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Technical training.

Product information.

Car Information Computer Basic



BMW Service

General notes

Symbols used

The following symbols/means of presentation are used in this document to facilitate better comprehension or to draw attention to particularly important information.



Contains important safety information and information that is required for the correct functioning of the system, and must be observed.

Information status and national-market versions

BMW Group vehicles conform to the highest safety and quality standards. Changing requirements in areas such as environmental protection, customer benefits and design make continuous development of systems and components necessary. Consequently, this may result in deviations between the contents of tis document and the vehicles available in the training course.

This document describes only European left-hand drive variants. In right-hand drive vehicles, some controls or components are arranged differently from the illustrations in this document. Further differences may arise as the result of the equipment variants used in specific markets or countries.

Additional sources of information

Further information on the individual topics can be found in the following sources of information:

- in the Owner's Handbook
- in the Integrated Service Technical Application.

Contact: conceptinfo@bmw.de

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Car Information Computer Basic

1. Objectives.

1.1. Reference for practical applications

This Product Information bulletin contains information in the successor head unit of the M-ASK multi-audio system controller and the counterpart multimedia platform known as CHAMP for short.

It describes layout, operating principle and innovations in the
Car Information Computer Basic (CIC Basic).

With the aid of a bus plan, this document provides an insight into the integration of this head unit in the vehicle electrical and network system.

It also provides an overview of the design layout of the CIC Basic in the form a block diagram.

A bus diagram and system circuit diagram provide details of the bus connections and network integration.

The "Functions" section focuses on the innovations of the new head unit compared to the M-ASK. Recurring reference is also made to the CIC Professional, which is the higher-quality head unit.

An insight into the insides of the CIC Basic can be found under "System components".

Service mode and diagnosis are dealt with under "Service information".

The Product Information is suitable for self-study purposes and as a source of reference. It is intended to provide a basic understanding of the system.

Working through this Product Information document in conjunction with the practical exercises in the seminar is intended to give the staff in the service departments the ability to carry out servicing and diagnosis work on the CIC Basic.

Technical knowledge and practical experience of BMW information and communication system as well as of existing head units (e.g. CIC, M-ASK, etc.) will facilitate understanding.

You will find up-to-date circuit diagrams and repair instructions in the BMW diagnostic system.

Car Information Computer Basic
2. Introduction.

2.1. Next generation head unit with a vast number of innovations

2.1.1. History

In March 2007, map navigation debuted in BMW vehicles for the Business navigation systems (option code 606). Prior to that date, the Business system had supported only arrow display. Map display was a milestone for the Business head unit M-ASK and also for its US counterpart, the CHAMP multimedia platform.

Another highlight of the Car Information Computer CIC with the Professional navigation system followed in September 2008 when the system became available in the BMW 1-Series, 3-Series, 5-Series and 6-Series. This system was introduced along with a radically revised iDrive system. The user interface of the iDrive in its revised form is now also available with the Business navigation system.

2.1.2. CIC Basic introduction scenario

The Car Information Computer Basic will be introduced in the second half of 2009.

The CIC Basic will be initially offered in the BMW 1-Series and 3-Series vehicles. At the same time, it will be introduced in the facelift versions of the BMW 7-Series and in the X5 and X6. October 2009 will see the introduction of the head unit in the 5-Series Gran Turismo and the X1.
The CIC Basic will not be offered for MINI vehicles, the BMW Z4 (E85, E86, E89), the X3 (E83) or the current BMW 5-Series and 6-Series models.

Depending on the market, the CIC Basic will be offered as standard equipment superseding the former BMW Professional radio or as an optional extra BMW Professional radio with option code 663. If the customer wants the basic version of the navigation system (Business navigation system, option code 606), the CIC Basic head unit will be offered with the extended hardware as a combination unit consisting of audio system and navigation unit.

2.1.3. New features

The Car Information Computer Basic, or CIC Basic for short, follows on rigourously on the path initially adopted in 2008 with the introduction of the CIC Professional (Professional navigation system, option code 609).

Unlike its predecessors (M-ASK and CHAMP) the CIC Basic does not have a DVD drive. It has only a CD drive. Furthermore, the CIC Basic supports only audio-file playback.

The navigation data are now stored on a flash memory medium similar to an SD card. By comparison with the M-ASK, navigation is expanded with a whole raft of new functions. Examples include full-screen display mode, night view and the 2D bird's-eye perspective view. A viewing mode that combines map display and arrow display is also possible.

This is implemented using a flash memory medium on which the map data are stored. The older Business navigation systems had to read in the map data from DVD every time the user entered a destination. If the navigation DVD was removed from the drive, navigation was possible only within a defined corridor extending to either side of the route to the destination. Now, the map data are stored permanently in the head unit.

Car Information Computer Basic
2. Introduction.

In addition, many external receiver devices (e.g. digital tuners, digital decoders, etc.) and their functions are mapped in the hardware or software of the CIC basic, expanding the functionality by several orders of magnitude.

An address database has been implemented in the ”Contacts” submenu, and it can be accessed from both the telephone and the navigation menus. This innovation opens up a whole gamut of possibilities for future models.

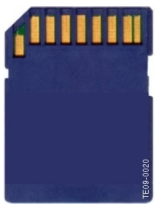
The communication services BMW Assist (option code 612) and BMW Online (option code 616) have been adapted to the new layout of the user interface and many additional services have been added (e.g. Goggle send to car etc.).

The voice recognition system has been further developed to now enable even simpler and more fluid voice input.

2.1.4. What is... ?

Flash storage

Flash storage means writing data into digital memory chips. This chips are used as flash memory modules, usually in the form of cards, designed to be inserted in digital cameras, for instance, or digital picture frames. The precise technical designation is flash EEPROM.



Flash card

EEPROM (Electrically Erasable Programmable Read-Only Memory). Unlike conventional EEPROMs, flash EEPROMs enable bytes to be erased individually as the smallest addressable memory units or blocks.

Anecdotal evidence indicates that the term ”flash” was coined in Toshiba's development lab back in the year 1984. Shoji Ariizumi, a member of the project team around Dr. Fujio Masuoka, observed that the **erasure process** of the blocks of data stored in memory reminded him of camera flashes. Hence the term ”flash”.
Flash memory is used in a huge variety of applications in which information has to stored persistently (in non-volatile memory, in other words) on an extremely compact medium that can dispense with a permanent power supply.

The individual data (bits) are saved in the form of electric charges on what is known as a floating gate, or charge trap. In terms of its make-up, this memory cell is very similar to a field-effect transistor. The gate is merely replaced by the charge trap. This charge trap consists of an electrically insulated semiconductor layer. The floating gate stores the electrical charge in much the same way as a capacitor. An oxide layer insulated the gate from the drain, source and controller connections. This oxide layer prevents the charge from draining away. Even without an external power supply, the charge can be retained over many years. In the erasure process, the charge jumps (flashes) over to the floating gate. The phenomenon known as electron tunnelling is employed to positive effect here. The floating gate is charged. The doping layer between source and drain is discharged, and this cuts off the current flow.

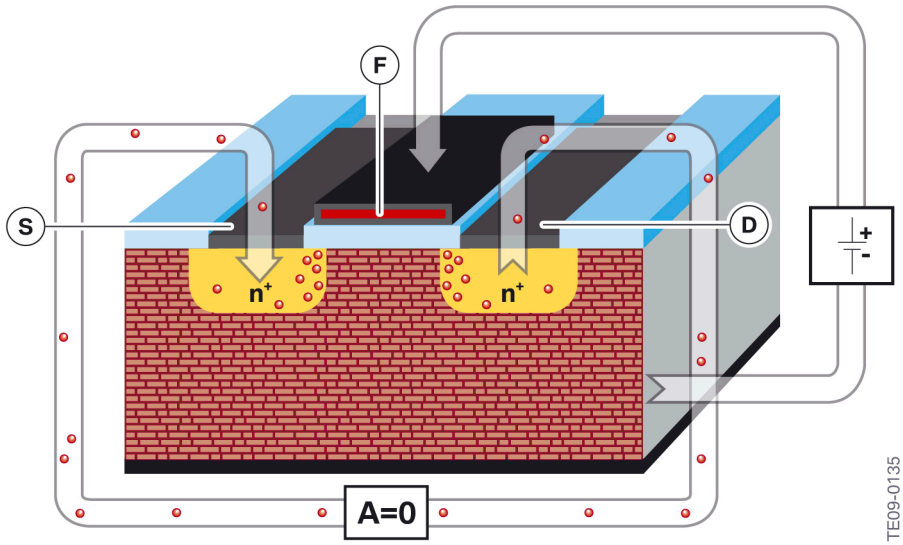
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Car Information Computer Basic

2. Introduction.

The transistor is in its ”0” state. If the floating gate is discharged (polarisation of the applied voltage reversed), a current flows between source and drain. Under these circumstances the state of the transistor is ”1”.

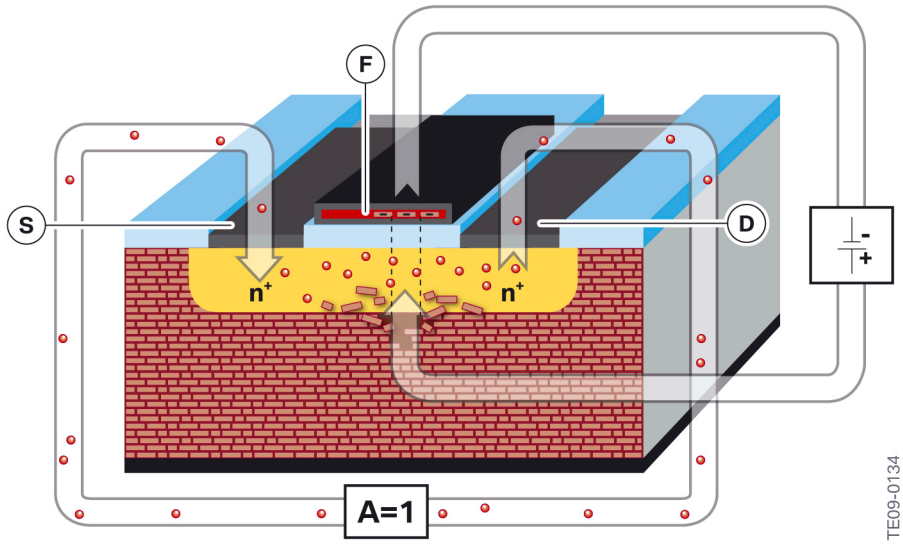
Initial state and erasure of flash memory



Erasing flash memory

Index	Explanation
S	Source
D	Drain
F	Floating gate (with insulating layer)

Transition to the storage state of flash memory



Writing to flash memory

Car Information Computer Basic

2. Introduction.

Index	Explanation
S	Source
D	Drain
F	Floating gate (with insulating layer)

Car Information Computer Basic

3. System overview.

3.1. General information

The following pages show a block diagram, bus diagram and circuit diagram of the CIC Basic.

The block diagram shows the individual layers of the CIC Basic:

- User interface
- Application software
- Hardware components.

The bus view shows the networking of the CIC Basic with the MOST-bus, K-CAN and with the other bus systems.

Detail information is contained in the circuit diagram.

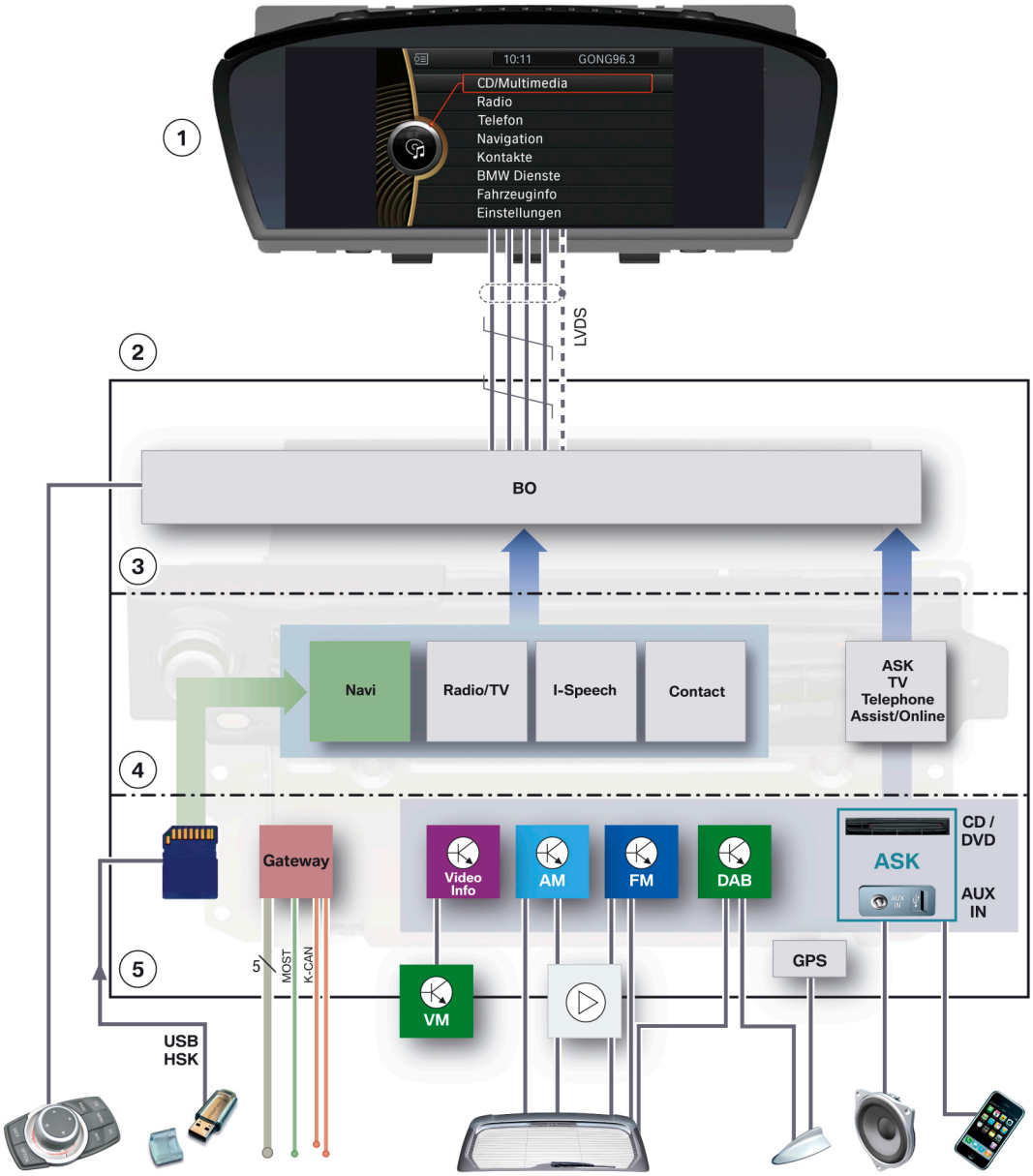
The graphic representation is always followed by the corresponding key in tabular form, which can be found either under the graphic or on the next page.

3.2. Car Information Computer Basic

Car Information Computer Basic

3. System overview.

3.2.1. Block diagram of CIC Basic



Block diagram of CIC Basic

Car Information Computer Basic

3. System overview.

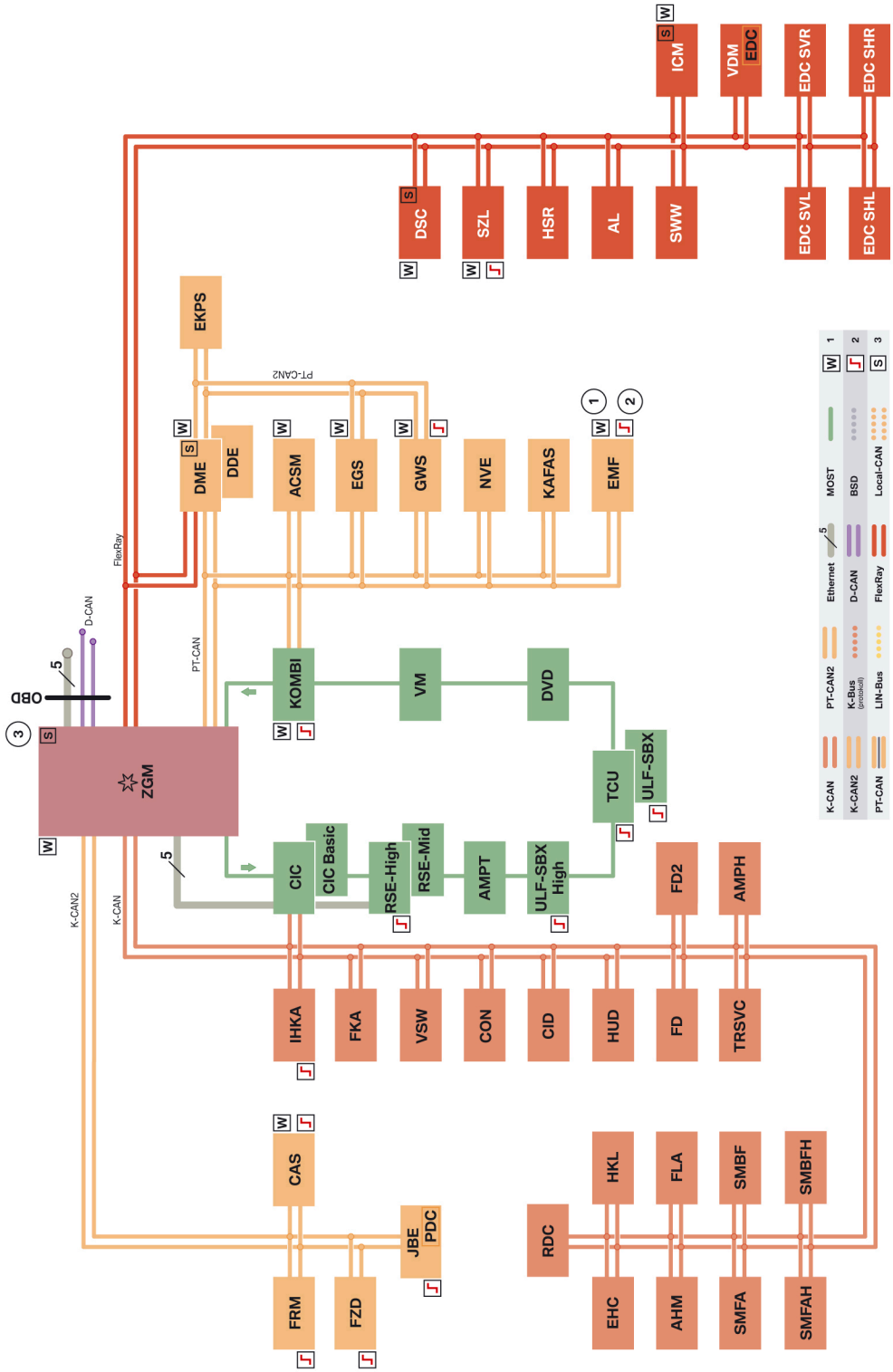
Index	Explanation
1	Central information display
2	Car Information Computer Basic
3	User interface (iDrive)
4	Application software
5	Hardware and interfaces

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Car Information Computer Basic

3. System overview.

3.2.2. Bus overview F01, F02, F07



Bus overview F07, F01, F02

TE09-0128

Car Information Computer Basic

3. System overview.

Index	Explanation
ACSM	Advanced Crash Safety Module
AHM	Trailer module
AL	Active steering
AMPH	Hi-fi amplifier
AMPT	Top HiFi system
CAS	Car access system
CID	Central information display
CIC	Car Information Computer
CIC Basic	Car Information Computer Basic
CON	Controller
DDE	Digital Diesel Electronics
DME	Digital motor electronics
DSC	Dynamic stability control
DVD	DVD changer
EDC SHL	Electronic damper control, rear left satellite
EDC SHR	Electronic damper control, rear right satellite
EDC SVL	Electronic damper control, front left satellite
EDC SVR	Electronic damper control, front right satellite
EGS	Electronic transmission control unit
EHC	Electronic ride-height control
EKPS	Electronic fuel pump control
EMA LI	Automatic reel, left
EMA RE	Automatic reel, right
EMF	Electromechanical parking brake
FCON	Rear compartment controller
FD	Rear compartment display
FD2	Rear compartment display 2
FKA	Rear compartment heating/air conditioning system
FLA	High beam assistant
FRM	Footwell module
FZD	Roof function centre
GWS	Gear selection switch
HKA	Rear automatic air conditioning
HKL	Rear lid lift
HSR	Rear axle slip angle control

Car Information Computer Basic

3. System overview.

Index	Explanation
HUD	Head-up display
ICM	Integrated Chassis Management
JBE	Junction box electronics
IHKA	Integrated automatic heating/air conditioning system
KAFAS	Camera-based driver support systems
KOMBI	Instrument cluster
NVE	Night vision electronics
RDC	Tyre pressure control
RSE-High	Rear-seat entertainment Professional
RSE-Mid	Rear-seat entertainment
SM BA	Passenger's seat module
SM FA	Driver's seat module
SM BFH	Seat module, passenger side, rear
SM FAH	Seat module, driver's side, rear
SWW	Lane change warning
SZL	Steering column switch cluster
TCU	Telematics control unit
TRSVC	Control unit for the rear view camera and SideView
ULF-SBX	Universal charger and hands-free facility, interface box (Bluetooth telephony)
ULF-SBX-H	Universal charger and hands-free facility, high-level interface box (Bluetooth telephony, voice input and USB/audio interface)
VDM	Vertical Dynamics Management
VM	Video module
VSW	Video switch
ZGM	Central gateway module
Index	**Explanation**
1	Wakable control units
2	Waking control units
3	Startup nodes - control units for starting and synchronising the FlexRay bus system
BSD	Bit-serial data interface
D-CAN	Diagnosis-on-Controller Area Network bus system
Ethernet	High-speed data protocol
FlexRay	FlexRay bus system
K-CAN	Body controller area network (CAN)
K-CAN2	High-speed body controller area network (500 Kbit/s)

Car Information Computer Basic

3. System overview.

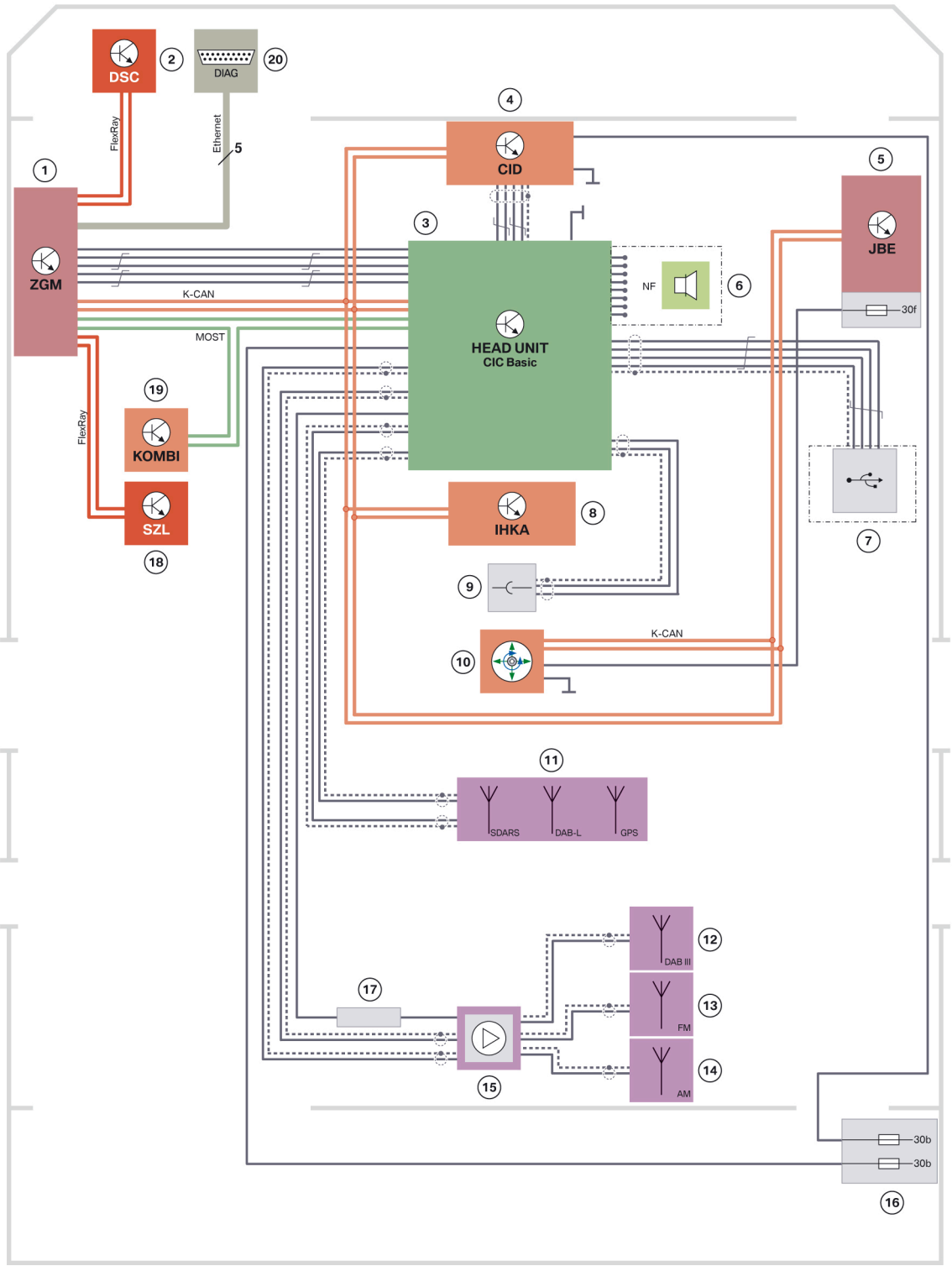
Index	Explanation
K-Bus	Body bus system
LIN-Bus	Local Interconnect Network
Local-CAN	Local Controller Area Network bus system
MOST	Media Oriented System Transport bus
MOST port	Media Oriented System Transport bus direct access
PT-CAN	Powertrain Controller Area Network
PT-CAN2	Powertrain Controller Area Network2

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Car Information Computer Basic

3. System overview.

3.2.3. System circuit diagram, Car Information Computer Basic in F01, F02, F07



System circuit diagram, F07, F01, F02

Car Information Computer Basic

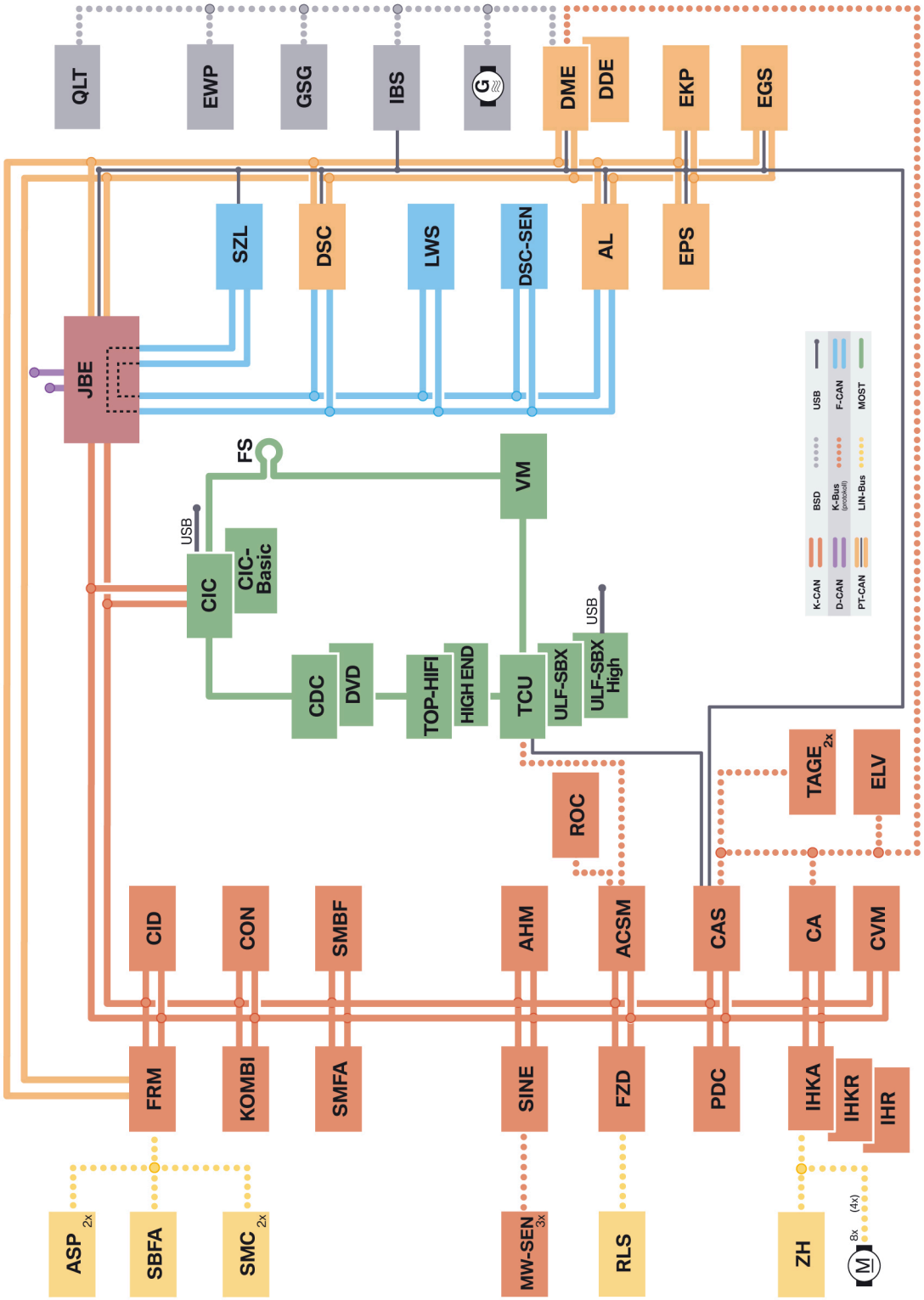
3. System overview.

Index	Explanation
1	Central gateway module
2	Dynamic stability control
3	Car Information Computer Basic
4	Central information display
5	Junction box electronics with power distribution box
6	Audio frequency output, vehicle speakers (stereo system)
7	USB connection in the glove compartment for importing navigation data
8	Integrated automatic heating/air conditioning system
9	Jack plug, audio frequency input in centre console for playback of audio files
10	Controller
11	GPS or DAB L band roof-mounted aerial (fin)
12	DAB band-3 aerial
13	FM aerial in the rear window
14	AM aerial in the rear window
15	Aerial diversity module with integral aerial amplifier
16	Rear distribution box
17	Wave trap, F07
18	Steering column switch cluster
19	Instrument cluster

Car Information Computer Basic

3. System overview.

3.2.4. Bus overview, E8x (without E83, E85, E86, E89) and E9x series, CIC Basic



TE09-0124

Bus overview, E8x (without E83, E85, E86, E89) and E9x series, CIC Basic

Car Information Computer Basic

3. System overview.

Index	Explanation
ASP	Outside mirrors
ACSM	Advanced Crash Safety Module
AHM	Trailer module
AL	Active steering
AMPH	Top HiFi system
CA	Comfort access
CAS	Car access system
CDC	CD changer
CID	Central information display
CIC	Car Information Computer
CIC Basic	Car Information Computer Basic
CON	Controller
CVM	Convertible softtop module
DDE	Digital Diesel Electronics
DME	Digital motor electronics
DSC	Dynamic stability control
DSC sensor	DSC sensor The lateral acceleration sensor and the rotation-rate sensor are combined in a common housing; the designation for this combined configuration is 'DSC sensor'
DVD	DVD changer
EGS	Electronic transmission control unit
ELV	Electric steering lock
EKPS	Electronic fuel pump control
EPS	Electronic Power Steering = electromechanical power steering
EWS	Electronic immobiliser
FS	Flash connector
FRM	Footwell module
FZD	Roof function centre
GSG	Preheater control unit
HIGH END	Individual High End audio system
IBS	Intelligent battery sensor
IHKA	Integrated automatic heating/air conditioning system
IHKR	Integrated heating/air conditioning system
IHR	Integrated heating system
JBE	Junction box electronics

Car Information Computer Basic

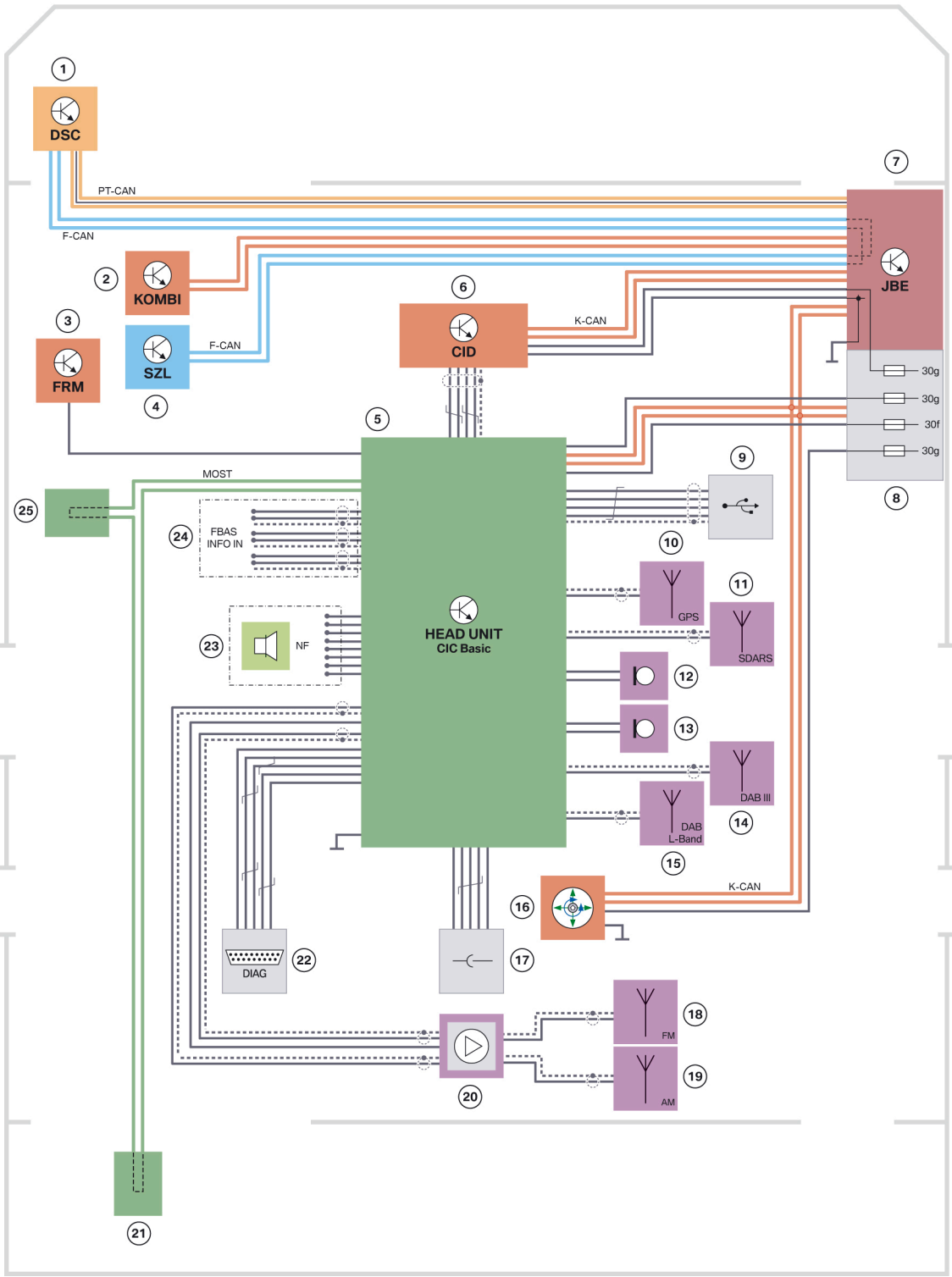
3. System overview.

Index	Explanation
KMP	Electric coolant pump
KOMBI	Instrument cluster
LWS	Steering angle sensor
MOST port	MOST direct access
PDC	Park distance control
QLT	Oil-condition sensor
RLSS	Rain-driving light-solar sensor
ROC	Rollover protection controller
SBFA	Driver's seat module
SINE	Siren with tilt alarm sensor
SMFA	Driver's seat module
SMBF	Passenger's seat module
SMC	Stepper motor controller
SZL	Steering column switch cluster
TAGE	Electronic outer door handle module
TCU	Telematics control unit
ULF-SBX	High-level interface box (Bluetooth telephony, voice input and USB/audio interface)
ULF-SBX-H	High-level interface box (Bluetooth telephony, voice input and USB/audio interface)
VM	Video module
ZH	Auxiliary heater

Car Information Computer Basic

3. System overview.

3.2.5. System circuit diagram for CIC Basic in the E8x (without E83, E85, E86, E89) series and E9x



System circuit diagram for CIC Basic in the E8x series (without E83, E85, E86, E89) and E9x series

Car Information Computer Basic

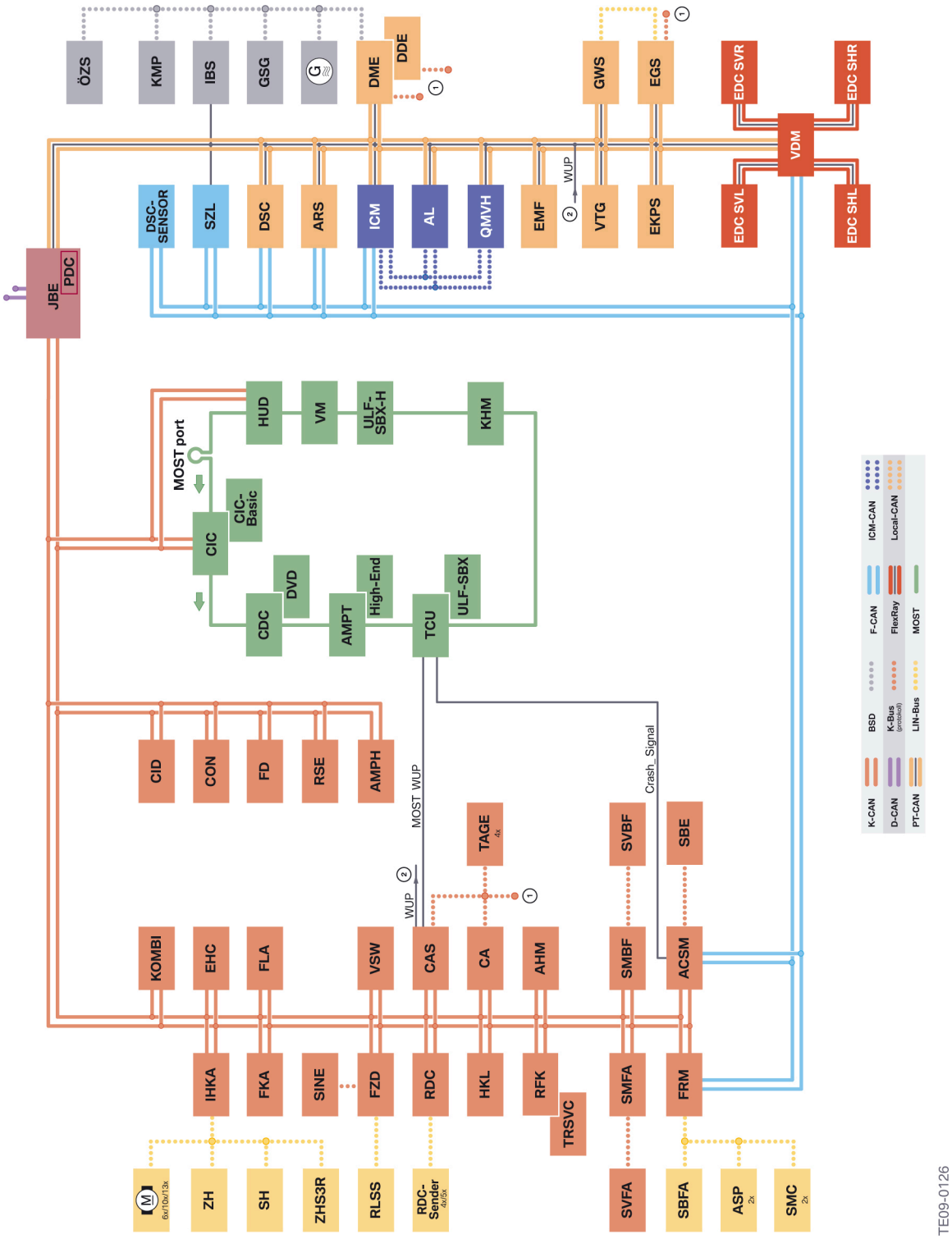
3. System overview.

Index	Explanation
1	Dynamic stability control
2	Instrument cluster
3	Footwell module
4	Steering column switch cluster
5	Car Information Computer Basic
6	Central information display
7	Junction box electronics
8	Junction box; power distribution box
9	USB connection in the glove compartment for importing navigation data
10	GPS aerial
11	SDARS aerial
12	Microphone, driver's side
13	Microphone, passenger side
14	DAB 3-band aerial
15	DAB L-band aerial
16	Controller
17	Jack plug, audio frequency input in centre console for playback of audio files
18	FM aerial
19	AM aerials
20	Aerial diversity module with integral aerial amplifier
21	MOST direct access, rear
22	Diagnostic socket
23	Audio frequency output for the loudspeakers (stereo system)
24	CVBS video signal input (Infotainment IN)
25	MOST direct access, f

Car Information Computer Basic

3. System overview.

3.2.6. Bus overview, E70, E71



Bus overview, E70, E71

Car Information Computer Basic

3. System overview.

Index	Explanation
ACSM	Advanced Crash Safety Module
AHM	Trailer module
AL	Active steering
AMPH	Hi-fi amplifier
AMPT	Top High-fidelity system
ARS	Active Roll Stabilisation (Dynamic Drive)
ASP	Outside mirrors
CA	Comfort access
CAS	Car access system
CDC	CD changer
CIC	Car Information Computer
CIC Basic	Car Information Computer Basic
CID	Central information display
CON	Controller
DDE	Digital Diesel Electronics
DME	Digital motor electronics
DSC	Dynamic stability control
DSC sensor	Dynamic Stability Control sensor The lateral acceleration sensor and the rotation-rate sensor are combined in a common housing; the designation for this combined configuration is 'DSC sensor'
DVD	DVD changer
EDC SHL	Electronic damper control, rear left satellite
EDC SHR	Electronic damper control, rear right satellite
EDC SVL	Electronic damper control, front left satellite
EDC SVR	Electronic damper control, front right satellite
EGS	Electronic transmission control unit
EHC	Electronic ride-height control
EKPS	Electronic fuel pump control
EMF	Electromechanical parking brake
FD	Rear compartment display
FKA	Rear compartment heating/air conditioning system
FLA	High beam assistant
FRM	Footwell module
FZD	Roof function centre
GSG	Preheater control unit

Car Information Computer Basic

3. System overview.

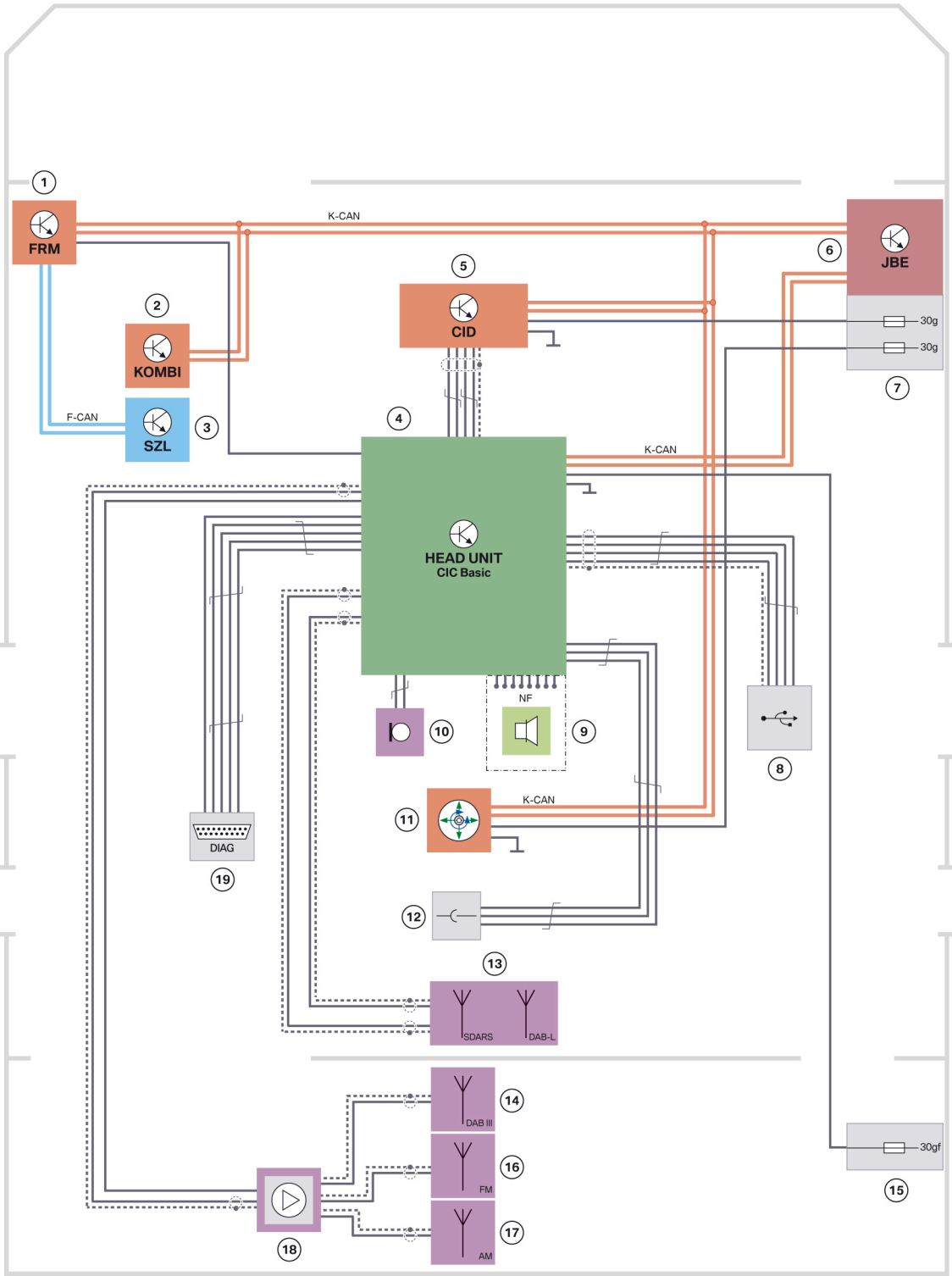
Index	Explanation
GWS	Gear selection switch
HKL	Rear lid lift
HIGH END	BMW Individual High End audio system
HUD	Head-up display
IBS	Intelligent battery sensor
ICM	Integrated Chassis Management
IHKA	Integrated automatic heating/air conditioning system
JBE	Junction box electronics
KHM	Headphones module
KMP	Electric coolant pump
KOMBI	Instrument cluster
ÖZS	Oil condition sensor
PDC	Park distance control
QMVH	Dynamic Performance Control
RDC	Tyre pressure control
RDC transmitter	Tyre pressure monitor transmitter
RFK	Reversing camera
RLSS	Rain-driving light-solar sensor
RSE	Rear seat entertainment
SBFA	Driver's switch cluster
ULF-SBX	Universal charger and hands-free unit (Bluetooth telephony)
ULF-SBX-High	Universal charger and hands-free facility, high-level interface box (Bluetooth telephony, voice input and USB/audio interface)
SBE	Seat-occupancy mat, passenger
SH	Auxiliary heater
SINE	Siren with tilt alarm sensor
SMBF	Passenger's seat module
SMC	Stepper motor controller
SMFA	Driver's seat module
SVBF	Passenger's seat adjustment
SVFA	Driver's seat adjustment
SZL	Steering column switch cluster
TAGE	Electronic outer door handle module
TCU	Telematics control unit
TRSVC	Control unit for the rear view camera and SideView

Index	Explanation
VTG	Transfer box (formerly VGSG - transfer box control unit)
VDM	Vertical Dynamics Management
VM	Video module
VSW	Video switch
ZH	Auxiliary heater
ZHS3R	Auxiliary heating control, 3rd seat row
Index	**Explanation**
1	CAS bus connection
2	PT-CAN wake-up line
BSD	Bit-serial data interface
D-CAN	Diagnosis-on-Controller Area Network bus system
F-CAN	Suspension Controller Area Network bus system
FlexRay	FlexRay bus system
ICM-CAN	Integrated Chassis Management Controller Area Network bus system
K-Bus	Body bus system
K-CAN	Body Controller Area Network
LIN	Local Interconnect Network
Local-CAN	Local Controller Area Network bus system
MOST	Media Oriented System Transport bus
MOST port	Media Oriented System Transport bus direct access
PT-CAN	Powertrain Controller Area Network
WUP	Wake-up line

Car Information Computer Basic

3. System overview.

3.2.7. System circuit diagram, CIC Basic, E70, E71



System circuit diagram, CIC Basic, E70, E71

Car Information Computer Basic

3. System overview.

Index	Explanation
1	Footwell module
2	Instrument cluster
3	Steering column switch cluster
4	Car Information Computer Basic
5	Central information display
6	Junction box electronics
7	Junction box; power distribution box
8	USB connection in the glove compartment for importing navigation data
9	Audio frequency output for the loudspeakers (stereo system)
10	Microphone, driver's side
11	Controller
12	Jack plug, audio frequency input in centre console for playback of audio files
13	DAB L-band aerial or SDARS aerial in roof fin
14	DAB band-3 aerial
15	Rear distribution box
16	FM aerial
17	AM aerials
18	Aerial diversity module with integral aerial amplifier
19	Diagnostic socket

Car Information Computer Basic

4. Functions.

4.1. System functions

4.1.1. Introduction

Overview of functions

The 'Functions' section provides an overview of the new, revised iDrive operating concept in comparison to the operating concept of the M-ASK. The **new features** in the eight existing selection menus are also discussed. The main focus of attention is on the new navigation-related functions.

You will find a detailed description of the individual functionalities of the CIC Basic in the Owner's Handbook for the vehicle.

4.1.2. iDrive operating concept

iDrive operating concept

The iDrive operating concept consists primarily of the two components Central Information Display (CID) and Controller. The user interface is controlled in the CIC Basic head unit.

Central Information Display (CID)

The display for the Car Information Computer Basic is the Central Information Display (CID), of which two different versions are used.

In the high-end models (BMW 7-Series, BMW 5-Series Gran Turismo), the CID has a screen diagonal of 7". The screen diagonal of the unit installed in the 1-Series and 3-Series BMWs and in the X5 and X6 models is 6.5". By comparison, the higher-level CIC Professional system installed in the high-end models (BMW 7-Series, BMW 5-Series Gran Turismo) will have a CID with a screen diagonal of 10.25", and the CID installed in the 1-Series, 3-Series, X5 and X6 will boast a screen diagonal of 8.8".



7" display installed in an F01.

The number of **pixels** has changed, and this is a big difference from the M-ASK.

The CID of the M–ASK had a resolution of 400x240 pixels, whereas the CID of the CIC Basic has a much better resolution of 800x480 pixels. Again by way of comparison, the CID of the CIC Professional has a resolution of 1280 x 480 pixels.

Car Information Computer Basic

4. Functions.

The display of the Car Information Computer therefore exhibits much improved image quality immediately perceptible to the customer.

The graphic layout of the user interface has been totally redesigned in comparison to the M-ASK.

Controller

The second hardware component of the BMW iDrive system is the controller.



Controller

Index	Explanation
1	Direct access button, Radio
2	Direct access button, CD/Multimedia
3	Direct access button, Main menu
4	Direct access button, Telephone
5	Direct access button, Navigation
6	Direct access key Options submenu
7	Direct access button, Back (always to the view perviously selected)

The new controller has been completely redesigned compared to the M-ASK controller.

The most noticeable new feature of the CIC controller are the **seven direct access buttons**.

Car Information Computer Basic

4. Functions.

It is now possible to access the following menus directly:

- Main menu
- CD/Multimedia
- Radio
- Navigation
- Telephone.

The following menus can still only be selected from the main menu, i.e. with no direct access:

- Contacts
- BMW Services
- Vehicle information
- Settings.

The ”Back” button is pressed to go back to the last display view. Up to 30 ”back” steps are possible with this button.

The option button makes it possible to make fine adjustments or carry out special functions in the submenu last selected.

The direct access buttons replace the ”long push” function. With this function is was possible to change from a submenu directly to another submenu in the M-ASK by pushing the controller in the corresponding direction for at least two seconds.

The respective submenus are now selected directly by pressing the CD/multimedia, radio, navigation or telephone buttons twice.

Comparison between the M–ASK and CIC Basic operating concepts

The operating concept of the M-ASK has been modified and further developed. The star-shaped operating concept of ”Turn-Press-Push” of the M-ASK has been further developed in the CIC. The submenus in the main menu now have a linear arrangement in lists. One of the listed submenus can now be highlighted with the **”turn”** function in the start window menu. The selected submenu is then accessed by using the **”press”** function. Several submenus can now also be selected by means of the direct access buttons on the controller. The **”push”** function is now used to further navigate in the submenu. The windows of the selected submenus are arranged horizontally one above the other. The following table shows a comparison between the previous menu items of the M-ASK and the menu items of the CIC.

Car Information Computer Basic

4. Functions.

M-ASK main menu	CIC Basic main menu
	

Communication	**Telephone**
Telephone	Telephone
A-Z	Telephone/Phonebook
Not present	**Contacts** (imported/self-entered contacts)
Communication	**BMW Services**
BMW Services – BMW Assist	BMW Assist
BMW Online	BMW Online
Navigation	**Navigation**
On-board information, BC	**Vehicle information**, onboard computer
Air conditioning (climate control)	**Settings,** climate control
Entertainment	**CD/Multimedia**
CD, DVD, CDC	CD, no DVD, CD-C, DVD-C
Radio (FM, AM, DAB)	**Radio** (FM, AM, DAB)
"i" settings	**Settings**
Audio	Sound
Display screen	Central screen
Time/Date	Time/Date
Language	Language/Units
Vehicle/Tyres	**Vehicle information**/Vehicle status
"i" – information sources – service	**Vehicle information**/Vehicle status

4.1.3. CD/Multimedia

CD/Multimedia selection menu

In terms of their functionality, the "CD/DVD", "External devices" and "Sound" submenus in "CD/Multimedia" are similar to the **"Entertainment"** iDrive menu of the M-ASK.

The view for menu selection, however, has been brought into alignment with the iDrive operating concept, in other words the individual levels now slide one over the other when selected. The CIC Professional accesses a DVD drive, but the drive in this case is a CD drive. The drive is suitable for playing CD (digital audio) media. The MP3 and WMA formats are supported, as are the iTunes AAC (m4a) formats. Problems with DRM protection can be encountered with the iTunes AAC (m4p) formats. If this happens one remedy is to burn a digital audio CD with the tracks originally protected by this format.
The following contents are **not** supported: audio format audio DVD; video formats: video DVD, VCD, SVCD. The contents of a DVD inserted in the **DVD changer** can be played back. In the case of video DVDs, only the soundtrack can be played back.

The CIC Basic does **not** include implementation of a music collection function of the kind implemented in the higher-quality CIC Professional head unit.

The individual submenus are described in detail in the Owner's Handbook for the vehicle.



CD/Multimedia selection menu

4.1.4. Radio

Radio menu

Along with FM and AM, the 'Radio' menu also includes the digital radio versions DAB (for the European market) or the IBOC system for the US version. In the US version this menu also includes a menu item for selecting SDARS Satellite radio.

Car Information Computer Basic

4. Functions.



Radio menu

FM stations

The layout of the menu entitled
”FM stations” has been adapted to the new operating concept. The double tuner for the FM frequency band keeps the list of stations updated while the radio remains tuned to the currently selected station.



List of stations, FM stations

In a manual search, a knob that is operated by means of the iDrive controller can be turned to find the correct station.

AM stations

A double tuner now makes it possible to receive the **”All stations”** list in the AM range.No station information can be displayed, however, as RDS data is not transmitted for AM.

Car Information Computer Basic

4. Functions.



List of stations, AM stations

As in the FM range, a manual search is a matter of turning the knob with the iDrive controller. Turning the selector wheel past the end of the range changes reception to a different frequency range (SW, MW).



Selecting MW a manual AM station search

DAB

The DAB tuner module (band III and L band) is inside the housing of the CIC Basic. In the M-ASK implementation, these modules were separate control units.

The single tuner makes it possible to view the receivable stations (list of stations) after the "Station search" function has been selected. The "All ensembles" list then can be chosen or a particular ensemble selected and updated accordingly (stations in reception area).

Car Information Computer Basic

4. Functions.

The term ensemble refers to a group of stations that contains several services (e.g. Bayern: BR Bayern 3, Deluxe Radio, Radio Galaxy etc.).



Station search menu

Following a successful station search, both the L-band stations (regional) and the band III stations (cross-regional) are listed under "All ensembles", complete with the associated services in a single view. This simultaneous display of all L-band and band III ensembles and services found in the station search is something that enables this unit to offer customers significantly more added value than the M-ASK.



DAB ensembles list

The M-ASK could display only one ensemble at a time. After covering a certain distance in a car equipped with the CIC Basic, the driver should repeat the station search so that the list of stations can be updated again. Automatic updating of the list of stations would be possible only with a second DAB tuner, which of course is the configuration in the CIC Professional.

Car Information Computer Basic
4. Functions.

In Band on Channel (IBOC) (digital decoder, US)

In the US version of the CIC Basic, the IBOC system (option code 653) is offered as the digital audio system.With the introduction of the CIC, the control unit of the IBOC system (In-Band-On-Channel) has been integrated in the head unit as the IBOC decoder.

The IBOC system was developed by the Ibiquity company and, with the aid of a decoder, enables the reception of HD radio (High Definition) through the FM/AM double tuner. The simulcasting system, as it is known, (= simultaneous broadcasting) simultaneously broadcasts an analogue and a digital signal.

An oscilloscope would show the digital components at both sides of the analogue wave of the FM frequency (step shape).The IBOC system receives the signals with the aid of the FM double tuner module.

These signals are then routed to the IBOC decoder which adds the digital data stream to the audible music signals.

Satellite Digital Audio Radio Service SDARS

Option code 655 ”Satellite tuner” is offered in the US version only. This tuner makes it possible to receive digital radio signals thus enhancing the AM and FM range.

Advantages of digital satellite radio:

- Reception of the same station across the entire continental USA (exception: Alaska)
- Digital reception of music, news and talk shows
- Diversity of the selectable musical genres, no interruptions for commercials
- More interference immunity because of digital signal transmission.

For the first time, the satellite tuner is integrated **in** a head unit of a BMW car, in this case the CIC Basic. Paralleling the introduction of the CIC Basic, the high-end CIC Professional will also be available with the satellite tuner installed in the head unit. The SDARS system is designed for the subscriber service offered by the Sirius Satellite Radio company (http://www.sirius.com).

Stored stations

Under the menu item ”Stored stations”, the required stations from all frequency ranges can be stored in a common menu and then selected at a later point.

The following frequency ranges are available for storage:

- FM
- AM (SW, MW)
- Digital radio versions

DAB (L-band, band III), IBOC (US version)

- Satellite radio SDARS (US version)
- Weatherband (US version).

4.1.5. Telephone

Telephone menu

”Messages” for receiving text messages (SMS) and ”Bluetooth” as a pairing assistant are two functions integrated into the ”Telephone” menu.



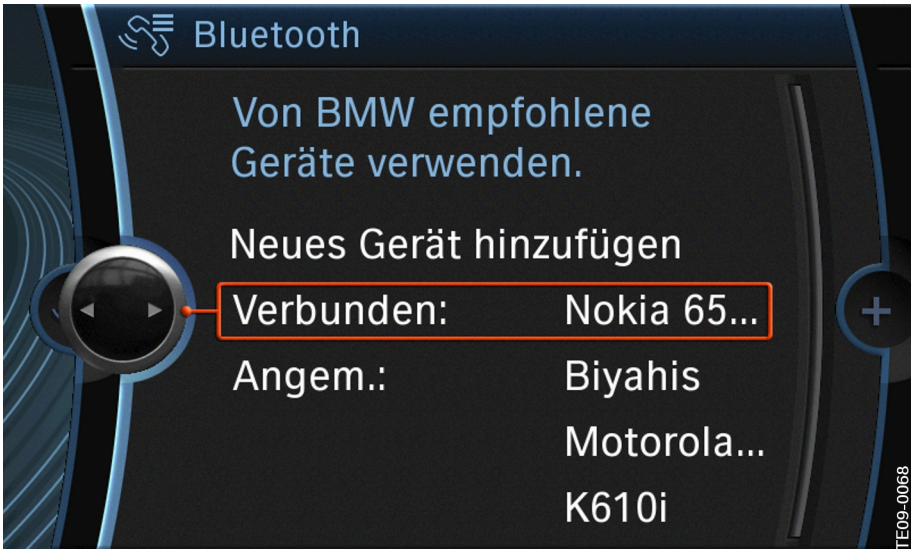
Telephone menu

Bluetooth pairing assistant

The pairing assistant for Bluetooth connectivity is used to pair mobile phones with the vehicle. After selecting ”Add new device” the identification number of the vehicle is shown in the display. The pairing assistant now receives the message that it is necessary to proceed with the mobile phone. A search for new Bluetooth devices is now conducted on the mobile phone. If the search was successful, the identification number of the vehicle will be shown in the mobile phone display.

A freely selectable PIN-CODE must now be entered in the mobile phone which must then be repeated in the vehicle.

Up to four mobile phones in all can be paired. It is important to bear in mind that at any given time, only one of the four paired phones can be connected to the vehicle. Once this connection has been disconnected in the ”Options” menu, another mobile phone can be selected from the list of paired phones. If another mobile phone has to be paired (a fifth phone, in other words), one of the mobile phones originally paired must be removed from the list.



Once a phone has been successfully paired to the vehicle, the **phone book and "Contacts" menu** show the corresponding data from the paired mobile wireless device. The process can take anything from a few seconds to several minutes to complete (> 100 entries). Along with the entries in the vehicle's own memory, the phone numbers, names and even the address data (depending on the mobile phone compatibility matrix) stored in the mobile phone are displayed.

4.1.6. Navigation

Selection menu

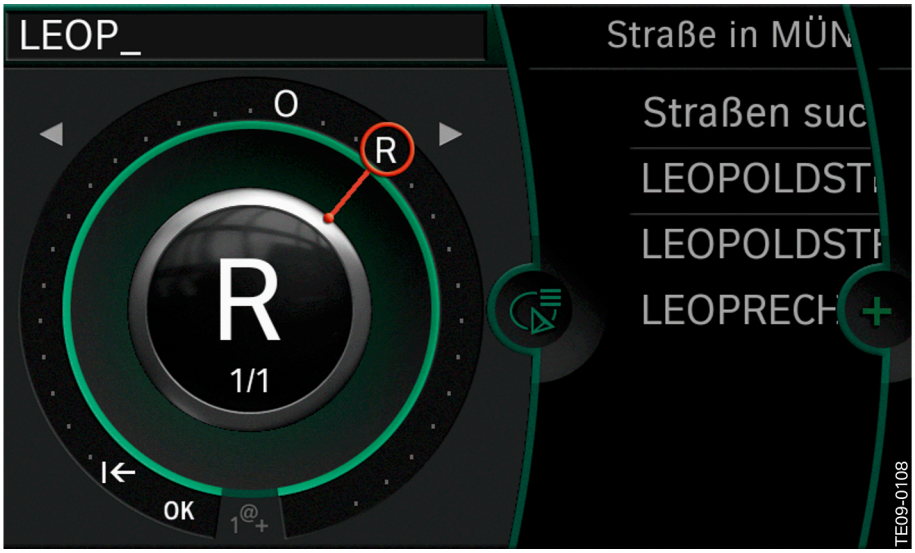
In terms of content, the "Navigation" menu is very closely oriented toward the counterpart menu familiar from the M-ASK. The improvements relate primarily to display, performance and the destination input functionality.



Navigation menu

Car Information Computer Basic
4. Functions.

Destination entry



Destination-entry assistance on the wordmatch principle (speller)

The speller uses the wordmatch principle to make entering destinations all the easier. Possible word-match destinations from the database are flashed up automatically on the screen.

Navigation destinations can also be entered based on their postal code using the **1@+** symbols.

On account of the lack of space, there is no assistant window showing destinations implemented in the CIC Basic. This feature remains the preserve of the CIC Professional (option code 609, Navigation system Professional).

Compared to the M-ASK, entering the destination using the voice recognition system has been made considerably easier.
Many new commands are now possible using the voice recognition system.

Map views

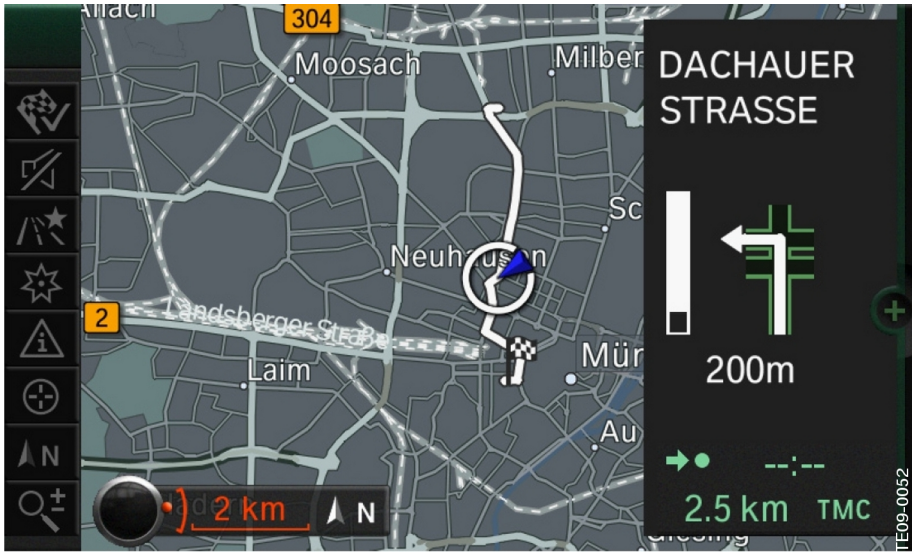
The map view can be selected in the icon bar on the left half of the screen.

The following maps can be selected:

- North-up
- Perspective
- Direction-up
- Arrow display.
- Arrow display on map.

Car Information Computer Basic

4. Functions.

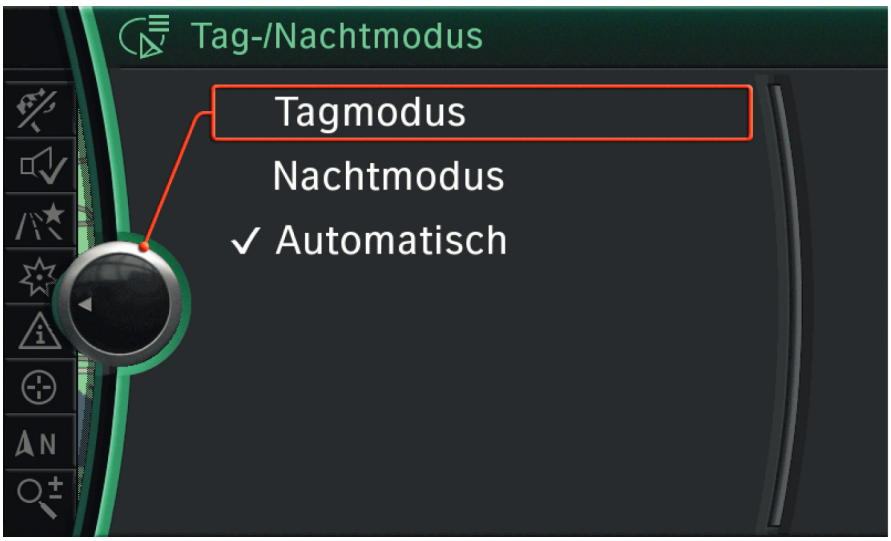


Special "Arrow display on map" viewing mode

The "Arrow display on map" function offered for the CIC Basic can be activated in the Options menu.

Night mode

A night view for map presentation can be activated under Options - "**Map Options**". There is a choice of three options, namely "Day mode", "Night mode" and "Automatic". If "Day mode" or "Night mode" is selected, the settings are adopted until the selection is changed. If "Automatic" is selected the night mode is activated via the MOST bus by a message from the instrument cluster. This "Automatic" is an option only in the BMW 7-Series models and in the BMW 5-Series Gran Turismo. The activation message is generated when "Darkness" is reported by the rain/light sensor via the roof function centre and by the LED in the instrument cluster.

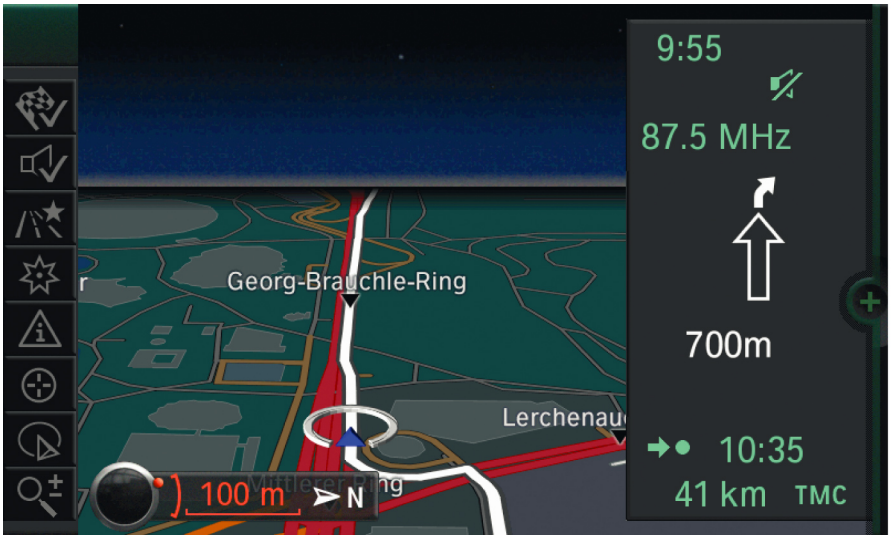


Map options menu

The night mode view uses colours that are very easy on the eye in dark conditions.

Car Information Computer Basic

4. Functions.



Navigation night mode

Map update

1. Customer update – data import via the USB Import/Export port in the glove compartment

The navigation data can be uploaded from a USB stick plugged into the special USB port in the glove compartment.



USB import interface in the glove compartment for uploading navigation data

This update option for map data is intended specially for use by the customer. The map data are saved on a USB stick and the medium is offered for sale by BMW Parts Sales. The data are subsequently imported by the customer and in this process they are flashed to the flash memory in the CIC Basic. In terms of its configuration, this flash memory is comparable to an SD card. The SD card (also known as NAND memory in technical parlance) is a very common type of flash memory in widespread use today.

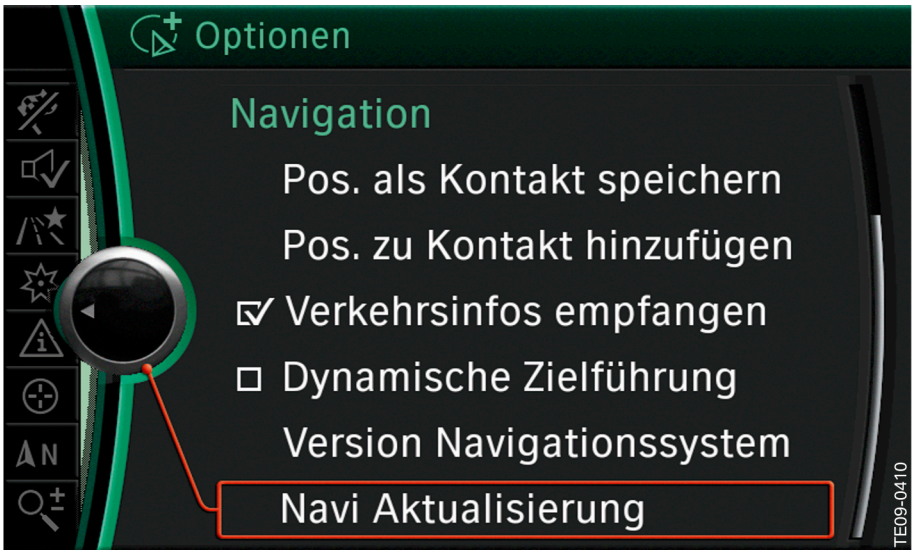


It is important to note that the car has to be on the move or the engine has to be running in order for the map data to be updated correctly. By default, the map data is updated only when the engine is running in order to ensure that the power supply is not interrupted before the process is completed.

If the map data is updated in this way in the workshop as a service for the customer, it is absolutely essential to ensure that a battery changer remains connected and switched on for the duration of the process. Furthermore, a test module in the BMW diagnostic system has to be activated to enable updating of the map data for a **vehicle when stopped**.

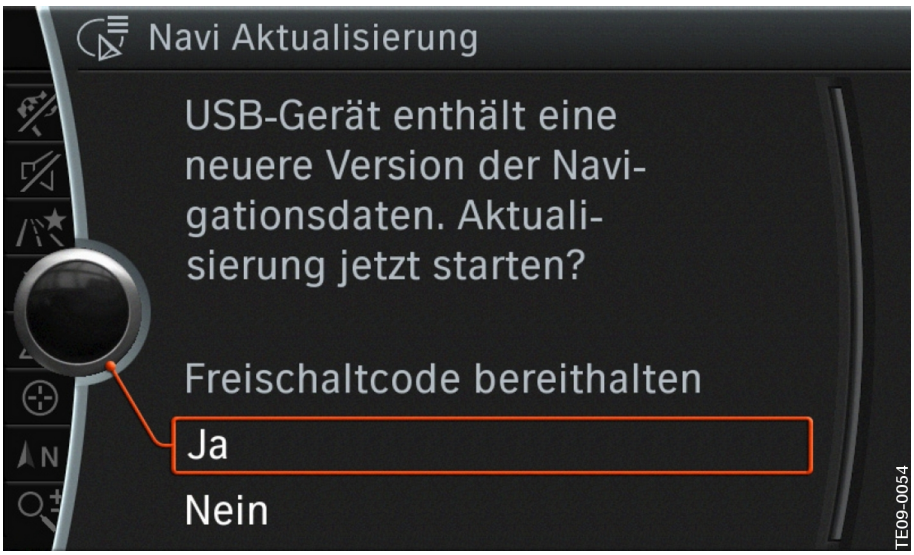
Selection in the Options menu

Map update can be selected from the Options menu in navigation.



Options menu in navigation

The update procedure can then be started. The enabling code is contained in a PDF file that the customer obtains on purchasing the USB stick. The data for this code are downloaded from the AfterSales Assistance Portal (ASAP).

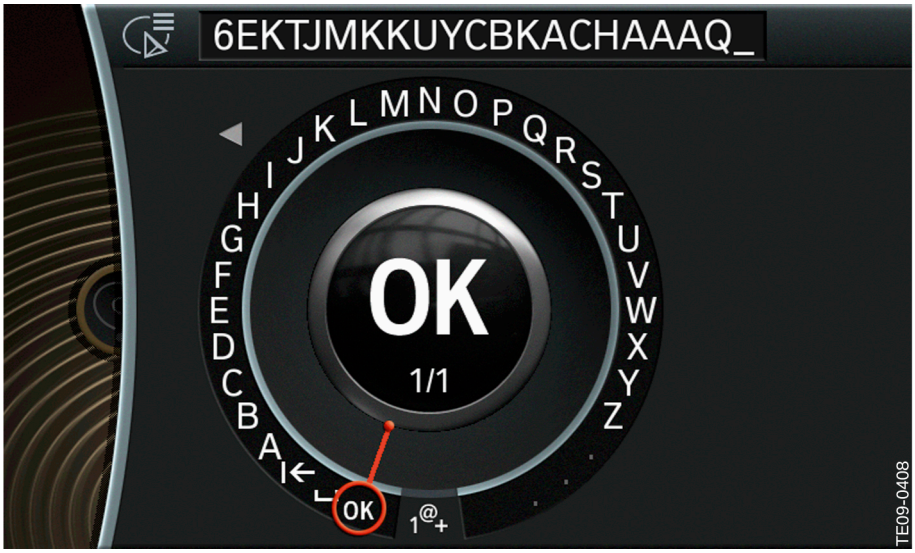


CID display while map-data update is in progress

The enabling code then has to be keyed in with the speller.

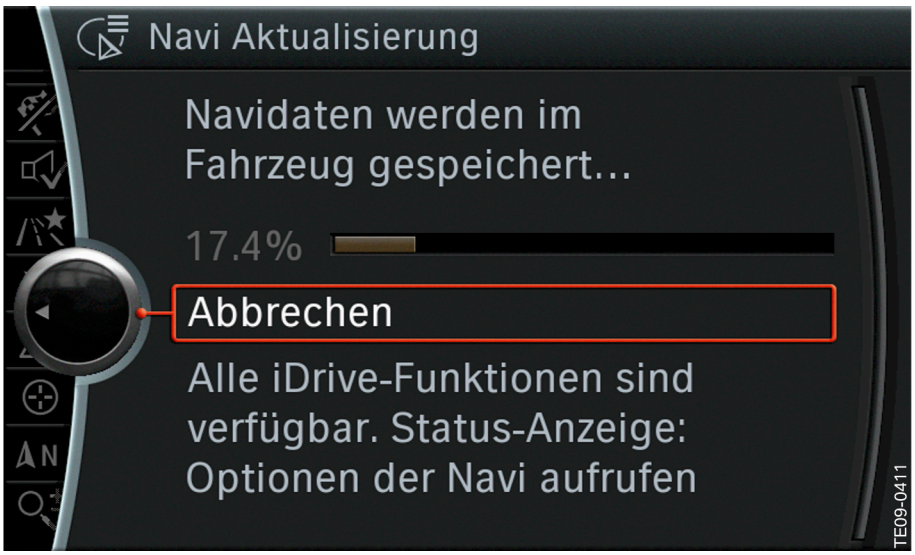
Car Information Computer Basic

4. Functions.



Using the speller to enter the enabling code

Once the code has been entered correctly, the map data is automatically uploaded to the flash memory of the CIC Basic.



Successful entry of the enabling code and start of the update process

2. Dealer update of the navigation map data using the BMW programming system

In BMW service dealerships, the standard practice for updating map data is to use the BMW programming system ISTA/P.

Correct preparation and finishing are absolutely essential for correct programming/coding.

See the instructions on preparation and finishing for programming/coding in the ISTA/P system.

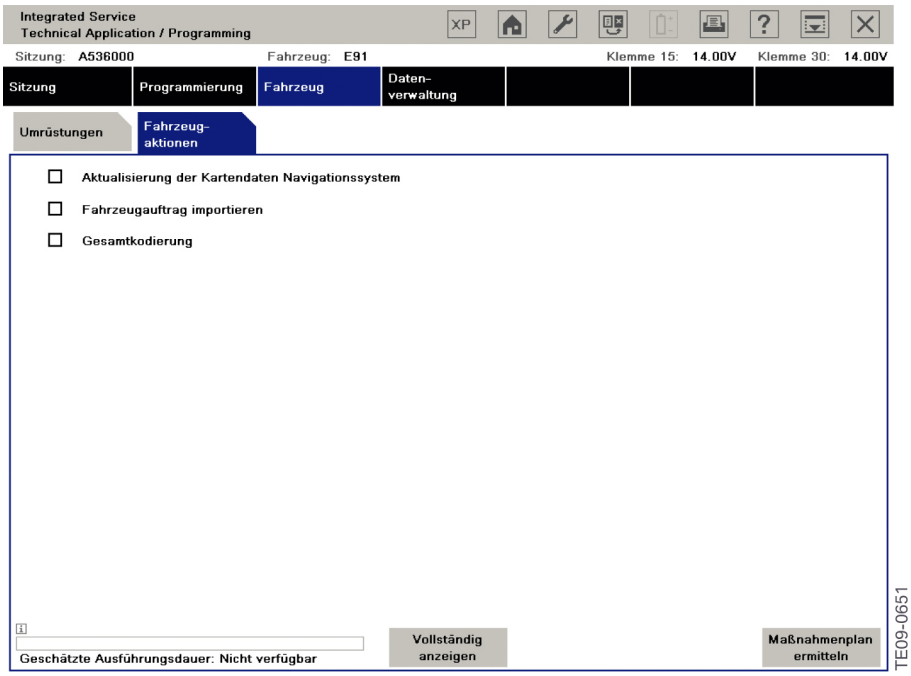
Connecting a battery charger is one of the essential **preparations** for the programming procedure.

Furthermore, the CD drive as to be **emptied** before programming starts.

A medium **left in the CD drive** could hinder the flash process.

Starting the programming procedure:

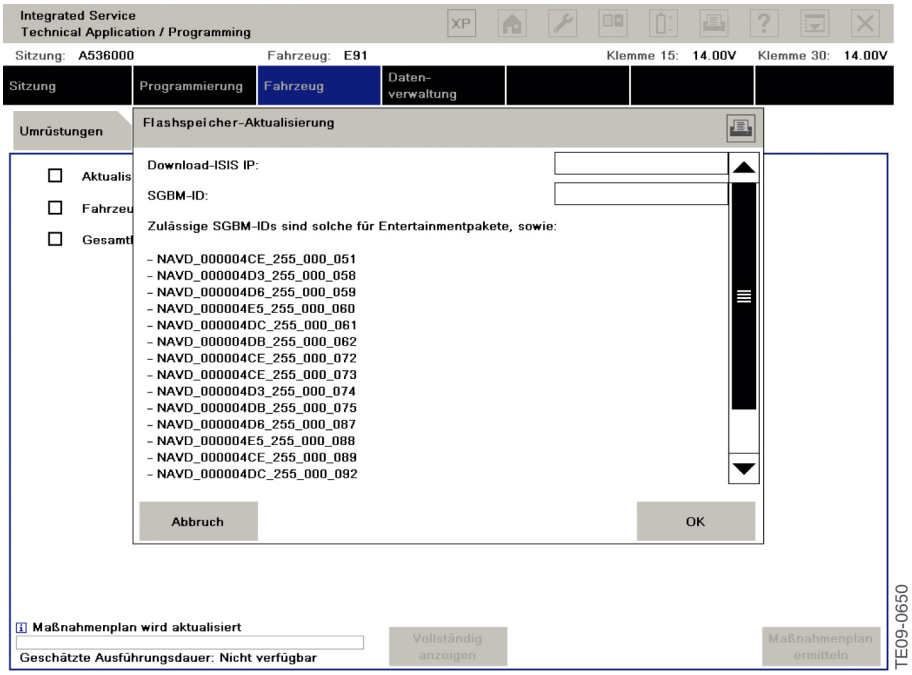
In ISTA/P, select the ”Vehicle actions” module from the ”Vehicle” tab. Check the box at ”Update of the map date”.



ISTA/P update of the map data

The following steps in the procedure (defining a measures plan, etc.) are much the same as in a standard programming routine. The next step is to transfer the map data from the ISIS server to the BMW programming system ISTA/P.

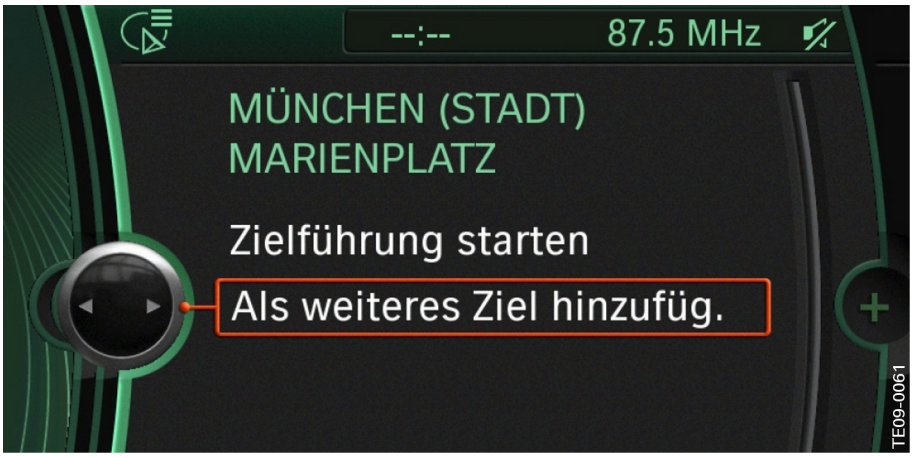
Car Information Computer Basic
4. Functions.



Once the data has been loaded, a click on the ”OK” button copies the data to flash memory in the CIC Basic.

Trip/route planner

Up to 30 stages can be entered when selecting a destination with the route planner.



Adding a stage destination

The trip planner is **no longer** in the Options menu for navigation. Now, when a destination is entered a dialog enables the user to decide whether to generate a route or use direct route guidance.

The individual stages are then marked by the flags of the stage destinations in the map view or the sorting view.



Sorting a new stage destination into place

The sort order of the destinations can be changed at any time. Route guidance is then corrected in accordance with the new sort order.

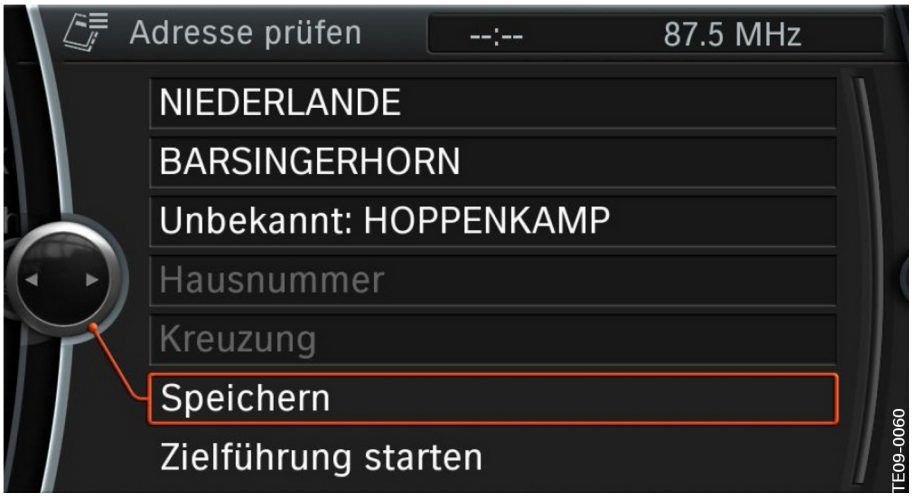
4.1.7. Contacts

Options

The ”Contacts” menu is a database for administrating names, addresses, phone numbers and Internet addresses.
This central address database is the repository for data that can be viewed in both the phone book and the navigation views.

The phonebook data are transferred via the currently paired mobile phone using a PBAP protocol (Phonebook Access Profile). This requires the use of a mobile phone that supports PBAP.

The latest information is posted in the Bluetooth matrix at: http://www.bmw.de/bluetooth in the column headed ”Address import”.



Address-validation process for addresses from the mobile phone

The Option menu contains an item for checking contacts imported from a phone book in a mobile phone and then accepting them as destinations for navigation.

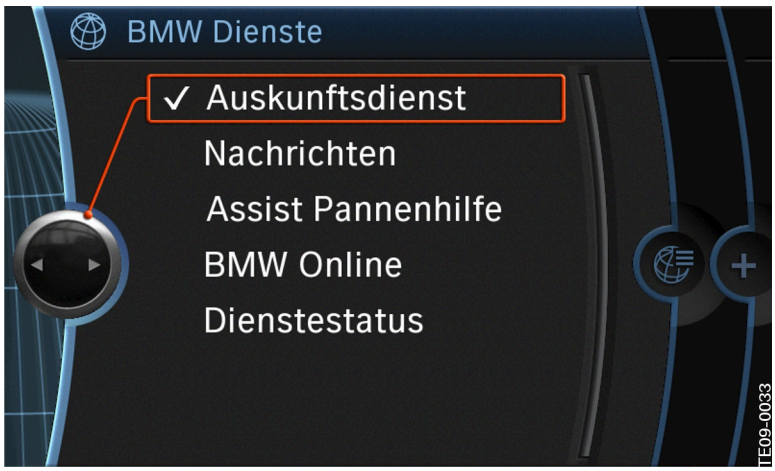
The imported entries are identified by the Bluetooth icon next to the telephone entry. An option for exporting all contact data back into the mobile phone is not planned.

Contact data from the mobile phone can be edited and added to in the vehicle. They will then be available in the vehicle under "My contacts" even if no mobile phone is used.

Entries made under "New contact" are retained even if the telephone is no longer paired to the vehicle and can be edited at any time. Initially, these contacts are shown without a symbol. A navigation symbol is added at the end of the entry when an address has been added.

4.1.8. BMW Services

Selection menu



BMW Services menu

Car Information Computer Basic
4. Functions.

The BMW Services menu provides access to a multiplicity of BMW services. The precondition is that the vehicle must be fitted with a Telematic Control Unit (TCU). The TCU uses a separate SIM card in the control unit to set up a data link to the appropriate BMW service provider (currently T-Mobile).

BMW Assist (option code 612) and BMW Online (option code 616)

The BMW telecommunications services

- BMW Assist
- BMW Online
- BMW Teleservice.

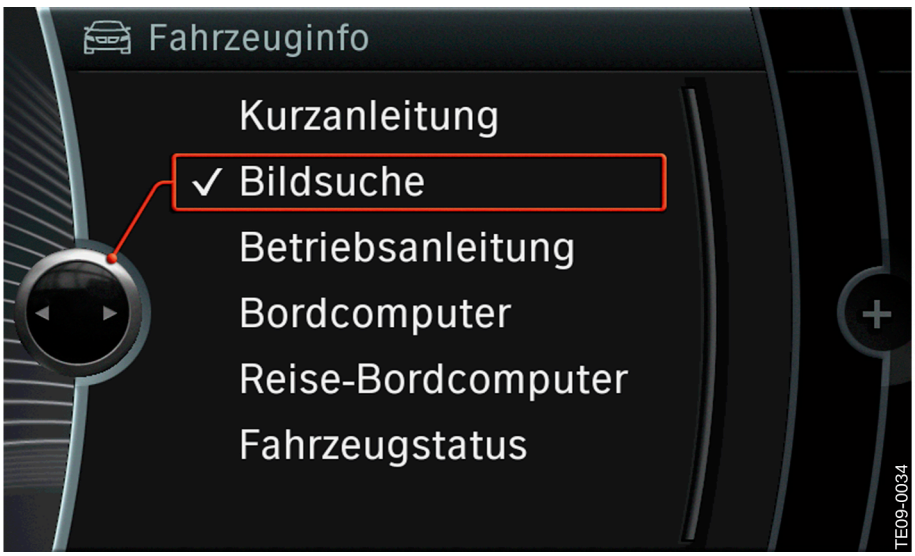
have been adapted to the current operating concept now that the CIC Basic has been introduced. **ConnectedDrive** is the generic term for all BMW telecommunication service offerings.

These ConnectedDrive services are country-specific, so they are not yet available worldwide. Expansion is progressing, however and planning for 2009 envisages availability of these services in Spain, Kuwait, Australia, Canada and the United Arab Emirates.

4.1.9. Vehicle information

Selection menu

The items in the "Vehicle info" menu include the on-board computer and the journey computer. In the past, both these functions were in the "Navigation" menu of the M-ASK user interface. "Vehicle status" provides access to service-relevant topics such as tyre initialisation, engine-oil level and Condition Based Service data (CBS).



Vehicle info menu

Car Information Computer Basic

4. Functions.

Owner's Handbook

The CIC Basic is the first head unit of a Business navigation system to have an **Interactive Owner's Handbook** stored in memory. In terms of data volume, the contents were adapted to the memory capacity reserved for the Owner's Manual. In contrast to the CIC Professional, in the CIC Basic the contents are displayed without audio and video animation (Interactive Owner's Handbook Light).



On-board computer and journey computer

The following parameters are shown in the **Onboard computer** menu:

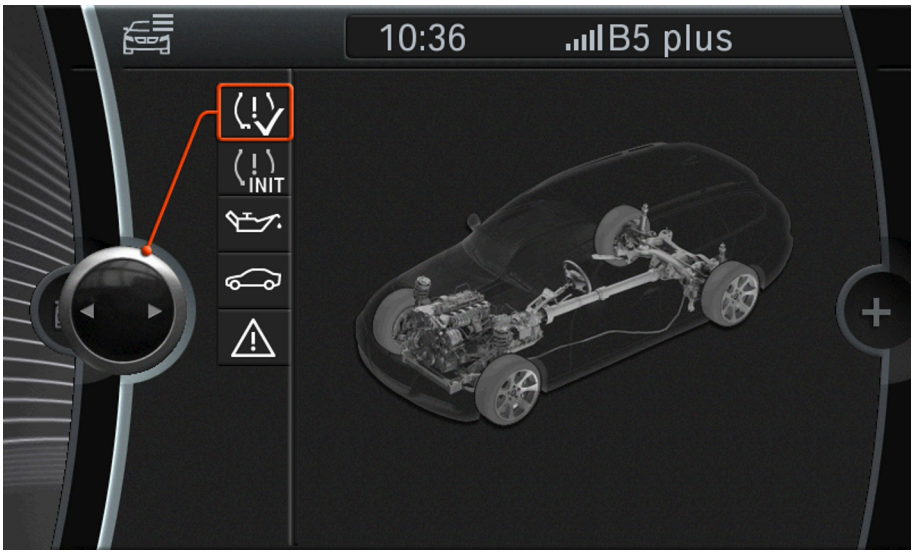
- Arrival time
- Distance to destination
- Range
- Average fuel consumption
- Average speed.

Vehicle status.

The functions

- RPA (tyre failure indicator)
- RPA initialisation
- Oil level
- Condition Based Service data
- Check Control messages

are represented in a graphic 3D view under Vehicle info.



Status, tyre initialisation

4.1.10. Settings

Selection options

The following settings can be edited under the Settings submenu:

Head-up display	Brightness
Central screen	Brightness
Time/Date	Time, date, format
Language/Units	Languages
	Voice dialog: Standard/Short
	Consumption: l/km, km/l, mpg
	Distance travelled: km, mls
	Temperature: °C, F
Sound	Trebles, basses etc.
	Volume adjustment: Speed Volume
	Equaliser for Top HiFi system (option code 677)
	Volume adjustment: Navigation
	Volume adjustment: PDC
	Volume adjustment: Gong
Limit	Setting limit, acceptance limit
Air conditioning (climate control)	Auxiliary heating, auxiliary ventilation
Lights	Home lights

Car Information Computer Basic
4. Functions.

	One-touch indicators
	Daytime driving light
	Welcome light
	High beam assistant
Door locking	Remote control key, lock automatically etc.
Rear lid	Adjust opening angle

Language/Units

The menu item: ”Settings” - ”Language/Units” opens a picklist with a choice of

three different languages as standard.

The following languages are stored in flash memory:

- German
- French
- English.

The 7-Series models and the 5-Series Gran Turismo offer a choice of 10 languages. Along with the display language, now for the first time the
input and output language of the voice processing system
is also changed.

In the voice processing system, the
M–ASK command ”Options” has been renamed ”Voice options”.

This is on account of the new **”Option menu”**, accessed through the ”Options” command.

Beeps can no longer be heard between the individual dialogue steps.

It is possible to choose between **Standard** and **Short** voice dialogue.

Example:

Standard dialogue:

SYSTEM: ” Please name the town”

USER: ”Munich” - shown on display

SYSTEM: ”Name the number of the correct entry or say new entry”.

USER: ”Entry one”

Short dialogue:

SYSTEM: ”City”

USER: ”Munich” - shown on display

SYSTEM: ”Which entry”?

USER: ”One”.

New for destination entry by voice input is a structured selection menu for identifying the correct entry by means of its number. From 09/2009 onward, CIC Basic and CIC Professional will show a list with numbers to facilitate the user's choice.



Destinations displayed in a numbered list

4.1.11. Favourite buttons

Options

The customer has eight favourite buttons available in the Europe version of the CIC. In the US version, the number of freely selectable favourites buttons is reduced to six.

The buttons have two operating modes:

- Short touch:
  Activate button assignment
- Long press:
  Store function currently shown in the CID.

The long press function stores:

- The desired audio media:
  radio station, CD, DVD changer access
- Navigation destinations:
  However, they must already be stored under ”Contacts” or entered from ”Last destinations”.
- Phone numbers
- Pages of the Interactive Owner's Handbook.

New here is the
option of assigning all submenus such as ”Navigation”, ”Vehicle info” or ”Online services” to favourites buttons.

Car Information Computer Basic

5. System components.

5.1. Views

5.1.1. Front view/control panel



IHKA/audio control panel in the F07

Index	Explanation
1	Rotary pushbutton for controlling volume of audio system (ON/OFF switch)
2	European version TP = Traffic Program (traffic announcements ON/OFF)
3	MODE button for toggling between the various audio sources
4	CD player slot
5	Eject button for the CD drive
6	Station search/track ”forward/back”
7	Favourites buttons 1-8.

Advantages of the Car Information Computer Basic

Combining several modules in one enclosure gives rise to the following advantages:

- More functionalities by combining several systems
- Outstanding software expansion options through suitable software interfaces
- Fewer plug connections means fewer potential sources of fault
- Less package space required for control units.

Car Information Computer Basic

5. System components.

Design

The design principle of the CIC Basic corresponds to that of a personal computer. Like a PC, the Car Information Computer contains: processor, RAM (= working memory) and other periphery components. The following applications are stored in flash memory integrated into the CIC Basic:

- Navigation software (application)
- Navigation (map material)
- iSpeech (voice recognition system)
- Contacts (database with address data).

The CIC Basic is the central control unit for the listed applications. The CIC Basic is linked to the Central Information Display for the purpose of transmitting picture signals. Furthermore, the CIC Basic is connected to the Controller by the K-CAN for user guidance.
The controller serves as a selection and input device for the user interface.

The CIC Basic is based on a modular design. The most important systems of the communication network are integrated in the CIC in the form of modules.

The CIC Basic combines the following control units in one enclosure:

- Navigation computer, HIP module and yaw rate sensor
- Tuner (FM)
- Tuner (AM)
- DAB tuner (L-Band & Band III)
- IBOC decoder (US only)
- SDARS tuner (US only)
- Audio system controller,
- MOST-CAN gateway (1-Series, 3-Series, X5 and X6 only)
- Interface to control display (LVDS).

When the enclosure is opened, the **CD drive** of the CIC Basic immediately catches the eye.

The drive is suitable for playing CD (digital audio) media. The MP3 and WMA formats are supported, as are the iTunes AAC (m3a, m3p) formats. The following contents are **not** supported: audio format audio DVD; video formats: video DVD, VCD, SVCD. The contents of a DVD inserted in the **DVD changer** can be played back. In the case of video DVDs, only the soundtrack can be played back.

A permanently installed flash memory is used to store the map data for navigation.

The processors for the main board and application board are located on the printed-circuit board. Main memory, the individual modules and the NAND flash memory are also integrated.

Together with the controller and CID, the CIC Basic makes up the BMW iDrive system.

Car Information Computer Basic

5. System components.

Versions

A total of two different national-market versions are available for the Car Information Computer Basic in the BMW 7-Series, 5-Series Gran Turismo, 1-Series, 3-Series, X5, and X6. The versions are distinguished by the differences in button assignments in the favourites bar.

BMW 7-Series and 5-Series Gran Turismo

The illustration below shows the CIC in the various country versions for the **7-Series and 5-Series Gran Turismo**.



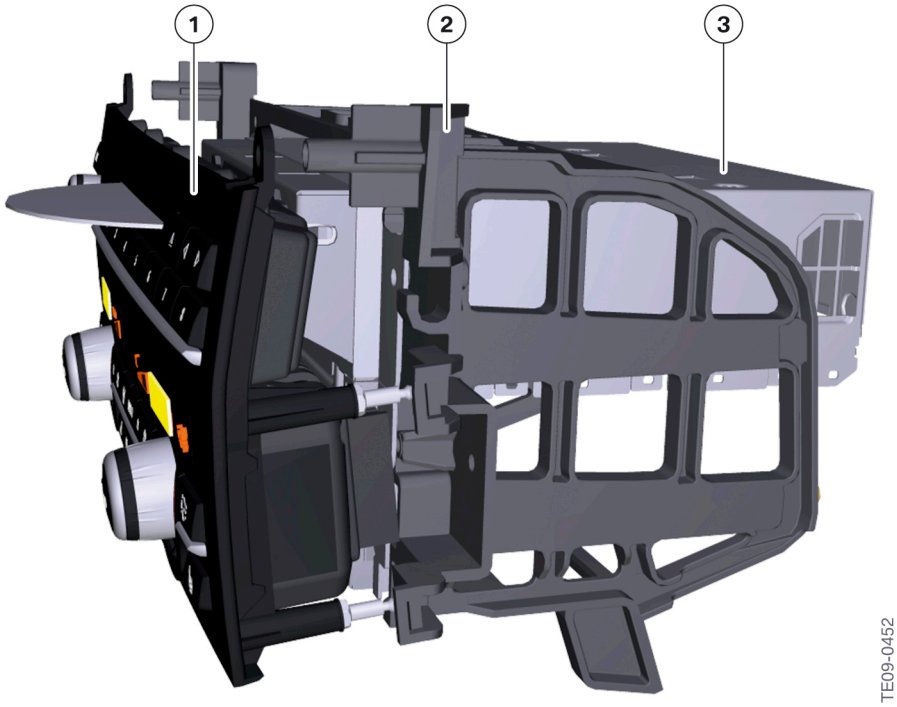
IHKA/audio control panel an a 5-Series Gran Turismo

Index	Explanation
1	European version TP = Traffic Program (traffic announcements ON/OFF)
2	US version FM/AM selection options between the two frequency bands

In the CIC versions for BMW 7-Series and 5-Series Gran Turismo, by contrast with the E7x , E8x and E9x the CIC Basic consists of several components:

Car Information Computer Basic

5. System components.



Components of the CIC in the BMW 7-Series

Index	Explanation
1	IHKA/audio control panel (short centre stack)
2	Equipment holder
3	Head unit, CIC Basic

E8x and E9x series

The CIC Basic national variants for the **E9x and E8x model series** (not including E83, E85, E86) are shown below.

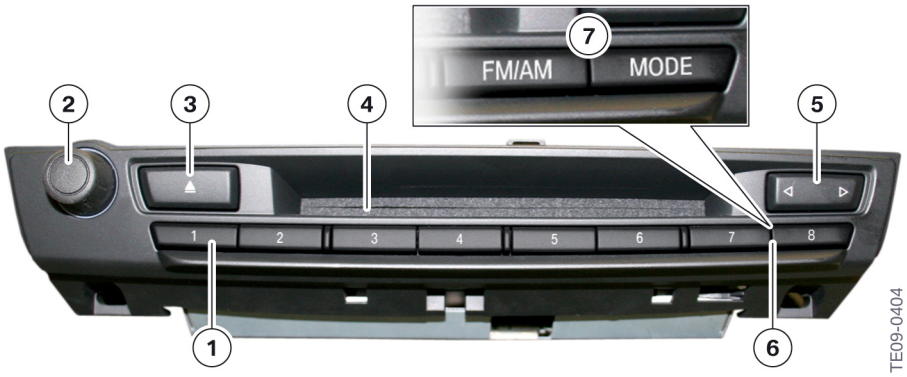


CIC Basic (front view) in the E9x and E8x series

Index	Explanation
1	Europe version with favourite buttons 7 and 8
2	US version FM/AM selection options between the two frequency bands

E7x series

To finish up, the front view of the CIC Basic in the E7x series



CIC Basic, front view, E7x

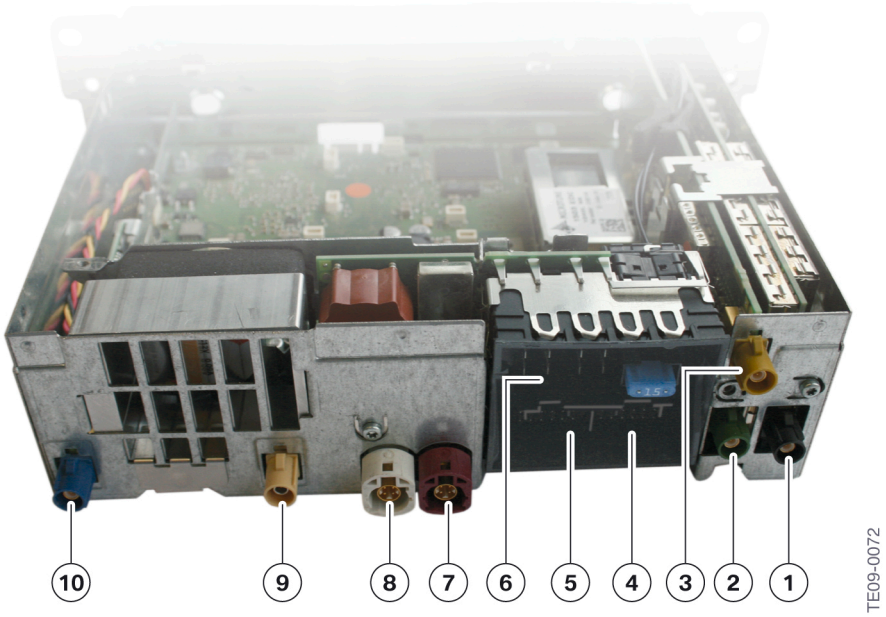
Index	Explanation
1	Favourites buttons 1-8
2	Rotary pushbutton for controlling volume of audio system (ON/OFF switch)
3	Eject button for the CD drive
4	CD player slot
5	Station search/track ”forward/back”
6	Europe version with favourite buttons 7 and 8
7	US version with the FM/AM (frequency selection) and MODE (audio sources) buttons

5.1.2. Rear view

European and US versions
(US without the two DAB connections but with SDARS)

Car Information Computer Basic

5. System components.



CIC rear view

Index	Explanation
1	FM/AM tuner signal; connector colour code: black
2	DAB-L aerial signal; connector colour code: green
3	DAB-III aerial signal; connector colour code: curry yellow
4	12-pin connector; right-hand chamber(Ethernet, TEL_AF, AUX_In)
5	12-pin connector; left chamber (video input signal CVBS, microphone input)
6	Left 16-pin connector; K-CAN, audio output LF, power supply, rad-on signal; Right 2-pin MOST connector;
7	LVDS signal - digital picture signal to the CID; connector colour code: violet
8	USB port for navigation map update; connector colour code: beige
9	Not applicable
10	GPS aerial signal; connector colour code: blue

Image data transmission between CIC and CIC by 2-wire Low Voltage Differential Signalling LVDS

Car Information Computer Basic

5. System components.

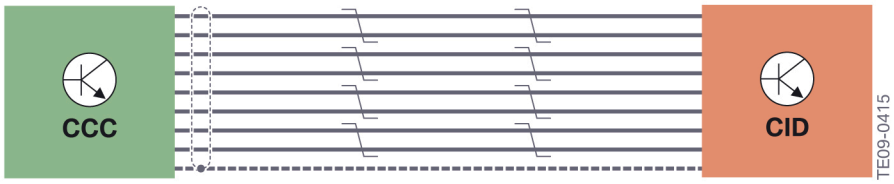
The previous picture data transmission system from the M-ASK to the CID was realised by means of an 8-wire LVDS line. With the introduction of the Car Information Computer Basic, the video signal is now transmitted via a 2-wire LVDS line. The change in picture data transmission in the vehicle is approximately in line with the changes made in PC technology. While a printer was formerly connected to the PC via a parallel cable, data transmission now takes place using serial USB technology.

Signal transmission via this 2-wire LVDS line offers four distinct advantages:

- Higher data transfer rate
- Simplified wiring
- Runtime differences between the individual lines are avoided
- Serial 2-wire LVDS data transmission is now much more cost-effective than the 8-wire LVDS technology.

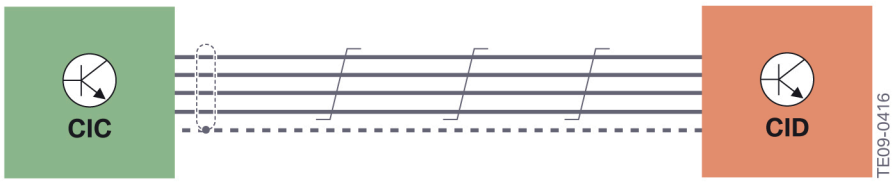
For the customer, the advantages can be seen in the form of a high resolution picture in the central information display. In the following graphic, the 8-wire LVDS technology (LVDS+ and LVDS- for each of the four signal lines and additional synchronisation line) is compared to 2-wire LVDS technology.

8-wire LVDS



8-wire LVDS

2-wire LVDS



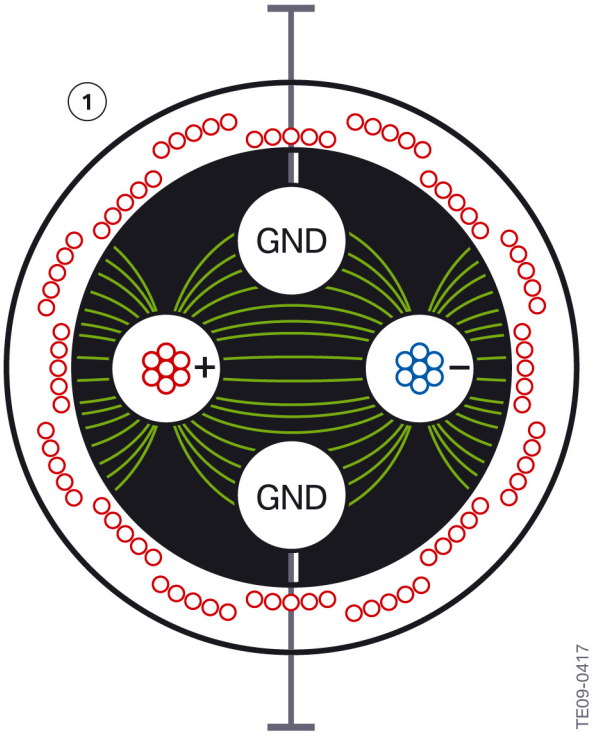
2-wire LVDS

A 4-core, shielded cable is used for the 2-wire LVDS technology. This corresponds to the standard wiring used for 2-wire LVDS technology. This solution is more cost-effective even when one of the four lines is not actively used. The cable consists of the four conductors:

LVDS+, LVDS-, 2x ground (+ shield)

Car Information Computer Basic

5. System components.



2-wire LVDS

Index	Explanation
1	Cross-section through a 2-wire LVDS data line. Two signal-carrying cores, two cores connected to ground

In the illustration to the right, the advantages of having both cores connected to ground are shown with the aid of field lines. For EMC reasons, the unused second ground conductor is also connected to ground. The capacitive interference of the signals is deflected to ground. Furthermore, wires connected to ground form a defined potential and cannot act as aerials. This means additional interference is avoided.

5.2. Replaceable components (BMW Service)

- Replacement CIC Basic
- CD drive
- Front panel

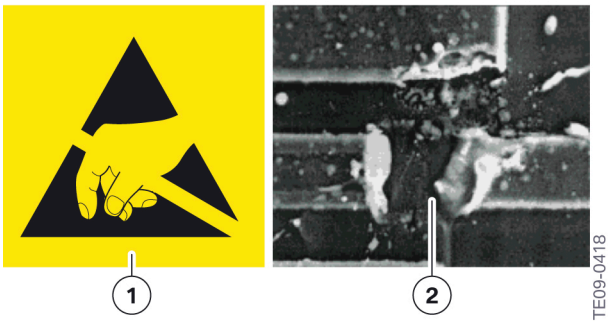
In accordance with the service concept devised together with the suppliers, the components listed above are defined as **service replaceable**. Only these components or the complete head unit may be replaced in the case of fault. The functions of the individual components are briefly described below. The components of the service concept can be viewed in the electronic parts catalogue ETK/EPC or through parts clearing. Changes are possible at any time.

Car Information Computer Basic

5. System components.

The installation and removal instructions for the individual parts and the complete CIC Basic control unit are detailed in the BMW diagnostic system.

As illustrated below, particular attention must be paid to electrostatic discharge (ESD) when working on the CIC Basic.



ESD symbol and ESD damage to a conductor path

Index	Explanation
1	ESD symbol (protective measures necessary)
2	ESD damage to a conductor (magnified 5000 times)

It is essential to adhere to ESD guidelines when replacing individual components. Following these instructions will avoid damage to internal components of the CIC Basic. These requirements also apply when storing or sending back components. Special packaging (ESD bags, ESD boxes with film or foam material cladding) is available for this purpose and should be used in preference to conventional packaging materials.

5.2.1. Working on electronic components

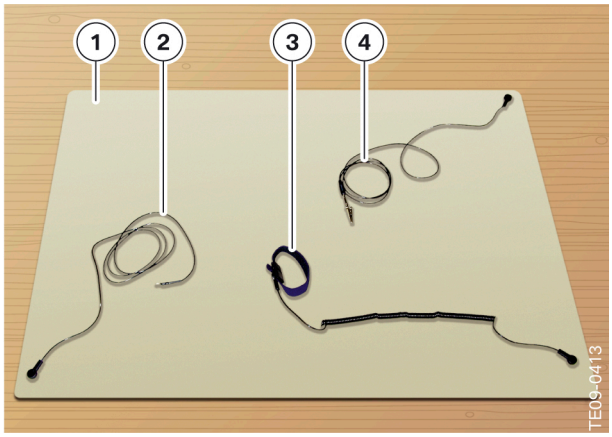
Special tool: Antistatic mat

Corresponding to the service concept, the following requirements must be observed when working on electronic components on the CIC Basic. The work must be performed on a conductive and earthed workbench. The special tool 12 7 192 is additionally used for this purpose.

antistatic mat

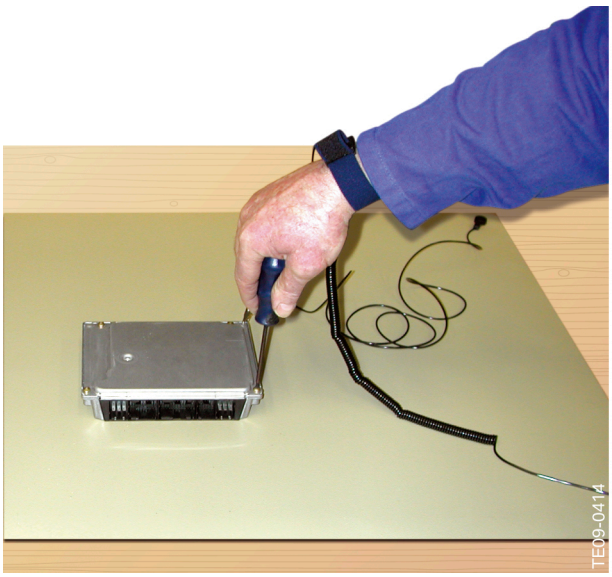
Car Information Computer Basic

5. System components.



Index	Explanation
1	antistatic mat
2	Earthing cable for the mat
3	Antistatic cuff
4	Earthing cable for the component

The earthing cable must be connected to a secure earthing point (water pipe, heating pipe, electric socket earth). The person carrying out the work initially puts on the earthing cuff in order to earth himself before removing the components from the packaging. The electronic components are placed on the antistatic mat and also connected with the earthing cable.



Correctly positioned and grounded antistatic mat

Car Information Computer Basic

5. System components.

5.2.2. CD-ROM drive

The Car Information Computer Basic is equipped with a CD-ROM drive. This CD-ROM drive makes it possible to play the following media:

- Audio CDs (CD Digital Audio)
- Audio CD-ROM with MP3, WMA or AAC files (DRM non-protected files).



CD-ROM drive installed in a CIC Basic

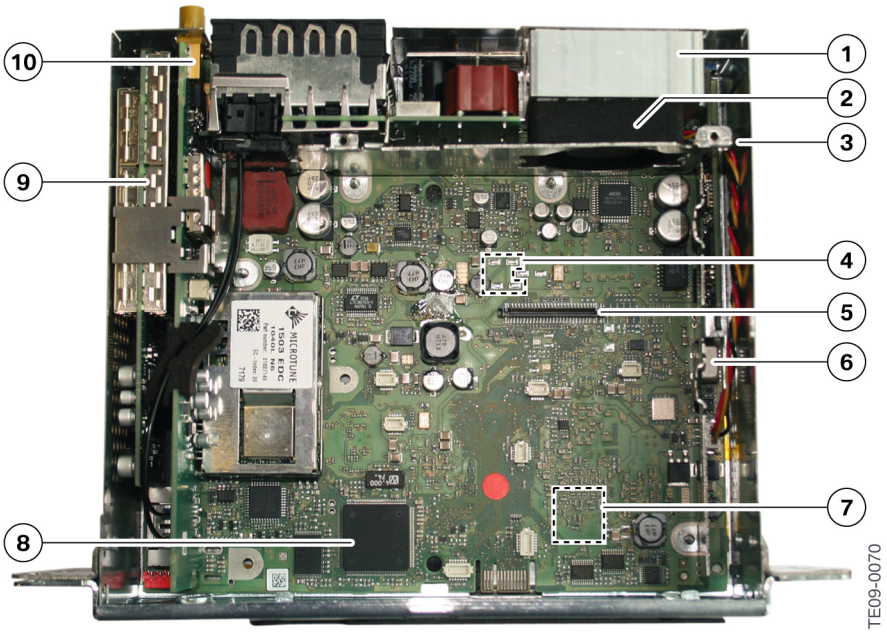
Index	Explanation
1	CD-ROM drive

The CD-ROM drive is no longer needed for the navigation data, so it is available for audio playback. The unit dispenses with a DVD-ROM drive, because the map data for navigation can be imported via the USB interface in the glove compartment.

Car Information Computer Basic

5. System components.

5.3. Non-replaceable components



CIC Basic; view from above, without housing cover

Index	Explanation
1	Output stage of stereo amplifier/heat sink
2	Fan
3	GPS receiver module
4	Flash memory (NAND chip similar to an SD card; location on underside of printed circuit board
5	Connection for CD drive
6	Gyro sensor for obtaining navigation fix
7	Main processor, location on underside of printed circuit board
8	Gateway processor
9	FM/AM double tuner with integrated TMC module
10	DAB single-tuner module or SDARS in the US version

In the event of defects to some of the components, it may be necessary to replace the entire head unit after consulting Parts Clearing.

5.3.1. Fan

It was decided not to make it possible to replace the fan of the Car Information Computer separately as part of service procedures.

In the case of fault, it will be necessary to replace the entire CIC unit. The fan cools the entire hardware assembly.

The exhaust air is routed via a cooling channel towards the outside and is also used to cool the cooling fins of the stereo output stage in the powerboard.

5.3.2. Gateway processor

The gateway processor converts all relevant data of the K-CAN system into MOST-bus telegrams and vice versa.

The electronic module is soldered to the printed circuit board and cannot be replaced.

The gateway processor has its own control unit address in the BMW diagnosis system, which is described in more detail in the ”Service information” section of this PI.

5.3.3. GPS receiver module

The GPS receiver module is also known as the HIP module, short for Host Independence Positioning module.Location and route are calculated in the navigation system with the data from the GPS receiver module. This GPS receiver module converts and decodes the signals received from the GPS aerial. The information supplied by the orbiting satellites and the DSC control unit or ICM is processed in the HIP module and the following are calculated:

- Longitude
- Latitude
- Altitude above sea level
- Direction (bearing)
- Speed.

The information received from the rotation-rate-sensor is also taken into account in processing the navigation data. The information known as **Almanac data** is also used in the navigation system. These almanac data define when a particular satellite is at a given point on its orbit. This can be used to arrive at conclusions on the position of the car. This information must be permanently stored. One of the reasons for this is the terminal status ignition 0. This is because it takes a longer period of time until data can be received again from satellites after switching to terminal 15, so it takes a while to fix the position of the car.

These almanac data ensure the position of the vehicle is recognised immediately after a restart and the navigation system can therefore be used right away. Compared to the HIP module of the M-ASK, (module the size of a cigarette packet), the HIP module in the CIC Basic has been greatly reduced in size while maintaining the same functionality.

5.3.4. Yaw rate sensor

The Car Information Computer Basic features a yaw rate sensor. It supplies the data relating to changes in driving direction for the navigation system. These data are required for the purpose of determining the exact position as satellite signals cannot be received everywhere (tunnels, underground carpark etc.).

The yaw rate sensor is a separate module soldered on the main board. This means it is no longer possible to replace the yaw rate sensor through Parts Sales channels. Also in this case, the hardware has been greatly reduced in size compared to the yaw rate sensor of the M-ASK.

Car Information Computer Basic

5. System components.

5.3.5. Tuner modules

Compared to the M-ASK, the tuner modules in the Car Information Computer have been expanded by several new functions. For example, lists of stations are now available for both FM and AM.

FM and AM station list

A double tuner module was installed in the CIC for the FM/AM range. While one tuner in the network receives the required station and outputs the music signal, the other tuner works in the background. It searches the station landscape for additional signals and shows them on the display. This function in the FM range is already known from the CIC Professional and is now realised for the first time in the AM range in the Basic head unit.

RDS Services (Radio Data System)

The AF-Following (Alternative Frequency) function checks whether the received station is broadcasting a stronger signal on another frequency. If this is the case, the tuner will automatically switch over to this frequency.

The TP and TA services (Traffic Program and Traffic Announcement) provide information on traffic congestion, queues and hazards in the form of traffic announcements. The volume is boosted during an announcement.

The PS (Programme Service Name) provides an indication of the station name by displaying up to eight alphanumeric characters.

The **TMC messages** (Traffic Message Channel) are used by the navigation system for displaying congestion and traffic information in the form of pictograms.

The TMC function is integrated into the FM/AM double-tuner module. By comparison with the TMC module in the CIC Professional, however, (triple tuner), data updating is much less complex.

Advantages of TMC:

- Quicker reception of current messages:
  - Quicker calculation of optimum route during start-up
  - Quicker adaptation of graphic to the current traffic situation relating to traffic queue updates
- Nationwide traffic information shortly before crossing over into a neighbouring country
- Added value in evaluating traffic information+ data from pay service providers.

5.3.6. Digital tuner module

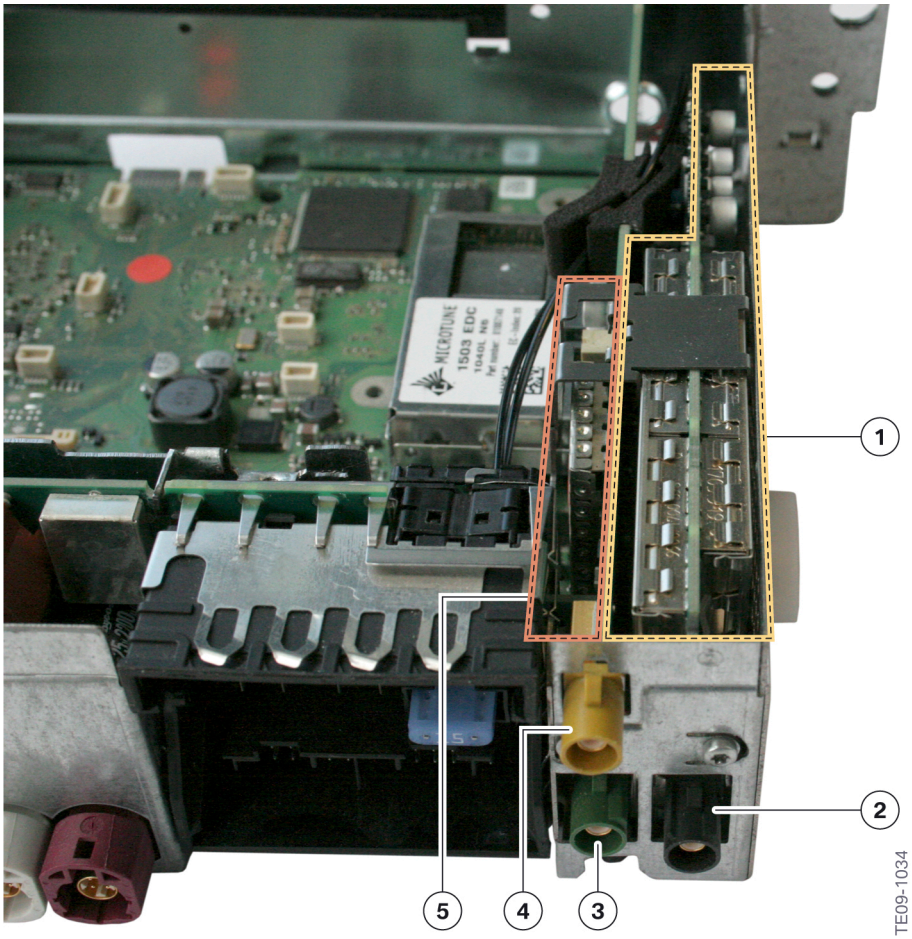
DAB

The digital tuner module is now also be found on the main board within the CIC Basic.

It is mounted directly on the printed circuit board next to the FM/AM tuner module.

Car Information Computer Basic

5. System components.



Tuner modules of the CIC Basic

Index	Explanation	Index	Explanation
1	FM/AM double tuner module	4	DAB-III aerial signal; connector colour code: curry yellow
2	FM/AM tuner signal; connector colour code: black	5	DAB single-tuner module (for L band and band-III signals)
3	DAB-L aerial signal; connector colour code: green		

5.3.7. In Band On Channel (IBOC) system / HD radio

In the US version of the F01/F02, the IBOC system (option code 653) is offered as the digital radio instead of the DAB tuner (option code 654).

With the introduction of the CIC, the control unit of the IBOC system (In-Band-On-Channel) has been integrated in the head unit as the **IBOC decoder**.

Car Information Computer Basic

5. System components.

Index	Explanation	Index	Explanation
1	FM/AM aerial connection	3	FM/AM double tuner module
2	FM-TMC module	4	IBOC decoder

The IBOC system was developed by the Ibiquity company and, with the aid of a decoder, enables the reception of HD radio (High Definition) through the FM/AM double tuner.
HD radio (High Definition radio).

Two types of service are broadcast:

- MPS = Main Program Service
- SPS = Secondary Program Service

Both services differ to the effect that the signal previously broadcast analogue in the **MPS** is now used in digital form. The decoder delays digital reception for several seconds until it is synchronous again with the analogue signal previously heard.

SPS offers additional radio stations that are only broadcast in digital form. Using the so-called multicast method, it is possible to accommodate up to seven digital stations in the submenu of the SPS main station. Normally, however, a maximum of 3 submenus are offered in the SPS. The system automatically switches over to analogue FM reception if the digital signal is no longer available.

HD radio is also available in the **AM frequency range**. In this case, the digital signals are transmitted on directly adjacent frequencies of the analogue station. Multicast is not supported on AM. The content of the digitally broadcast station is the same as that of the analogue station. HD radio plays AM radio stations in near-FM quality and FM radio stations in near-CD quality.

5.3.8. SDARS satellite tuner

Only for US version vehicles

Option code 655 ”Satellite tuner” is offered only in the US version. The Satellite Digital Audio Radio Service (SDARS) control unit corresponds to the satellite tuner installed in the other BMW vehicles. This tuner makes it possible to receive digital radio signals thus enhancing the AM and FM range. In terms of quality, digital transmission is superior to analog. The radio stations of the satellite tuner can be selected in the ”Satellite radio” submenu. Advantages of digital satellite radio:

- Reception of the same station across the entire continental USA (exception: Alaska)
- Digital reception of music, news and talk shows
- Diversity of the selectable musical genres
- No interruptions for commercials
- More interference immunity because of digital signal transmission.

Car Information Computer Basic

5. System components.

The satellite tuner is designed for the subscriber service offered by the Sirius Satellite Radio company. The SDARS signals are transmitted via three satellites. A maximum of two satellites are visible at any given time. In areas where reception of satellite transmissions is poor, the SDARS signals are transmitted by terrestrial repeaters. Both SDARS signals (satellite and terrestrial) are received by an aerial in the roof-mounted aerial and made available to the SDARS control unit.

The SDARS satellite tuner is fitted ex-works in the CIC Basic. The **function** is encoded when the process of production of the vehicle, if the customer has ordered option code 655, and then subsequently has to be enabled like the enabling code. If a customer subsequently wants to have the function retrofitted, SDARS is encoded by BMW Service and enabled with an enabling code. When the system is activated for the first time, the weatherband (channel 184) is made available at no cost for test purposes. Only this channel is available. The other channels are disabled by default by the provider Sirius (no subscription taken out, in other words) and are flagged with a credit-card symbol. The complete range is not available unless activated by the provider Sirius. If the subscription with the provider lapses, the customer can again see only the weatherband (channel 184).

Car Information Computer Basic

6. Service information.

6.1. Information for Service staff

6.1.1. The Service menu of the head unit CIC

Selecting the Service menu

In the case of customer complaint or malfunctions, several important functions can be checked directly at the CIC with the aid of the Service menu.

A BMW diagnosis system is not necessary for this purpose.

In addition, this menu can be used execute settings that are not visible for the customer.

It is necessary to access the Service menu for this purpose.

The procedure for starting the Service menu with the so-called ”safe grip” has changed only slightly compared to the M-ASK:

- Call up Start menu
- Push controller in up direction for at least 10 s.
- Controller 3 notches to the right
- Controller 3 notches to the left
- Controller 1 notch to the right
- Controller 1 notch to the left
- Controller 1 notch to the right
- Press controller once.

- The Service menu is now added as the last submenu to ”**Settings**”.

Selection menu of Service menu

Four selection menus are available in the Service menu of the CIC:

- Navigation
- Telephone and BMW ASSIST

Navigation

Navigation	Screen content (example)	Explanation
GPS		
GPS Status	Latitude: 12°34'56"N	GPS position data
GPS Tracking	01: 03 14.3, 02 xx, yy, z	GPS satellites
GPS Version	Receiver SW Version/Date	Software version and date of manufacture of GPS receiver

Car Information Computer Basic

6. Service information.

Navigation	Screen content (example)	Explanation
Sensor test	Wheel sensors, GPS satellites, Gyro	Check of input signals
Map version	Map database: 1.067	Map version number database: 1.067
Location entry	Location Entry:	Entry loop same as destination entry
Voice output test		

Telephone and BMW Service

Telephone	Screen content (example)	Explanation
BT Name	BMW 57502	Bluetooth name of BMW vehicle for pairing
NAD	51 dBm	GSM signal level of built-in telephone module
MCC/MNC	262 01	Mobile country code + mobile network code; unique code for country and network provider with which the phone is currently registered.
ICC ID	89490200000537151529	Integrated Circuit Identifier = Identifier of SIM card
IMEI	351231004373763	International Mobile Equipment Identity (IMEI) is a unique 15-digit serial number of the telephone transceiver
Registration status	Registered	Registered = SIM card enabled and logged into network; Not registered = SIM card enabled but currently no reception
Signal strength	20/100	Relative signal strength of the built-in telephone module in percent (max 100 %)
GPS T/D	14:41:57 27.05.2008	Assist cannot be enabled if time and date are incorrect

Reset

The CIC Basic can be reset by pressing the rotary pushbutton (ON button) for approx. 25 s. The display in the CIC then goes blank. The CIC Basic is then restarted.

When a MOST control unit is rest, the MOST gateway is muted for 2 s.

CIC Basic start screen after successful reset

Car Information Computer Basic
6. Service information.

Programming

The CIC Basic is programmed with the interface modules of the optical testing and programming system for 1-Series, 3-Series cars and the X5 and X6. The interface modules OP(P)S or ICOM (A+B) are connected to the OBD interface and simultaneously to the MOST interface of the vehicle. Programming via MOST significantly reduces the required programming time. 7-Series models and the 5-Series Gran Turismo are programmed with the connection of the ICOM A, via Ethernet, with the ENET Diagnostics Flash.

Service concept for the CIC Basic

The service concept stipulates that individual modules and components of the CIC can be replaced in the case of fault. This is intended to reduce the costs of repair. The corresponding components have already been described in detail in the **System Components** section. A summary follows.

The following components can be replaced:

- Replacement CIC Basic
- CD drive
- Front panel

ESD guidelines must be observed while replacing components. In accordance with the service concept devised together with the suppliers, the components listed above are defined as **service replaceable**. Only these components or the complete head unit may be replaced in the case of fault. The functions of the individual components are briefly described in the following. The components of the service concept can be viewed in the electronic parts catalogue ETK/EPC or through parts clearing. Changes are possible at any time.

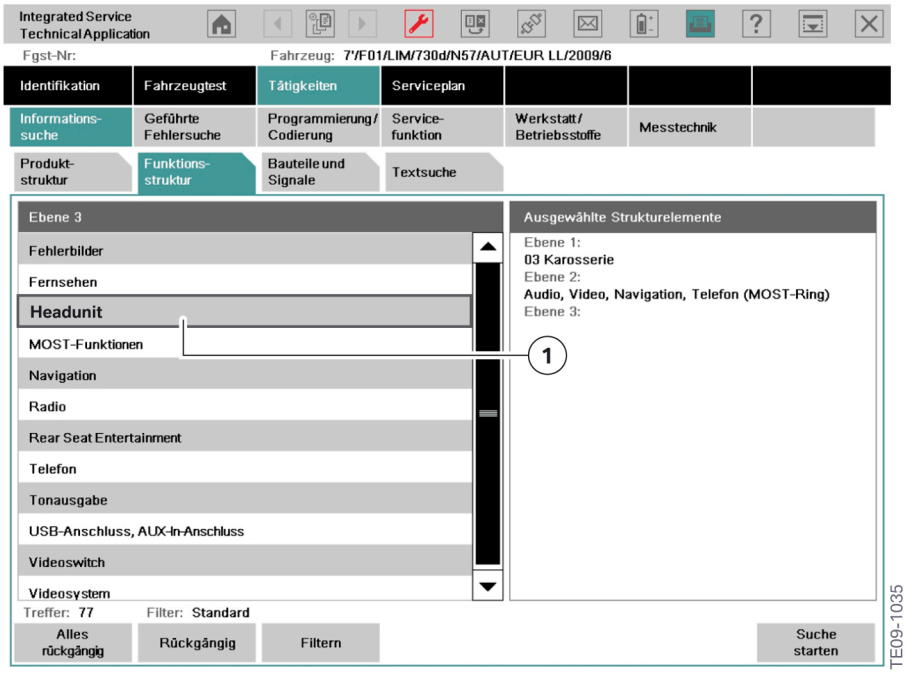
6.1.2. Diagnosis of the Car Information Computer CIC

Diagnosis

In the current BMW diagnostic system ISTA the test modules for the CIC Basic are located under Function structure, Body, Audio-video-navigation telephone (MOST ring) and **Head unit**.

Car Information Computer Basic

6. Service information.



BMW diagnostic system ISTA

Index	Explanation
1	Head unit = CIC Basic or CIC Professional



Bayerische Motorenwerke Aktiengesellschaft
Händlerqualifizierung und Training
Röntgenstraße 7
85716 Unterschleißheim, Germany