

# Air suspension

## PRINCIPLE OF OPERATION

### WARNING



Ensure that the vehicle is clear of people and obstacles before lowering the suspension. The difference between Off-road height and Access height is 105 mm (4.1 in).

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

Unless otherwise stated, 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 uses compressed air stored in its reservoir. The suspension will rise more slowly if this reservoir is depleted, usually due to repeated raising and lowering of the suspension.

### Normal height

The normal height of the vehicle when being driven on the road at speeds between 10 km/h (6 mph) and 160 km/h (100 mph).

### Off-road height



This is 55 mm (2.2 in.) higher than the Normal height. It provides improved ground clearance and approach, departure and break-over angles. See **TECHNICAL SPECIFICATIONS** (page 263).

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 Normal height if the vehicle speed exceeds 50 km/h (30 mph).

**Note:** *If Terrain Response is in use, some of its programs/range combinations will adjust suspension height automatically.*

**Note:** *If the trailer socket is in use, automatic height changes are inhibited. Height changes can still be selected manually.*

### Extended mode

If the vehicle becomes grounded and the traction control is activated, the system automatically uses Extended mode to provide additional height. Extended mode cannot be selected manually.

### Access height



Access height is 50 mm (2.0 in.) lower than Normal height. It provides easier entry, exit and loading of the vehicle.

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

If you selected Access height 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 normal height.

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## High speed height

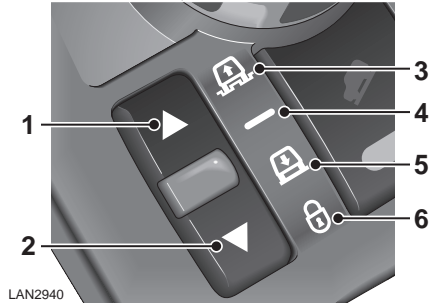
If the vehicle exceeds 160 km/h (100 mph) for longer than five seconds, the suspension ride height lowers by 20 mm (0.75 in). This action is automatic and cannot be over-ridden manually. Ride height will return to normal when vehicle speed remains below 130 km/h (80 mph) for at least 30 seconds.

## Crawl mode

Crawl mode locks the vehicle at Access height and enables it to be driven at low speeds. This gives increased roof clearance, for example, in multi-storey car parks.

Crawl mode can only be selected when the vehicle speed is below 10 km/h (6 mph). When the vehicle is in this mode, Normal height will be selected automatically if the vehicle speed exceeds 40 km/h (24 mph).

## ADJUSTING THE SUSPENSION



1. Raise switch and indicator
2. Lower switch and indicator
3. Off-road indicator
4. On-road indicator
5. Access indicator
6. Lock indicator

## Suspension heights

The raise/lower switch (1 or 2) is used to move up or down through the suspension heights. Indicators (3), (4) or (5) will be lit to show the height selected. A message indicating the suspension height will also be displayed in the message centre when Off-road, Access or Crawl is selected.

The raise/lower switch indicators will be lit to show the direction of movement. They extinguish when the height change movement is completed.

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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, the raise/lower indicators will flash twice and a chime will sound. A message will be displayed on the message centre.

A flashing switch indicator 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), indicator (5) will flash while the system waits for the vehicle to slow down.

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

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

The vehicle must slow down to the required speed within one minute to prevent Access cancellation.

The warning indicator in the message centre will remain displayed for as long as the vehicle is at Access height.

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

**Note:** Access height may be selected up to 40 seconds after the ignition is switched off, if the driver's door has not been opened within this time.

## Access height from off-road height

When the suspension is at off-road height, press switch 1 then press it again before its indicator goes out.

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

## Crawl mode (locked at Access height)



When the suspension is at Normal or Access height and the vehicle speed is below 35 km/h (22 mph), press the lower switch (2) for one second. Indicators (5) and (6) will be lit to confirm the selection.

Crawl can be cancelled manually by pressing the raise switch for one second. Indicator (6) will extinguish.

**Note:** When Crawl is cancelled, the suspension will rise to On-road height when the vehicle speed exceeds 10 km/h (6 mph) for 5 seconds.

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## Automatic height change warnings



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

When the suspension is at off-road height or locked at Access height, 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 the On-road indicator (4) and either the raise or lower indicator will flash

The off-road height speed warning is shown above. If the vehicle slows down, the 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 indicator for the target height (3, 4 or 5) will remain lit and the raise or lower indicator 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, the indicator will extinguish and the indicators showing the heights above and below the current position will be illuminated.

Selecting a new height using the raise/lower switches (1 or 2), or driving off will reset the system.

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## Extended mode

If the vehicle is grounded and traction control is activated, Extended mode is activated automatically to raise the vehicle clear. The message **SUSPENSION IN EXTENDED MODE** will be displayed in the message centre.



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When Extended mode is activated, indicator lamp **3** flashes. A message is displayed on the message centre. Indicators **3** and **4** will flash if the suspension is between Off-road and Normal heights.

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

**Note:** *Extended mode cannot be selected manually.*

## Additional lift whilst in extended mode

When Extended mode is invoked and the automatic lifting of the vehicle has been completed, the driver can select an additional lift in order to clear the obstacle. This can be particularly useful when extended mode has been invoked on soft surfaces.

To request additional lifting, wait for the raising indicator to extinguish then press and hold the switch **1** for three seconds while also pressing the brake pedal. A chime will sound to confirm that the request has been accepted. The raising switch indicator will be illuminated while the vehicle is being lifted.

To exit extended mode briefly press either the raise or lower switch. Alternatively, the vehicle will automatically lower if driven at a speed greater than 5 km/h (3 mph) for 30 seconds.

## Suspension freeze

If the system is attempting to change the suspension height and it detects that the suspension is prevented from moving by an obstruction, all movements are frozen.

The indicators operate in the same way as 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 switches **1** or **2**, or drive the vehicle at a speed greater than 20 km/h (12 mph).

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## Air suspension messages

The following messages relating to the air suspension system may be displayed in the message centre.

Message	Meaning	What to do?
SUSPENSION FAULT MAX SPEED 50 km/h (MAX SPEED 30 mph)	A major fault has been detected in the air suspension system and it is unable to control the vehicle height.	Drive slowly until you can seek qualified assistance and the fault is rectified.
SUSPENSION FAULT	A fault has been detected in the air suspension system that may result in some reduction in system performance.	Seek qualified assistance as soon as possible.
SUSPENSION LOWERED FOR SAFETY	A fault has been detected by another system on the vehicle and the suspension has been lowered to a safe height.	Seek qualified assistance as soon as possible.
ONLY NORMAL HEIGHT AVAILABLE	A fault has been detected in the air suspension system. Only Normal height is available.	Seek qualified assistance as soon as possible.
AIR SUSPENSION NOT IN CUSTOMER MODE	The air suspension has been left in a special mode used during a vehicle service.	Seek qualified assistance as soon as possible.
SLOW DOWN OR VEHICLE WILL LOWER	Vehicle will automatically lower to Normal height from Off-road height if vehicle speed increases.	Choose to slow down or accept height change.
SLOW DOWN OR VEHICLE WILL RAISE	Vehicle will automatically rise to Normal height from Crawl height if vehicle speed increases.	Choose to slow down or accept height change.
SUSPENSION WILL RAISE WHEN SYSTEM COOLED	Air suspension compressor is cooling. Lifting will resume when the compressor has cooled.	Wait for suspension to carry out lifting sequence.
SPEED TOO HIGH TO CHANGE HEIGHT	A height change has been requested but the vehicles speed is too high to allow.	Reduce vehicle speed.

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Message	Meaning	What to do?
VEHICLE RAISING IN PROGRESS	Vehicle is lifting slowly from compressor as air reservoir is empty.	Wait for suspension to complete lifting sequence.
SUSPENSION LOCKED AT ACCESS HEIGHT	Suspension has been locked at Access height.	Drive slowly.
CONFIRM REQUIRED SUSPENSION HEIGHT	Air suspension height change was suspended because a door was open for more than 90 seconds.	Close door and reselect the desired height.
START ENGINE TO RAISE VEHICLE	Vehicle height can only be raised with the engine running.	Start the engine.
SUSPENSION IN EXTENDED MODE	The vehicle body has become grounded and the suspension height has been automatically increased to try and overcome the obstruction.	If possible, check to see what the vehicle is grounded on and then take appropriate action.
FOR FURTHER SUSPENSION LIFT PRESS RAISE SWITCH AND BRAKE PEDAL FOR 3 SECONDS	If needed, a further lift of the suspension is available to aid in overcoming the obstruction.	Raise vehicle and try to clear the obstruction. Seek assistance if required.
RESELECT SUSPENSION HEIGHT IF CLEAR OF OBSTACLE	Suspension still in extended mode.	If the vehicle is clear, select the required suspension.

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## REMOTE OPERATION

### WARNINGS



The Smart Key can be operated from either inside or outside the vehicle. It is therefore important that it is kept out of the reach of children at all times.



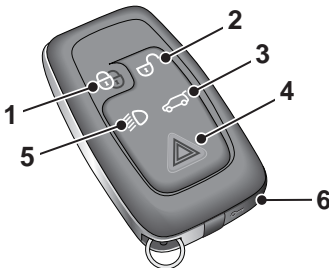
When operating the Smart Key from inside vehicle, make sure that an adult checks for obstructions under the vehicle and supervises the lowering process.



Care should be taken with all suspension height changes when a trailer is attached to the vehicle.

The buttons on the vehicle's Smart Key can be used to operate the air suspension, allowing you to remotely adjust the suspension height to assist in loading the vehicle or attaching a trailer.

To change the suspension height using the Smart Key, the vehicle must be stationary, the hazard warning lamps switched on and all doors must be closed.



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To raise the suspension, press and hold button **1** and button **2**.

To lower the suspension, press and hold button **1** and button **3**.

If any button is released during the raising or lowering, all movement will stop, until the buttons are pressed again.

Initially the height will change slowly, but will increase after three seconds.

While the height is changing, the indicator on the raise/lower switch will be lit, according to the direction of movement. See **ADJUSTING THE SUSPENSION** (page 169).

If the starting height for the suspension is above or below the Normal height, all movement will stop when Normal height is reached. Release the buttons and then press them again, to continue.

The suspension will automatically return to Normal height when the vehicle is driven and the road speed exceeds 10 km/h (6 mph)