Self-Study Programme 460

Audi A8 ’10 convenience electronics and Audi tracking assist

Audi
Service Training

Introduction

The new dash panel insert is an innovation guaranteed to hold the driver spellbound from the moment he enters the Audi A8 ’10. Its most striking feature is a 7-inch colour display designed to show not only high-resolution navigation graphics and information from the on-board computer but also moving images from the night vision system camera.

It also has an entirely new operating and display concept. The new taskbar at the top of the display allows content to be called up quickly on the colour display. It offers a clear structuring of content and straightforward layout.
The display is controlled by buttons on the standard multifunction steering wheel.

The ambient lighting sets new standards when it comes to creating ambience in the vehicle interior. Multicoloured optical fibres and LEDs inside the vehicle conjure up a wide variety of atmospheres ranging from a formal feel to a feel-good ambience, created by means of warm white light.

Another technical feature discussed in this Self-Study Programme is the Audi tracking assist, which aids in detecting the theft of a vehicle and in its subsequent recovery.

For this purpose, the tracking assist system has its own GPS unit for determining the current position of the vehicle and a telephone unit for communicating with a service centre. It allows rapid detection of a theft and then quick recovery of the vehicle in co-operation with the authorities .

460_001

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The Self-Study Programme teaches basics of the design and function of new models, automotive components or technologies.
It is not a Repair Manual. Figures given are for guidance purposes only and refer to the software version valid at the time of preparation of the SSP.
For further information about maintenance and repair work, always refer to the current technical literature.

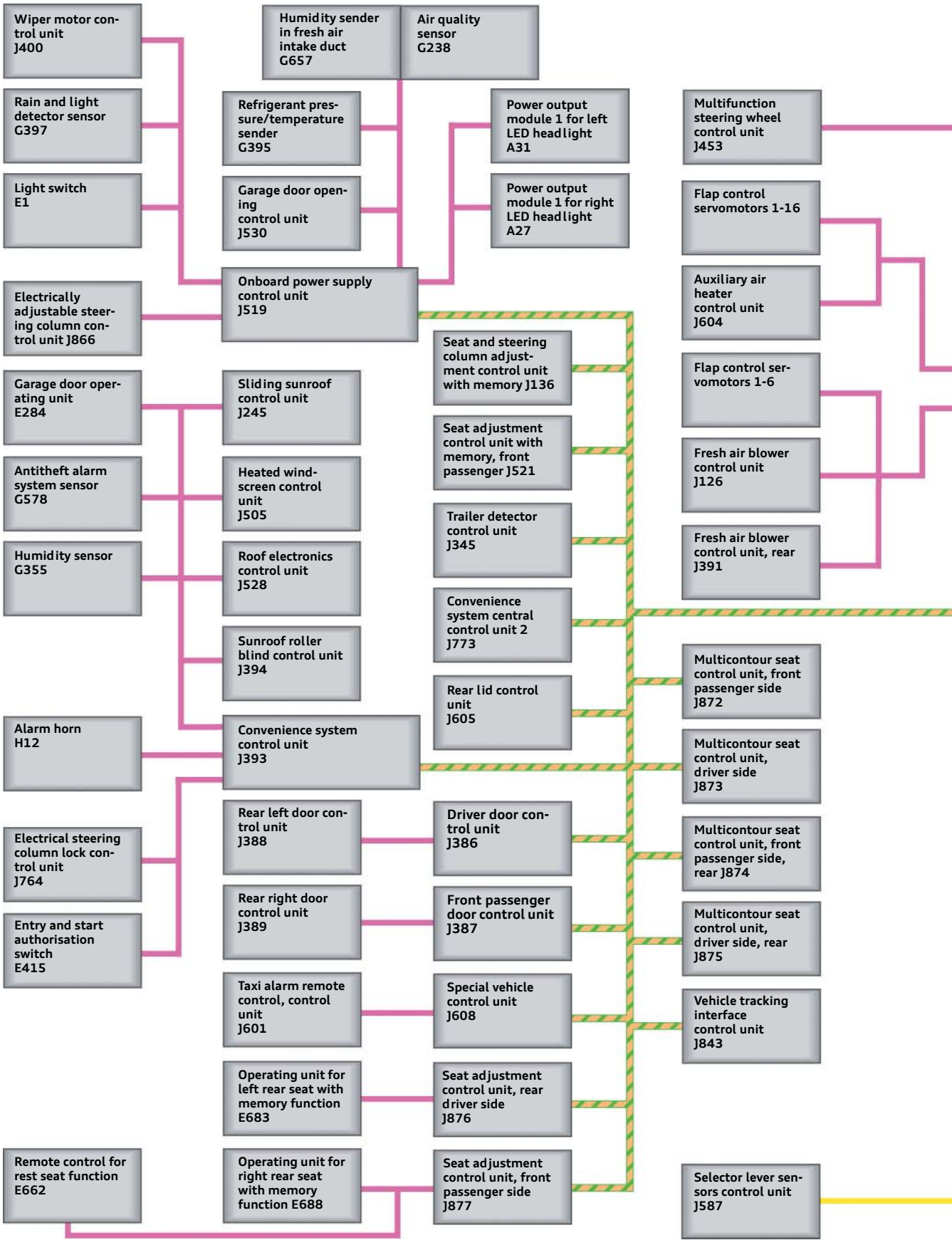
Note

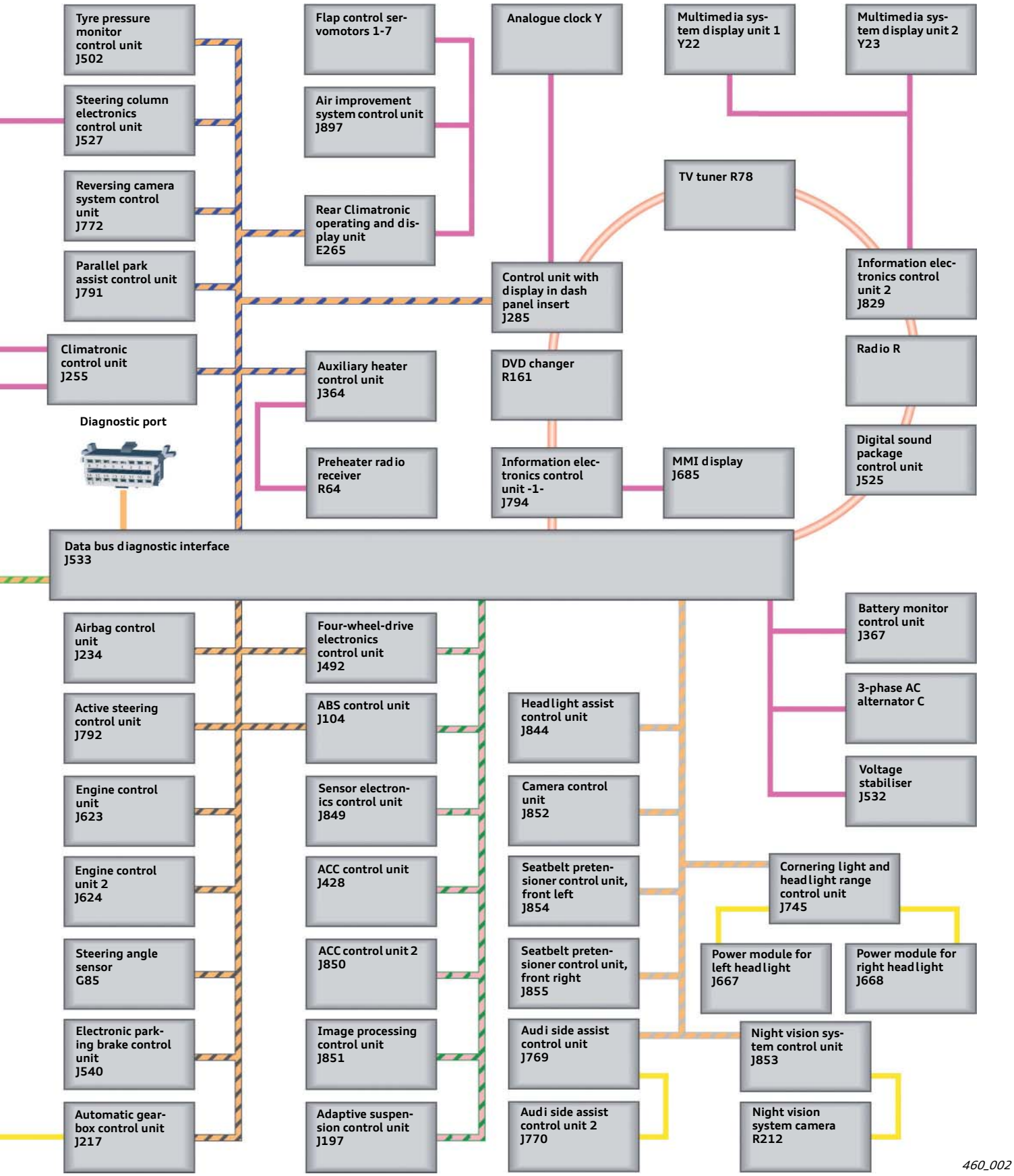
Reference

Topology of the Audi A8 ’10

The diagram shows the topology of a vehicle variant with an extensive trim.

Some of the listed control units are optional equipment or country-specific optional equipment.




Tyre pressure monitor control unit J502
Steering column electronics control unit J527
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Sensor electronics control unit J849
ACC control unit J428
ACC control unit 2 J850
Image processing control unit J851
Adaptive suspension control unit J197
Headlight assist control unit J844
Camera control unit J852
Seatbelt pretensioner control unit, front left J854
Seatbelt pretensioner control unit, front right J855
Audi side assist control unit J769
Audi side assist control unit 2 J770
Battery monitor control unit J367
3-phase AC alternator C
Voltage stabiliser J532
Cornering light and headlight range control unit J745
Power module for left headlight J667
Power module for right headlight J668
Night vision system control unit J853
Night vision system camera R212
460_002
Powertrain CAN
Convenience CAN
CAN Extended
CAN display and operation
FlexRay
Diagnostics CAN
MOST bus
LIN bus
Sub-bus systems

Control unit with display in dash panel insert J285

The dash panel insert on the Audi A8 ’10 is a new development which meets the increased demands on in-car displays and, in particular, the requirements of various driver assistance systems.

A high-resolution 7-inch colour display in typical Audi layout is located directly within the drivers field of vision to provide the driver with all the information he needs. It has a resolution of 800 x 480 pixels.

460_003

In addition to the round gauges, the displays for coolant temperature and tank capacity are arranged in a modern bargraph display for the first time. The round gauges and bargraph displays are mounted in elegant chrome bezels, whose high-quality effect is accentuated by a special light in the 3D dial face.

The round gauges still have LED rings for the separate indication of the ACC set speed and of the rev counter's red zone. The round gauge dials rest in the six o'clock position.

The centre display in the dash panel insert offers superb contrast, brightness and colour accuracy. The homogeneous white scale and red dial illumination create a remarkably precise display. The intensity of the combined lighting can be regulated manually and is adapted automatically to ambient brightness levels by a built-in light sensor.

Warning lamps are also arranged in an ergonomically favourable position below the display directly within the driver's field of vision.

Analogue clock

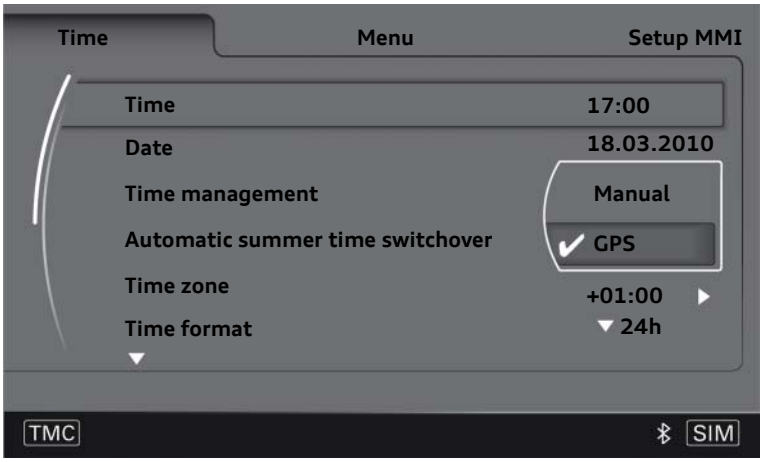
An analogue clock is fitted as standard in the centre console of the Audi A8 ’10. It communicates with the dash panel insert via a LIN bus.

If the ignition is "on", the analogue clock continuously receives time signals from the dash panel insert. After the ignition is turned off, the analogue clock continues to operate independently.

460_004

Clock time can be set manually at the MMI terminal. If the vehicle has a navigation system, the dash panel insert can also utilise the clock time from the navigation system, which acquires its time information from the GPS signal.

The dash panel insert can be configured to use either the manually entered time or the navigation system time under the "Time management" menu option on the MMI terminal.
The previous radio-controlled clock and accompanying radio receiver have been deleted from the Audi A8 ’10.



460_005

Operation and display structure of driver information system

An innovative operating and display philosophy has been adopted for the driver information system on the Audi A8 ’10. The complete display area of the multifunctional display is subdivided into three sections. The taskbar is located in the top section of the display.

It is used to select which information is to be shown in the centre section of the display. The bottom section of the display contains the status bar, which gives basic information, such as temperature, time, selected gear, trip mileage and total mileage.

Taskbar

The taskbar can display up to six tabs, depending on trim level. The tabs are assigned to the following content:

First tab:	Vehicle functions
Second tab:	Warning lamps and driver information
Third tab:	Night vision assist control unit
Fourth tab:	Audio systems
Fifth tab:	Telephone
Sixth tab:	Navigation

460_006

Operation

The driver has special controls on the standard multifunction steering wheel for operating the driver information system.

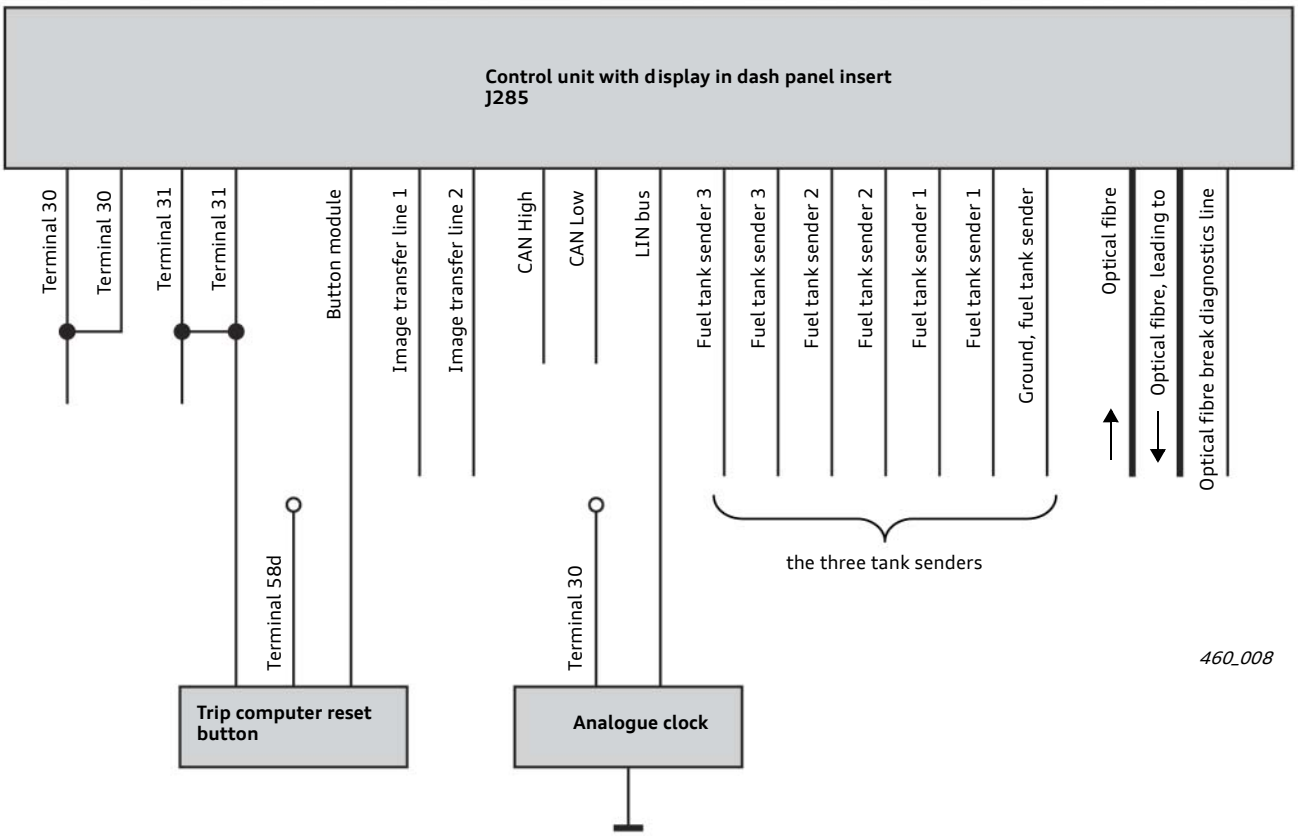
The rocker button can be used to go from one tab to the next. Push the roller to select a tab.

460_007

Note

The second tab is only shown if at least one warning lamp or one item of driver information is on display. Display of the night vision assist tab depends on whether the system is on of off.

Terminal diagram of control unit with display in dash panel insert J285



Optical fibre

To display high-resolution graphics of the navigation system in the dash panel insert, the control unit in dash panel insert J285 is connected to the MOST bus in the Audi A8 ’10. The higher bitrate of the MOST bus makes it possible to display high-resolution images, such as detailed intersection images.

Optical fibre break diagnostics line

Since the dash panel insert is a MOST bus user on the A8 ’10, it requires an optical fibre break diagnostics line for diagnosis purposes.

Image transfer line

Both analogue image transfer lines are required for the transfer of images from night vision assist. These images are recorded by the thermal imaging camera of the night vision assist and shown on the centre display of the dash panel insert.

LIN bus

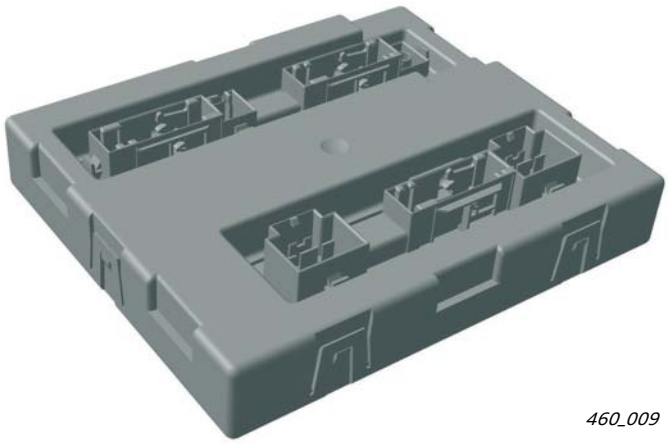
The dash panel insert communicates with the analogue clock in the centre console via the LIN bus.

CAN lines

The dash panel insert communicates with other control units via the two lines of the display and operation CAN bus.

Convenience system control unit J393

The convenience system control unit J393 in the Audi A8 ’10 has been adopted from the Audi A4 ’08.



460_009

Inputs and outputs of the convenience system control unit

The convenience system control unit J393 is connected to the following supply lines:

- Two terminal 30 lines
  (protected by two 20A fuses)
- Terminal 30 line for rear lid power latching motor
  (protected by a 20A fuse)
- Two ground wires

The following bus lines are connected to the convenience system control unit J393:

- Convenience CAN High
- Convenience CAN Low
- LIN bus 1
  (garage door opener control panel, slide/tilt sunroof, antitheft alarm sensor, roof electronics control unit, windscreen heater, humidity sensor, sunroof roller blind)
- LIN bus 2
  (alarm horn of antitheft alarm system)
- LIN bus 3
  (electrical ignition lock, electrical steering column lock)

The convenience system control unit J393 reads in signals from the following switches and buttons:

- Brake light switch
- Softtouch button in rear lid
- Full lock button in rear lid
- Clutch pedal sensor for manual gearbox or P/N signal for automatic gearbox
- Start/stop button
- Redundant start/stop button
- Microswitch of rear lid power latch for "fully retracted" position
- Microswitch of rear lid power latch for "fully extended" position
- Microswitch in rotary latch of rear lid lock
- Microswitch for "key inserted" position in electronic ignition lock
- Microswitch for "terminal 15" position in electronic ignition lock
- Redundant microswitch 1 for "terminal 15" position in electronic ignition lock
- Redundant microswitch 2 for "terminal 15" position in electronic ignition lock

The convenience system control unit J393 reads in signals from the following sensors:

- Touch sensor, door outer handle, front left
- Touch sensor, door outer handle, front right
- Touch sensor, door outer handle, rear left
- Touch sensor, door outer handle, rear right

The convenience system control unit J393 outputs the following signals:

- Steering column lock enabling signal
- Terminal 50 signal
- Signal for actuation of ignition key removal lock

The following lights and lamps are activated by convenience system control unit J393:

- LED tail light, left and right, in rear lid
- LED brake light, left and right, in rear lid
- LED rear fog lights, left and right, in rear lid
- LED turn signal, left and right, in rear lid

- LED tail light, left and right, in bodyside
- LED brake light, left and right, in bodyside
- LED reversing light, left and right, in bodyside
- LED turn signal, left and right, in bodyside

- Luggage compartment light
- License plate light
- High-level brake light

The following antennas are connected to the convenience system control unit J393:

- Central locking antenna
- Keyless antenna in centre console
- Keyless antenna in left rear door
- Keyless antenna in right rear door
- Keyless antenna in left rear shelf
- Keyless antenna in right rear shelf

The convenience system control unit J393 activates the following relays:

- „Terminal 1“ relay
- Rear window defroster relay
- Socket relay

The convenience system control unit J393 activates the following motors and actuators:

- Rear roller blind drive
- Rear lid power latch motor
- Fuel tank flap lock actuator

Ambient lighting

The Audi A8 ’10 features a completely new interior lighting design. The central interior light in the headliner has been replaced by several optical fibres and lights distributed throughout the vehicle. The interior lighting ranges from the purely functional to an emotional interior and ambient lighting incorporating special light scenarios.

In the optional ambient lighting package, the light bands in the headliner come in two different colours and the ambient lighting below the topshoulder in three different colours. Depending on choice of light colour (polar white, ivory white or ruby red), different atmospheres are created inside the vehicle.

460_016

Overhead module with optical fibre

460_033

Seat up-light (reading lights)

460_034

Optical fibre between grab handles

Light scenarios of the ambient lighting

The following three colour profiles are available for the ambient lighting:

Colour: polar white (cool white tone)

Character of light: technical light, formal, unemotional and precise; accentuates high-quality design elements

460_010

Colour: ivory white (warm white tone)

Character of light: warm and inviting light, creates a feel-good atmosphere

460_011

Colour: ruby red (cool white and red tone)

Character of the light: sporty and progressive, created by stark contrast between two different tones

460_012

The ambient light module

Convenience system control unit 2 – J773

The ambient light module is referred to as the convenience system control unit 2 - J773. Convenience system control unit 2 is the ambient lighting
master control unit in the Audi A8 ’10. It is only installed if the vehicle is ordered with the optional ambient lighting package. The control unit itself activates various ambient lights. Other ambient lights are activated by the roof electronics control unit and the door control units, which receive corresponding commands from J773 via the CAN bus.

The brightness level of the ambient lighting can be set by the driver at the MMI terminal. The desired brightness level can be set by adapting the duty cycle of the pulse-width modulated signal (PWM signal) accordingly.

460_013

Diagnostics of the ambient lighting

The LEDs are "warm-state" monitored by convenience system control unit 2, i.e. they are diagnosed only when the ambient lighting is "on".

"Cold-state" monitoring is unsuitable for LED diagnostics, because the LEDs would light up briefly during the diagnostics process.

Diagnostics

Convenience system control unit 2 is addressed by the diagnostic tester using **address word 6F**. The following diagnostic options are available:

Actuator test

- a selective actuator test for selected ambient lights
- a group actuator test for all ambient lights

Data blocks

- Current duty cycle of PWM signal of ambient lights (given as a percentage)
- Measured electrical current of the ambient lights per control unit output

Fault memory entries

The following diagnostic trouble codes can be stored in the fault memory per control unit output:

- open circuit or short circuit to positive
- short circuit to ground

Ambient lights connected to control unit J773

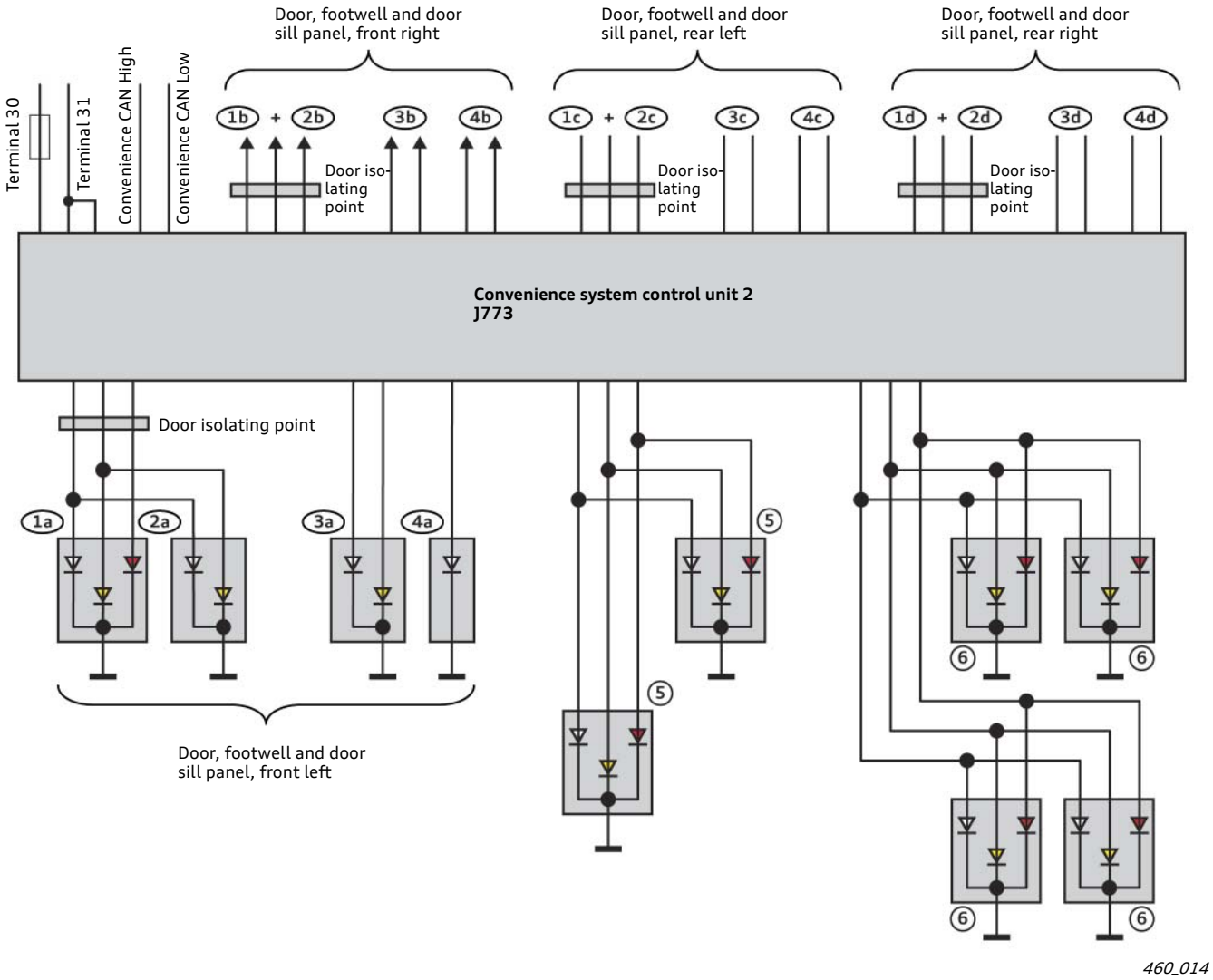
The following table gives a summary of all lights connected to the ambient light module. All lights are available only in combination with the optional ambient lighting package. This excludes the two front footwell lights, which are activated by the onboard power supply control unit in vehicles without the optional ambient lighting package.

Service designation	Short designation	Technical specifications	Colour(s)	Number of LEDs
Optical fibre for ambient lighting of front centre console	W74	LED	cool white, warm white and red	3x4 *
Optical fibre for ambient lighting of rear centre console (Note: only available in long wheelbase version of Audi A8 with rear comfort seats.)	W75	LED	cool white, warm white and red	3x2
Optical fibre for ambient lighting of door sill panel, front left	W67	LED	cool white	1
Optical fibre for ambient lighting of door sill panel, front right	W68	LED	cool white	1
Optical fibre for ambient lighting of door sill panel, rear left	W69	LED	cool white	1
Optical fibre for ambient lighting of door sill panel, rear right	W70	LED	cool white	1
Lamp for ambient lighting in driver's door	L164	LED	cool white, warm white and red	3 **
Lamp for ambient lighting in front passenger door	L165	LED	cool white, warm white and red	3
Lamp for ambient lighting in door, rear left	L166	LED	cool white, warm white and red	3
Lamp for ambient lighting in door, rear right	L167	LED	cool white, warm white and red	3
Lamp for door bin lighting, driver side	L160	LED	cool white and warm white	2
Lamp for door bin lighting, front passenger side	L161	LED	cool white and warm white	2
Lamp for door bin lighting, rear left	L170	LED	cool white and warm white	2
Lamp for door bin lighting, rear right	L171	LED	cool white and warm white	2
Footwell light, front left (Note: this function is performed by onboard power supply control unit J519 in vehicles without ambient lighting)	L151	LED	cool white and warm white	2
Footwell light, front right (Note: this function is performed by onboard power supply control unit J519 in vehicles without ambient lighting)	L152	LED	cool white and warm white	2
Footwell light, rear left	W45	LED	cool white and warm white	2
Footwell light, rear right	W46	LED	cool white and warm white	2

* … three LEDs in different colours which feed light into the optical fibres in four different positions

** … three LEDs in different colours

Wiring diagram of ambient light module



Legend:

1a	Optical fibre in door	Door, footwell and door sill panel, front left
2a	Door pocket light	
3a	Footwell lamp	
4a	Door sill panel light	
1b	Optical fibre in door	Door, footwell and door sill panel, front right
2b	Door pocket light	
3b	Footwell lamp	
4b	Door sill panel light	
1c	Optical fibre in door	Door, footwell and door sill panel, rear left
2c	Door pocket light	
3c	Footwell lamp	
4c	Door sill panel light	
1d	Optical fibre in door	Door, footwell and door sill panel, rear right
2d	Door pocket light	
3d	Footwell lamp	
4d	Door sill panel light	
5	Rear centre console lighting (long wheelbase version of A8 only)	
6	Front centre console lighting	

The roof electronics control unit J528

Further lights of the interior and ambient lighting system are connected to the outputs of the roof electronics control unit J528.
If the optional ambient lighting package is installed in the vehicle, the lights and light bands are multicoloured;otherwise, they are in single colour.

Control unit J528 communicates with the convenience system control unit J393 via a LIN bus line.

Lights connected to the overhead module without optional ambient lighting:

Service designation	Technical specifications	Colour	Number of lights
Reading lights, front left	LED	cool white	1
Reading lights, front right	LED	cool white	1
Optical fibre for overhead module ambient lighting	LED	cool white	2
Centre console up-light	LED	cool white	2
Optical fibre between grab handles, left	LED	cool white	1
Optical fibre between grab handles, right	LED	cool white	1
Reading lights 1, rear left	LED	cool white	1
Reading lights 1, rear right	LED	cool white	1

Lights connected to the overhead module with optional ambient lighting:

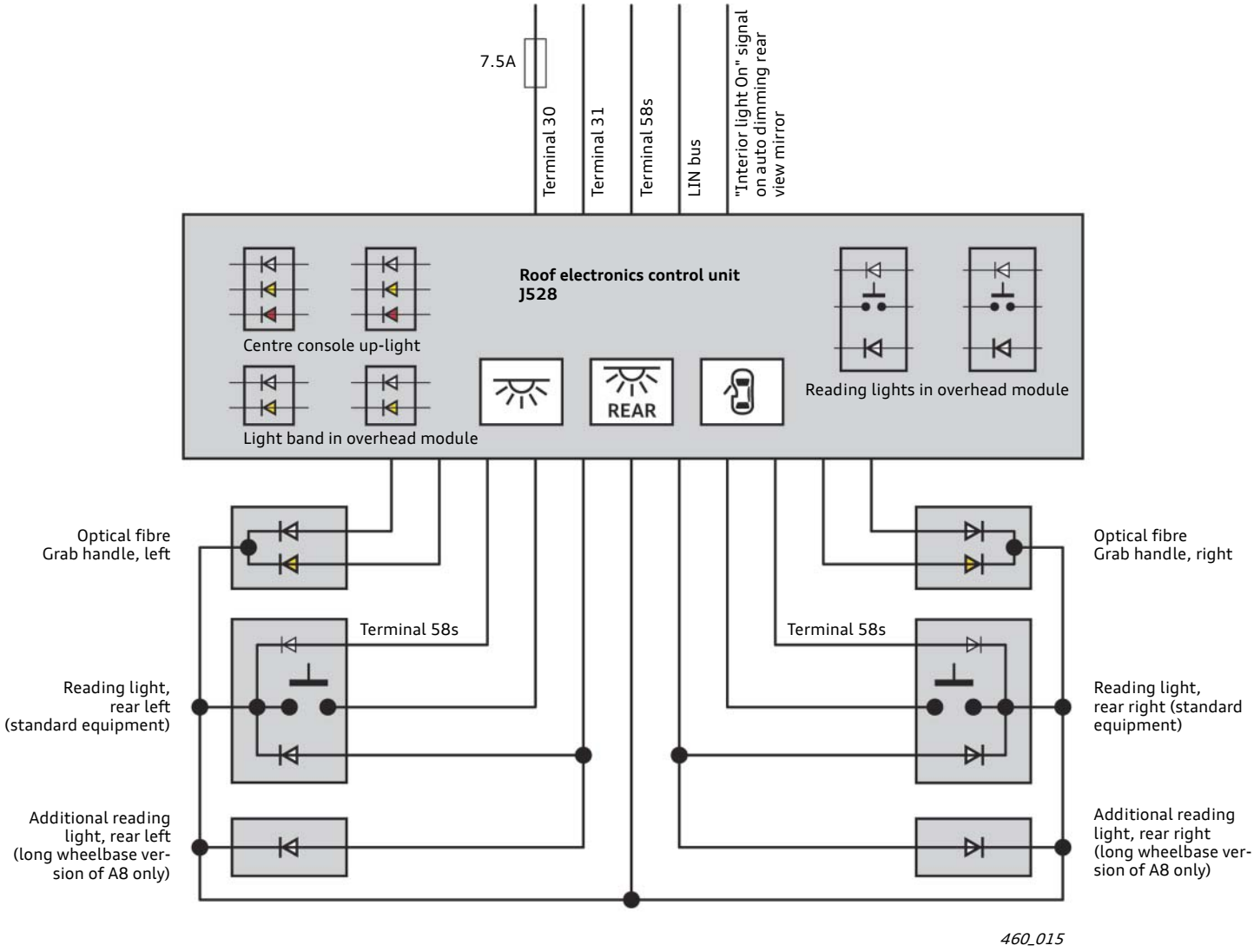
Service designation	Technical specifications	Colour(s)	Number of lights
Reading lights, front left	LED	cool white	1
Reading lights, front right	LED	cool white	1
Optical fibre for overhead module ambient lighting	LED	cool white and warm white	2x2
Centre console up-light	LED	cool white, warm white and red	3x2
Optical fibre between grab handles, left	LED	cool white and warm white	2
Optical fibre between grab handles, right	LED	cool white and warm white	2
Reading light 1, rear left	LED	cool white	1
Reading light 1, rear right	LED	cool white	1
Reading light 2, rear left (long wheelbase version of Audi A8 only)	LED	cool white	1
Reading light 2, rear right (long wheelbase version of Audi A8 only)	LED	cool white	1

Wiring diagram of overhead module

Lights integrated in the overhead module

The front left and right reading lights are integrated in the overhead module. In addition to the LED of the reading lighting, they have a button for switching the reading light on and off and a locating light. The reading lights are standard equipment.

The light band in the overhead module and the centre console up-light are also standard equipment. The light band for the ambient lighting is in two colours and the centre console up-light in three colours. In the standard trim, both lights are in single colour.



Ambient lights connected to overhead module

Both rear reading light modules are connected to the overhead module. The long wheelbase version of the Audi A8 has two additional reading lights for the rear passenger compartment.

There are a further two optical fibres between both grab handles on the left and right-hand sides. In combination with the ambient lighting, they come in two colours (polar white and ivory white). In the standard trim, the optical fibres are in polar white only.

A discrete signal line runs from the overhead module to the auto dimming rear view mirror. The signal indicating whether the interior light is currently switched on or off is sent via this line to the rear-view mirror. The rear-view mirror is not to dimmed as long as the interior light is switched on.

Door control units J386 – J389

Interior lights are also connected to the door control units. All lights apart from the active door warning light are standard equipment.

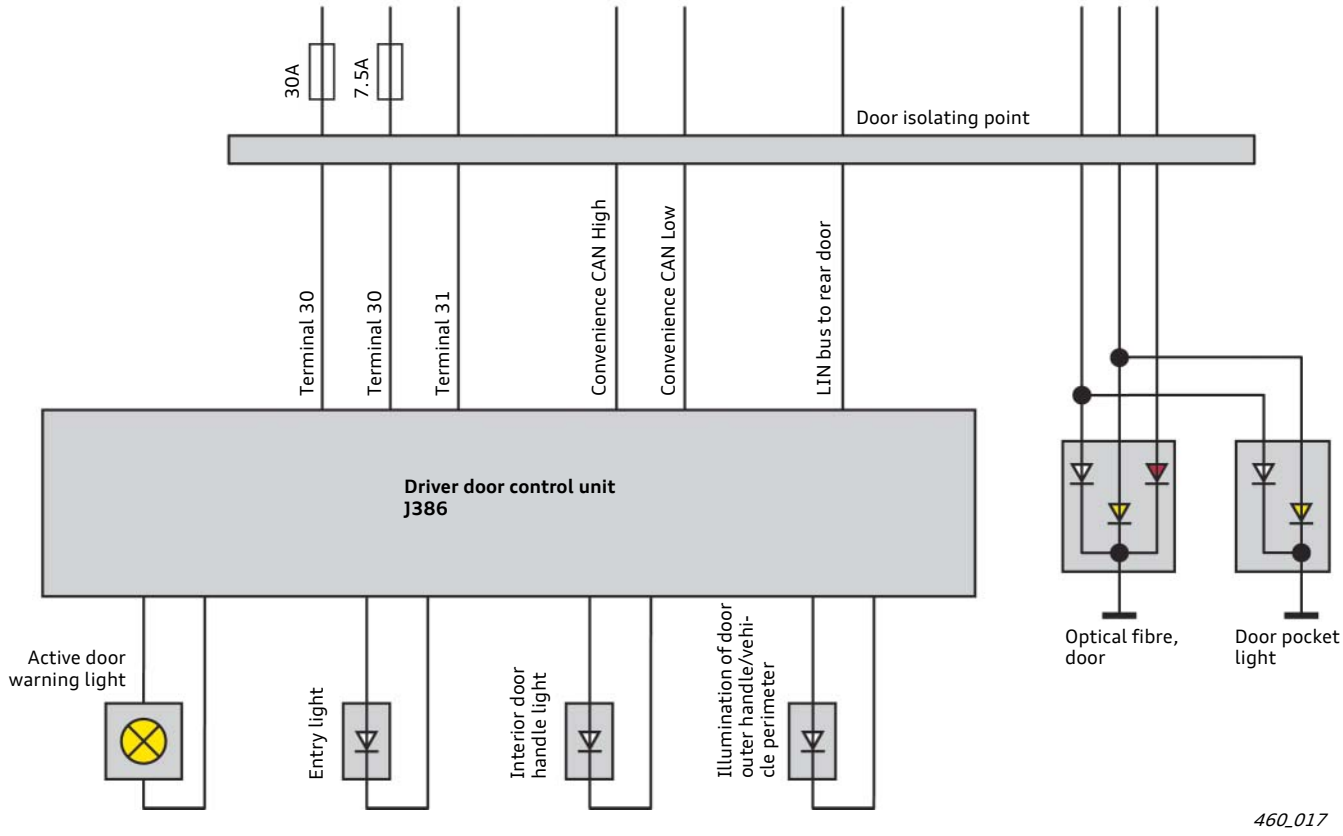
The driver door and the driver side door control unit are used here as examples.

Service designation	Technical specifications	Colour	Number of lights	Standard equipment / ambient lighting package
Door outer handle light and frontlighting	LED	cool white	1	Standard equipment
Interior door handle light	LED	cool white	1	Standard equipment
Entry light	LED	cool white	1	Standard equipment
Active door warning light	Lamp	-	1	Ambient lighting package

Wiring diagram of driver door control unit

The optical fibres and the door pocket lighting are located in the driver's door, but are not activated by the driver door control unit J386.

As part of the ambient lighting package, they are activated directly by the ambient module (convenience system control unit 2 – J773).



Operating the ambient lighting

The ambient lighting is switched on if the following conditions are met:

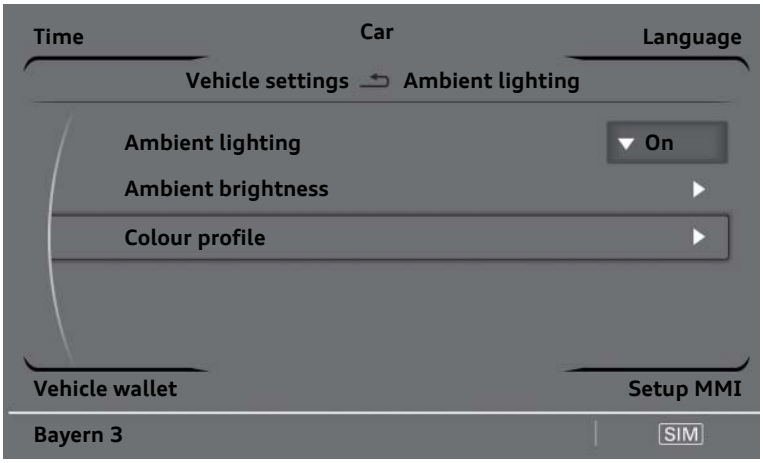
- the ignition is "on"

and

- the dipped beam is "on"

and

- the "Ambient lighting" menu option is set to "on" at the MMI terminal



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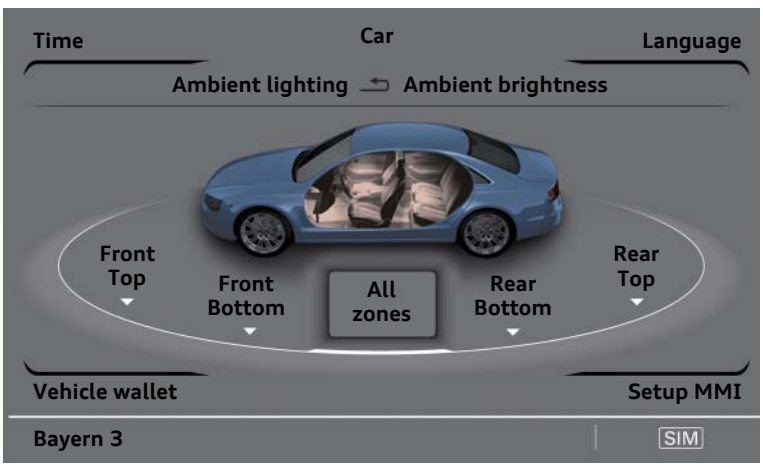
Setting the brightness level

The brightness of the ambient lighting can be set to different levels in four in-car zones. These are as follows:

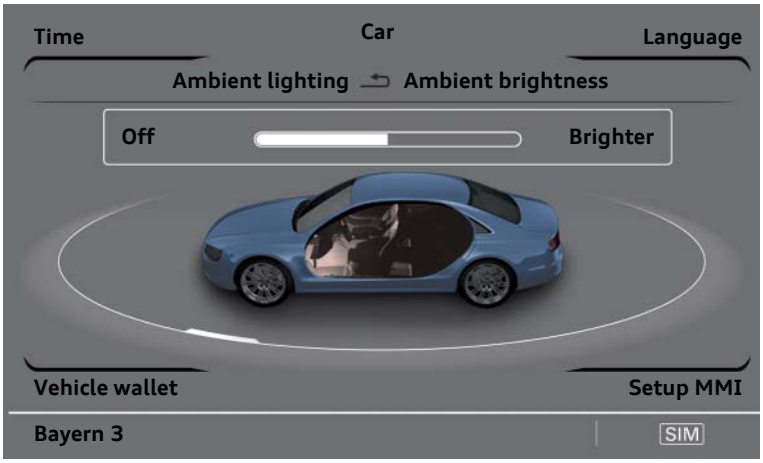
- top front
- bottom front
- top rear
- bottom rear

The "All zones" menu option allows the brightness level to be synchronised in all in-car zones.



460_019

After one of the in-car zones is selected, the following brightness adjustment menu appears:

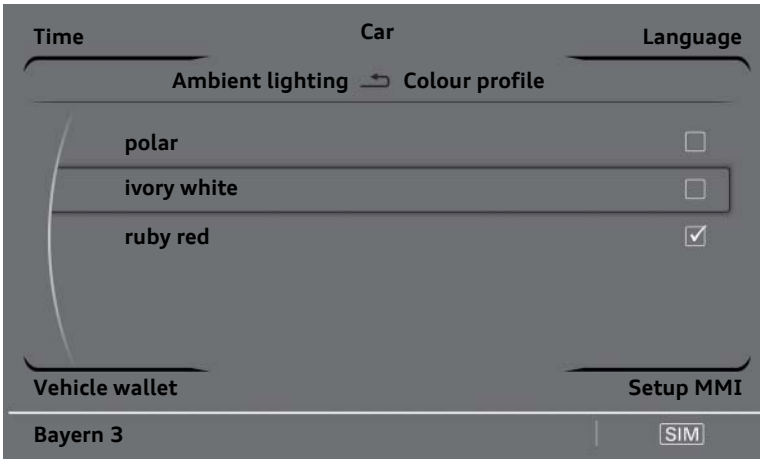


460_020

Setting the colour profile

There is a choice of three colour profiles: polar, ivory white and ruby red. The selected colour profile applies to all zones.

To ensure uniformity of appearance, the colour profile cannot be adjusted separately for each in-car zone.



460_021

Customisation

After turning off the ignition, the on-state and the current brightness and colour profile settings of the ambient lighting are assigned to the ignition key in use and stored in convenience system control unit 2.

Audi tracking assist

Introduction

The theft of a vehicle is not only a personal loss but usually also involves a great deal of organisational effort. The theft of a vehicle abroad is even more complicated because of the language barrier. In such a situation, it is very helpful if the victim can report the theft in his native tongue and be given professional assistance in recovering the vehicle.

To prevent theft, most modern-day vehicles are equipped with an electronic immobiliser and an antitheft alarm system.To provide additional protection, Audi now offers an electronic tracking system called Audi tracking assist. This is an electronic system that helps to identify a theft in the least possible time.

It also assists in subsequent recovery efforts by localising the stolen vehicle. The tracking assist system is operated by Audi as a joint venture with external service provider Cobra.

Cobra's experience has shown that the tracking assist system enables about 80 % of all stolen vehicles to be located in less than two hours, anywhere in Europe. For this purpose, Audi tracking assist determines the exact co-ordinates of the vehicle by GPS (Global Positioning System) and sends them to the Service Operating Centre (SOC). The tracking assist system has a separate communication interface (GSM module) for communicating with the SOC.

The Service Operating Centre (SOC)

The Service Operating Centre is responsible for locating the stolen vehicle, as well as for liaising with the appropriate authorities or locally with the police. Each country has its own Service Operating Centre. The Service Operating Centres of the various countries work hand in hand with each other. The customer always liaises with the SOC of his home country, even if a theft occurs abroad. SOCs are already in place throughout Europe and are operated either directly by Cobra or by a security company contracted by Cobra.

The National Service Provider (NSP)

In addition to the Service Operating Centre, which primarily takes action when a vehicle is stolen, there is also the National Service Provider NSP. The NSP is responsible for administrative tasks, such as customer management.

Tasks of Audi tracking assist

If a vehicle is stolen, Audi tracking assist assists in two ways:

- quick detection of theft

and

- subsequent recovery of stolen vehicle by tracking

460_023

Vehicle tracking system control unit J895

Note
The customer is charged an annual fee for delivery and operation of the GSM module in Audi tracking assist.

The two versions of Audi tracking assist

Audi tracking assist is available in two different versions:

- Basic version: Audi tracking assist

and

- Plus version: Audi tracking assist plus

The fundamental difference between both versions is that Audi tracking assist, unlike the Plus variant, is not integrated in the vehicle network, rather is a "standalone" solution. The Plus version is networked so it can respond to in-car events, such as a tripped antitheft alarm. If a theft is detected, the Plus version can also remotely disable the vehicle electronics to, for instance, prevent the thief from driving the stolen vehicle any further.

Note
Both versions are exclusively available as a retrofit solution through Audi Genuine Accessories. Even with new models, the tracking assist system is available for retrofit only.

Requirements for retrofitting Audi tracking assist

Retrofitting Audi tracking assist

A vehicle does not have to meet any special requirements in order to retrofit Audi tracking assist.

Retrofitting Audi tracking assist plus

To retrofit Audi tracking assist plus, the vehicle must be factory-fitted with a vehicle tracking interface control unit J843. This control unit can be ordered as optional equipment for all Audi models and is designated as "Preparation for tracking assist system". The interface control unit cannot be retrofitted.

Audi tracking assist plus exchanges information with multiple in-car control units and is connected to the convenience CAN via the vehicle tracking interface control unit J843.

To be able to utilise the full capability of tracking assist plus, the vehicle must be fitted with an antitheft alarm.

460_024

Vehicle tracking interface control unit J843

Note
For information about the models for which Audi tracking assist and Audi tracking assist plus are currently available, refer to the various information sources for Audi Genuine Accessories.

Functions of both versions of Audi tracking assist

Which events are reported to the SOC?

Audi tracking assist notifies the Service Operating Centre (SOC) in the following situations:

- if the tracking assist system is no longer being supplied with battery power

or

- if tampering with the control unit or system components is detected

or

- if the vehicle changes position without the ignition "on"

Audi tracking assist plus also notifies the SOC if the following events occur:

- if the vehicle is moved and no authorised Driver Card is detected in the vehicle

and

- if the antitheft alarm system is tripped

How the restart inhibitor works

In the tracking assist plus version, it is also possible to inhibit restarting of the vehicle. For this purpose, the SOC sends a corresponding message to the tracking assist system via the GSM unit. The GSM unit, in turn, intervenes in the vehicle electronics via the interface control unit and can disable restarting of the vehicle. Before this function is activated, however, various requirements have to be met, and these are checked by the tracking assist system.

Use of this function is heavily dependent on national legislation. It is unavailable in some countries due to legal restrictions.

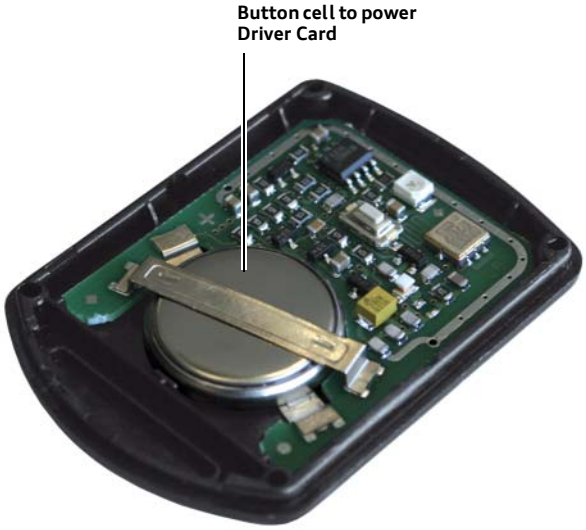
Driver Card

Functional principle

The Audi tracking assist plus comes with two Driver Cards. Tracking assist plus begins searching for a Driver Card in the vehicle after the ignition is turned on.
An alarm will be sent to the SOC unless a Driver Card adapted to the tracking assist system is identified. Altogether, up to four Driver Cards can be adapted to a tracking assist system.

If the vehicle is stolen, the following will happen if only the ignition key (i.e. no Driver Card) is stolen: the thief drives the stolen vehicle away, the tracking assist system fails to identify an authorised Driver Card in the vehicle and then sends an alarm to the SOC, which immediately contacts the vehicle's owner. To allow quick theft detection, the Driver Card must always be kept separate from the ignition key.
The driver must always make sure that he is carrying his Driver Card whenever driving the car. If the driver does not have this card with him, he must notify the SOC by telephone before setting off. If the driver sets off without notifying the SOC, an alarm will be sent to the SOC, which then contacts the customer. Since this creates unnecessary extra work for the SOC, the resulting costs are chargeable to the customer.

Driver Card control *460_025*



How the Driver Card looks when open *460_026*

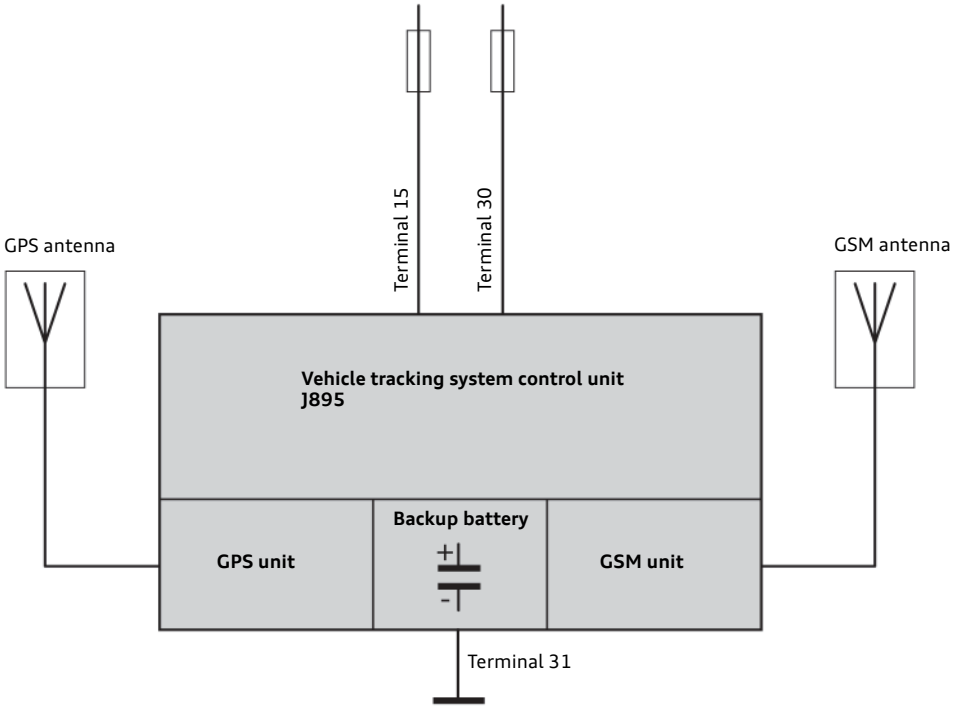
Activating and deactivating the Driver Card

To communicate with the tracking assist system, each Driver Card requires a transmitter and a battery. The tracking assist system detects when the battery power drops below a predetermined level and sends a text message alert to the customer's mobile phone.

To conserve battery power, the Driver Card can also be deactivated. This is done by pressing the button on the Driver Card for 10 seconds. The LED then goes out.

To reactivate the Driver Card, the button need only be pressed for 3 seconds. After the Driver Card has been successfully activated, the LED will again blink every 3 seconds.

Wiring diagram of Audi tracking assist



Power supply

Audi tracking assist is supplied by a "terminal 15" line and by a "terminal 30" line. The "terminal 15" connection enables the tracking assist system to determine the current status of the ignition at any time.

Backup battery

To continue to send signals to the SOC even after the vehicle battery is disconnected, the tracking assist system has its own backup battery. This battery is rated to supply backup power to the tracking assist system for a lengthy period of time.

GPS unit and antenna

Audi tracking assist has its own GPS unit and connected GPS antenna, via which it receives GPS information used to locate the vehicle in the event of a theft. The current vehicle position is sent to the SOC every 30 seconds if a stolen vehicle is being tracked. The tracking assist system has its own GPS unit and, therefore, is independent of an in-car navigation system.

GSM unit and antenna

The Audi tracking assist system has its own GSM unit and connected GPS antenna, via which it communicates with the Service Operating Centre (SOC) or the National Service Provider (NSP). Like any mobile phone, the tracking assist system has a SIM card. By having its own GSM unit, the tracking assist system is not dependent on the installation of an in-car telephone.

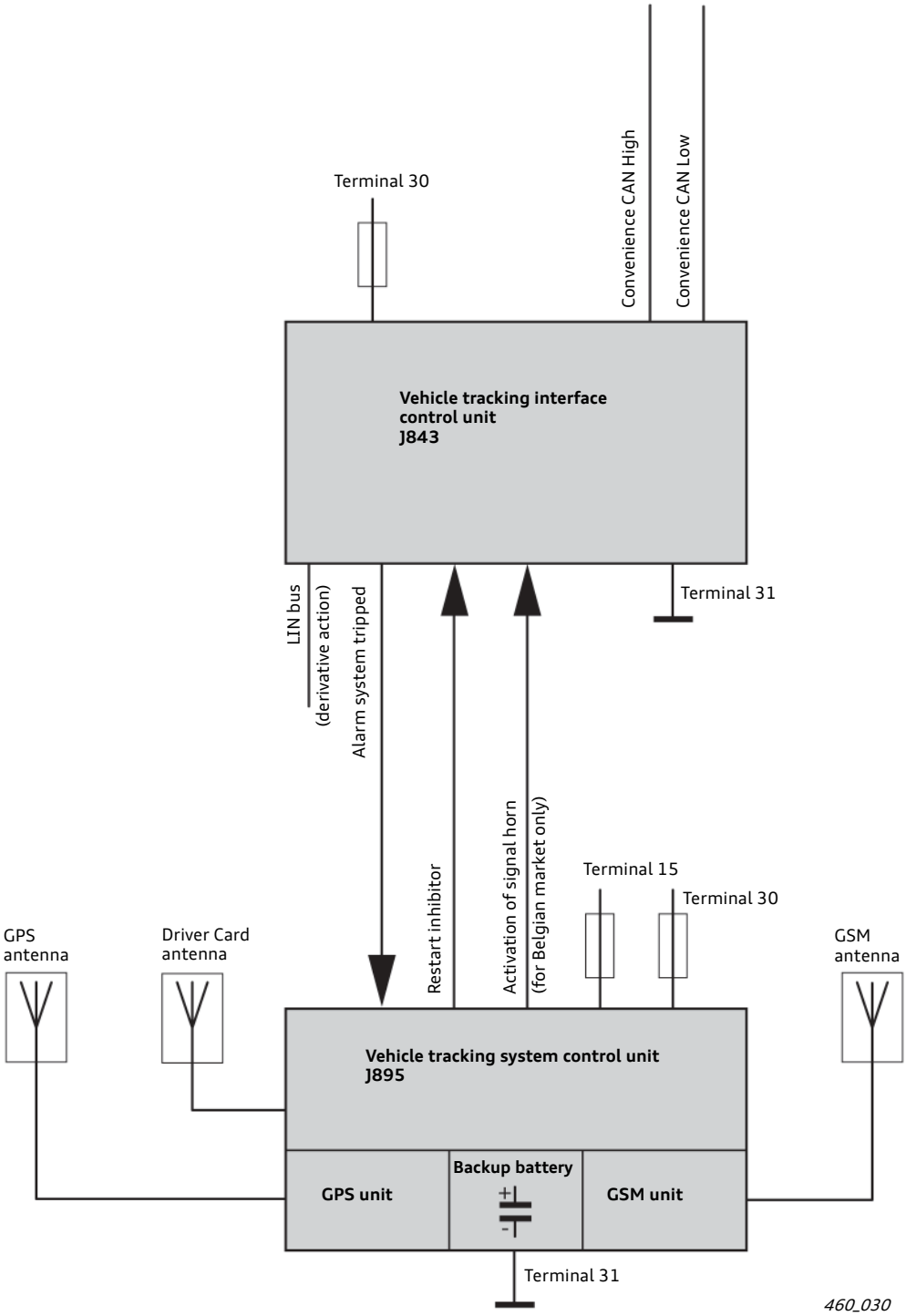
GSM antenna of the tracking assist system

460_029

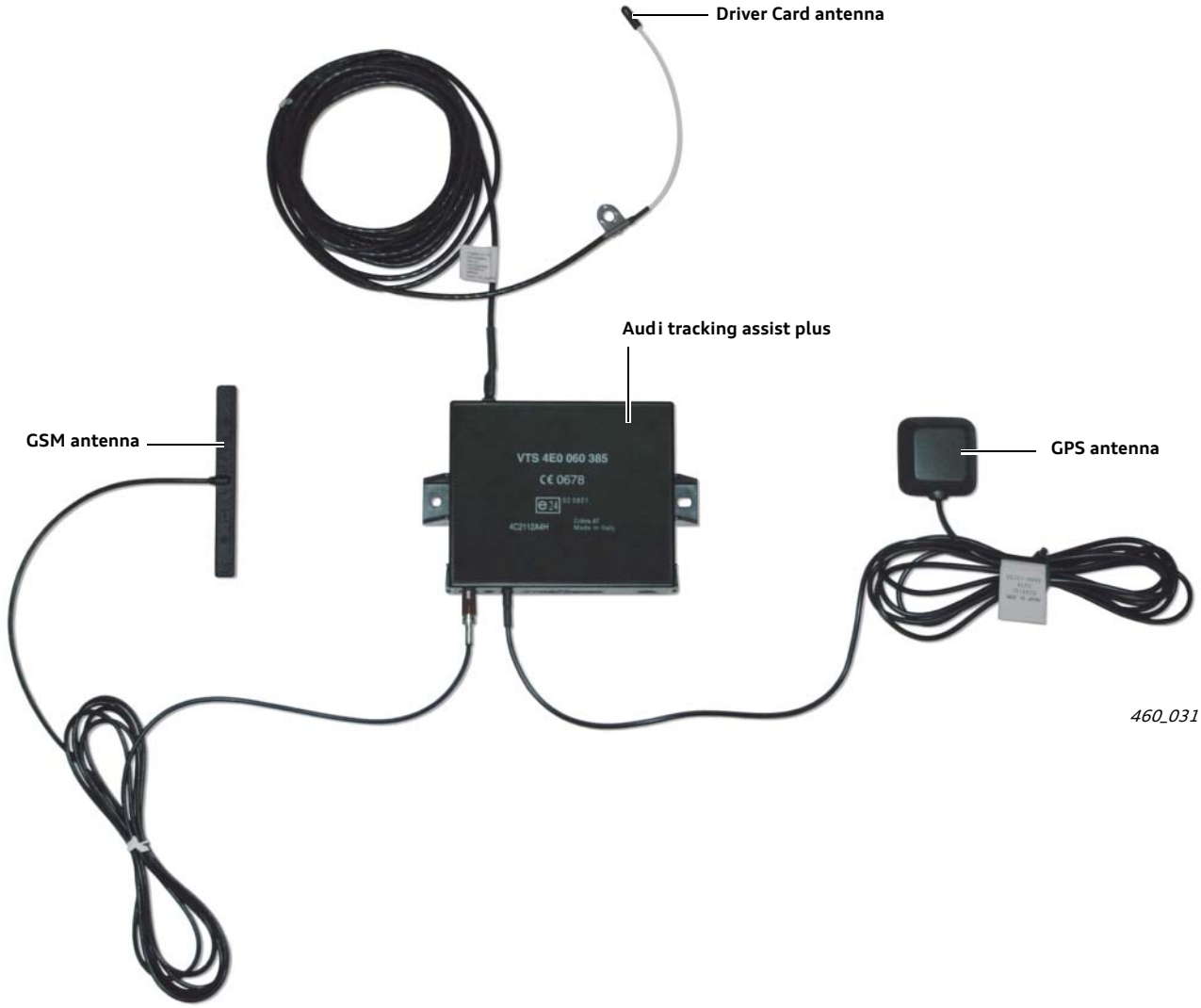
Wiring diagram of Audi tracking assist plus

Driver Card antenna

The Driver Card antenna enables the tracking assist system to determine whether a Driver Card is present in the vehicle or not. If a vehicle equipped with Audi tracking assist plus is moved and no Driver Card is located inside the vehicle, the tracking assist system notifies the SOC, which then contacts the customer. The SOC, in conversation with the customer, now clarifies whether the vehicle has actually been stolen or whether the driver has forgotten his Driver Card.



Audi tracking assist plus and connected antennas



460_031

460_028

Tracking assist system with SIM card slot

Reporting a theft to the Service Operating Centre

Basically, there are two ways to notify the SOC of a possible vehicle theft:

1. by a personal call from the customer
2. through automatic notification by the tracking assist system

1) Notification of the SOC by the customer

If a customer thinks that his vehicle has possibly been stolen, he calls his SOC and reports the theft. After the caller has identified himself to the SOC staff by providing two passwords, the process of tracking the vehicle can begin.

The SOC then liaises with the authorities and with the police.

If a vehicle is stolen abroad, the customer contacts the SOC in his home country. This allows the customer to report the incident in his native tongue. The SOC in the customer's home country then contacts the relevant SOC abroad, which then takes all other actions.

2) Automatic notification of the SOC by tracking assist system

Audi tracking assist automatically notifies the SOC if it detects actions indicating that a possible theft of the vehicle is in progress.

The SOC staff then tries to contact the vehicle owner by telephone. A message is also sent to his mobile phone. For contacting purposes, the vehicle owner can give up to five telephone numbers when registering.

If a suspected theft is confirmed after the customer has been contacted, the SOC, with the customer's consent, begins tracking the actual movements of the vehicle. To this end, it tells the tracking assist system to send the vehicle's position data to the SOC every 30 seconds.

If the customer cannot be contacted, the SOC assumes upon expiration of a predefined 30-minute period that a theft has occurred and begins tracking the movements of the vehicle.

Tracking

If, after contact has been made between the SOC and the customer, it is has to be assumed that the vehicle has been stolen, the SOC commences tracking the vehicle and liaises between the authorities and the police.
Tracking is initiated by an activation message sent to the tracking assist system by the SOC. After the tracking system has been activated, it sends the current position data of the vehicle to the SOC every 30 seconds. Using this data the SOC now assists the authorities in locating the stolen vehicle. The authorities themselves have no access to this data.

Note
For reasons of data protection, only the SOC can access the position data of Audi tracking assist for tracking purposes. To facilitate the securing of the vehicle, the SOC provides the police with actual data by telephone.

The Service and Transport mode of tracking assist system

Procedure for planned vehicle transport

If a vehicle transport is planned, the National Service Provider NSP must be notified of this by telephone. This notification is provided by the tracking assist system, which sends a corresponding message in Transport mode.

This is necessary in the following cases for example:

- the vehicle is located on a moving tow truck or on a car transporter
- travelling on a car ferry
- travelling on a motorrail train

If this is not reported in time and the tracking assist system is not set to Transport mode, the tracking assist system will signal "Movement of vehicle with the ignition off". The SOC must assume that the vehicle has been stolen and contacts the customer. Since this entails unnecessary additional work for the SOC, additional costs can be charged to the customer. Exact provisions are, however, market-specific and must be enquired about when the contract is concluded.

After the vehicle has been transported to its destination, the customer must contact the NSP once so the Transport mode is deactivated and the tracking assist system is again fully functional.

In Transport mode only tripping of the alarm by "Vehicle movement with the ignition off" is deactivated. All other functions of the tracking assist system are still available.

Procedure for service work

Prior to servicing at an authorised service centre, the customer must also contact the National Service Provider NSP so the tracking assist system is set to Service mode. If the customer fails to inform the NSP, the alarm may be tripped unnecessarily.

After the vehicle battery is disconnected, the tracking assist system would, for example, send a message to the SOC even if it is not in Service mode. The SOC would then contact the customer.

After servicing is completed at the service centre, the customer must contact the NSP once again to have the Service mode deactivated and to restore the full range of functions of Audi tracking assist.

In Service mode only tripping of the alarm by "Disconnecting the vehicle battery" is deactivated. All other functions of the tracking assist system are still available.

System diagnostics

Diagnosis of vehicle tracking control unit J895

The vehicle tracking control unit J895 has a self-diagnosis function. If the vehicle tracking control unit finds a fault in the system, a message is automatically sent to a central computer centre. This, in turn, sends a text message to the customer's mobile phone. In this way, the customer is informed about the problem that has occurred. The customer must then take the vehicle to an authorised service centre and have the fault corrected.

The vehicle diagnostic tester cannot communicate with the vehicle tracking control unit J895.

460_032

Diagnostics of the vehicle tracking interface control unit J843

The vehicle tracking interface control unit can be addressed using the vehicle diagnostic tester. Depending on model, this is done using the following address word:

3D special function (for A3, TT, R8, A6 (C6), Q7, A8 (D3))

30 special function II (for A4 (B8), Q5, A6 (C7) and A8 (D4))

Test yourself:

One or more answers may be correct.

1. Which of the following statements regarding the dash panel insert are true?

- ☐ a) The driver information system can be operated using the controls on the windscreen wiper stalk
- ☐ b) The dash panel insert receives the image from night vision assist via MOST bus
- ☐ c) The analogue clock is connected to the dash panel insert via a LIN bus line
- ☐ d) The dash panel insert can use the time information in the GPS signal to set its clock time (if the vehicle is fitted with a navigation system)

2. Which of the following statements regarding the ambient light module are true?

- ☐ a) The ambient light module is equivalent to convenience system control unit 2 - J773
- ☐ b) The ambient lighting is optional equipment in the Audi A8 ’10
- ☐ c) The colour profile of the ambient lights can be adjusted separately for all 4 zones in the vehicle
- ☐ d) The active door warning lights are integral to the ambient lighting

3. Which of the following statements regarding Audi tracking assist are true?

- ☐ a) It has its own GPS unit
- ☐ b) It has its own GSM unit
- ☐ c) It provides an accident SOS service
- ☐ d) It is distributed through Audi Genuine Accessories and cannot be ordered straight from the factory

4. Which events result in notification of the Service Operating Centre by Audi tracking assist plus?

- ☐ a) Tripping of the antitheft alarm system
- ☐ b) Activation of a control unit's component protection function
- ☐ c) No adapted Driver Card is identified in the vehicle
- ☐ d) The vehicle moves without the ignition "on"

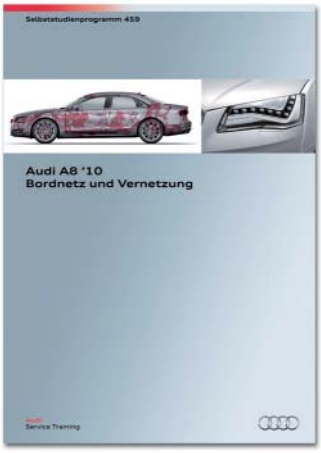
Test solutions: 1cd; 2abd; 3abd; 4acd

Other Self-Study Programmes on the Audi A8

SSP456 - General booklet on the A8 '10

- Bodyshell
- Passive safety
- Aktive Sicherheit
- Active safety
- Engine management
- Gearbox
- Suspension system
- Electrical system
- Service

Order number: A05.5S00.21.20



SSP 459 Audi A8 '10 - Onboard power supply and networking

- Power supply
- Networking
- FlexRay
- Seat ventilation
- Outside lights
- Service

Order number: A08.5S00.44.20

SSP 461 Audi A8 '10 – Driver assistance systems

- Camera control unit J852
- Variable headlight range
- Image processing control unit J851
- Functions supporting ACC Stop & Go

Order number: A10.5S00.65.20

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