

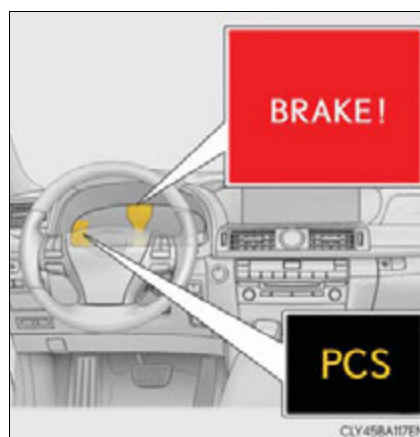
PCS (Pre-Collision System)*

When the sensor detects that a frontal collision is highly likely or even unavoidable, safety systems such as the brakes and seat belts are automatically engaged to help avoid a collision or to lessen impact as well as vehicle damage.

◆ Pre-collision warning

When a high possibility of a frontal collision is detected, the pre-collision system warning light flashes, a buzzer sounds and a message is shown on the multi-information display to urge the driver to take evasive action.

Pre-collision warning can be disabled using the pre-collision braking off switch.



◆ Pre-collision seat belts (front seat only)

If the pre-collision sensor detects that a collision is unavoidable, the pre-collision system will retract the seat belt before the collision occurs. The same will happen if the driver makes an emergency braking or loses control of the vehicle. (→P. 40)

◆ Pre-collision brake assist

When there is a high possibility of a frontal collision, the system applies greater braking force in relation to how strongly the brake pedal is depressed.

*: If equipped

◆ Pre-collision braking

When there is a high possibility of a frontal collision, the system warns the driver using a warning light, warning display and buzzer. If the system determines that a collision is unavoidable, the brakes are automatically applied to help avoid a collision or to reduce the collision speed.

When the vehicle is being stopped by pre-collision braking, the brake will be engaged for a maximum of 2 seconds and then released automatically. This pre-collision braking can be canceled by depressing the accelerator pedal or brake pedal.

Pre-collision braking can be disabled using the pre-collision braking off switch.

◆ Suspension control

When there is a high possibility of a frontal collision, the operation of suspension control helps prevent the front of the vehicle from dropping when the brakes are applied suddenly.

◆ Steering gear control (VGRS) (vehicles with camera sensors)

When the system determines that a collision is unavoidable, the steering gear ratio is changed to help improve the response to steering input.

◆ Driver monitor system (if equipped)

When the system determines that there is a possibility of a collision, and either the driver is not facing forward or the driver's eyes are closed, pre-collision warnings are given in advance to warn the driver. If the system determines that the conditions to operate pre-collision alert braking have been met even when the possibility of a collision increases further, pre-collision alert braking will operate.

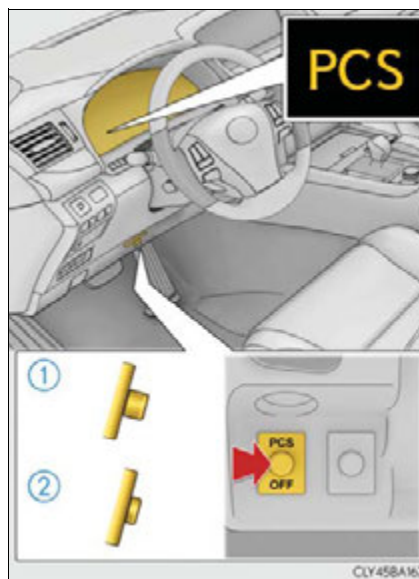
Pre-collision alert braking can be disabled using the pre-collision braking off switch.

Disabling pre-collision braking

Pre-collision warning, pre-collision braking and pre-collision alert braking (vehicles with driver monitor system) can be switched between enabled and disabled by pressing the pre-collision braking off switch.

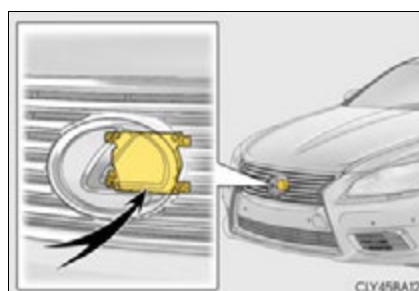
- ① Enabled
- ② Disabled

The pre-collision system warning light comes on when the system is disabled.



Radar sensor

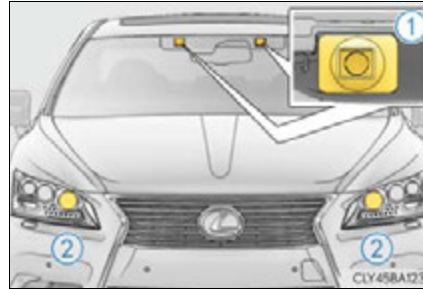
The radar sensor detects vehicles or other obstacles on or near the road ahead and determines whether a collision is imminent based on the position, speed, and heading of the obstacles.



Camera sensors (if equipped)

The camera sensors detect pedestrians and other three-dimensional objects on or near the road ahead together with the radar sensor while the vehicle is moving.

When the headlights are on, near-infrared rays are projected to ensure proper detection performance in the night time.



- ① Camera sensors
- ② Near-infrared ray transmitters

Driver monitor sensor (vehicles with driver monitor system)

The driver monitor sensor detects the direction the driver is facing and whether the driver's eyes are open or closed.

The system determines whether the driver is facing forward and whether or not the driver's eyes are closed.



■ The pre-collision system is operational when

- Pre-collision warning:
 - ▶ Vehicles without camera sensors
 - The pre-collision braking off switch is not pressed.
 - Vehicle speed is greater than about 10 mph (15 km/h).
 - The speed at which your vehicle is approaching the obstacle or the vehicle running ahead of you is greater than about 10 mph (15 km/h).
 - ▶ Vehicles with camera sensors
 - The pre-collision braking off switch is not pressed.
 - Vehicle speed is greater than about 4 mph (5 km/h).
 - The speed at which your vehicle is approaching the obstacle or the vehicle running ahead of you is greater than about 4 mph (5 km/h).
- Pre-collision seat belts (operating conditions A):
 - Vehicle speed is greater than about 19 mph (30 km/h).
 - The system detects sudden braking or skidding.
 - The front occupants are wearing a seat belt.
- Pre-collision seat belts (operating conditions B):
 - Vehicle speed is greater than about 4 mph (5 km/h).
 - The speed at which your vehicle is approaching the obstacle or the vehicle running ahead of you is greater than about 19 mph (30 km/h).
 - The front occupants are wearing a seat belt.
- Pre-collision brake assist:
 - The VSC OFF switch is not pressed.
 - Vehicle speed is greater than about 19 mph (30 km/h).
 - The speed at which your vehicle is approaching the obstacle or the vehicle running ahead of you is greater than about 19 mph (30 km/h).
 - The brake pedal is depressed.
- Pre-collision braking:
 - ▶ Vehicles without camera sensors
 - The pre-collision braking off switch is not pressed.
 - The VSC OFF switch is not pressed.
 - Vehicle speed is greater than about 10 mph (15 km/h).
 - The speed at which your vehicle is approaching the obstacle or the vehicle running ahead of you is greater than about 10 mph (15 km/h).
 - ▶ Vehicles with camera sensors
 - The pre-collision braking off switch is not pressed.
 - The VSC OFF switch is not pressed.
 - Vehicle speed is greater than about 4 mph (5 km/h).
 - The speed at which your vehicle is approaching the obstacle or the vehicle running ahead of you is greater than about 4 mph (5 km/h).

- Suspension control:
 - Vehicle speed is greater than about 4 mph (5 km/h).
 - The speed at which your vehicle is approaching the obstacle or the vehicle running ahead of you is greater than about 19 mph (30 km/h).
- Steering gear control (VGRS) (vehicles with camera sensors):
 - Vehicle speed is greater than about 19 mph (30 km/h).
 - The speed at which your vehicle is approaching the obstacle or the vehicle running ahead of you is greater than about 19 mph (30 km/h).
- Pre-collision alert braking (vehicles with driver monitor system):
 - The pre-collision braking off switch is not pressed.
 - The VSC OFF switch is not pressed.
 - The system determines that the driver is not facing forward, or that the driver's eyes are closed.
 - Vehicle speed is greater than about 25 mph (40 km/h).
 - The speed at which your vehicle is approaching the vehicle running ahead of you is greater than about 25 mph (40 km/h).
 - The steering is not being turned.

■ Conditions that may trigger the system even if there is no danger of a collision

- When there is an object by the roadside at the entrance to a curve
- When passing an oncoming vehicle on a curve
- When driving over a narrow iron bridge
- When there is a metal object on the road surface
- When driving on an uneven road surface
- When passing an oncoming vehicle on a left-turn
- When your vehicle rapidly closes on the vehicle in front
- When a grade separation/interchange, sign, billboard, or other structure appears to be directly in the vehicle's line of travel
- When there is a metal plate in the road in front of the vehicle on a downhill slope
- When climbing a steep hill causes an overhead billboard or other metallic structure to appear directly in the vehicle's line of travel
- When driving under an overpass
- When an extreme change in vehicle height occurs
- When passing through certain toll gates
- When driving through a lump of steam or smoke
- When the radar sensor moves off position due to its surrounding area being subjected to a strong impact

When the system is activated in the situations described above, there is also a possibility that the seat belts will retract quickly and the brakes will be applied with a force greater than normal. When the seat belt is locked in the retracted position, stop the vehicle in a safe place, release the seat belt and refasten it.

■ Obstacles not detected

The radar sensor cannot detect plastic obstacles such as traffic cones. There may also be occasions when the sensor cannot detect pedestrians, animals, bicycles, motorcycles, trees, or snowdrifts.

■ A camera sensor cannot detect obstacles in the following situations:

- A camera sensor is directly receiving intense light, such as sunlight.
- Visibility is poor because of bad weather or other reasons.
- The sensor temperature is extremely high.
- The headlights are not turned on in darkness such as at night or in a tunnel.