



Self-study Programme 396

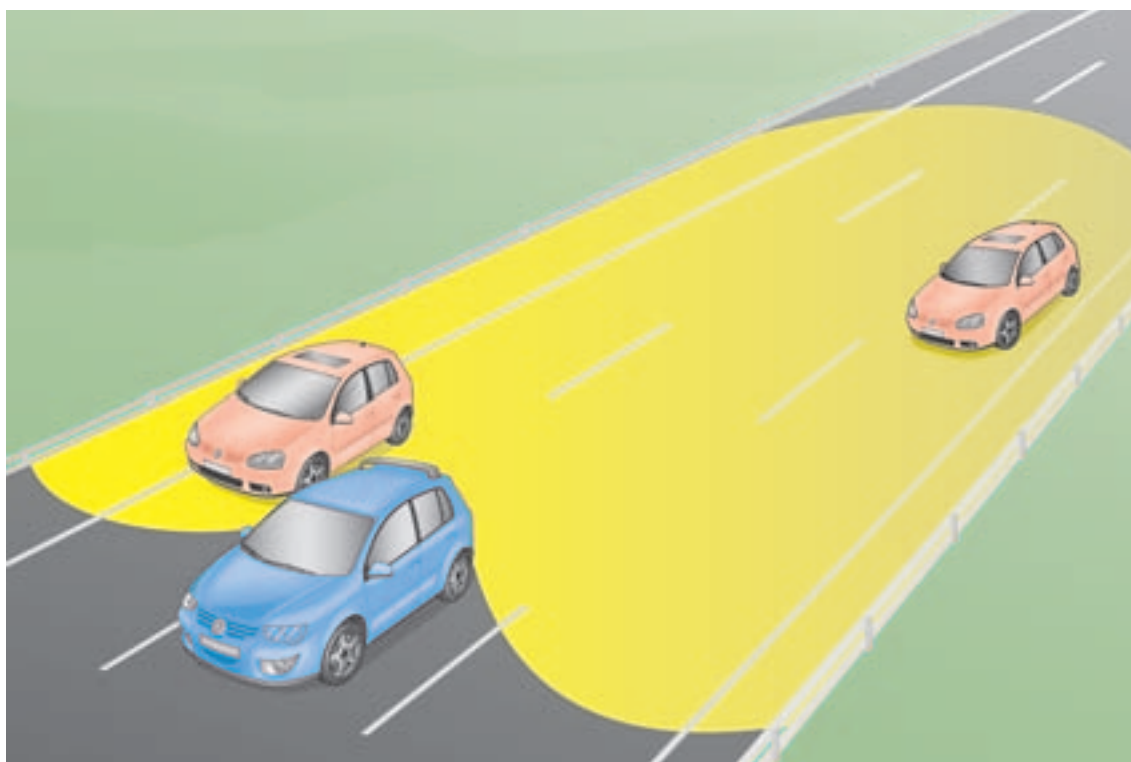
Lane Change Assist

Design and function



Lane change assist is a further technical innovation in driver assistance systems. This system is designed to prevent accidents.

This self-study programme explains how this kind of driver assistance system works in Volkswagen vehicles. The system informs and warns the driver about hazards when changing lane on motorways and dual-carriageways.



S396_001

NEW



**Important
Note**



**The self-study programme shows the design and function of new developments.
The contents will not be updated.**

For current testing, adjustment and repair instructions, refer to the relevant service literature.



Introduction	4
General description	4
Design	6
Components and their locations	6
Components	8
Function	10
Monitoring procedure	10
Networking	14
Incorporation in the vehicle networking concept	14
Functional Diagram	16
Service	18
Diagnosis	18
Calibration	20
Test Yourself	22



Introduction



General description

Situation

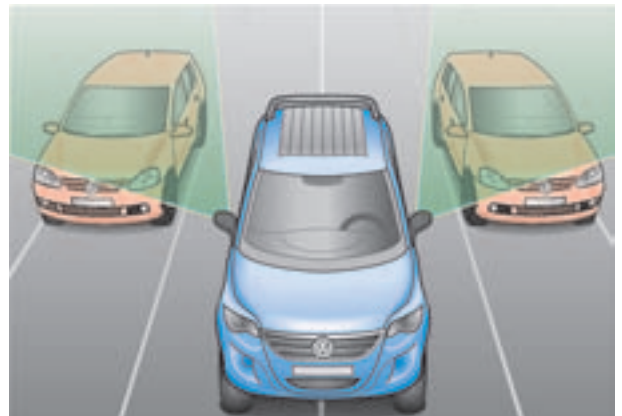
A frequent cause of accidents is failing to see vehicles when changing lanes on multi-lane roads. In 2005, there were approx. 5000 accidents involving personal injury and property damage that were caused partly by mistakes when changing lane.

Driver assistance systems can contribute to reducing accidents in these traffic situations and warn the driver about possible dangers in good time.

Dangers when changing lane

Blind spot

If a vehicle is travelling in the lane next to you, there is a danger that it is in the blind spot of the rear-view mirrors and you will therefore not see it when you change lane.



S396_002

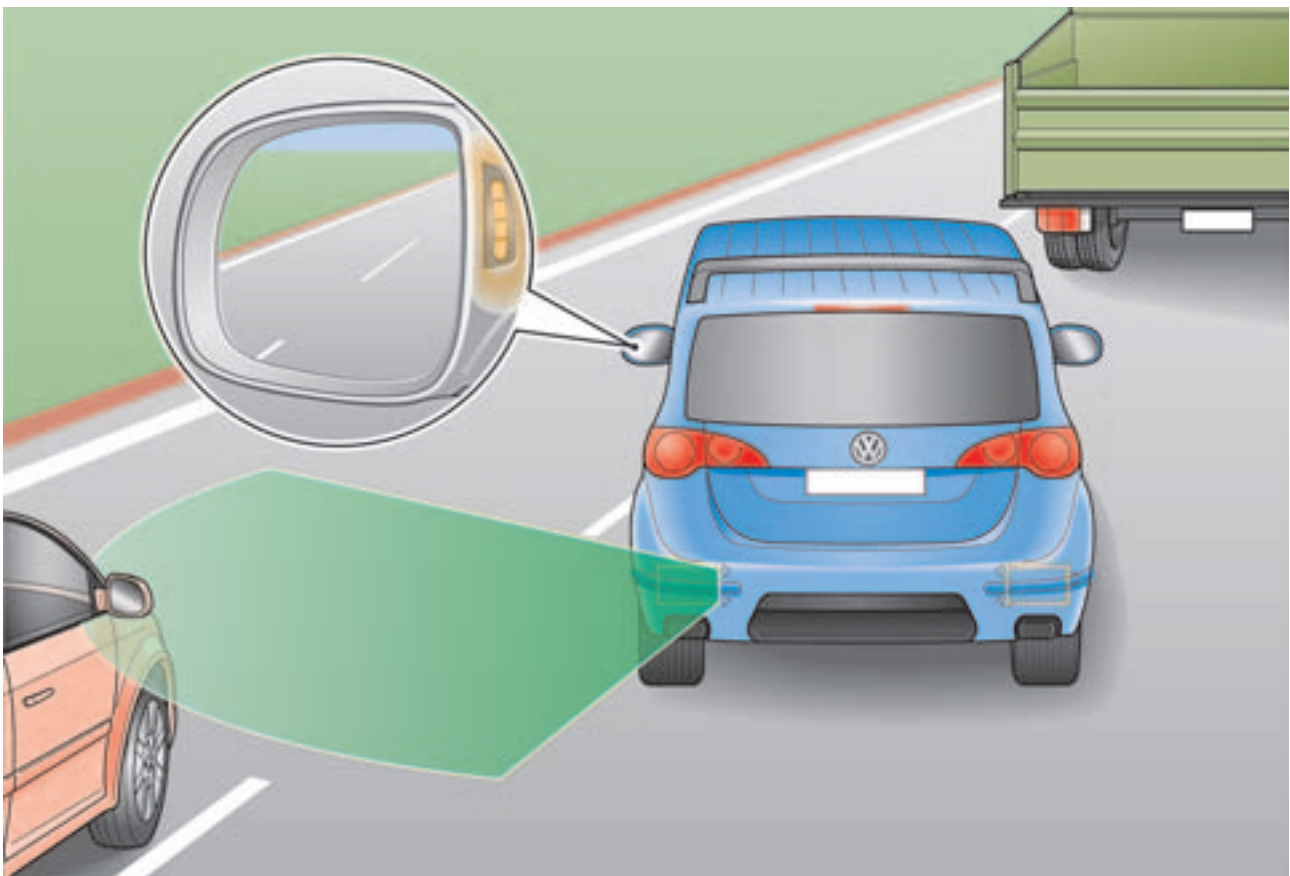


Reducing risks when changing lane

The lane change assist monitors the space next to and behind the vehicle with the aid of radar beams. The driver will be informed if there is a vehicle in the monitored area or if a vehicle is approaching at a higher speed.

If the driver is planning to change lane in this situation and indicates this by activating the turn signal, the system will issue a warning.

The risk of accident is thus reduced by the lane change assist and therefore contributes to safety.



S396_004

Components and their locations

The components of the lane change assist and their locations are shown here using the Volkswagen Touareg as an example.



- Lane change assist warning lamp in driver side exterior mirror K233
- Lane change assist warning lamp in front passenger side exterior mirror K234
- Lane change assist control unit J769 is on the left-hand side behind the rear bumper.
- Lane change assist control unit 2 J770 is on the right-hand side behind the rear bumper.
- The button for driver assistance systems E617 is on the end of turn signal switch E2.

Lane change assist warning lamp in driver side exterior mirror K233.



Button for driver assistance systems E617 in turn signal switch E2



Lane change assist control unit J769 behind the bumper, left

Lane change assist warning lamp in
front passenger side exterior mirror K234



Lane change assist control unit 2 J770
behind the bumper, right

S396_009

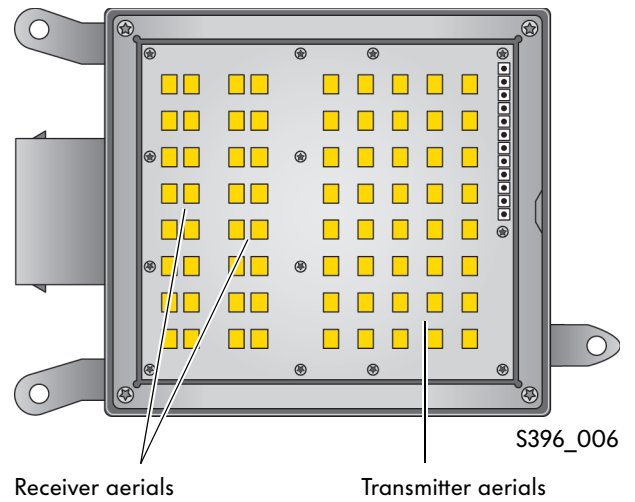


Design

Components

Radar sensors

The radar sensors are configured as transmitter and receiver aeriels which are in the control unit under a radome plastic cover.



Button for driver assistance systems

The button for driver assistance systems E617 can be used to switch off the lane change assist. The icon on the button indicates the driver assistance systems.

Icon for driver assistance systems



Button for driver assistance systems E617

Displays

Highline dash panel insert

The lane change assist warning lamp K232 in the dash panel insert indicates that the lane change assist is active. The warning lamp is in the speedometer G21.

The systems status is indicated by the colour of the warning light:

- Green
Lane change assist switched on and active
(at speeds above 60 km/h)
- Yellow
Lane change assist switched on and passive
(at speeds below 50 km/h)

Lane change assist warning lamp K232



S396_013



Premium dash panel insert

The lane change assist warning lamp K232 in the dash panel insert indicates that the lane change assist is active. The warning lamp is located in the multifunction display.

The activation state is indicated by the colour of the warning light:

- Green
Lane change assist switched on and active
(at speeds above 60 km/h)
- Grey
Lane change assist switched on and passive
(at speeds below 50 km/h)

Lane change assist warning lamp K232



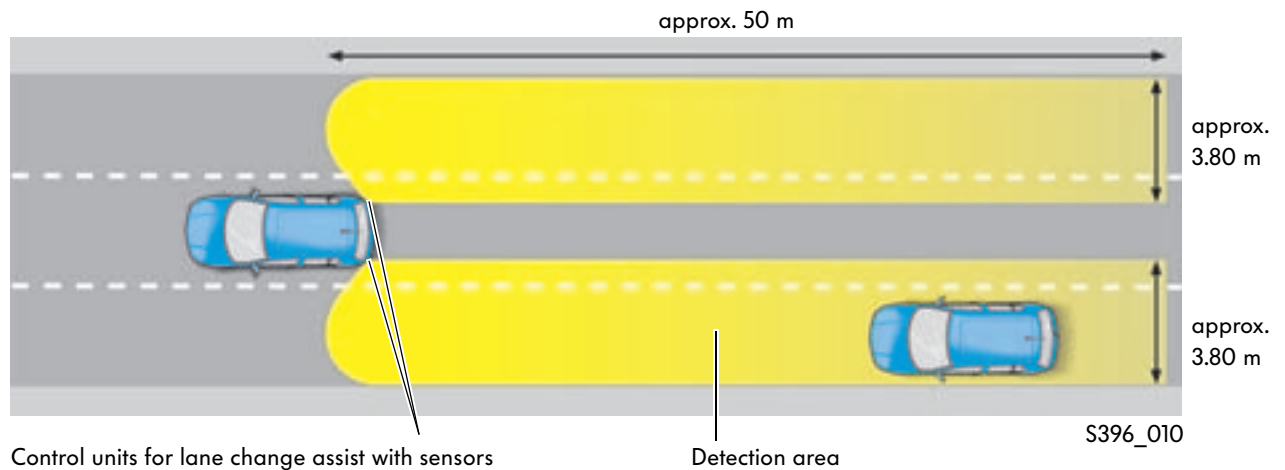
S396_014

Function

Monitoring procedure

Scanning area

The system detects dangers next to and behind the vehicle. The scanning area reaches from the B-pillar to approximately 50 m to the rear of the vehicle. The width of the scanning area is approx. 3.8 m.



How it works:

The sensors in the control units monitor the scanning area and recognise objects that are in this area using radar waves. These objects are recognised by the respective lane change assist control unit (J769 or J770) and the time to a possible collision is calculated. The control unit calculates whether the object in the blind spot is at the same speed, is slowly dropping back or getting closer. If the calculated time falls below a set value, the driver is informed or warned when the turn signal is active.

Information and warning

The information or warning that there is an object in the scanning area is provided by the lane change assist warning lamps in the exterior mirrors.

Information

Information is provided when there is a danger, the lane change assist warning lamp on the corresponding side illuminates. It remains illuminated until the object leaves the scanning area.

Lane change assist warning light in driver side exterior mirror K233

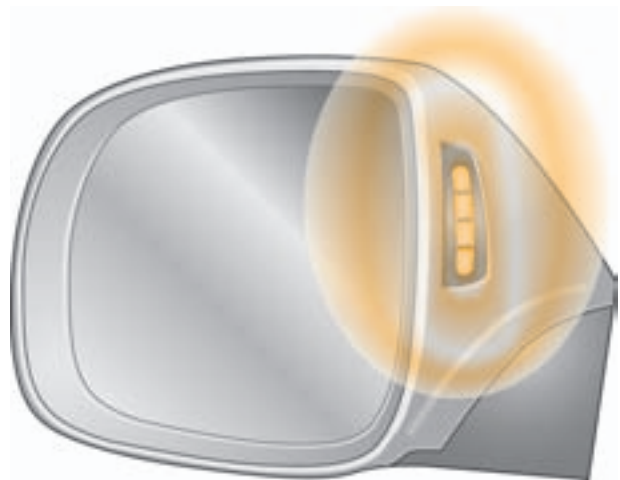


S396_011



Warning

A warning is issued when the driver indicates his intention to change lanes by activating the turn signal in the direction of a detected object. This causes the lane change assist warning light on the corresponding side to start flashing. The warning is limited to a set time and then the system returns to information level. If the turn signal is left active after the original object poses no further danger and another object is detected another warning is issued. The warning is activated again if you switch the turn signal off and on again.

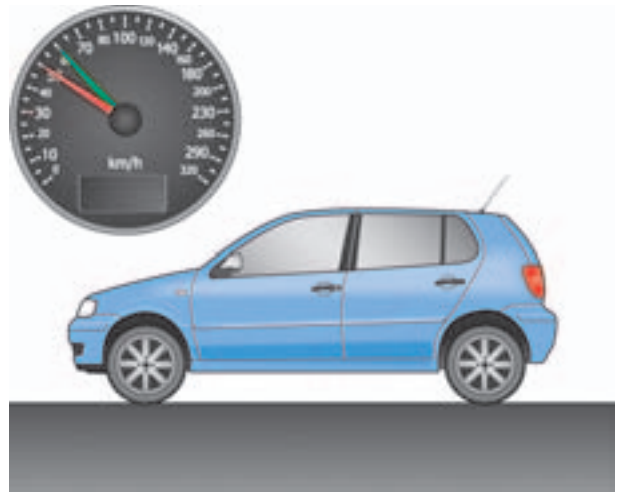


S396_012

Function

Activation speed

The lane change assist is active at speeds above 60 km/h. Vehicles in the monitored area are recognised. The requirement for this is that the system is switched on with the button for driver assistance systems. If the speed falls below 50 km/h, the lane change assist switches to passive mode.

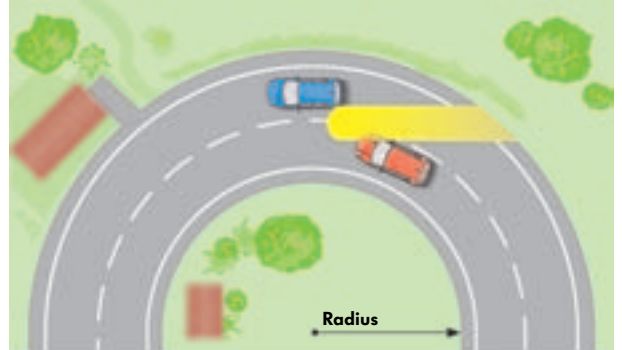


S396_029

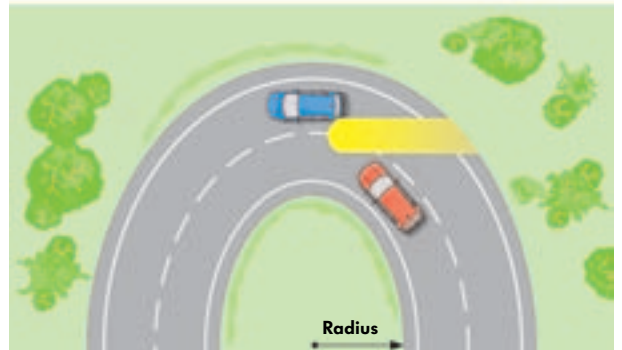
Cornering

Vehicles are recognised on curves with over 200 m radius. On curves with smaller radii, the lane change assist switches to passive mode.

Radius > 200m



Radius < 200m



S396_030