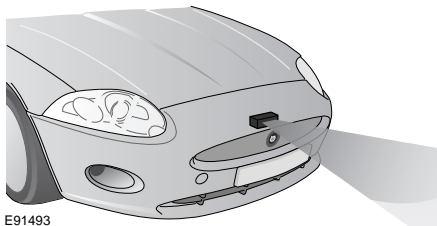


Adaptive cruise control (ACC)

PRINCIPLE OF OPERATION



The Adaptive Cruise Control (ACC) system is designed to aid the driver to maintain a gap from the vehicle ahead or a set road speed if there is no slower vehicle ahead. The system is intended to provide enhanced operation of the vehicle when following other vehicles which are in the same lane and travelling in the same direction.

WARNING



ACC is not a collision warning or avoidance system. Additionally, ACC will not react to:

Stationary or slow moving vehicles below 10 km/h (6 mph).

Pedestrians or objects in the roadway.

Oncoming vehicles in the same lane.

The ACC system is based on the use of a radar sensor which projects a beam directly forward of the vehicle so as to detect objects ahead.

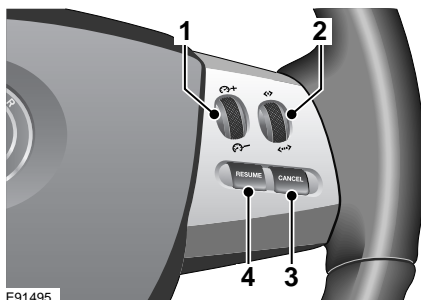
The radar sensor is mounted centrally behind the bumper cover above the cooling aperture, to provide a clear view forward for the radar beam.

- Only use ACC when conditions are favourable, that is, main roads with free flowing traffic.
- Do not use in poor visibility, specifically fog, heavy rain, spray or snow.
- Do not use on icy or slippery roads.

- It is the drivers responsibility to stay alert, drive safely and be in control of the vehicle at all times.
- Keep the front of the vehicle free from dirt, metal badges or objects, including vehicle front protectors, which may prevent the sensor from operating.
- Do not use ACC when entering or leaving a motorway.

USING ACC

The system is operated by adjustment controls mounted on the steering wheel. The driver can also intervene at any time by use of the brake or accelerator pedals.



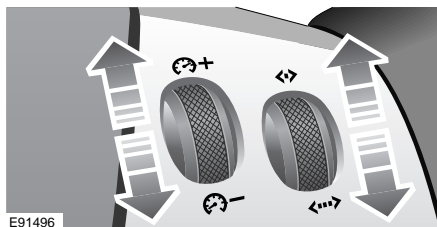
The steering wheel adjustment controls operate as follows:

1. The speed adjustment control thumb wheel is used to set the speed, increase (+) or decrease (-) by adjusting the thumb wheel upwards (+) or downwards (-) until the desired speed is obtained.
2. Gap increase or decrease. Four settings available by adjusting the thumb wheel.
3. **CANCEL** - Cancels but retains the set speed in memory.
4. **RESUME** - Resumes the set speed after it has been cancelled.

Adaptive cruise control (ACC)

Setting the speed

Accelerate as normal until the required speed is reached.



Roll the speed adjustment control upwards (+) and the vehicle speed will then be stored in the memory and the system engaged. The set speed will be displayed on the message center:

SETSPEED
80 KM/H (50 MPH)

Changing the speed

There are three ways to change the set speed:

- Accelerate or brake to the desired speed then roll the speed adjustment control upwards (+).
- Increase or decrease the speed by rolling the speed adjustment control upwards (+) or downwards (-) until the required set speed is shown on the message center. The vehicle speed will gradually change to the selected speed.
- Increase or decrease the speed in steps of 2 km/h (1 mph) by rolling the speed adjustment control upwards (+) or downwards (-) briefly until the desired speed is obtained.

ACC operates between approximately 34 km/h and 180 km/h (21 mph and 112 mph) dependent on the country specification.

Set speeds outside this range will not be captured.

The ACC may apply the brakes to slow down the vehicle to the new set speed. The new set speed will be displayed on the message center until ACC is cancelled.

Entering the follow mode set gap

WARNING



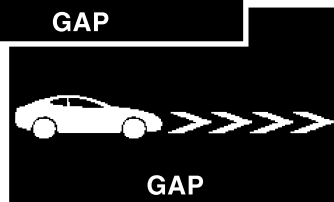
When in follow mode the vehicle will not decelerate automatically to a stop, nor will the vehicle always decelerate quickly enough to avoid a collision without driver intervention.

Once a set speed has been selected, the driver can release the accelerator and the set road speed will be maintained.

When a vehicle ahead enters the same lane or a slower vehicle is ahead in the same lane, the vehicle speed will be adjusted automatically until the gap to the vehicle ahead corresponds to the default gap setting (gap level 3). The vehicle is now in **follow mode**.



The warning indicator in the instrument panel will be illuminated.



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The message center will display the gap set.

Adaptive cruise control (ACC)

The vehicle will then maintain the constant time gap to the vehicle ahead until:

- The vehicle ahead accelerates to a speed above the set speed.
- The vehicle ahead moves out of lane or out of view.
- A new gap distance is set.

If necessary, the vehicle brakes will be automatically applied to slow the vehicle to maintain the gap to the vehicle in front.

The maximum braking which is applied by the ACC system is limited and can be overridden by the driver applying the brakes, if required.

Note: Driver braking will cancel ACC.

If the ACC system predicts that its maximum braking level will not be sufficient, then an audible warning will sound while the ACC continues to brake. **DRIVER INTERVENE** will be displayed on the message center. The driver should take immediate action.

When in follow mode, the vehicle will automatically return to the set speed when the road ahead is clear, for instance when:

- The vehicle in front accelerates or changes lane.
- The driver changes lane to either side or enters an exit lane.

The driver should intervene if appropriate.

Changing the follow mode set gap

The gap from the vehicle ahead can be decreased or increased by rolling the thumbwheel on the steering wheel. Four gap settings are available and the selected gap setting will be displayed on the message center when either button is pressed.

Each gap level is indicated by an additional chevron in front of the vehicle icon in the message center (one chevron (gap level 1) being the shortest, four chevrons (gap level 4) being the longest). After the ignition is switched on, the default gap (gap level 3) will be automatically selected ready for ACC operation.

Note: When the ignition is switched off, the gap setting will revert to the default setting (gap level 3) when switched on again.

Note: It is the driver's responsibility to select a gap appropriate to the driving conditions.

Overriding the speed and follow mode

WARNING



Whenever the driver is overriding the ACC by depressing the accelerator pedal, the ACC will not automatically apply the brakes to maintain separation from any vehicle ahead.

The set speed and gap can be overridden by pressing the accelerator pedal when cruising at constant speed or in follow mode. If the vehicle is in follow mode, the instrument warning indicator will go out when the ACC is overridden by the driver using the accelerator and **CRUISE OVERRIDE** will be displayed on the message center. When the accelerator is released, the ACC function will operate again and vehicle speed will decrease to the set speed, or a lower speed if follow mode is active.

Adaptive cruise control (ACC)

Automatic low speed switch off

If the speed of the vehicle decreases below 30 km/h (18 mph), the ACC system will be automatically switched off and the instrument warning indicator will go out.

If the brakes were being applied by the ACC system, they will be slowly released.

This will be accompanied by an audible warning and **DRIVER INTERVENE** will be displayed on the message center. The driver must take control.

Automatic switch off

ACC will disengage, but not clear the memory when:

- The **CANCEL** button **3** is pressed.
- The brake pedal is pressed.
- Neutral, Park or Reverse gear positions are selected.
- Dynamic Stability Control activates.

ACC will disengage, and clear the memory when:

- The ignition system is switched off.
- Maximum vehicle speed is reached.
- A fault occurs in the ACC system.

Resuming the speed and follow mode

CAUTION



RESUME should only be used if the driver is aware of the set speed and intends to return to it.

By pressing the **RESUME** button (**4**) after ACC has been cancelled (e.g. after braking), the ACC will become active again, provided that the set speed memory has not been erased. The original set speed will be resumed (unless a vehicle ahead causes the follow mode to become active) and the set speed will be displayed in the message center for four seconds.

Hints on driving with ACC

The system acts by regulating the speed of the vehicle using engine control and the brakes. Gear changes may occur in response to deceleration or acceleration whilst in ACC.

ACC is not a collision avoidance system. However, during some situations the system may provide the driver with an indication that intervention is required.

An audible alarm will sound, accompanied by the message **DRIVER INTERVENE** if the ACC detects:

- A failure has occurred whilst the system is active
- That using maximum ACC braking only is not sufficient.

Note: ACC operates when the gear selector lever is in position **S** or **D**.

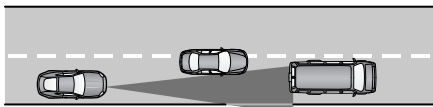
Note: When engaged, the accelerator pedal rests in the raised position. Fully release the pedal to allow normal ACC operation.

Note: When braking is applied by the ACC, the vehicle brake lamps will be switched on although the brake pedal will not move.

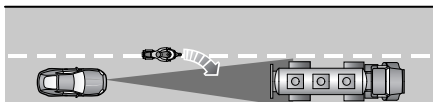
Adaptive cruise control (ACC)

Detection beam issues

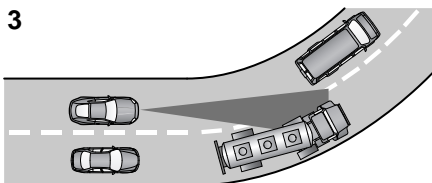
1



2



3



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Detection issues can occur:

1. When driving on a different line to the vehicle in front.
2. With vehicles which edge into your lane which can only be detected once they have moved fully into your lane.
3. There may be issues with the detection of vehicles in front when going into and coming out of a bend.

In these cases ACC may brake late or unexpectedly. The driver should stay alert and intervene if necessary.

ACC malfunction

If a malfunction occurs during operation of the system in cruise or follow modes, the ACC system will switch off and cannot be used until the fault is cleared. The message **DRIVER INTERVENE** appears briefly and is then replaced by the message **CRUISE NOT AVAILABLE**. If malfunction of the ACC or any related system occurs at any other time the message **CRUISE NOT AVAILABLE** will be displayed. It will not be possible to activate the ACC system in any mode.

Accumulations of dirt, snow or ice on the sensor or cover may inhibit ACC operation. Fitting of a vehicle front protector or metallised badges may also affect ACC operation.

The ACC system relies on its radar to detect objects and constantly scans ahead. If the radar detects no objects ahead in ACC or **follow mode**, then the ACC will be deactivated, the audible alarm sounds and the message **DRIVER INTERVENE** displays briefly. The message **ACC SENSOR BLOCKED** will then be displayed.

The same messages may also be displayed while driving on open roads with few objects for the radar to detect.

Clearing the obstruction allows the system to return to normal operation. If the obstruction is present when ACC is inactive, e.g. on initial starting or with the ACC system switched off, the message **ACC SENSOR BLOCKED** will be displayed.

Tires other than those recommended may have different sizes. This can affect the correct operation of the ACC.

Adaptive cruise control (ACC)

FORWARD ALERT FUNCTION



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Limited detection and warning of objects ahead is provided during ACC operation by the ACC **FORWARD ALERT** warning.

The enhanced forward alert feature additionally provides warnings when ACC is not engaged; if an object is detected close ahead, then the warning tone and message will be issued. The brakes will not be applied. The forward alert system does not initiate any action. The driver must take appropriate action when the **FORWARD ALERT** message is displayed. However, the system monitors driver actions (e.g. braking, steering or indicating) and may not initiate the warning display if the appropriate action has been taken early enough.

This forward alert feature may be switched on or off using the forward alert switch located where shown.



When the indicator in the message center is on, forward alert is active.

The sensitivity of the warning may be changed:

- Press the gap decrease button when ACC is disengaged to display and then decrease the sensitivity of the alert.
- Press the gap increase button to display and then increase the sensitivity of the alert.

Both of these alerts are accompanied by



FORWARD ALERT displayed in the message center.

Adaptive cruise control (ACC)

Message center information messages

Message	Warning Indicator	Priority Indicator	Meaning
CRUISE ENGAGED	None	None	Displayed when cruise control system is operating.
CRUISE OVERRIDE	None	None	Driver is pressing the accelerator pedal overriding cruise control function. Message will disappear when accelerator pedal is released and cruise control speed is resumed.
CRUISE CANCELLED	None	None	Driver has cancelled cruise control or is braking.
CRUISE NOT AVAILABLE	None	None	Cruise control or Adaptive Cruise Control malfunction.
DRIVER INTERVENE	None	None	Action by the driver to apply the brakes is required.
SETSPEED XXX KM/H	None	None	Speed set for Adaptive Cruise Control.
GAP	None	None	Set the distance (time gap).
RADAR SENSOR BLOCKED	None	None	Clean the front of the vehicle in the area of the sensor unit (the sensor is mounted centrally behind the bumper cover above the cooling aperture).
FORWARD ALERT OFF	None	None	Forward alert feature has been switched off. WARNING: A warning will not be given for objects detected in the vehicle's path of travel.
FORWARD ALERT	None	None	Forward alert feature has been switched on or the setting changed. A warning will be given for objects detected in the vehicle path of travel. A longer gap indicates that the system will warn when detected objects are further away than the previous setting.