PRINCIPLE OF OPERATION

Foot brake

WARNINGS

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 coast (freewheel) with the engine turned off. The engine must be running to provide full braking assistance. The brakes will still function with the engine off, but far more pressure will be required to operate them.

If the red brake warning indicator illuminates, safely bring the vehicle to a stop, as quickly as possible. Seek qualified assistance before continuing.

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



The brake system warning indicator illuminates amber and red briefly in the instrument pack when the starter switch is turned to position **II**, and monitors five separate brake functions.

- Emergency Brake Assist (EBA) - amber
- Brake pad wear - amber
- Electric parking brake (EPB) - amber
- Electronic Brake Distribution (EBD) - red
- Brake fluid level - red

If the indicator remains amber after starting, or illuminates whilst driving, suspect a fault with the Emergency Brake Assist (EBA) system or worn brake pads. Drive with care and seek qualified assistance urgently.

If the indicator illuminates red while the vehicle is being driven, suspect low brake fluid level or a fault with the Electronic Brake Distribution (EBD) system. Stop the vehicle as soon as safety permits and check and top up brake fluid if necessary. If the indicator remains illuminated, seek qualified assistance before continuing.

Servo assistance

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

- Take care when being towed with the engine turned off.
- If the engine stops while the vehicle is in motion, bring the vehicle to a halt as quickly as traffic conditions allow, and do not pump the brake pedal. The braking system may lose any remaining assistance.

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.

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.

Messages

The following messages could appear in the message centre.

Message	Meaning	What to do?
CHECK BRAKE FLUID	Brake fluid in reservoir below recommended level.	Seek qualified assistance immediately.
CHECK BRAKE PADS	Brake pads worn beyond the service limit.	Seek qualified assistance immediately.
PRESS FOOTBRAKE AND PARKBRAKE SWITCH TO RELEASE	A switch release has been detected without brake pedal contact.	Follow the instructions to achieve a manual release. See **ELECTRIC PARKING BRAKE (EPB)** (page 141).

HINTS ON DRIVING WITH ABS

WARNINGS

Anti-lock Braking System (ABS) cannot overcome the physical limitations of braking distance. Nor can it overcome the lack of grip on a road surface, aquaplaning on water for example.

Braking distance is increased on slippery surfaces. This applies to all vehicles, even those with ABS.

The driver should not be tempted to take risks when driving, in the hope that ABS will correct errors of judgement. In all cases, it remains the driver's responsibility to drive with due care and attention, paying particular attention to the effects of speed, weather, road conditions etc.

ABS allows maximum brake pressure, and thus maximum braking efficiency, to be applied. This prevents the road wheels locking and enables the driver to retain steering control during heavy braking under most road conditions.

During emergency braking conditions, ABS constantly monitors the speed of each wheel and varies the brake pressure to each, according to the grip available. The constant alteration of brake pressure can be felt as a pulsing sensation through the brake pedal. This is not a cause for concern.

- 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.

ABS warning indicator



If the ABS warning indicator remains on or illuminates whilst driving, a fault with the ABS system is indicated. Drive with care, avoiding heavy brake application, and seek qualified assistance urgently.

ABS and off-road driving

Anti-lock braking will operate in off-road driving conditions, but on certain surfaces reliance on the system is unwise. ABS cannot compensate for driver error or inexperience on difficult off-road surfaces.

Soft surfaces

On soft, deep surfaces such as powdery snow, sand or gravel the braking distance will be increased. This is because the natural action of a locked wheel (which cannot happen with ABS operating) is to build a wedge of surface material in front of the wheels which reduces the stopping distance.

Steep slopes

If the vehicle is stopped on a steep, slippery slope, it may begin to slide even with the brakes applied. This is because without wheel rotation signal for the ABS. Briefly release the brakes to permit some wheel movement, then re-apply the brakes to allow ABS to gain control.

Emergency Brake Assist (EBA)

If rapid full brake application is made, Emergency Brake Assist (EBA) automatically boosts the braking force to the maximum and helps to stop the vehicle. Also, if the driver brakes more slowly, but with sufficient brake pressure to activate Anti-lock Braking System (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.

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.

Electronic Brake Distribution (EBD)

Electronic Brake Distribution (EBD), balances braking forces between front and rear axles to maintain maximum braking efficiency.

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.

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.

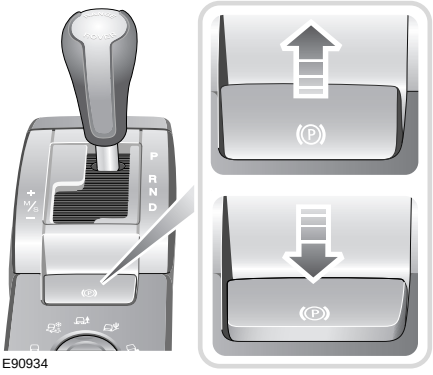
ELECTRIC PARKING BRAKE (EPB)

WARNING

Do not rely on the Electric Parking Brake (EPB) to hold the vehicle stationary if the brake system warning indicator is illuminated or the EPB warning indicator is flashing. Seek qualified assistance urgently.

Note: *If the vehicle is used in severe off-road conditions such as wading, deep mud, etc., additional maintenance and adjustment of the parking brake will be required. Consult your Land Rover Dealer/Authorised Repairer.*

Applying the electric parking brake



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With the vehicle stationary, pull up the lever (arrowed) and release it. The red EPB warning indicator in the instrument pack will illuminate.

If the lever is operated while the vehicle is travelling at less than 3 km/h (2 mph), the vehicle will be brought to a stop abruptly. The stop lamps will not illuminate.

Dynamic operation

CAUTION

Driving the vehicle with the electric parking brake applied or repeated use of the parking brake to decelerate the vehicle may cause serious damage to the brake system.

In an emergency, with the vehicle travelling at more than 3 km/h (2 mph), pulling up on the lever and holding it gives a gradual reduction in speed. The brake warning indicator will illuminate accompanied by a harsh sound and **CAUTION PARKBRAKE APPLIED** appears in the message centre. The stop lamps will illuminate.

Releasing or depressing the lever will cancel the electric parking brake application.

Releasing the electric parking brake

CAUTIONS

The electric parking brake operates on the rear wheels of the vehicle and hence secure parking of the vehicle is dependent on being on a hard and stable surface.

Do not rely on the electric parking brake to operate effectively if the wheels have been immersed in mud and water.

To disengage the electric parking brake, the starter switch must be in position **II**. Apply pressure to the foot brake while pressing down on the parking brake lever.

Automatic release

If the vehicle is stationary with the electric parking brake applied and **D** or **R** selected, press the accelerator and drive away. The parking brake will release automatically.

To delay automatic release, hold the electric parking brake lever in the applied position, and release at the desired point.

The parking brake system gradually reduces the system load to assist a smooth drive away. If the reduction in system load causes the vehicle to move after a valid gear is selected, full load will be automatically re-applied to the electric parking brake.

To override the load reducing feature of the electric parking brake, apply the parking brake after selecting a gear.

In the event of a failure, the message **PARKBRAKE FAULT. AUTO RELEASE NOT FUNCTIONAL** will be displayed in the message centre.

At the start of a journey, electric parking brake release times may be extended when changing from **P** or **N**. This is to allow for increased gear engagement times.

EPB warning indicators

The EPB warning indicator illuminates in the instrument pack for three seconds as a bulb check when the starter switch is turned to position **II**.



If the system detects a fault with the electric parking brake, the amber brake system warning indicator will illuminate and the message **PARKBRAKE FAULT** will appear in the message centre.



If the system detects a fault while EPB is operated, the red warning indicator will flash and the message **PARKBRAKE FAULT. SYSTEM NOT FUNCTIONAL** will appear in the message centre.

Note: *The red indicator will continue to be illuminated for at least ten seconds after the starter switch has been turned off.*

When parking a vehicle with an EPB fault, ensure that it is parked on a level surface and is secured stationary without reliance on the EPB.

Messages

The following messages could appear in the message centre.

Message	Meaning	What to do?
PRESS FOOTBRAKE AND PARKBRAKE SWITCH TO RELEASE	A switch release has been detected without brake pedal contact.	Follow the instructions to achieve a manual release. See **ELECTRIC PARKING BRAKE (EPB)** (page 141).
PRESS FOOTBRAKE AND PARKBRAKE SWITCH TO RELEASE	A switch release has been detected without brake pedal contact.	Follow the instructions to achieve a manual release. See **ELECTRIC PARKING BRAKE (EPB)** (page 141).
PARKBRAKE BEDDING CYCLE ACTIVE	A garage technician has requested a bedding cycle.	If not required, an ignition reset will cancel the function.
PARKBRAKE FAULT	Electric parking brake functions may not be available.	Seek qualified assistance.
PARKBRAKE FAULT AUTO RELEASE NOT FUNCTIONAL	Drive-away release function is not available.	Use manual release. See **ELECTRIC PARKING BRAKE (EPB)** (page 141).
PARKBRAKE FAULT SYSTEM NOT FUNCTIONAL	Supports the red warning indicator - electric parking brake functions are not available.	Seek qualified assistance immediately.
PARKBRAKE FAULT TO HOLD VEHICLE REMOVE KEY THEN APPLY PARKBRAKE	Electric parking brake has lost vehicle speed information.	Follow the instructions to park the vehicle.
PARKBRAKE OFF LIFT SWITCH TO APPLY	An emergency release operation is detected.	Once original faults have been corrected, apply the switch to reinstate electric park brake.
CAUTION PARKBRAKE APPLIED	Electric parking brake has been applied while the vehicle is moving.	Only use this function in an emergency.