

Workshop Manual

Audi A4 2008 ➤

Audi A5 Coupé 2008 ➤

System description - lane change assist (Audi side assist)
--

Edition 10.2011



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

List of Workshop Manual Repair Groups

Repair Group

01 - Self-diagnosis, electrical checks



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

Contents

01 - Self-diagnosis, electrical checks	1
1 General notes on lane change assist	1
1.1 Definition of terms	1
1.2 Components used	1
1.3 Exchange of data between system components	2
2 Description	4
2.1 Conditions for activation/deactivation	4
2.2 System conditions for lane change assist function	4
2.3 System response to faults	4
3 Notes for service	6
3.1 Lane change assist settings	6
3.2 Special calibration tools	6
3.3 When is it necessary to calibrate the system?	6



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

01 – Self-diagnosis, electrical checks

1 General notes on lane change assist

(ARL001185; Edition 10.2011)

The lane change assist (Audi side assist) monitors the area to the side of and behind the vehicle. If a hazardous object is detected in this area when the driver indicates a lane change with the turn signals, the driver is alerted by a warning lamp in the exterior mirror on the corresponding side of the vehicle. The lane change assist can be activated or deactivated via a button on the driver's door. The system settings for the lane change assist can be changed via an MMI menu. The brightness of the warning lamp in the exterior mirrors can be set to five different levels. If a trailer detector control unit is fitted and it detects that a trailer is attached to the vehicle, this information is transmitted to the lane change assist control unit. The lane change assist control unit then automatically deactivates the two sensors. In this case, the following message will appear in the instrument cluster when driving off: Audi side assist not available when towing. Please note that the lane change assist control unit must be correctly coded for towing mode.

1.1 Definition of terms

Range of the lane change assist	approx. 50m
Lane change assist speed range	60 ... 200 km/h

1.2 Components used

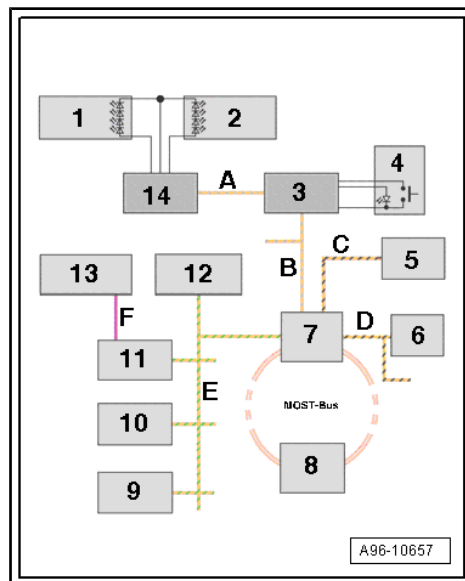
The lane change assist requires information from a large number of different control units connected to different bus systems. The description below lists which control units are used by the lane change assist to exchange information across bus systems and which information and variables are transmitted.

- ◆ 1: Lane change assist warning lamp in driver side exterior mirror -K233-
- ◆ 2: Lane change assist warning lamp in front passenger side exterior mirror -K234-
- ◆ 3: Lane change assist control unit -J769-
- ◆ 4: Button for lane change assist -E530-
- ◆ 5: Control unit in dash panel insert -J285-
- ◆ 6: ABS control unit -J104-
- ◆ 7: Data bus diagnostic interface -J533-
- ◆ 8: Control unit for front display and information control panel -J523-
- ◆ 9: Trailer detector control unit -J345-
- ◆ 10: Convenience system central control unit -J393-
- ◆ 11: Onboard supply control unit -J519-
- ◆ 12: Entry and start authorisation control unit -J518-
- ◆ 13: Rain and light sensor -G397-
- ◆ 14: Lane change assist control unit 2 -J770-

Bus networking: The diagram shows which

bus systems are used to network which components.

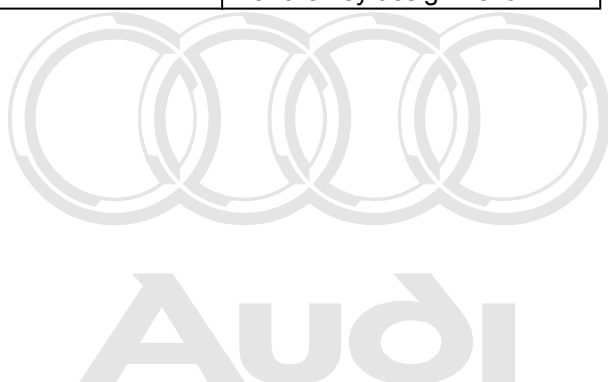
A	CAN lane change assist
B	CAN extended
C	CAN instrument cluster/running gear
D	CAN drive train
E	CAN convenience
F	LIN



1.3 Exchange of data between system components

Rain and light sensor -G397-	Transmits the measured ambient brightness over the LIN bus to the onboard supply control unit -J519-. This allows the brightness of the warning lamps to be adapted to the ambient conditions.
Control unit in dash panel insert -J285-	Informs the driver about any malfunctions that occur on the lane change assist by means of error messages and acoustic signals.
ABS control unit -J104-	Transmits the yaw rate and the current wheel speeds to the lane change assist. These variables are used to calculate information such as the current road speed and current cornering radius.
Trailer detector control unit -J345-	Indicates to the lane change assist whether or not a trailer is attached to the vehicle. The function is deactivated if a trailer is attached to the vehicle, as the sensor vision could otherwise be impaired. In this case, the driver will see the following message in the instrument cluster: "Audi side assist not available when towing".

Convenience system central control unit -J393-	Transmits information on whether the left or right turn signal is currently active. The lane change assist infers from this information that the driver intends to change lane. The convenience system control unit also informs the lane change assist whether or not the reversing lights are on. The lane change assist is not active when reversing.
Entry and start authorisation control unit -J518-	Transmits the key number of the car key currently in use. The personalised brightness setting for the warning lamps is then applied when the ignition is switched "on".
Control unit for front display and information control panel - J523-	This unit allows the driver to set the desired brightness for the warning lamps. The setting is stored on the lane change assist control unit -J769- together with the key assignment.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

2 Description

The lane change assist control unit -J769- (master control unit) and lane change assist control unit 2 -J770- (slave control unit) exchange data across a dedicated high-speed CAN bus. Lane change assist control unit 2 -J770- is connected to the extended CAN so that it can exchange data with other nodes on that bus via the data bus diagnostic interface -J533-. The master control unit also scans the button for lane change assist -E530-. The slave control unit handles the control of the lane change assist warning lamp in driver side exterior mirror -K233- and lane change assist warning lamp in front passenger side exterior mirror -K234-.

2.1 Conditions for activation/deactivation

When it is switched on, the lane change assist can be either active or inactive. Two conditions have to be met for the system to be activated: the speed must be higher than 60 km/h and the current cornering radius must not be less than 170 metres. The assist function switches to inactive mode if one of these conditions is no longer met. The actual road speed and cornering radius can be read out using the "Measured value blocks" function in Guided Functions. The following deactivation conditions apply when the system is switched on:

- ◆ Fault memory entry in lane change assist control unit -J769-
- ◆ If the master control unit receives a signal from the trailer detector control unit -J345- over the convenience CAN bus and extended CAN bus indicating that a trailer is attached to the vehicle, the master control unit deactivates the sensors in the bumper. In this case, the following message will appear in the instrument cluster after driving off: Audi side assist not available when towing. Please note that the lane change assist control unit -J769- must be correctly coded for trailer mode. Otherwise the message "Audi side assist not available: sensors blocked" will appear and the system will be deactivated.

2.2 System conditions for lane change assist function

The lane change assist function must be set up as follows:

- ◆ Equipment: The lane change assist system is not fitted as standard equipment. It must be ordered as an optional extra. The rain and light sensor -G397- is always fitted if the lane change assist is fitted. (see section 3.1)
- ◆ Coding: The lane change assist must be coded on the data bus diagnostic interface -J533- and on the control unit for front display and information control panel -J523- (MMI) in order to activate the system or change the settings. Control units with diagnostic capability are coded automatically in Guided Functions via target/actual comparison.
- ◆ Adaption: In order to display the settings for the lane change assist in the Car menu on the MMI, the lane change assist function must be coded in adaption channel 01 of the control unit for front display and information control panel -J523-. Adaption is performed via the Guided Functions.

2.3 System response to faults

If a fault (static not sporadic) is entered in the fault memory of the lane change assist control unit -J769- and if the fault is active, the lane change assist system will be deactivated and an appropriate message will appear in the instrument cluster display. The message is always accompanied by a warning tone. The fault messages only appear if the lane change assist is switched on. If the

system is switched off via the button, no messages or warning tones are output to the instrument cluster.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

3 Notes for service

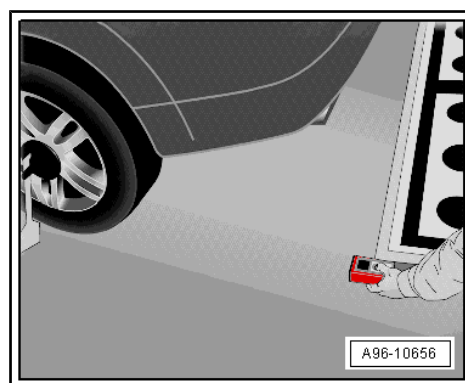
3.1 Lane change assist settings

Different settings for the lane change assist are available on the MMI. The brightness of the warning lamps in the exterior mirrors can be adjusted on the MMI by selecting CAR - Systems - Audi side assist. The warning lamps are activated directly by lane change assist control unit 2 -J770- . Each has four yellow LEDs. The brightness of the warning lamps can be set to five different levels. The ambient brightness measured by the rain and light sensor -G397- is also used to determine the intensity of the warning lamps.

3.2 Special calibration tools

Special tools have been developed for the calibration of the radar sensors. The tools consist of a calibration unit VAS 6350 with Doppler generator, a set of wheel centre mountings VAS 6350/1 and a spacing laser VAS 6350/2. The calibration unit is used to calibrate the lane change assist radar sensors and the reversing camera.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



3.3 When is it necessary to calibrate the system?

The lane change assist has to be calibrated for the following reasons:

- ◆ An entry indicating a missing or incorrect basic setting/adaption is stored in the fault memory of the lane change assist control unit -J769- or lane change assist control unit 2 -J770- .
- ◆ The lane change assist control unit -J769- or lane change assist control unit 2 -J770- (or both control units) has been renewed.
- ◆ The rear bumper has been damaged, for instance when parking the car.
- ◆ The rear bumper has been removed from the vehicle and refitted.