

Technical training.
Product information.

F01/F02 LCI Infotainment



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BMW Service

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General information

Symbols used

The following symbol/schematic diagram is used in this document to facilitate better comprehension or to draw attention to very important information:



Contains important safety information and information that needs to be observed strictly in order to guarantee the smooth operation of the system.

Information status and national-market versions

BMW Group vehicles meet the requirements of the highest safety and quality standards. Changes in requirements for environmental protection, customer benefits and design render necessary continuous development of systems and components. Consequently, there may be discrepancies between the contents of this document and the vehicles available in the training course.

This document basically relates to the European version of left-hand drive vehicles. Some operating elements or components are arranged differently in right-hand drive vehicles than shown in the graphics in this document. Further deviations may arise as a result of the equipment specification in specific markets or countries.

Additional sources of information

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

- Owner's Handbook
- Integrated Service Technical Application.

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The information contained in this document forms an integral element of the technical training of the BMW Group and is intended for the trainer and participants in the seminar. Refer to the current respective information systems of the BMW Group for any changes/additions to the technical data.

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VH-23/International Technical Training

F01/F02 LCI Infotainment

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F01/F02 LCI Infotainment

1. Introduction

Entertainment and communication play a very important role in the F01/F02 LCI therefore a wide selection of Infotainment systems are available to the driver.

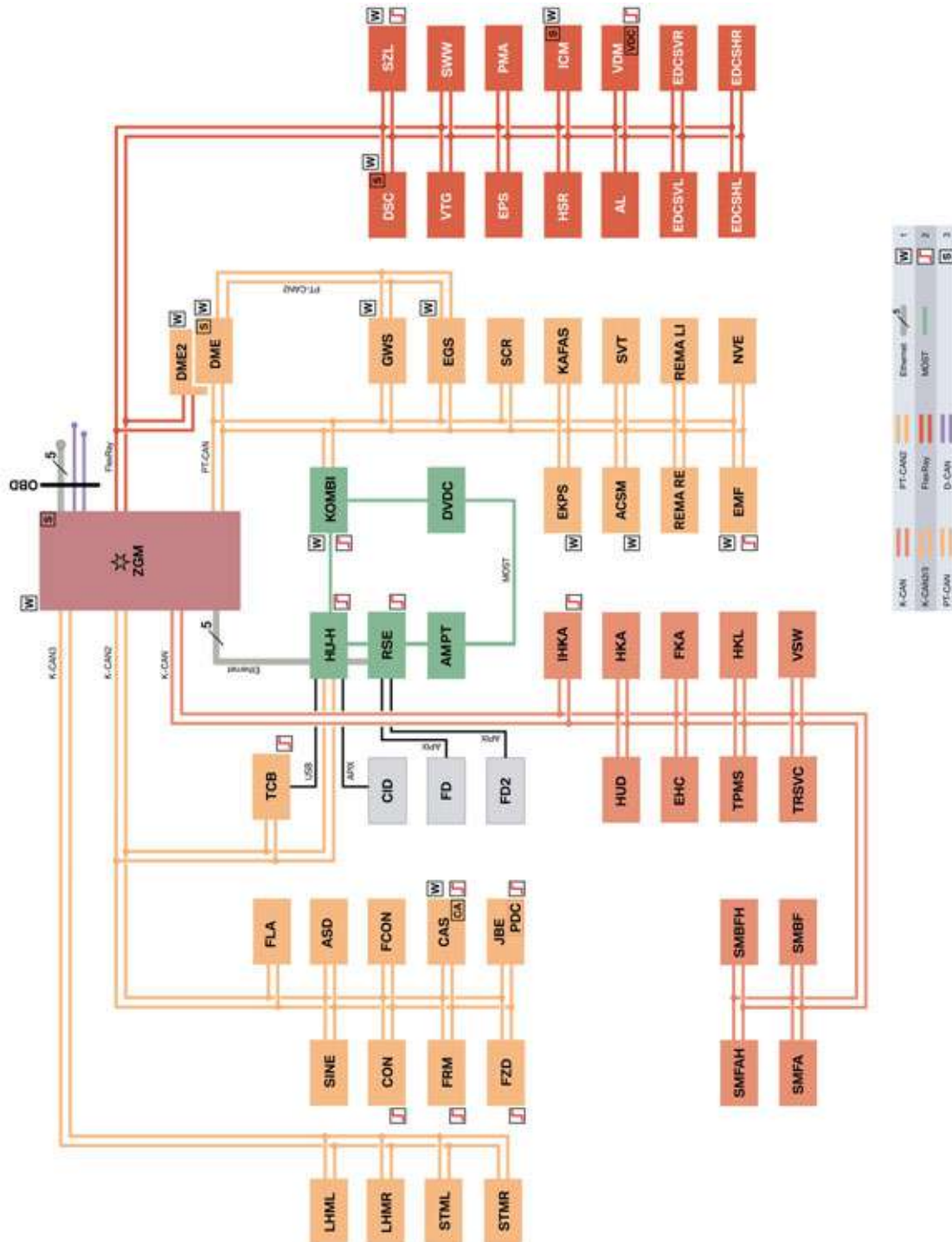


This product information manual is intended to provide an overview of the systems used. For more information regarding the Headunit High please refer to the ST1211 Headunit High training manual available on ICP and TIS.

F01/F02 LCI Infotainment

1. Introduction

1.1. F01/F02 LCI bus overview



TE11-0326_2

F01/F02 LCI bus overview

F01/F02 LCI Infotainment

1. Introduction

Index	Explanation
1	Control units with wake-up line
2	Control units authorized to perform wake-up function
3	Start-up node control units for starting and synchronizing the FlexRay bus system
ACC	ACC sensor (sensor and control unit for Active Cruise Control)
ACSM	Advanced Crash Safety Module
AL	Active steering
AMPT	Amplifier Top (top high fidelity amplifier)
ASD	Active Sound Design
CAS	Car Access System
CID	Central information display
CON	Controller
DME	Digital Engine Electronics (DME)
DME2	Digital Engine Electronics 2
DSC	Dynamic Stability Control
DVDC	DVD changer
EDCSHL	Electronic Damper Control satellite, rear left
EDCSHR	Electronic Damper Control satellite, rear right
EDCSVL	Electronic Damper Control satellite, front left
EDCSVR	Electronic Damper Control satellite, front right
EGS	Electronic transmission control
EHC	Electronic ride height control
EKPS	Electronic fuel pump control
EMF	Electromechanical parking brake
EPS	Electronic Power Steering (electromechanical power steering)
FCON	Rear compartment controller
FD	Rear compartment display
FD2	Rear compartment display 2
FKA	Rear climate control
FLA	High-beam assistant
FRM	Footwell module
FZD	Roof function center
GWS	Gear selector switch
HU-H	Headunit High (now incorporates most Combox functions except telematics)
HKA	Automatic rear air-conditioning and heating

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1. Introduction

Index	Explanation
HKL	Automatic operation of tailgate
HSR	Rear axle slip angle control
HUD	Head-Up Display
ICM	Integrated Chassis Management
IHKA	Integrated automatic heating / air-conditioning system
JBE	Junction box electronics
KAFAS	Camera-based driver support systems
K-CAN	Body controller area network
K-CAN2	Body Controller Area Network 2 (500 kBit/s)
K-CAN3	Body Controller Area Network 3 (500 kBit/s)
KOMBI	Instrument panel
LHML	LED main light module, left
LHMR	LED main light module, right
MOST	MOST
NVE	Night Vision Electronics
PDC	Park Distance Control
PMA	Parking Maneuvering Assistant
PT-CAN	Powertrain controller area network
PT-CAN2	Powertrain controller area network 2
OBD	Diagnostic socket
REMARE	Reversible electric-driven reel, right
REMALE	Reversible electric-driven reel, left
RSE	Rear Seat Entertainment system
SINE	Siren with tilt alarm sensor
SME	Battery management electronics
SMBFH	Seat module, passenger
SMFAH	Driver's seat module
STML	Headlight driver module, left
STMR	Headlight driver module, right
SVT	Servotronic module
SWW	Lane change warning
SZL	Steering column switch cluster
TCB	Telematic Communication Box (replaced the Combox telematics)
TPMS	Tire Pressure Monitoring System
TRSV	Control unit for reversing camera and Side View

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1. Introduction

Index	Explanation
VDM	Vertical Dynamics Management
VSW	Video switch
VTG	Transfer case control unit (xDrive only)
ZGM	Central gateway module

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2. Headunit

2.1. Headunit High



The new Headunit High is used for the first time as a successor to the previous Car Information Computer (CIC) in the F01/F02 LCI. The Headunit High is installed in combination with the (standard equipment) Navigation system professional SA609.

A high resolution 10.25" (diagonal) CID is now connected to the headunit via an APIX (Automotive pixel link) interface similar to other current BMW models.

A Combox is no longer required with the Headunit High as the telephone and multimedia functions are now integrated into the Headunit. There is also a new control unit installed for telematics functions called the Telematic Communication Box (TCB). The changes to the antenna system and the rear seat entertainment system of the F01/F02 LCI are also described in the following product information manual.



The Navigation Professional Headunit High is also referred to as “NBT” by engineering and product development.

2.2. New Features

The CIC user interface has been completely revised and upgraded with an enhanced (3D effect) perspective view. The structure of the individual menus is now shown in virtual high resolution with enhanced graphics. The symbols on the symbol bars have been standardized and a variety of move-

F01/F02 LCI Infotainment

2. Headunit

ments and animations have also been added. Images of vehicles and objects (previously only visible in the Options menu) have now been integrated directly in the submenus for a more sophisticated and ultra modern look and feel.



Main menu and start screen; comparison of CIC (left) to Headunit High 3rd Generation HU-H (right)

The hardware was completely revised and is now equipped with a new 1.3 GHz processor, 1 GB working memory, 8 GB flash memory and a **200 GB SATA hard disk**

The music collection now has 20GB of space and has been enhanced with many new features (e.g. favorites).

The USB interface in the center console can now play **video files**, as well as audio files. It is also used for importing/exporting data and updating navigation maps, as the USB in the glove compartment has been discontinued.

New to the **IBOC** is the display of album art and station logos (these are only displayed if the station provides such content over the HD digital signal)

The Headunit High is equipped with a **message dictation "Speech-to-text" Office function** to answer and compose text messages and emails directly via the iDrive and the use of a BMW "Tested" phone. A **Voice memo Office function** is also available where voice memos can be recorded, saved to a USB or sent via email as sound files.

The Navigation Professional is packed with new and enhanced features and has a redesigned user interface and menu structure. It also offers the new Advanced Real Time Traffic Information (ARTTI). This new system offers faster and more detailed traffic information which provides a cleaner and more understandable traffic overview than RTTI.

Navigation Professional introduces (for the first time) POI brand icons (currently only for fuel stations) and weather icons in the map overview.

For more detailed information regarding the Navigation Professional and Headunit High please refer to the ST1211 Headunit High training manual available on ICP and TIS.

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3. Telephone System

With the model revision for the F01/F02 LCI the new optional equipment structure known from current BMW models is also used for the telephone systems.

6NL BMW Assist with enhanced Bluetooth and USB is standard	
USB connection, center console	included
Bluetooth	included
Base plate	included
Speech input system	included
Telematics	included
Control units for the realization of the functions with Headunit High	Headunit High and TCB

Note: BMW Apps (6NR) is available as optional equipment on all F01/F02 LCI models but is included as standard on the 760Li.

More information regarding the new telephone functions of the Headunit High can be found in the ST1211 Headunit High training manual available on ICP and TIS.



Note: For further information regarding BMW tested phones and their functions please refer to bmwusa.com/bluetooth.

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4. Speaker Systems

4.1. Overview

The speaker systems in the F01/F02 LCI are available in three specification levels:

- HiFi system (standard equipment)
- Premium (Top) HiFi system (optional equipment 677)
- Bang & Olufsen High-End Surround Sound System (optional equipment 6F2)

The following table gives an overview of the possible speaker systems in the F01/F02 LCI.

HiFi system	Premium HiFi system	Bang & Olufsen High-End Surround Sound System
7-channel HiFi amplifier (205 W) (5.2 audio system) 12 speakers	9-channel HiFi amplifier (600 W) (7.2 audio system) 16 speakers	16-channel HiFi amplifier (1200 W) (14.2 audio system) 16 speakers

An eight-channel amplifier with digital equalizer is incorporated in the HiFi system. However, the HiFi system only uses seven of the eight channels. The bass speakers are located under the front seats. They are connected to either side sill. In this way, the volume required for bass reproduction is increased.

With the same diameter of the speakers in the HiFi system and Top HiFi system, there are differences in speaker performance. This is achieved through the use of different materials such as diaphragms, coils and solenoids.

The Premium HiFi system uses a digital 10-channel amplifier although the system only uses nine of the ten channels.

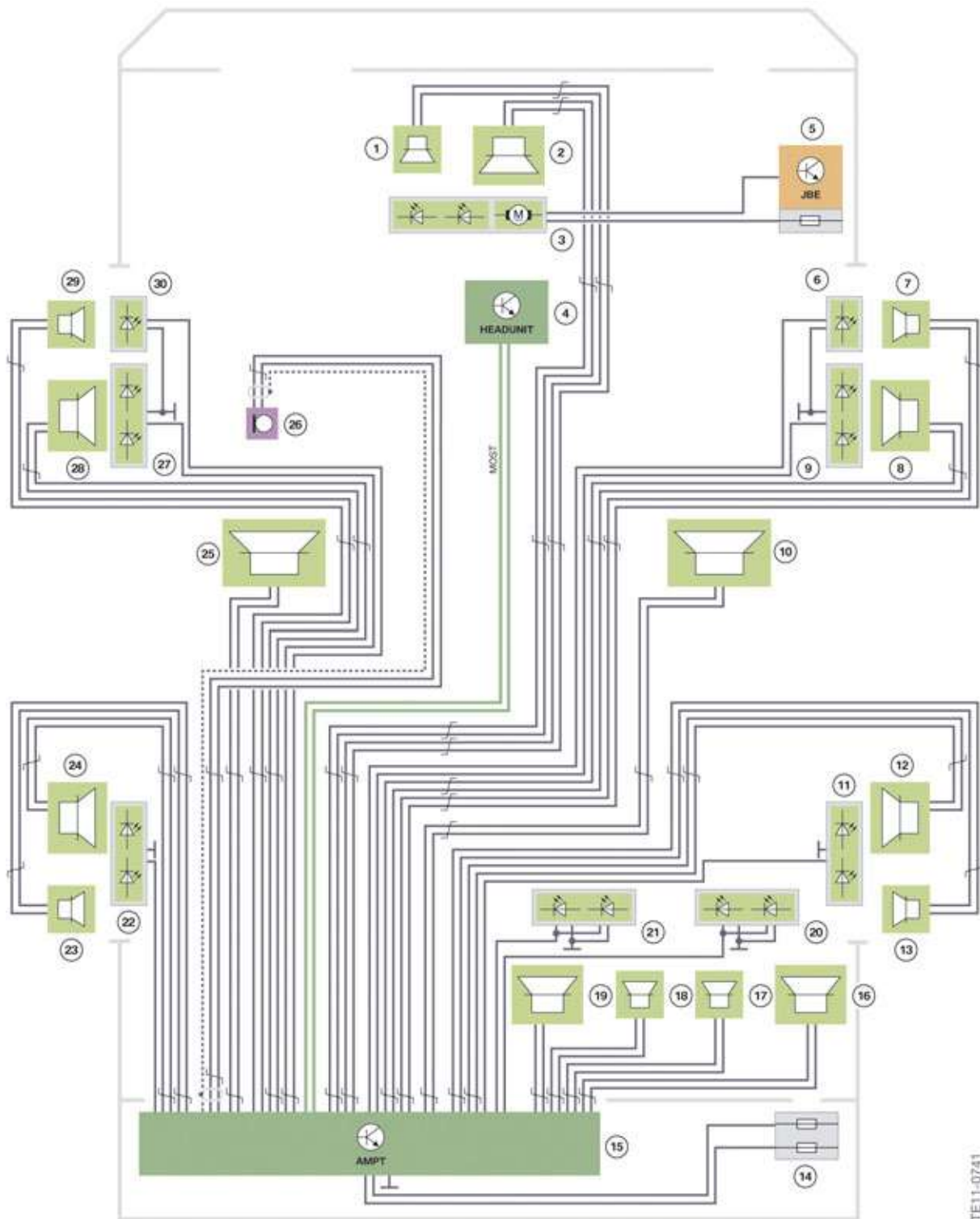
The Premium HiFi system and the Bang & Olufsen High-End Surround Sound System support the playback of multi-channel audio formats (DTS®, Dolby Digital®, AC3®). The playback of multi-channel audio formats is possible via the drive of the Headunit High or via the six DVD changer.

4.2. Bang & Olufsen High-End Surround Sound System

In the F01/F02 LCI the Bang & Olufsen High-End Surround Sound System is used as new optional equipment (option 6F2).

F01/F02 LCI Infotainment

4. Speaker Systems



F01/F02 LCI system wiring diagram for Bang & Olufsen High-End Surround Sound System

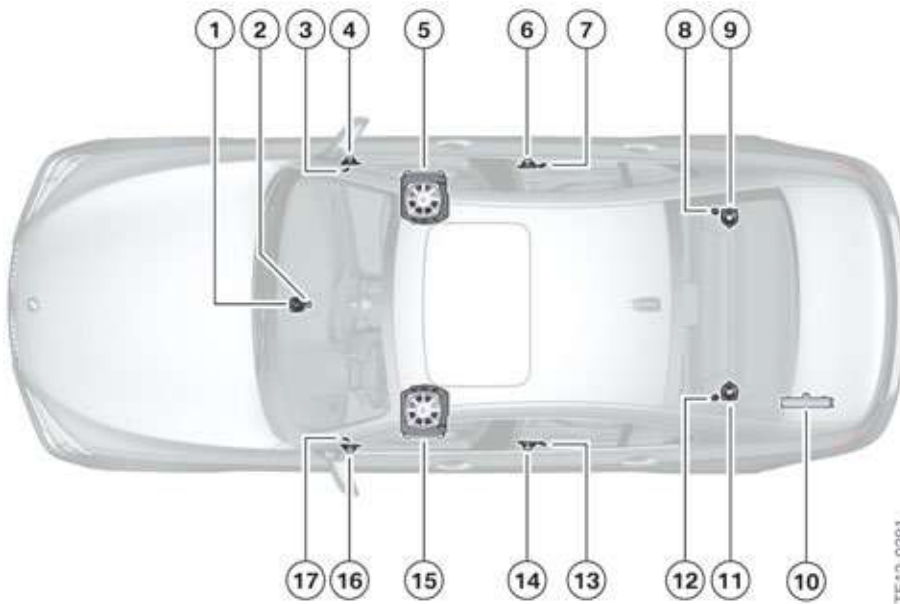
F01/F02 LCI Infotainment

4. Speaker Systems

Index	Explanation
1	Tweeter, dashboard center
2	Mid-range speaker, dashboard center
3	Extendible center cover
4	Headunit
5	Junction box for the power distribution box
6	Cover, front passenger side
7	Tweeter, front passenger side
8	Mid-range speaker, front passenger side
9	Cover, front passenger side
10	Bass speaker, front passenger side
11	Cover, rear right
12	Mid-range speaker, rear right
13	Tweeter, rear right
14	Power distribution box, luggage compartment
15	Top HiFi amplifier
16	Mid-range speaker storage shelf, right
17	Tweeter storage shelf, right
18	Tweeter storage shelf, left
19	Mid-range speaker storage shelf, left
20	Storage shelf cover, right
21	Storage shelf cover, left
22	Rear cover, left
23	Tweeter, rear left
24	Mid-range speaker, rear left
25	Bass speaker, front driver's side
26	Microphone
27	Cover, front driver's side
28	Mid-range speaker, front driver's side
29	Tweeter, front driver's side
30	Cover, front driver's side

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4. Speaker Systems



F01/F02 LCI Bang & Olufsen High-End Surround Sound System

Index	Explanation
1	Extendible mid-range speaker, dashboard center
2	Extendible tweeter, dashboard center (acoustic lens)
3	Tweeter, front right door
4	Mid-range speaker, front right door
5	Bass speaker under the front right seat
6	Mid-range speaker, rear right
7	Tweeter, rear right
8	Tweeter storage shelf, rear right
9	Mid-range speaker storage shelf, rear right
10	High-end amplifier
11	Mid-range speaker storage shelf, rear left
12	Tweeter storage shelf, rear left
13	Tweeter, rear left
14	Mid-range speaker, rear left
15	Bass speaker under the front left seat
16	Mid-range speaker, front left door
17	Tweeter, front left door

Visually, the Bang & Olufsen High-End Surround Sound System differentiates itself from conventional audio systems through an extendible speaker in the dashboard as well as the lit up aluminium speaker covers in a special design by Bang & Olufsen.

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4. Speaker Systems



F01/F02 LCI speaker covers by Bang & Olufsen

With the so-called Welcome production (upon switching on the headunit) the speaker covers briefly light up to the maximum. After this it dims back to normal lighting. The control of the LEDs for the light production or the illuminating speaker covers takes place in the high-end audio amplifier.

The Bang & Olufsen High-End Surround Sound System acoustically impresses with an optimized sound playback to all seats for stereo and multi-channel audio formats. Two sound modes can be selected which were developed by the Swedish company Dirac.



F01/F02 LCI tone setting in the CID

- **Studio**
In Studio mode a frequency and phase correction of the speakers takes place. In this the signal is modified in both time and in the frequency range in order to compensate for various time delays and sound reflections in the vehicle depending on seating position. This leads to a linear and correctly timed playback in the passenger compartment. Through the signal fidelity formed in this way an exceptionally diverse and lively sound experience is created for all occupants.
- **Expanded**
The Expanded mode ensures an open and lively room through special sound field modulation in the passenger compartment. This inspires the illusion that the speakers have been replaced by virtual speakers and have been moved outwards.

For individual sound adjustment an equalizer is available.

F01/F02 LCI Infotainment

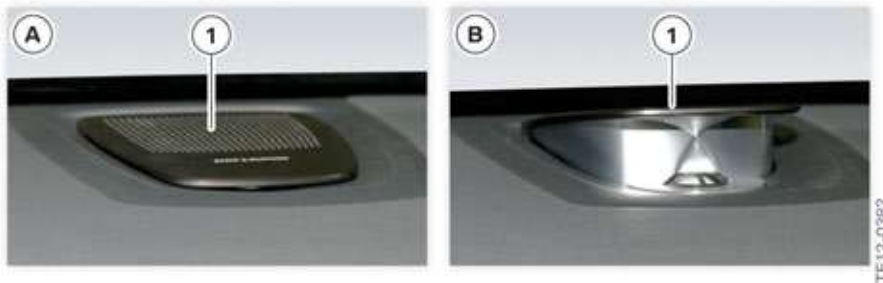
4. Speaker Systems

4.2.1. Speaker

The speakers installed in the F01/F02 LCI are operated at the following power:

- Tweeters: 7 x 25 watt
- Mid-range speakers: 7 x 75 watt
- Bass speakers: 2 x 250 watt.

The extendible speaker dashboard is a combination of a mid-range speaker and an acoustic lens for the tweeter. The extendible speaker dashboard extends upwards when the audio system is switched on.



F01/F02 LCI extendible speaker dashboard

Index	Explanation
A	Speaker in retracted position
B	Speaker in extended position
1	Extendible speaker dashboard

All speakers (tweeters, mid-range and bass speakers) are directly connected to the audio amplifier.

The tweeters are equipped with a ceramic calotte. This ceramic calotte ensures optimum radiation behavior. The mid-range speakers and the bass speakers have a hexagonal diaphragm for extreme signal fidelity and linearity.

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4. Speaker Systems



F01/F02 LCI speaker

Index	Explanation
1	Tweeters
2	Mid-range speakers
3	Bass speakers

All visible speakers can be illuminated according to the settings in the "Bang & Olufsen" light setting. The front bass speakers are not illuminated and are both located under the driver and front passenger seat.

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4. Speaker Systems

4.2.2. High-end audio amplifier

The 16-channel amplifier of the Bang & Olufsen High-End Surround Sound Systems (AMPT) is an audio amplifier with active frequency diplexers. Active frequency diplexers produce better acoustic results than passive frequency diplexers. By installing the active frequency diplexer in the high-end audio amplifiers each individual speaker only receives the frequency range designed to it. Therefore every speaker is directly connected to the high-end audio amplifier.

The high-end audio amplifier is a control unit in the MOST network. The class D audio output stages of the high-end audio amplifier used have a significantly higher efficiency and lower the power loss compared to conventional audio output stages.

The speed-dependent volume adjustment (Speed Volume) used in other speaker systems are replaced in the Bang & Olufsen High-End Surround Sound System with a new automatic adaptation of the volume. The automatic adaptation takes place subject to the noises that can be heard in the passenger compartment, such as driving and wind noise. These are measured with the help of a microphone.

4.2.3. Microphone

The microphone for the automatic speaker adaptation is located in the F01/F02 LCI in the roofliner on the driver's side.



F01/F02 LCI microphone

Index	Explanation
1	Microphone
2	Sun visor

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5. Rear Seat Entertainment System (RSE)

The **Rear seat entertainment system professional with iDrive control (SA6FR)** is available as an option for the F01/F02 LCI. It uses 2 rear displays, a separate RSE control unit, in conjunction with the Headunit High and (in contrast with the previous RSE system) a rear (iDrive) controller.



Rear seat entertainment system professional with iDrive control (SA6FR)

1	CID
2	Headunit High
3	Right rear monitor
4	RSE rear controller
5	Rear entertainment control unit (RSE)
6	Left rear monitor

The new free-standing 9.2" rear monitors are no longer on the bus network, but are connected directly to the RSE control unit via an APIX (Automotive pixel link) connection. The connection of the headphones was changed from the previously used infrared transmission to radio transmission and have to be installed via the "Connections" menu of the Headunit High. The previous headphones are therefore not compatible with this system.

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5. Rear Seat Entertainment System (RSE)



F01/F02 LCI rear seat entertainment system



F01/F02 LCI rear seat entertainment system iDrive controller

More information regarding the new components and functions of the rear seat entertainment system (RSE) can be found in the “ST1211 Headunit High” training manual available on ICP and TIS.

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6. ConnectedDrive

6.1. BMW Online

The ConnectedDrive Services is pleased to announce that “Yelp” and “Pictures at Destination” applications were recently added to BMW Online. With the recent update to BMW Online’s layout, BMW can seamlessly add new features (known as “applications”) as they become available. “Yelp” and “Pictures at Destination” are the first such applications and there will be more to follow.



New Applications available on BMW Online

Pictures at Destinations is just what the name suggests. You can display photos for several destinations when the route guidance is active.

Different photos can be selected depending on the availability. In this case, photos from the Internet service provider Google™ Street View and Google™ Panoramio are used.



The Google™ Street View or Panoramio can be selected.



Google™ Street View.

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6. ConnectedDrive

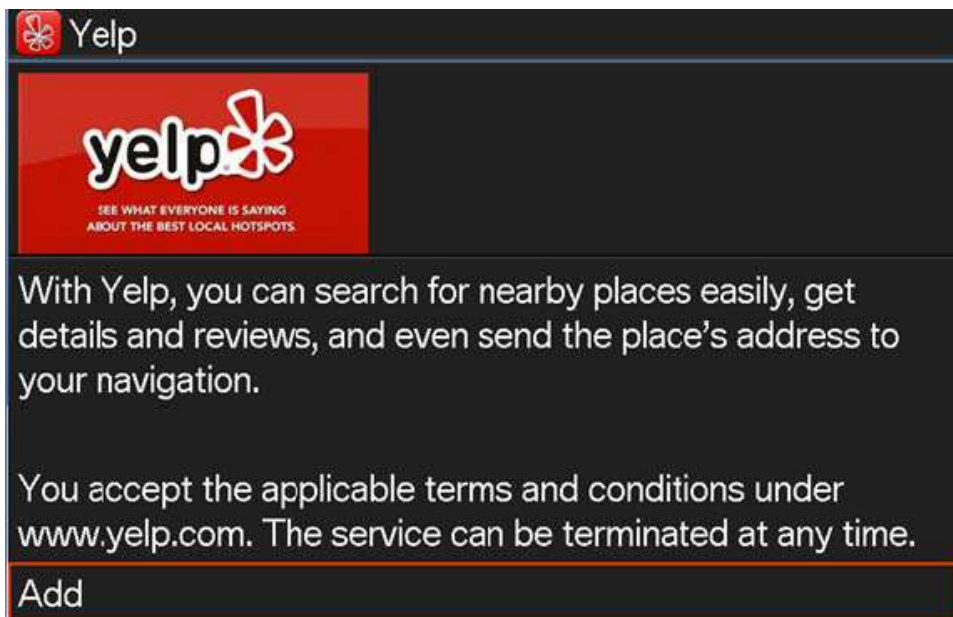


Google™ Panoramio view.



"Pictures at destination" is only available for vehicles equipped with the Navigation system (SA609) and telematics.

Route guidance must be active in the Navigation to display images.



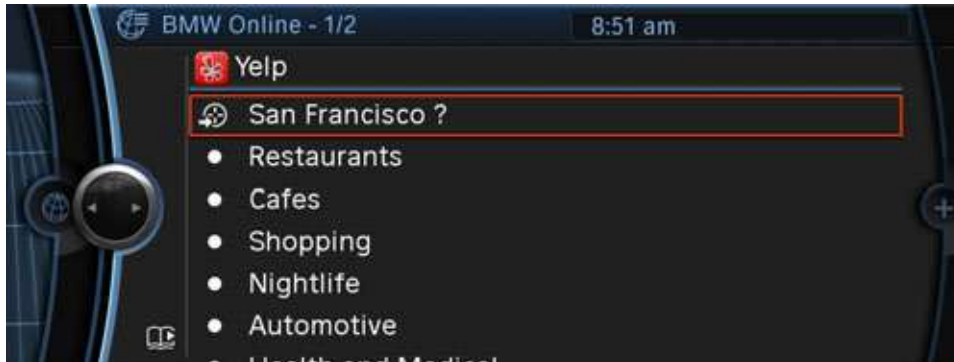
With Yelp on-board, customers can search for everything from the best local restaurants and boutiques to parking garages and banks. They are able to see ratings for those businesses while hearing reviews read out to them via the vehicle's text-to-speech feature.

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6. ConnectedDrive

Features

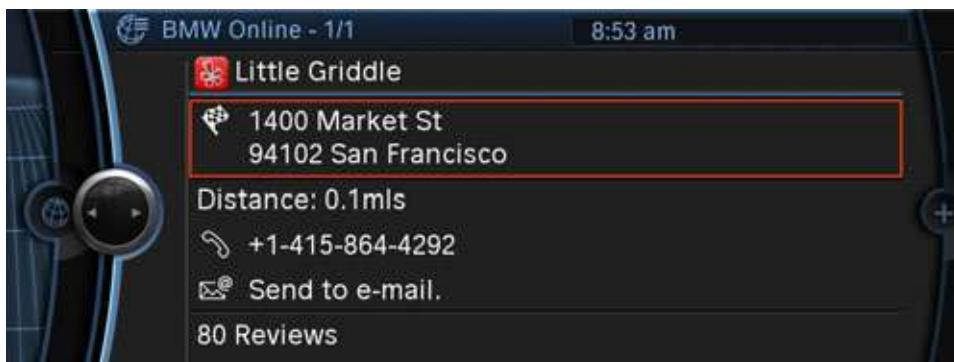
- Category Search – Search by category for nearby restaurants, cafes, shopping, nightlife, and more.



- Results Overview - Results are sorted by distance and show user-generated ratings of the places, category, and number of reviews.



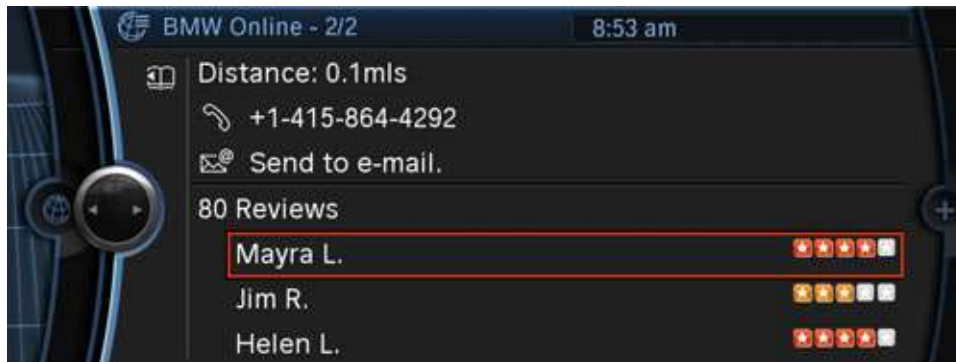
- Details – Selecting a particular place gives more details about it. Customers can see the rating, address, distance, phone number, and information about reviews. Additionally, they can email details of the business to themselves or any other email address.



- Reviews – The 3 latest reviews are available for the business. The customer can select one of those reviews and have it read back automatically.

F01/F02 LCI Infotainment

6. ConnectedDrive



Adding new applications to BMW Online

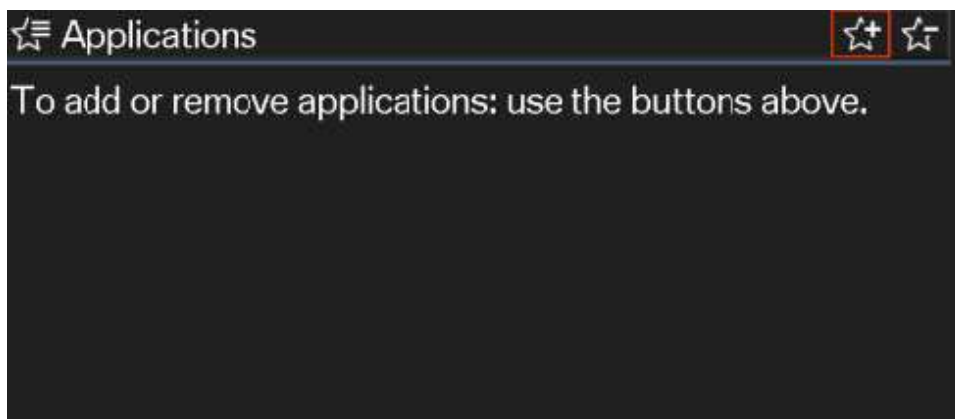
Before we can use a new application like for example “Yelp”, it must be added to the Applications menu in BMW Online.

To add a new Application to BMW Online:

- 1 Select the Applications menu.



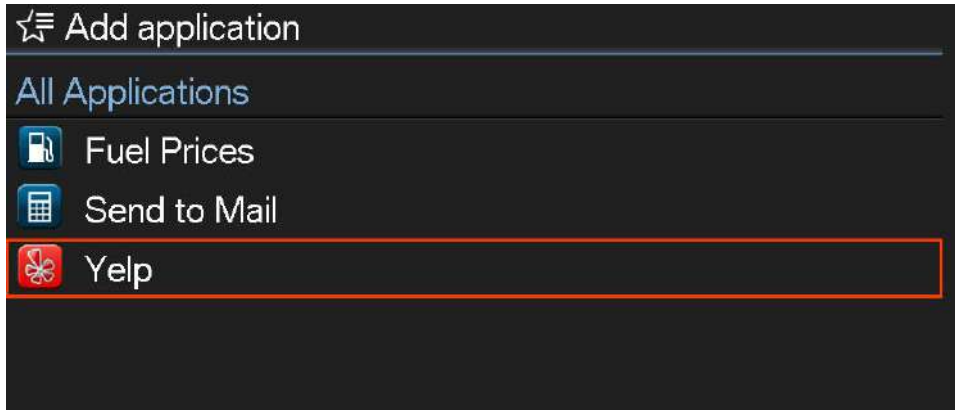
- 2 Select the “add” button from the upper-right corner.



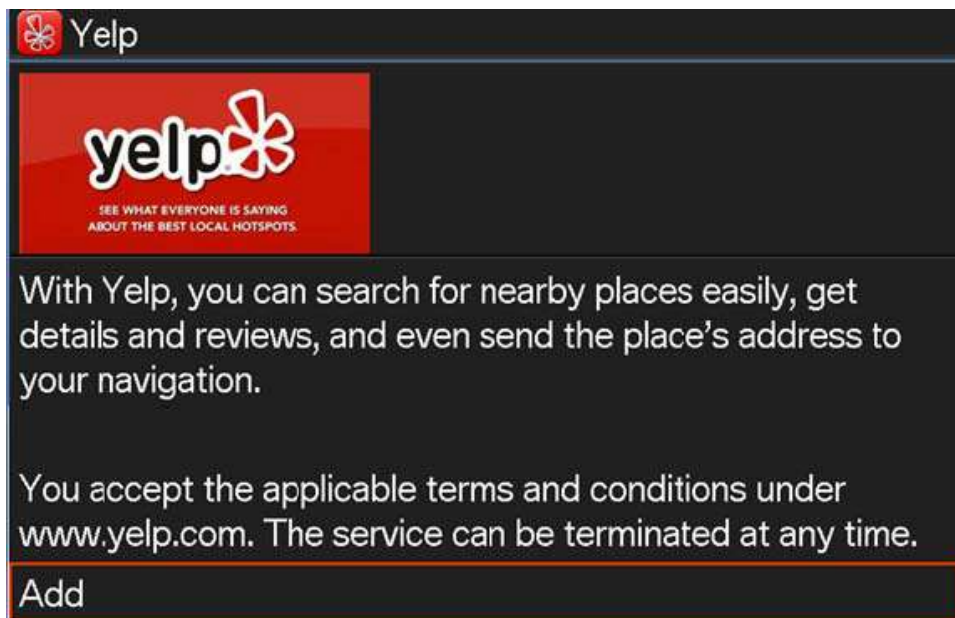
F01/F02 LCI Infotainment

6. ConnectedDrive

- 3 On the “Add application” menu, select Yelp.



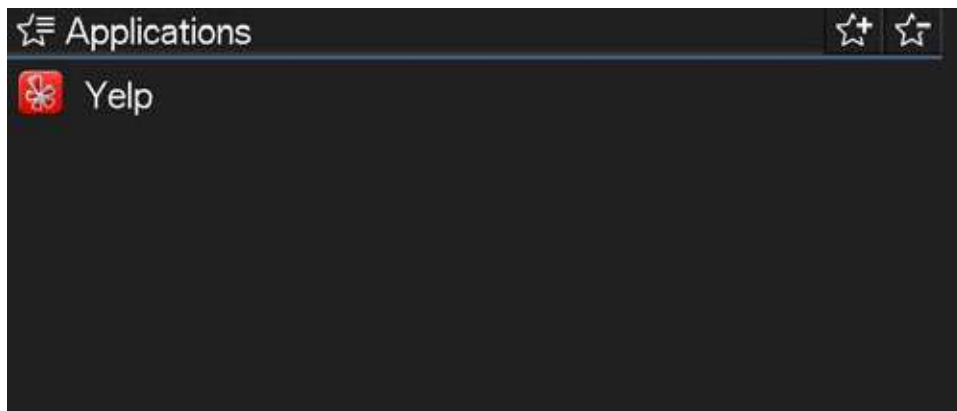
- 4 On the next screen, you will see a description of Yelp. Select “Add” to add Yelp.



- 5 You will now be able to access Yelp, under the “Applications” menu in the main menu.

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6. ConnectedDrive



More information on BMW Online Applications can be found in the “ST1211 Headunit High” training manual training material available on TIS and ICP.

Many of the new features require that the customer has an active subscription to the BMW Assist™ Safety Plan or Convenience Plan.

	US		Canada
	Safety Plan	Convenience Plan	Safety Plan
Advanced Real-Time Traffic Information (ARTTI)	X		X
Weather Icons in Navigation Map	X		X
Google™ Autocomplete Functionality		X	X
Pictures at Destination		X	NA
Points of Interest (POI) Enrichment		X	NA
Message Dictation		X	X
BMW Online Improvements		X	NA



In Canada, BMW Online is not yet available. Therefore, BMW Online Improvements, including Pictures at Destination and POI Enrichment, are also not available.



To view a video on demand regarding the BMW 7 Series LCI models please refer to the OL1212 F01/F02 LCI Complete Vehicle online course available on ICP.



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