel stiff, excessive tyre wear will occur and the transmission will be 'wound up'. This places excessive strain on the transmission.

Diff lock warning light

The amber warning light on the instrument panel illuminates when the diff lock is actually engaged - rather than when it has been selected. Similarly it will only extinguish when the diff lock is actually disengaged. This accounts for a slight delay between diff lock deselection and the warning light extinguishing which is quite normal.

IMPORTANT INFORMATION

Transmission 'wind up'

If the warning light is obviously reluctant to extinguish after the diff lock has been deselected, some transmission 'wind up' may be present.

Reversing the vehicle for a short distance and then going forward will usually 'unwind' the transmission and extinguish the light and the vehicle can then be driven as normal. However, if after two or three attempts to 'unwind' the transmission the light remains on, consult your dealer AS SOON AS POSSIBLE.

BRAKING SYSTEM

As a safety precaution, the hydraulic braking system operates through dual circuits. If one circuit fails, the other will continue to function, but increased brake pedal travel 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:

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

Brake pads

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

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

WARNING

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

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

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

ALWAYS take particular care when being towed with the engine turned off.

If the brake warning light should illuminate while the vehicle is in motion, bring the vehicle to a halt as quickly as traffic conditions and safety permit and seek qualified assistance before continuing - DO NOT pump the brake pedal. If the brake pedal is pumped, 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.

HANDBRAKE

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

To engage the handbrake, depress the button and pull the lever up.

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

Always apply the handbrake fully whenever you park.

When parking on steep slopes, move the transfer lever into low range or engage the diff lock, for extra security.

WARNING

DO NOT apply the handbrake while the vehicle is in motion, as this could result in loss of vehicle control and damage to the transmission.

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

ALWAYS use the wheel chock when jacking the vehicle. Even with the handbrake applied, vehicle movement is likely due to tolerances in the transmission.

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.

WARNING

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

Ensure that the gross weight and maximum axle weights are not exceeded.

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

- Ensure that the towing vehicle tyre pressures are correct and that the trailer tyre pressures are as recommended by the trailer manufacturer.
- With the trailer and vehicle unladen, balance the combination so that the trailer draw bar and the hitch point on the vehicle are at the same height. Adjust the height of the hitch point if necessary.
- Check the operation of trailer brakes and lights.
- For maximum stability, ensure that loads are properly secured and unable to shift position during transit. Also, position loads so that most of the weight is placed close to the floor and, where possible, immediately above or close to the trailer axle(s).
- After loading the trailer, check that the weight on the hitch ball (this is called the nose weight), is in accordance with the manufacturer's recommendations.
- When calculating the laden weight of the trailer, remember to include the weight of the trailer PLUS THE LOAD.
- Where the load weight can be divided between trailer and tow vehicle, loading more weight into the vehicle will generally improve the stability of the combination.
- A smooth start will be achieved with trailers over 3307 lb (1500 kg), by moving off in LOW range, then changing to HIGH range while on the move (see *'Transfer gearbox'*).

Towing & load carrying

NOTE: *It is very important to ensure that national regulations governing towing weights and speed limits are observed (refer to an appropriate motoring organisation for information). The following maximum permissible towed weights refer to the vehicle's design limitations and NOT to any specific territorial restriction.*

Maximum permissible towed weights	**On-road**	**Off-road**
Unbraked trailers	1653 lb (750 kg)	1102 lb (500 kg)
Trailers with brakes	7716 lb (3500 kg)	2204 lb (1000 kg)

NOSE WEIGHT

The maximum trailer nose weight is 330 lb (150 kg). The nose weight, plus the combined weight of the vehicle's load carrying area and passengers, must never exceed the maximum rear axle load or the gross vehicle weight (as shown in *'General data'*).

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.

VEHICLE WEIGHTS

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

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

WARNING

The nose weight, plus the combined weight of the vehicle's load carrying area and passengers (if applicable), must never exceed the maximum rear axle load or gross vehicle weight.

Trailer socket

When the engine is running, power consumption from the trailer socket must NOT exceed 5 amps.

WARNING

ALWAYS consult your dealer for advice regarding the approval, suitability, installation and use of any parts or accessories before fitting.

ROOF RACK

ALWAYS use an approved roof rack and follow the manufacturer's fitting instructions carefully. A full list of all available accessories is available from your Land Rover dealer.

IMPORTANT INFORMATION

- The MAXIMUM roof rack load is 165 lb (75 kg).
- A loaded roof rack can reduce the stability of the vehicle, particularly when cornering and encountering cross winds.
- All loads should be evenly distributed and secured within the periphery of the rack.
- Always secure the load to the side rails, not just to the cross rails.
- Only fit roof racks that have been designed for your vehicle. If in doubt, consult your dealer.

WARNING

The roof rack load, plus the combined weight of the vehicle's load carrying area and passengers, must never exceed the maximum rear axle load or the gross vehicle weight.

Emergency starting

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

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

USING BOOSTER CABLES

WARNING

Batteries emit explosive hydrogen gas - keep sparks and open flame away from the battery compartment.

DO NOT attempt to jump start the vehicle if the electrolyte in the battery is suspected of being frozen.

DO NOT disconnect the discharged battery.

Make sure BOTH batteries are of the same voltage (12 volts), and that the booster cables have insulated clamps and are approved for use with 12 volt batteries.

DO NOT connect positive (+) terminals to negative (-) terminals, and ensure booster cables are kept away from any moving parts in the engine compartment.

Take care when working near rotating parts of the engine.

Always adopt the following procedure when using booster cables:

1. If a donor vehicle is to be used, both vehicles should be parked with their battery locations adjacent to each other. Ensure that the two vehicles do not touch.
2. Apply the handbrakes and ensure that the transmission of both vehicles is set in 'P' (neutral for donor vehicles fitted with manual transmission).
3. Turn off the starter switch and ALL electrical equipment of BOTH vehicles.
4. Connect the RED booster cable between the positive (+) terminal of the donor battery and the positive (+) terminal of the discharged battery.
5. Connect the BLACK booster cable from the negative (-) terminal of the donor battery to a good earthing point on the disabled vehicle (eg. an engine mounting or other unpainted metal surface) - at least 20 in (0.5 m) from the battery and well away from fuel and brake lines. **For safety reasons, DO NOT connect this cable to the negative terminal of the discharged battery.**
6. Check that the booster cables are clear of any moving parts in either engine, then start the engine of the donor vehicle and allow it to idle for a few minutes.
7. Now start the vehicle with the discharged battery (DO NOT crank the engine for more than 15 seconds at a time).

8. Once both engines are running normally, allow them to idle for two minutes before switching off the engine of the donor vehicle and disconnecting the booster cables. DO NOT switch on any electrical circuits on the previously disabled vehicle, until AFTER the booster cables have been removed.
9. Disconnecting the booster cables must be an EXACT reversal of the connecting procedure, **ie; disconnect the BLACK cable from the earthing point on the disabled vehicle FIRST.**

VEHICLE RECOVERY

If it is necessary to recover the vehicle by towing, always adhere to the following procedure:

Towing the vehicle (on four-wheels)

1. Turn the starter switch to the first position to unlock the steering and leave in this position while the vehicle is being towed.
2. Set the main gearbox and transfer box in neutral.
3. Ensure the differential lock is in the unlocked position.
4. Secure the towing attachment to the vehicle.
5. Release the handbrake.

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

IMPORTANT INFORMATION

DO NOT attempt to tow the vehicle unless the starter switch is turned to position 'I' (to unlock the steering).

- DO NOT attempt to remove the starter key, or turn the switch to position '0', while the vehicle is in motion.
- Without the engine running, the brake servo and power steering pump cannot provide assistance. Greater brake pedal and steering effort, are therefore necessary to safely control the vehicle.
- DO NOT tow the vehicle on four wheels over long distances.

Suspended tow

WARNING

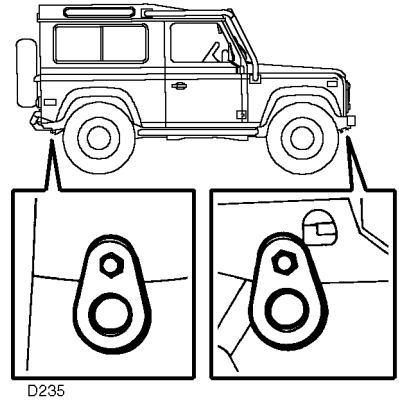
Your vehicle has permanent four wheel drive - the propeller shaft MUST be removed from the axle to be trailed.

If the front axle is to be trailed, ALWAYS adhere to the following precautions:

- Ensure the four bolts securing the front propeller shaft to the gearbox, are tightly secured with the appropriate nuts after disconnecting the propeller shaft - otherwise serious damage to the gearbox may occur.
- Unlock the steering.
- Secure the steering wheel and/or linkage, in the straight ahead position - the steering lock MUST NOT be used for this purpose.

WARNING

The propeller shaft MUST only be reconnected by a qualified Land Rover engineer. Contact your Land Rover dealer for further information.



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Transporter or trailer lashing

Use the towing rings on the front and rear cross members as lashing points (see illustration). DO NOT secure lashing hooks or trailer fixings, to any other part of the vehicle.

Winches

A number of different winches, suited to jobs ranging from vehicle recovery to haulage, can be fitted to your Defender. For further information on the types of winch available and their various uses, contact your Land Rover dealer.

As winch operation will vary considerably on different winch units, it is essential that the manufacturer's operating instructions are understood and followed carefully.

Winch safety

WARNING

If used incorrectly, winches can be extremely dangerous.

ALWAYS follow the manufacturer's operating instructions carefully.

NEVER stand near, or astride a winching cable whilst it is under tension.

ALWAYS wear protective gloves when handling winching cables.

In addition;

- DO NOT attempt to continue winching if the winch has stalled due to overloading.
- Inspect the winch and cable regularly - ALWAYS have worn or damaged parts replaced immediately.
- Only use recommended replacement parts of the same specification as the original equipment - failure to do so, may not only damage the winch, but may cause serious personal injury.

After winching

Whilst wearing thick, protective gloves, clean and lubricate the cable with a recommended cable lubricant. For further information, consult your Land Rover dealer.

WARNING

NEVER allow a cable to kink, coil or overlap.

NOTE: *If a capstan winch is used, ensure the rope is cleaned and dried before stowing.*