
Table of Contents

F01 PDC-TR SVC

Subject	Page
Introduction	3
System Overview	4
System Components	10
Park Distance Control	10
Rear View Camera	11
Side View	12
System Functions	14
Park Distance Control	14
Rear View Camera	15
Service Information	18
Park Distance Control	18

PDC-TR SVC

Model: F01/F02

Production: From Start of Production

OBJECTIVES

After completion of this module you will be able to:

- Describe the PDC-TR SVC system in the F01/F02
- Identify the components of the PDC-TR SVC system in the F01/F02

Introduction

With the F01/F02, the customer is able to choose from a comprehensive range of optional driver assistance systems.

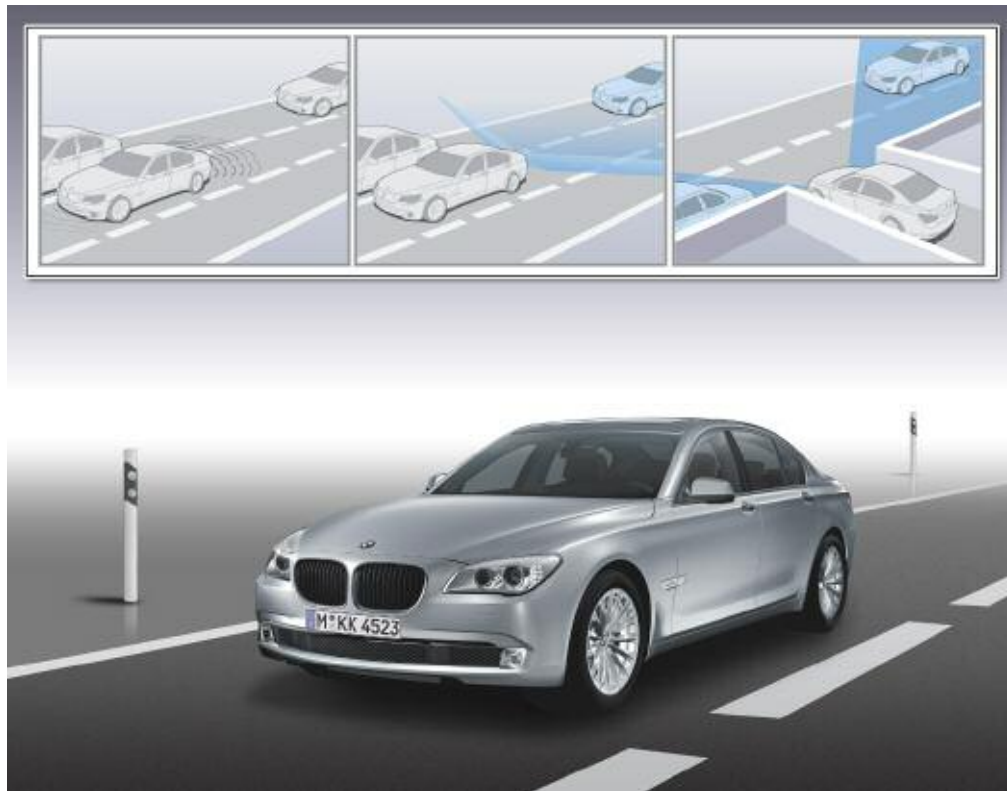
The individual systems and function units are becoming ever more densely networked as a result of the shared use of components, signals and displays in some areas.

These are the optionally available combinations:

- PDC
- Rear-view Camera
- Side View Camera

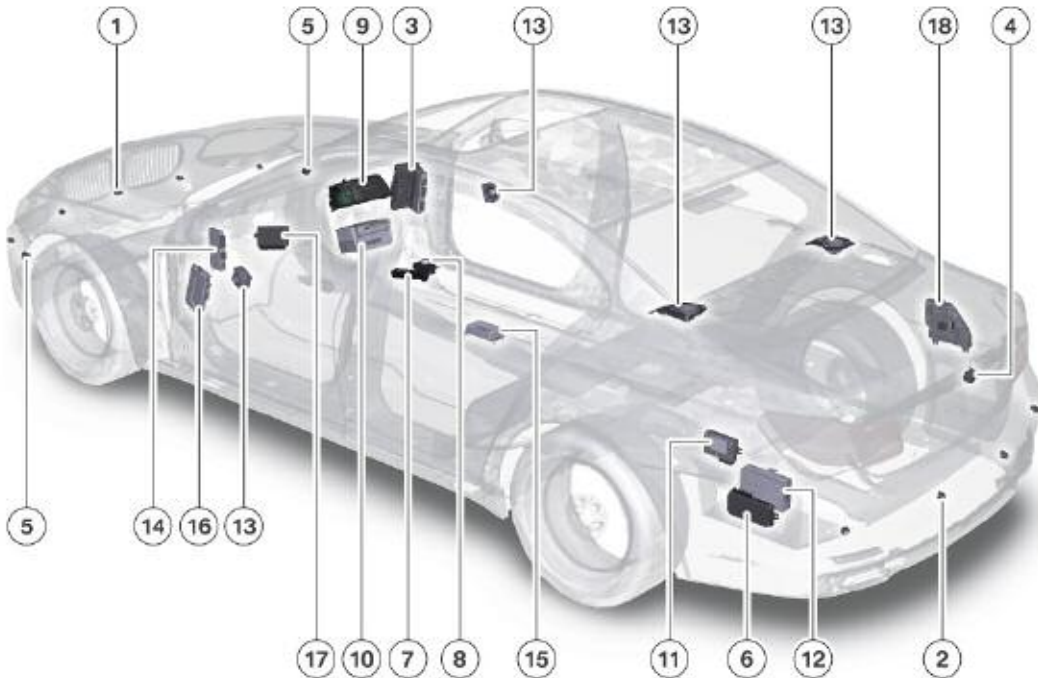
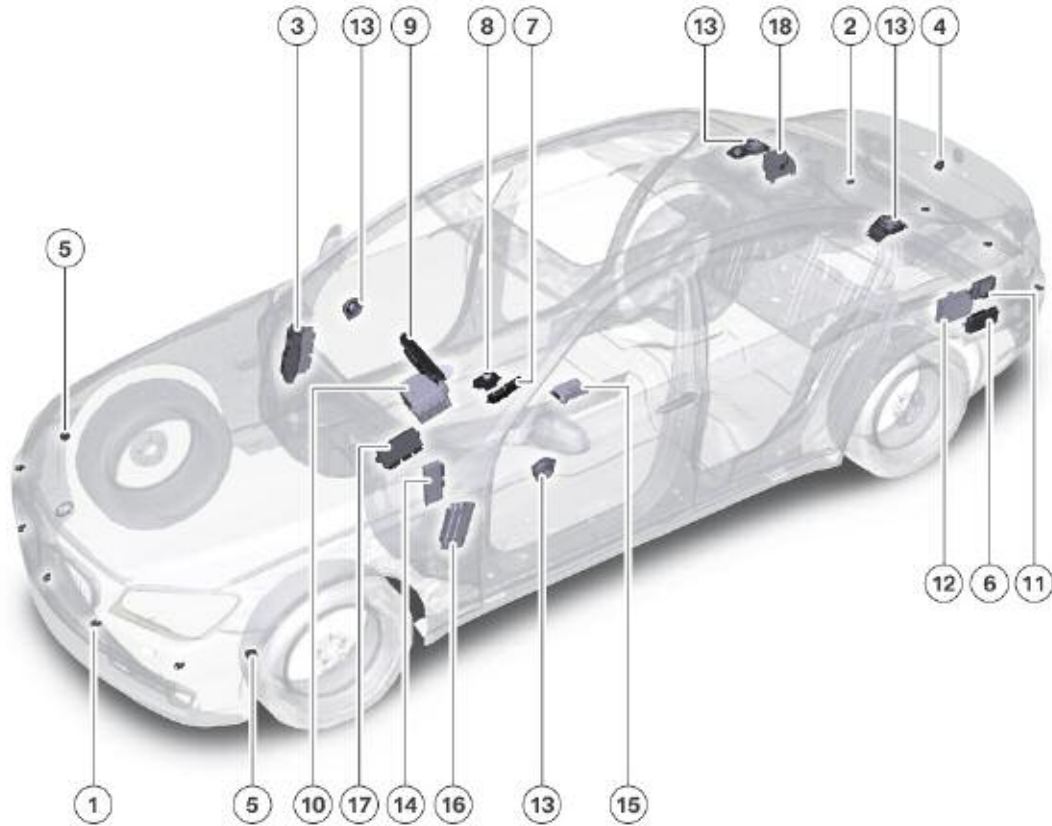
Park Distance Control (PDC) is standard equipment on the F01/F02, with the ZCE Camera Package available as an option. The Camera Package includes the Rear-view Camera and the Side View Cameras. The TRSVC control unit is used to manage the different video feeds and display them on the CID in combination with PDC functions.

TRSVC stands for Top Rear Side View Camera driver assistance system.



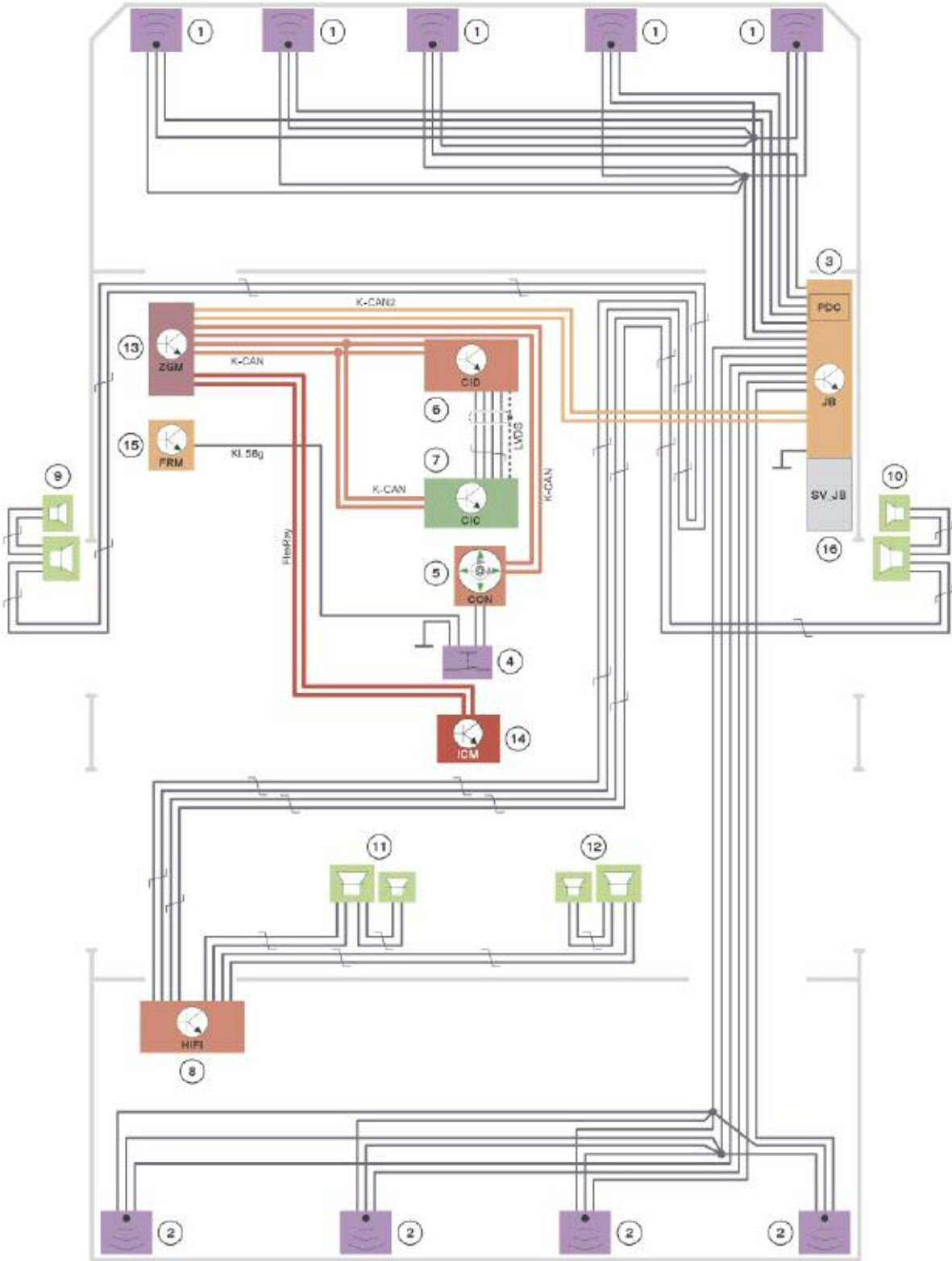
System Overview

PDC, rear view camera, Side View



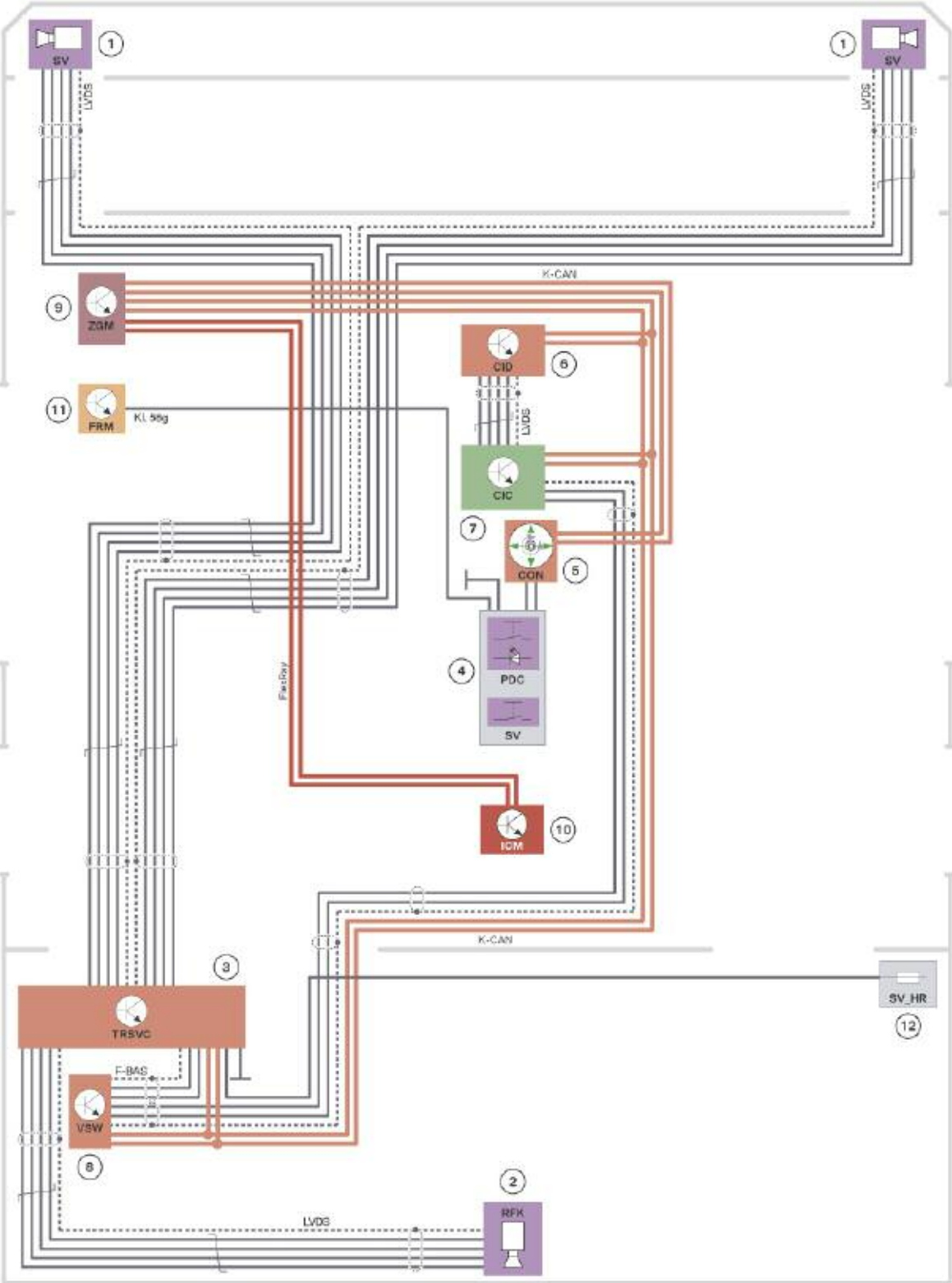
Index	Explanation	Index	Explanation
1	Park Distance Control (PDC) - Five ultrasonic sensors in the front bumper	10	Car Information Computer (CIC) data preparation for displays in the CI
2	Park Distance Control (PDC) - Four ultrasonic sensors in the rear bumper	11	Video switch (VSW)
3	Junction box electronics with integrated PDC control unit	12	Audio amplifier (HiFi) - Audible Distance Warning (PDC)
4	Rear view camera	13	Loudspeakers front left/front right rear left/rear right - Audible Distance Warning (PDC)
5	Side View cameras, left/right	14	Central gateway module (ZGM)
6	TRSVc control unit (Top Rear side View Camera)	15	Integrated Chassis Management (ICM) road-speed signal
7	PDC/rear view camera on/off button and Side View on/off button	16	Footwell module (FRM)
8	Controller Control unit for PDC/rear view camera on/off button and Side View on/off button	17	Car Access System (CAS)
9	Central Information Display (CID) for displays of PDC/rear view camera/Side View	18	Rear distribution box, luggage compartment

PDC system circuit diagram



Index	Explanation	Index	Explanation
1	Five ultrasonic sensors in the front bumper	9	Loudspeaker, front left - Audible distance warning (PDC)
2	Four ultrasonic sensors in the rear bumper	10	Loudspeaker, front right - Audible distance warning (PDC)
3	Junction box electronics with integrated PDC control unit	11	Loudspeaker, rear left - Audible distance warning (PDC)
4	PDC on/off button	12	Loudspeaker, rear right - Audible distance warning (PDC)
5	Controller control unit with PDC on/ off button	13	Central gateway module (ZGM)
6	Central Information Display (CID) for PDC displays	14	Integrated Chassis Management (ICM) road-speed signal
7	Car Information Computer (CIC) data preparation for displays in the CID	15	Footwell module
8	Audio amplifier (HiFi) - Audible distance warning (PDC)	16	Junction box electronics, front distribution box

System circuit diagram for rear view and side view cameras



Index	Explanation	Index	Explanation
1	Side View cameras, left/right	7	Car Information Computer (CIC) data preparation for displays in the CID
2	Rear view camera	8	Video switch (VSW)
3	TRSVIC control unit (Top Rear Side View Camera)	9	Central gateway module (ZGM)
4	PDC on/off button and Side View on/off button	10	Integrated Chassis Management (ICM) road-speed signal
5	Controller PDC/rear view camera on/off button and Side View on/off button	11	Control unit for Footwell module (FRM)
6	Central Information Display (CID) for displays of PDC/rear view camera / Side View	12	Distribution box, luggage compartment

System Components

Park Distance Control

The Park Distance Control of the F01/F02 is identifiable by the five ultrasonic sensors on the front bumper. The fifth sensor enables a high level of reliability in obstacle recognition to be achieved despite the large front end of the F01.

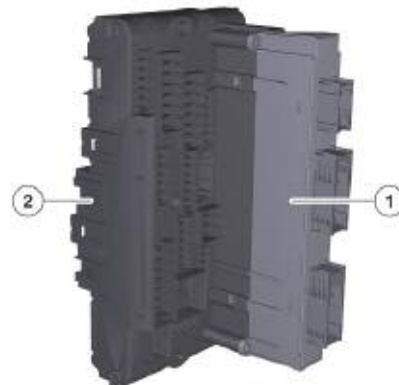


F01/F02 front bumper with five Park Distance Control ultrasonic sensors



PDC ultrasonic sensor

In the F01, the PDC control unit function has been integrated into the junction box electronics for the first time.



Junction box electronics and front distribution box

Index	Explanation
1	Junction box electronics with integrated PDC control unit
2	Front distribution box

Rear View Camera

In the F01, the optional rear view camera requires the vehicle to have been equipped with the PDC option. The rear view camera is located to the right of the recessed handle on the luggage compartment lid.



Rear view camera located to the right of the recessed handle on the luggage compartment lid

Side View

The F01/F02 is the first of BMW's vehicles to feature the new Side View Camera.

The function is realized by two digital cameras, one on the front right wheel housing and one on the front left wheel housing. They make it easier for the driver to pull into roads and junctions in which the driver's view to the side is obstructed.

Index	Explanation
1	Bumper, front wheel housing
2	Side View camera, left



Side view

The driver can activate the Side View cameras using a button in the control panel next to the gear selector lever.

Index	Explanation
1	PDC and rear view camera on/off button
2	Side View button



Button in the center console control panel

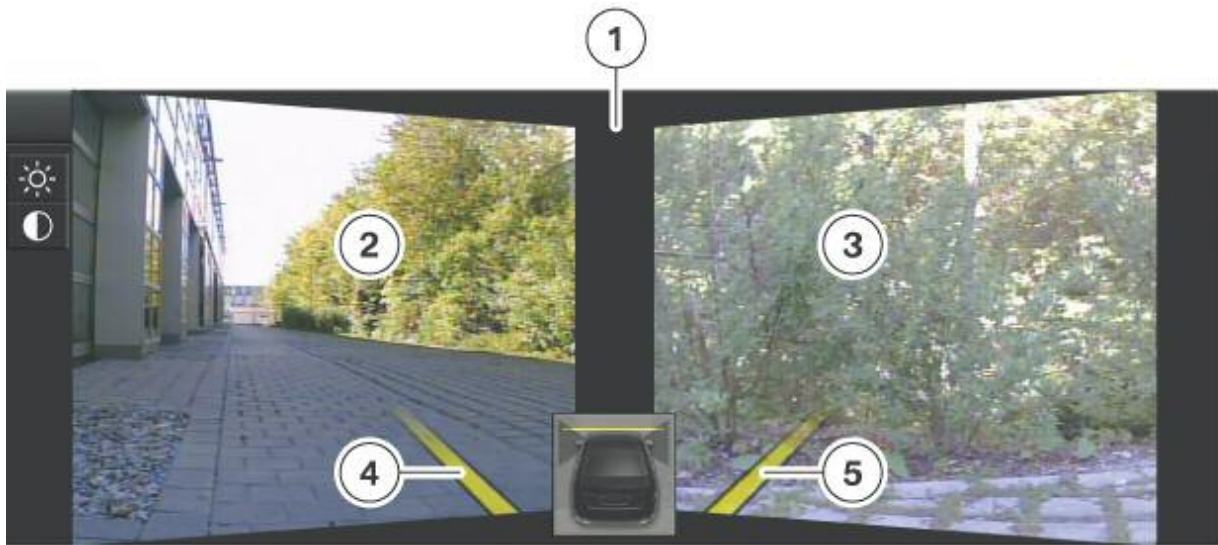
The camera images are shown in the CID in splitscreen view up to a road speed of 30 km/h/19mph.

Like the rear view camera, the two side view cameras send their video signals to the TRSVC control unit along LVDS data lines.

The signals are forwarded along CVBS lines to the video switch VSW and CIC. The CIC sends image data to the CID along LVDS data lines.

The CID is where the image data are displayed.

Side view images



Index	Explanation	Index	Explanation
1	Splitscreen images from the Side View cameras	4	Projected front of vehicle, view to left
2	Splitscreen images from the Side View camera on the left-side wheel housing	5	Projected front of vehicle, view to right
3	Splitscreen images from the Side View camera on the right-side wheel housing		

System Functions

Park Distance Control

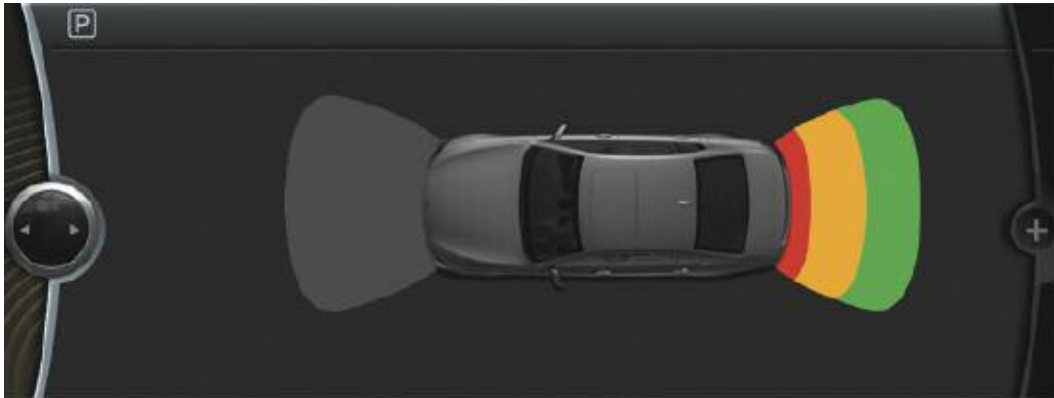
PDC is activated in response to the engagement of reverse gear or the operation of the PDC button next to the gear selector switch.

PDC and rear view camera on/off button and Side View function button



Index	Explanation	Index	Explanation
1	PDC and rear view camera on/off button	2	Side View button

The audible and visual distance warnings (the results of distance measurements) given to the driver are provided by the audio loudspeakers and by displays in the CID respectively.



Distance warning PDC display

Rear View Camera

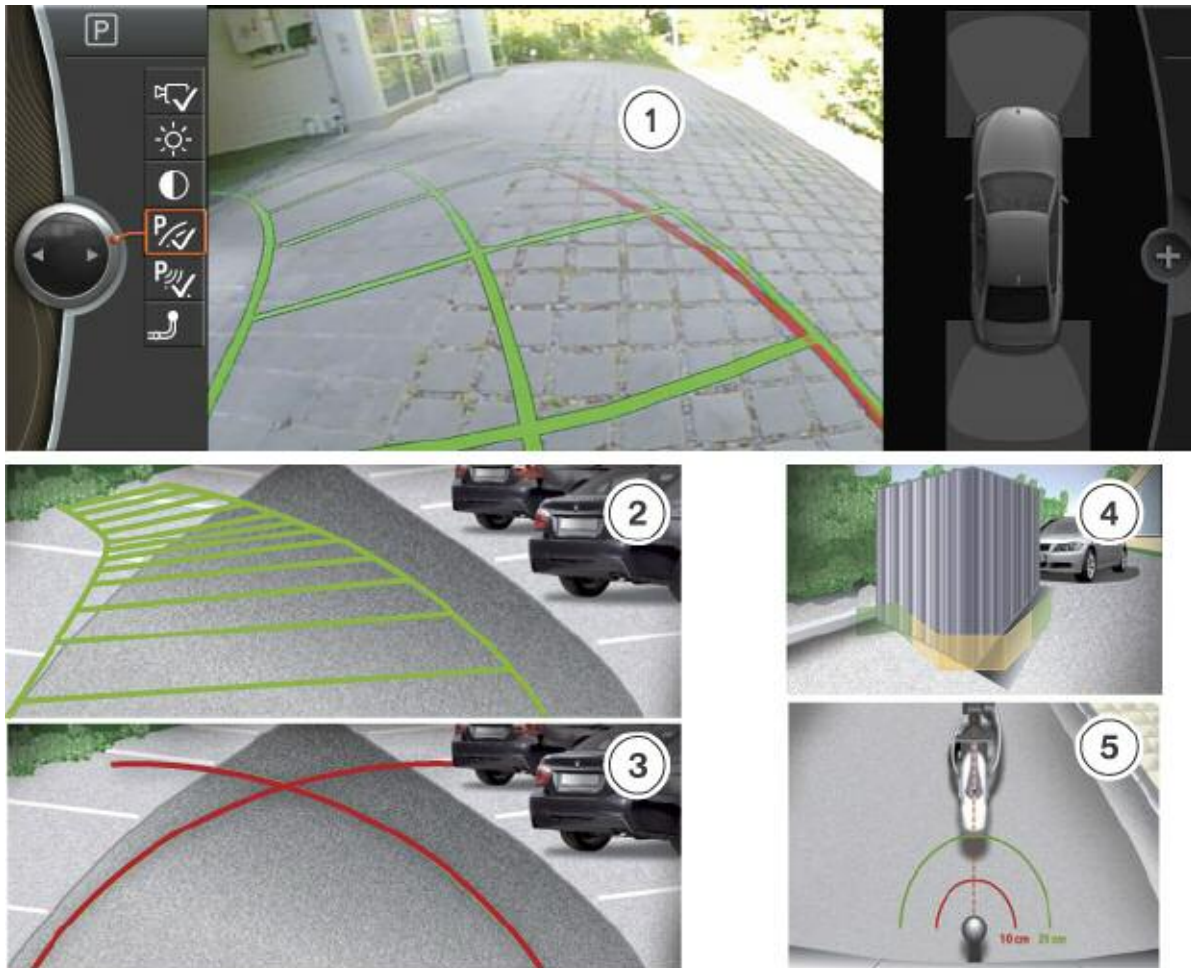
With the PDC and rear view camera equipment combination, the controller and the operating menu can be used to toggle between the basic PDC display and the rear view camera image with PDC.

Distance warning PDC display and option to select rear view camera image with PDC



Index	Explanation	Index	Explanation
1	Distance warning (PDC) display with option to select rear view camera image	2	Rear view camera image and distance warning (PDC)

To assist the driver, the rear view camera image contains turning-circle lines, lane/ parking-aid lines, obstacle markings and, where applicable, zoomed views of the trailer coupling.

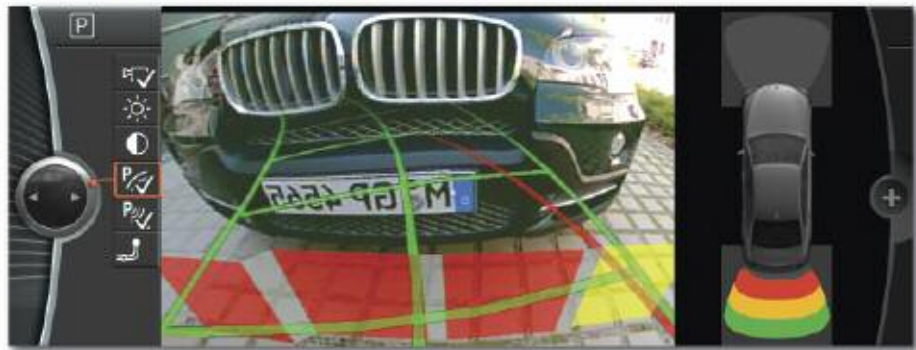
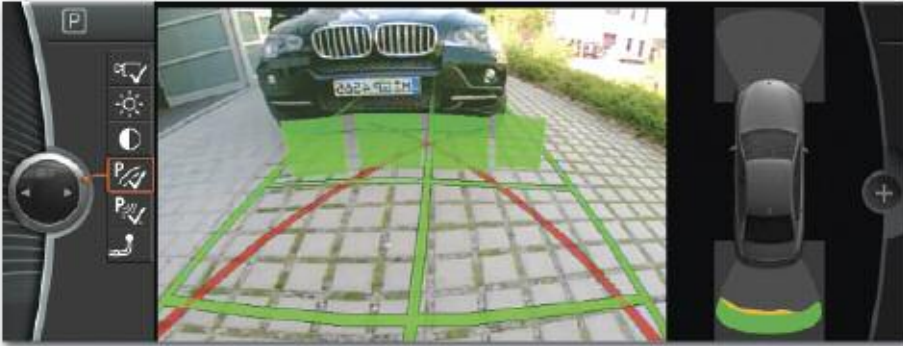


Example of a parking-aid line Overview of rear view camera assistance functions

Index	Explanation	Index	Explanation
1	Image showing example of a parking-aid line	4	Obstacle marking assistance function
2	Parking-aid line assistance function	5	Zoomed trailer coupling assistance function (Not for US)
3	Turning-circle line assistance function		

The rear view camera is deactivated automatically as soon as the vehicle exceeds 12 mph or a distance of 20 m in a forward gear.

Example of a distance warning display and obstacle recognition with PDC and rear view camera image



Service Information

Park Distance Control

During the installation of license plates, license plate carriers and baseplates, care must be taken not to cover the center sensor in the front bumper. Obstructions caused by license plate carriers or even deposits of dirt, snow and ice on the carriers could impair the operation of the center sensor.

F01/F02 front bumper with ultrasonic sensor and license plate carrier



Index	Explanation	Index	Explanation
1	Ultrasonic sensor in center of front bumper	2	License plate carrier

Note: The procedure for calibrating the rear view camera is based on the E70 rear view camera calibration procedure.