Hill descent control (HDC)

PRINCIPLE OF OPERATION

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.

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

Note: *Some of the Terrain Response program and range combinations will activate or deactivate HDC automatically.*

Gradient release control (GRC)

With HDC activated, if the vehicle is stopped on a slope using the footbrake, GRC will become active (except in the Terrain Response Sand program). During a hill ascent when the footbrake is released GRC will automatically delay the brake release to allow the driver to take up drive, and build up engine torque. The brakes will then gradually release to allow the vehicle to move smoothly away. When descending a hill, a similar brake hold and gradual release is employed to provide a smooth transition in to HDC control.

GRC operates in forward and reverse, and requires no driver intervention.

USING HDC

HDC information indicator



The HDC information indicator will illuminate continuously when HDC operating conditions are met; e.g. vehicle speed is below 50 km/h (30 mph) - and HDC is activated.

If the information indicator is flashing, HDC has been selected, but the system's operating conditions have not been met (e.g. the vehicle is travelling too fast), or HDC fade-out is occurring.

If HDC is already selected and vehicle speed rises above 50 km/h (30 mph), HDC is suspended and the information indicator will flash. A message will also appear in the main message centre.

To select HDC



Press and release the switch (arrowed) to select HDC, the HDC information indicator will illuminate. To deselect, press and release the switch again (indicator extinguishes).

If HDC is deselected when HDC is operating, the system fades out, allowing the vehicle to gradually increase speed.

In low range, HDC controls the vehicle speed more aggressively. Use low range when descending steep slopes.

When driving off-road, you can select HDC permanently to ensure that control is maintained. ABS and traction control are still operational.

Note: *HDC is automatically deselected if the ignition is switched off for more than six hours.*

Hill descent control (HDC)

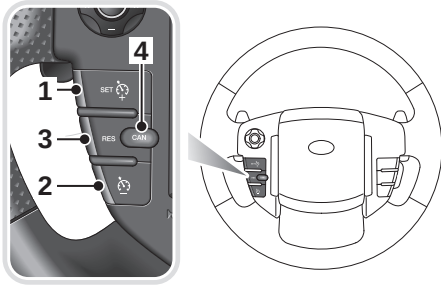
Hill Descent Control in action

HDC should be used in conjunction with an appropriate gear selection.

In vehicles with a manual transmission, HDC can be used in first and reverse gears in high range and all gears in low range. Once the vehicle is moving, the clutch pedal should be fully released.

In vehicles with an automatic transmission, HDC can be used in **D**, **R** and CommandShift **1** in high range and in **D**, **R** and all CommandShift gears in low range. When in **D**, HDC will automatically select the most appropriate gear to enable a controlled descent.

During a descent, HDC will maintain a target speed of up to a maximum of 20 km/h (12 mph) in low range, and 30 km/h (19 mph) in high range. If engine braking is insufficient to control the vehicle speed, HDC automatically operates the brakes to slow the vehicle and maintain a speed relative to the selected gear range and the accelerator pedal position.



LAN2183

While HDC is operating, descent speeds can be varied using the steering-wheel-mounted cruise control switches.

To reduce the descent speed, press and hold switch **2**. Release the switch when the desired speed is reached.

To increase the descent speed, press and hold switch **1**. Release the switch when the desired speed is reached.

Alternatively, you can adjust the descent speed by tapping switch **1** or **2**. Each tap of the switch will adjust the descent speed by approximately 0.5 km/h (0.3 mph).

If you depress the brake pedal 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 start operating at the reduced speed.

Note: *Each gear has a pre-defined minimum descent speed.*

*The descent speed will only increase if the gradient is sufficiently steep to cause the vehicle to accelerate as the braking effect is reduced. On a shallow slope, pressing switch **1** may result in no speed increase.*

HDC fade-out

HDC fade-out regulates the vehicle's speed, by gradually reducing brake pressure, until the rate of hill descent is controlled by engine braking alone. HDC will then enter stand-by mode. During fade-out, the HDC information indicator will flash.

Hill Descent Control (HDC) faults

WARNING

Do not attempt a steep decent if HDC is inoperative or warning messages are displayed. If a slope must be traversed, use a very low gear and/or the foot brake

Faults in the HDC system are displayed via the message centre.

In extreme circumstances, the HDC system may cause brake temperatures to exceed their pre-set limits. If this occurs, **HDC TEMPORARILY UNAVAILABLE** will be displayed in the message centre. HDC will then fade out and 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 FAULT SYSTEM NOT AVAILABLE** will appear in the message centre. If the fault is detected while the system is active, HDC will fade out.

If a fault has been detected, consult your Land Rover Dealer/Authorised Repairer at the earliest opportunity.

Messages

The following table lists the messages relating to Hill Descent Control (HDC) that could appear in the message centre.

Message	Meaning	What to do?
HDC FAULT SYSTEM NOT AVAILABLE	Hill Descent Control system fault.	Drive with care and do not attempt to descend steep slopes. Seek qualified assistance immediately.
HDC NOT AVAILABLE SELECT GEAR	HDC not operative because of incorrect gear selection. For manual transmission vehicles HDC is fully functional in 1st and Reverse gears. For automatic transmission vehicles HDC will only operate in **1**, **R** and **D** in High range. It operates in all gears in Low range.	Select correct gear if HDC is required. In Low range, HDC operates in all gears.
HDC NOT AVAILABLE SPEED TOO HIGH	HDC unavailable, speed threshold exceeded. Maximum HDC operating speed is 50 km/h (30 mph), maximum speed for HDC selection is 80 km/h (50 mph).	Reduce vehicle speed.
HDC TEMPORARILY UNAVAILABLE	HDC switched off while brake system is cooling.	Wait until message disappears before descending steep slopes.