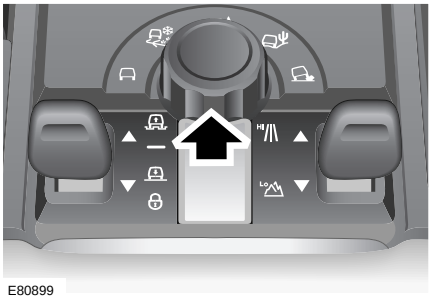
PRINCIPLE OF OPERATION



E80899

The Terrain Response™ system is permanently active, continuously providing benefits in traction and driveability. Further benefits are available for specific off-road driving conditions by the selection of one of the special programs.

For each special program, the system optimises the vehicle set-up for the prevailing conditions.

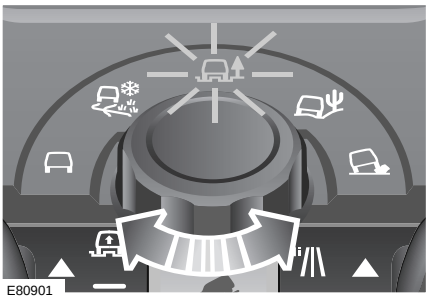
The systems comprising Terrain Response are:

- Engine management.
- Gearbox management.
- Intelligent differential control.
- Dynamic stability, traction control and Hill Descent Control (HDC) systems.
- Air suspension.

Terrain Response provides a variable throttle response, ranging from very cautious (large pedal movement has a minimum effect on engine power) when driving in slippery conditions, to very responsive (engine power is allowed to rise more quickly) when driving over sand.

Note: *Changing from one special program to another will result in the changes to the driving experience. For instance, the engine revs produced by the current throttle position might increase or decrease slightly in the new program, or the suspension could change height. Try experimenting with the different features in an environment that is safe and will not affect other road users.*

USING TERRAIN RESPONSE



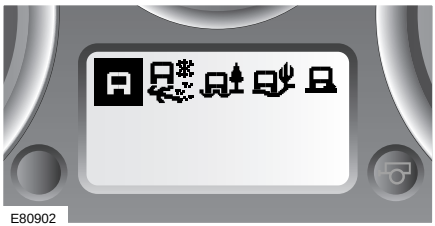
E80901

Rotate the control to select the required special program.

Four special programs are available:

- Grass/gravel/snow (also includes ice)
- Mud/ruts
- Sand
- Rock Crawl

When the starter switch is turned on, the indicators around the control are illuminated, with the active program highlighted in amber. The special program indicator will also be displayed on the message centre if it is active


E80902

If the starter switch is turned off when a special program is selected, the program will remain in the system memory for six hours and resume when the starter switch is turned back on (with the exception of Grass-Gravel-Snow which remains selected indefinitely).

The message centre will confirm that the previously selected special program is still selected.

It is possible to have the Terrain Response system configured so that if the Grass-Gravel-Snow program is selected and the starter switch is turned off, the system will change back to the General program after six hours as the other special programs do. Consult your Land Rover Dealer/Authorised Repairer.

Terrain Response general (special programs off)



The General setting is suitable for surfaces that match typical road surfaces, including dry cobbles, tarmac or wooden planks.

All systems, except Hill Descent Control (HDC), will adopt settings based on the conditions. HDC will remain active if it was manually selected. The suspension will also change from raised to normal ride height when the vehicle starts moving.

Grass-Gravel-Snow



Choose this program for icy surfaces and surfaces which are firm but have a coating of loose material, for example, grass, snow, gravel, pebbles or sand.

HDC will engage automatically in low range, but can be manually de-selected. See **USING HDC** (page 167).

Start off in a higher gear than usual, second gear in high range or third gear in low range.

Manual transmission vehicles: when Grass-Gravel-Snow program is selected, it is confirmed once in the message centre.

Using the vehicle with snow chains fitted may affect operation of Terrain Response. See **USING SNOW CHAINS** (page 246).

Note: *If the vehicle cannot obtain forward traction in deep snow, switch off Dynamic Stability Control (DSC). DSC must be switched on as soon as conditions permit. See* ***USING STABILITY CONTROL*** *(page 165).*

Mud-Ruts



Choose this special program for muddy, or deeply rutted, ground that is soft and uneven. Unevenness of the ground could be caused by roots, brushwood or small logs.

Low range is recommended for this program. If low range is not selected, the message centre will prompt you.

If the Mud-Ruts program and low range are selected together, the vehicle ride height will be raised automatically.

Sand



Choose this program for sand and other dry, yielding ground. Also use for deep gravel.

Where the sand is damp or wet, select Mud-Ruts special program.

Note: *If the sand is extremely soft and dry and of a depth that allows the wheels to sink, switch off Dynamic Stability Control (DSC). DSC must be switched on as soon as conditions permit. See* ***USING STABILITY CONTROL*** *(page 165).*

Rock Crawl



Use this special program on rocky terrain and other solid ground, which demands high levels of wheel displacement and careful vehicle control. This program can be used for crossing river beds strewn with submerged rocks.

You can only select Rock Crawl in low range. If you try to select it in high range, you are prompted to select low range. This program will optimise the vehicle suspension and traction system to provide good low-speed control.

Wading

When driving through water less than 600 mm (24 inches) deep, select the Terrain Response program suitable for the surface beneath the water.

Increased suspension height

When a special program requires increased suspension height, the system will automatically raise the suspension, unless there is a trailer attached plugged into the trailer socket.

Driver override options

The following two systems controlled by Terrain Response can also be operated by the driver.

- Air Suspension
- Hill Descent Control

In some special programs, the Terrain Response system will switch on HDC and, in low range, the system will automatically raise the suspension to off-road height.

You can cancel both the HDC and ride height selections at any time. If HDC or a specific ride height has not been selected by the system, you can select them at any time.

HDC and ride height selections will be confirmed through the message centre and by the individual system information indicators, irrespective of whether the system or driver selected them. Use of special programs may prompt warnings and other information to be displayed on the message centre.

Note: *Use the CommandShift function on the gearbox to lock the vehicle in a particular gear.*

Inappropriate program selection

CAUTION

Selecting an inappropriate special program will impair the vehicle's response to the conditions and reduce the life of the suspension and drive systems.

If you try to select an inappropriate special program, such as choosing Rock Crawl while in high range, the relevant indicator lamp will flash amber and an audible chime will sound. The message centre will provide further information.

If the appropriate action is not taken within 60 seconds, the warnings will cease and the message centre will show the active program.

If the system becomes partly inoperable, it may not be possible to select some special programs. A warning will be given when selection of an affected program is attempted.

If the system becomes totally inoperable, all of the special program indicators will be switched off and the message centre will display a relevant message.

The suspension system provides an automatic levelling function. See **ADJUSTING THE SUSPENSION** (page 177).If low range is needed, it would be beneficial to increase ground clearance.

Messages

The following table lists the messages relating to Terrain Response that could appear in the message centre.

Message	Meaning	What to do?
CAUTION! RISK OF GROUNDING WITH SUSPENSION AT NORMAL HEIGHT	Terrain Response system selected off-road height but you have manually lowered the vehicle (or the system cannot raise the vehicle).	Raise suspension manually to off-road height if possible and appropriate.
HDC FAULT SYSTEM NOT AVAILABLE	HDC system fault.	Drive with care and do not descend steep slopes. Seek qualified assistance.
HDC NOT AVAILABLE IN THIS GEAR	HDC not operative because of incorrect gear selection. See **USING HDC** (page 167).	Select correct gear if HDC is required.
HDC NOT AVAILABLE SPEED TOO HIGH	HDC unavailable, speed threshold exceeded. Max HDC operating speed is 50 km/h (30 mph), max speed for HDC selection is 80 km/h (50 mph).	Reduce vehicle speed.
HDC TEMPORARILY NOT AVAILABLE SYSTEM COOLING	HDC off while brake system is cooling.	Wait until message disappears before descending steep slopes.
PROGRAM CHANGE IN PROGRESS	Temporarily impossible to select a new program. Due to ABS or DSC activity or the overheating of the electronic differentials.	If conditions change within 60 seconds, the chosen program is selected. If differentials are overheated, wait for further information. When differentials have cooled, try to reselect the special program.

Terrain Response

Message	Meaning	What to do?
RECOMMEND LOW RANGE IS SELECTED FOR MUD-RUTS PROGRAM	Low range is recommended for Mud-Ruts special program.	Select low range.
RECOMMEND RAISING SUSPENSION TO OFF ROAD HEIGHT IN DEEP MUD-RUTS	Mud-Ruts program is being used in high range. Suspension raised automatically in low range.	Raise suspension manually to off-road height or select low range.
RECOMMEND STARTING IN 2ND/3RD GEAR FOR SLIPPERY CONDITIONS	In slippery conditions start off in a higher gear than usual.	Select second/third gear.
RESET SUSPENSION HEIGHT IF CLEAR OF OBSTACLE	Suspension still in extended mode.	If vehicle is clear of obstacle, select required suspension.
SELECT LOW RANGE TO ACTIVATE ROCK CRAWL	Vehicle is not in low range, so Rock Crawl cannot be used.	Select low range.
SELECT NEUTRAL FOR RANGE CHANGE	Range change will not occur until neutral is selected.	Select neutral.
SLOW DOWN OR VEHICLE WILL LOWER/RAISE	Vehicle will automatically lower/raise if vehicle speed increases.	Slow down or accept height change.
SPEED TOO HIGH FOR RANGE CHANGE	Vehicle speed is too high for requested range change.	Reduce speed to 40 km/h (25mph) on automatic transmission or 20 km/h (12 mph) on manual transmission.
SYSTEM FAULT SOME PROGRAMS NOT AVAILABLE	There is a fault on the Terrain Response system.	Full Terrain Response programs are not available, so drive with care. Seek qualified assistance immediately.
SYSTEM FAULT SPECIAL PROGRAMS NOT AVAILABLE	There is a fault on the Terrain Response system.	Full Terrain Response programs are not available, so drive with care. Seek qualified assistance immediately.

Message	Meaning	What to do?
TRAILER CONNECTED OFF ROAD HEIGHT NOT SELECTED AUTOMATICALLY	Vehicle has not achieved off-road height as trailer is attached.	If a trailer is connected, do nothing. If something else is attached (e.g. bike rack), raise vehicle to off-road height manually. If nothing is connected, check trailer socket for faults.