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## Audi TT Coupé '07 - Electrical and Infotainment Systems

Self-Study Programme 382

## Innovations in the electronics, electrical and infotainment systems in the Audi TT Coupé '07

Self-Study Programme 382 describes the new features of the convenience electronics in the Audi TT Coupé '07. The proven electronic technology of the Audi A3 '04 has been adopted for the TT Coupé. The most striking new feature is the automatic extending rear spoiler activated by the convenience system central control unit.

In the TT Coupé, the driver information system (DIS) in the centre display of the dash panel insert has an extended settings and query menu. The customer can use the settings menu to configure functions and make adjustments. This was previously possible only in vehicles with MMI.

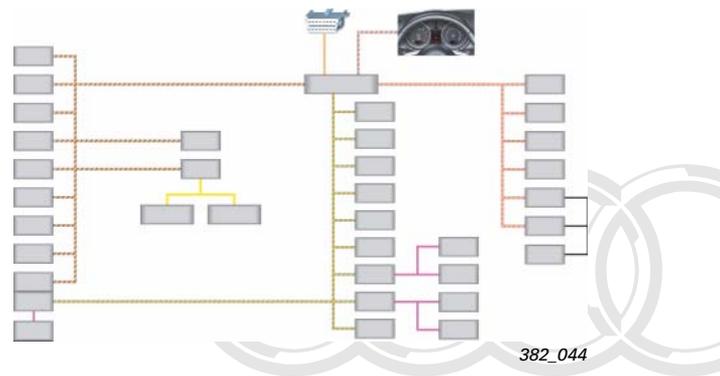


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The Audi TT Coupé '07 offers the customer a multitude of functions and equipment options, with the result that the number of control units has increased considerably compared to the predecessor model.

To ensure smooth interaction between control units, the control units communicate with one another across various bus systems.

The networking structure is largely identical to that of the Audi A3 '04. In this self-study programme you will be informed about the network topology of the TT Coupé and about the installation locations of the various control units as well as their functions.



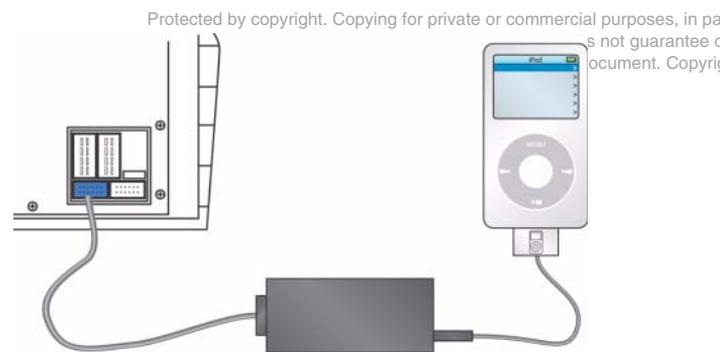
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# Audi

The Audi TT Coupé '07 comes with new generation 2plus radios. The radios feature a new reception concept as well as MP3 compatible CD drives.

The TT Coupé, as do the Audi A3 and A4, comes with a BNS 5.0 radio navigation system with MMI user interface and CD navigation.

The BOSE Surround Sound system, which includes 12 loudspeakers driven by a 255 watt amplifier, sets new standards in this vehicle class.



382\_032

# Contents

## Overview . . . . . 4

Topology and networking . . . . .	4
Installation overview - control units. . . . .	6
Fuses and relays . . . . .	8

## Electrical system and convenience electronics . . . . . 10

Data bus diagnostic interface J533 (gateway). . . . .	10
Control unit with display in dash panel insert J285 . . . . .	13
Onboard power supply control unit J519. . . . .	18
Battery . . . . .	19
Front outside light . . . . .	20
Rear outside light . . . . .	23
Convenience system central control unit J393 . . . . .	25
Parking aid control unit J446. . . . .	33

## Infotainment . . . . . 36

Chorus, concert and symphony radios in 2-DIN housing . . . . .	36
MP3 basics - ID3 tag . . . . .	41
Audi Navigation (BNS 5.0). . . . .	42
Sound systems. . . . .	47
Apple iPod adaptor . . . . .	50
Aerials . . . . .	52

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The self-study programme teaches the design and function of new vehicle models, new automotive components or new technologies.

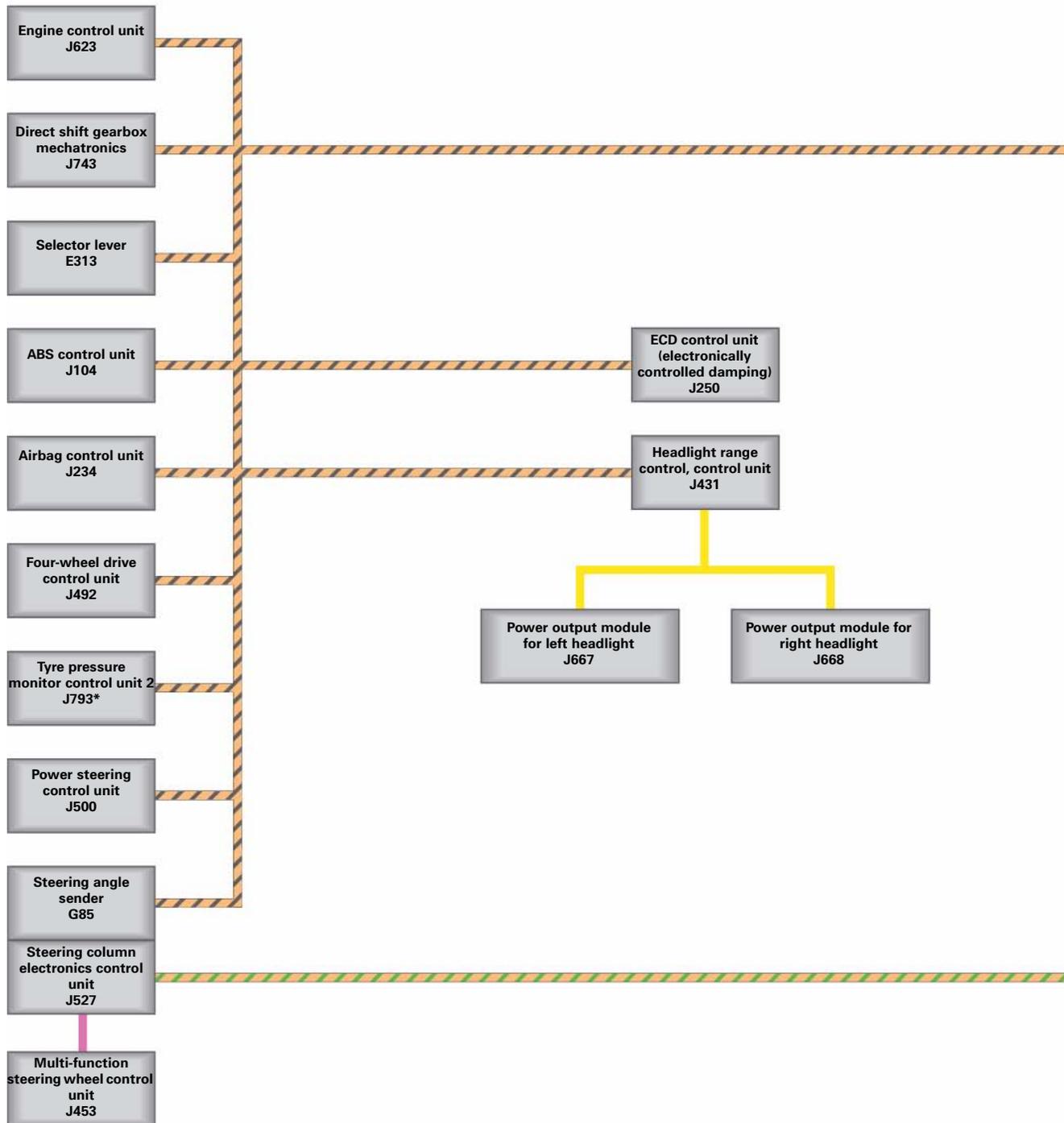
**The self-study programme is not a repair manual!**  
**All values given are intended as a guideline only, and refer to the software version valid at the time of publication of the SSP.**

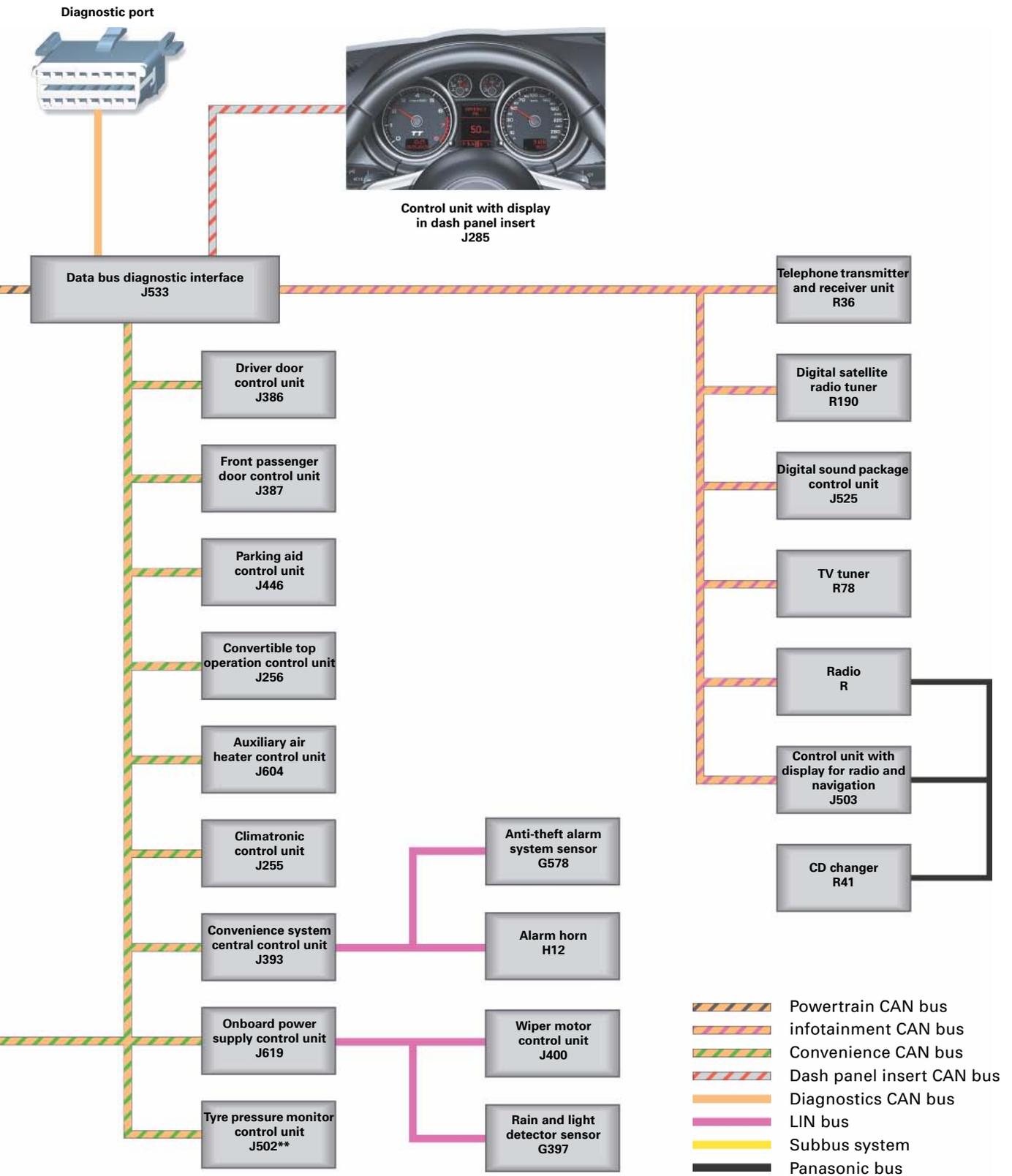
For maintenance and repair work, always refer to the current technical literature.

<b>Reference</b>	<b>Note</b>
	

# Overview

## Topology and networking





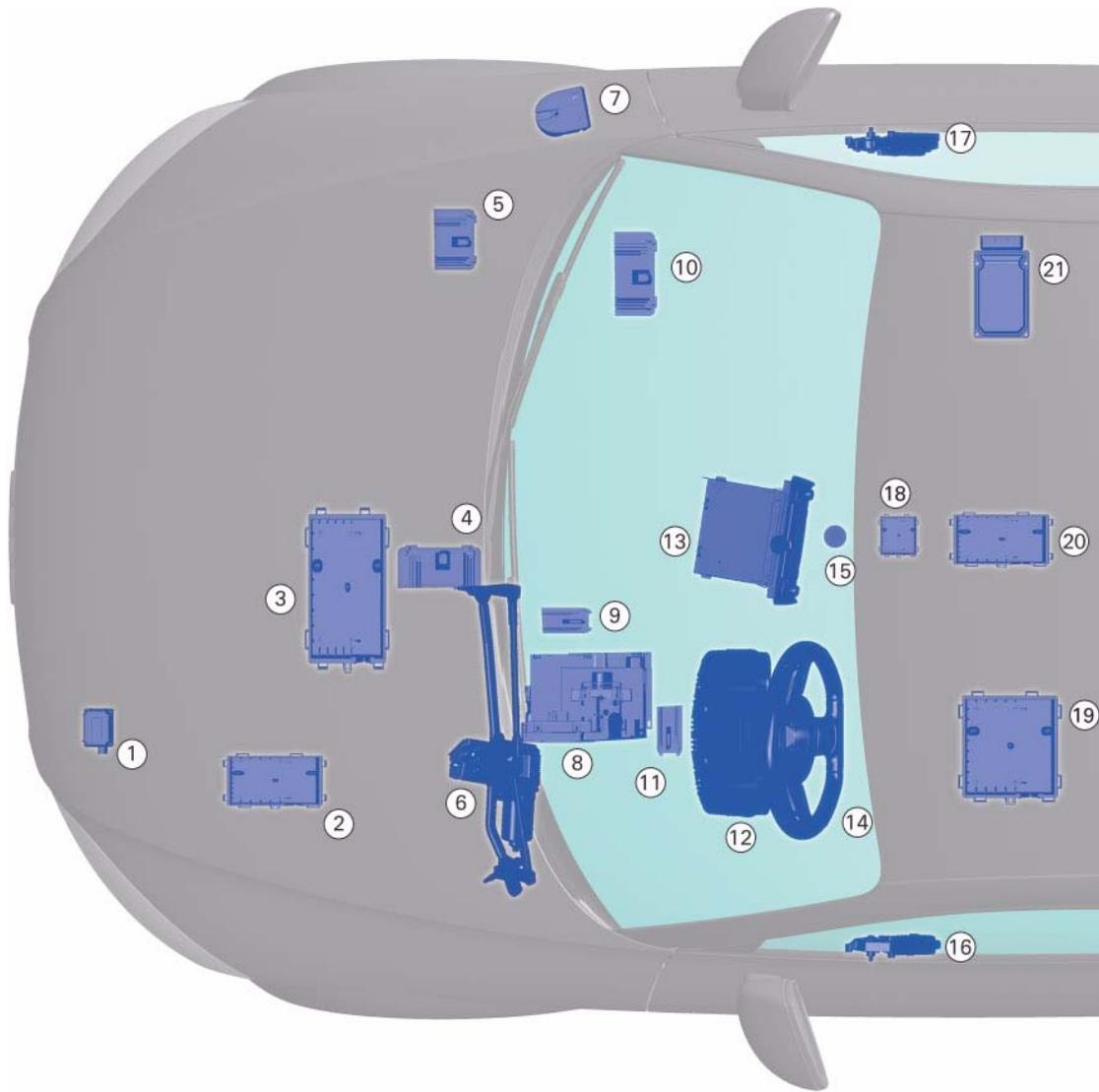
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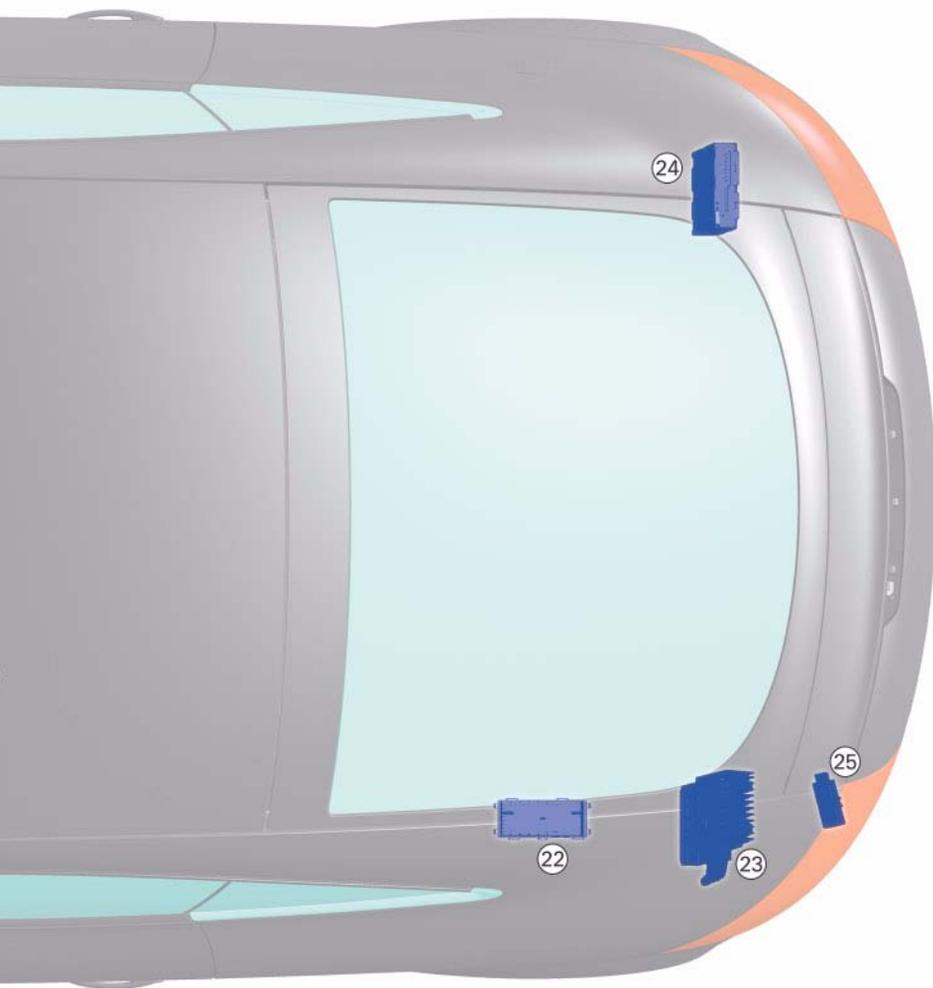
\* for tyre pressure monitoring system 2 only (ECE = Europe)

\*\* for tyre pressure monitor only (SAE = North America)

# Overview

## Installation overview - control units





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### Legend

- |    |   |    |   |
|----|---|----|---|
| 1  | Garage door operation control unit J530   | 14 | Steering column electronics control unit J527             |
| 2  | Direct shift gearbox mechatronics J743  |    | Steering angle sender G85                                 |
| 3  | Power steering control unit J500  |    | Multi-function steering wheel control unit J453           |
| 4  | Engine control unit J623  | 15 | Rain and light detector sensor G397                       |
| 5  | ABS control unit J104   | 16 | Driver door control unit J386                             |
| 6  | Wiper motor control unit J400   | 17 | Front passenger door control unit J387                    |
| 7  | Alarm horn H12  | 18 | Anti-theft alarm system sensor G578                       |
| 8  | Onboard power supply control unit J519  | 19 | Telephone transmitter and receiver unit R36               |
|    | Headlight range control, control unit J431  | 20 | Airbag control unit J234                                  |
| 9  | Data bus diagnostic interface J533  | 21 | ECD control unit (electronically controlled damping) J250 |
| 10 | CD changer R41  | 22 | Digital satellite radio tuner R190                        |
| 11 | Tyre pressure monitor control unit 2 J793 /<br>Tyre pressure monitor control unit J502* | 23 | Digital sound package control unit J525                   |
| 12 | Control unit with display in dash panel insert J285                                     | 24 | Convenience system central control unit J393              |
| 13 | Radio R   |    | Parking aid control unit J446                             |
|    | Control unit with display for radio and navigation J503                                 |    | TV tuner R78  |
|    | Climatronic control unit J255   | 25 | Radio controlled clock receiver J489                      |

\* for tyre pressure monitor only SAE

# Overview

## Fuses and relays

### The fuse and relay carriers

In the Audi TT Coupé '07 the fuse and relay carriers are located in the following positions:

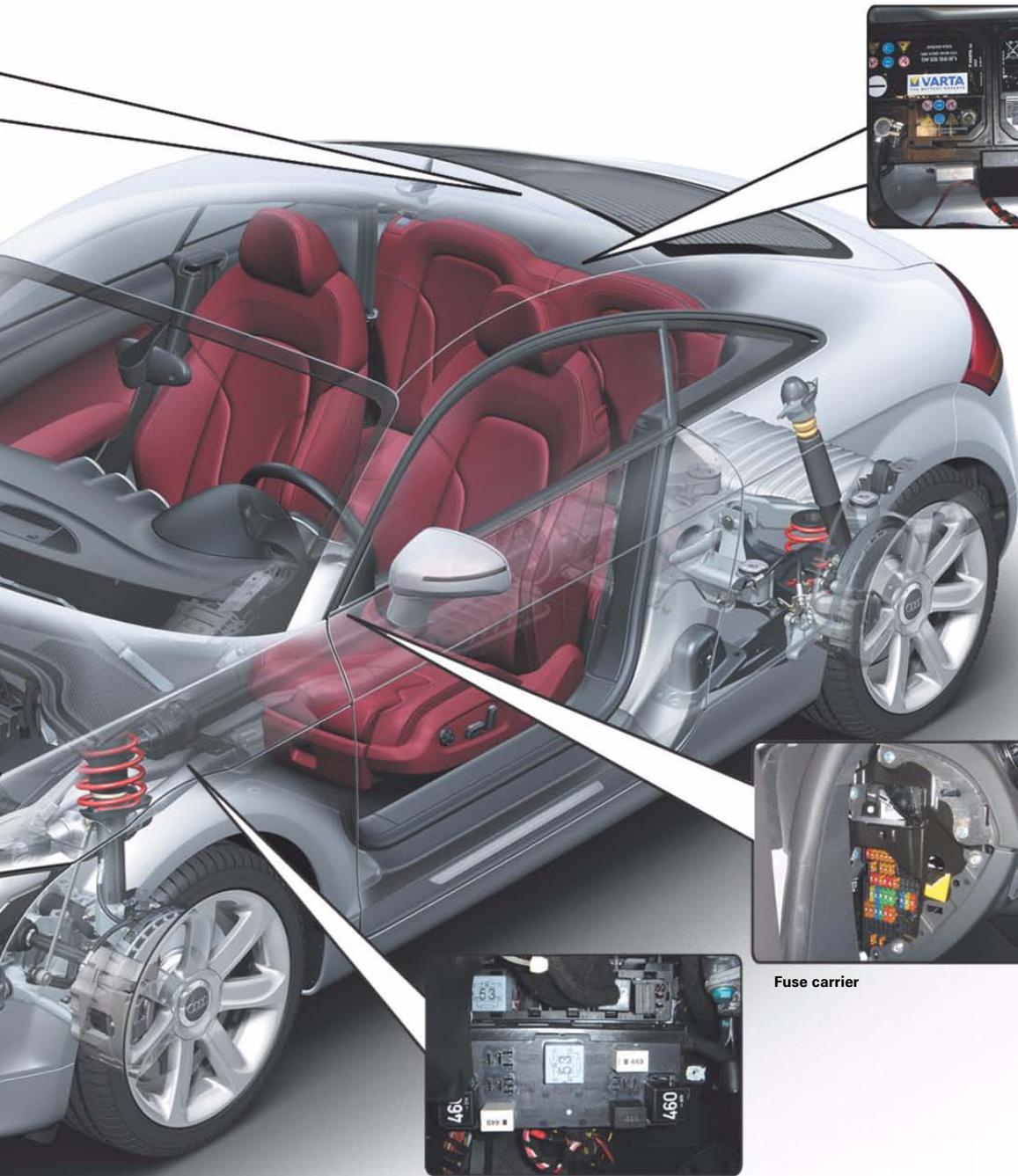
- Electronics box in engine compartment, front left
- Fuse carrier, dash panel left hand side on A-post
- Onboard power supply control unit and auxiliary relay carrier below dash panel on left
- Main fuse box directly on the battery
- Auxiliary relay carrier in the boot on the right, below the boot trim

For details of fuse and relay assignments, please refer to the current service literature.

Auxiliary relay carrier below the boot trim



Electronics box



**Main fuse box**



**Fuse carrier**



**Onboard power supply control unit**

## Data bus diagnostic interface (gateway) J533

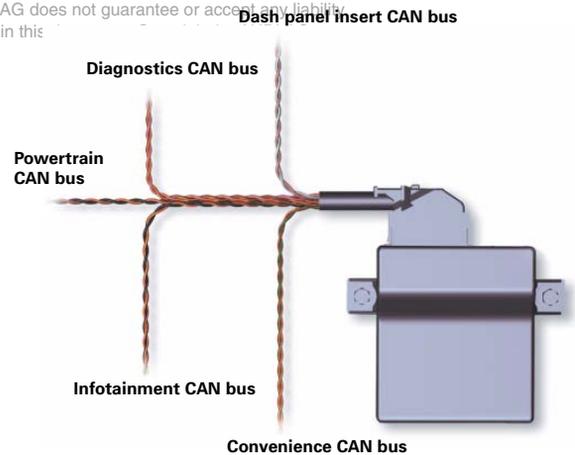
### Tasks

The gateway represents the interface between the various bus systems, i.e. it facilitates communication between the control units of various bus systems. Every Audi TT Coupé '07 has a powertrain CAN bus, dash panel insert CAN, diagnostics CAN bus, convenience CAN bus and infotainment CAN bus.

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### Master functions

- Powertrain CAN bus run-on
- Sending the 'Sleep' command



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### Installation location

The gateway is installed under the dash panel adjacent the pedal bracket and can be accessed from the driver's footwell.



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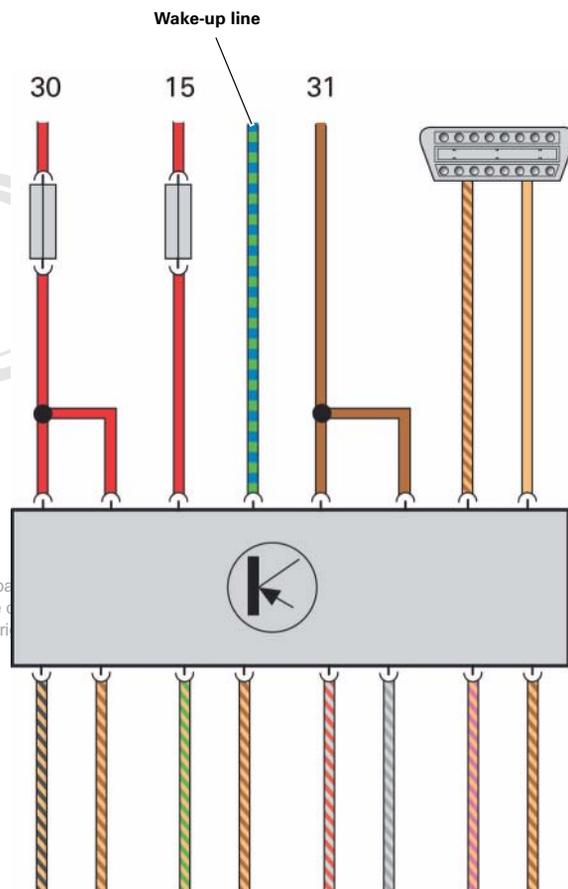
## Function diagram

The function diagram is identical to that of data bus diagnostic interface as featured on the Audi A3 '04.

The dash panel insert J285 and the data bus diagnostic interface J533 can wake each other from idle via the bidirectional wake-up line. The dash panel insert CAN between the dash panel insert and the data bus diagnostic interface is a highspeed CAN and, unlike the convenience CAN bus, is not wake-up capable via the CAN line. Onboard voltage is applied to the wake-up line when terminal 15 is "on".

This wake-up function is required to wake up the dash panel insert CAN without "terminal 15 on" after the CAN bus has been in idle state. For example, to be able to display date, time and mileage in the dash panel insert after opening the driver's door, but before turning on the ignition.

For further information on the Transport mode, refer to Self-Study Programme 312. This document is for informational purposes, in part permitted unless authorised by AUDI AG. AUDI AG does not guarantee the accuracy of the information in this document. Copyright © 2007 Audi AG.

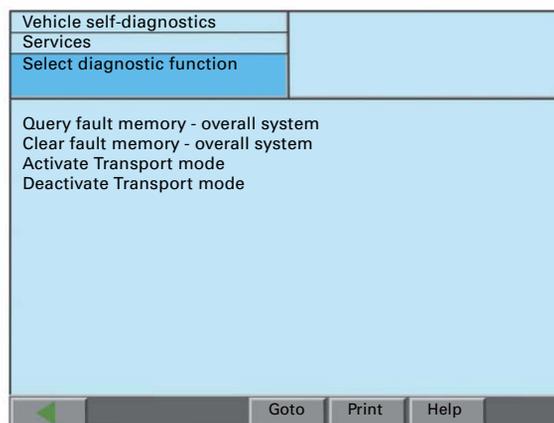


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## Transport mode

The Transport mode, which keeps power consumption to a minimum while the vehicle is being transported, is implemented in the gateway on the Audi TT Coupé '07.

Transport mode can be activated and deactivated using the diagnostic testers. This can be done both using the Services function in the vehicle self-diagnostics and using the gateway test plan in the Guided Functions mode or in the Guided Fault Finding mode.



382\_060

### Reference



For further information on the Transport mode, refer to Self-Study Programme 312.

# Electrical system and convenience electronics

## Master function for terminal 15 across the powertrain CAN-bus

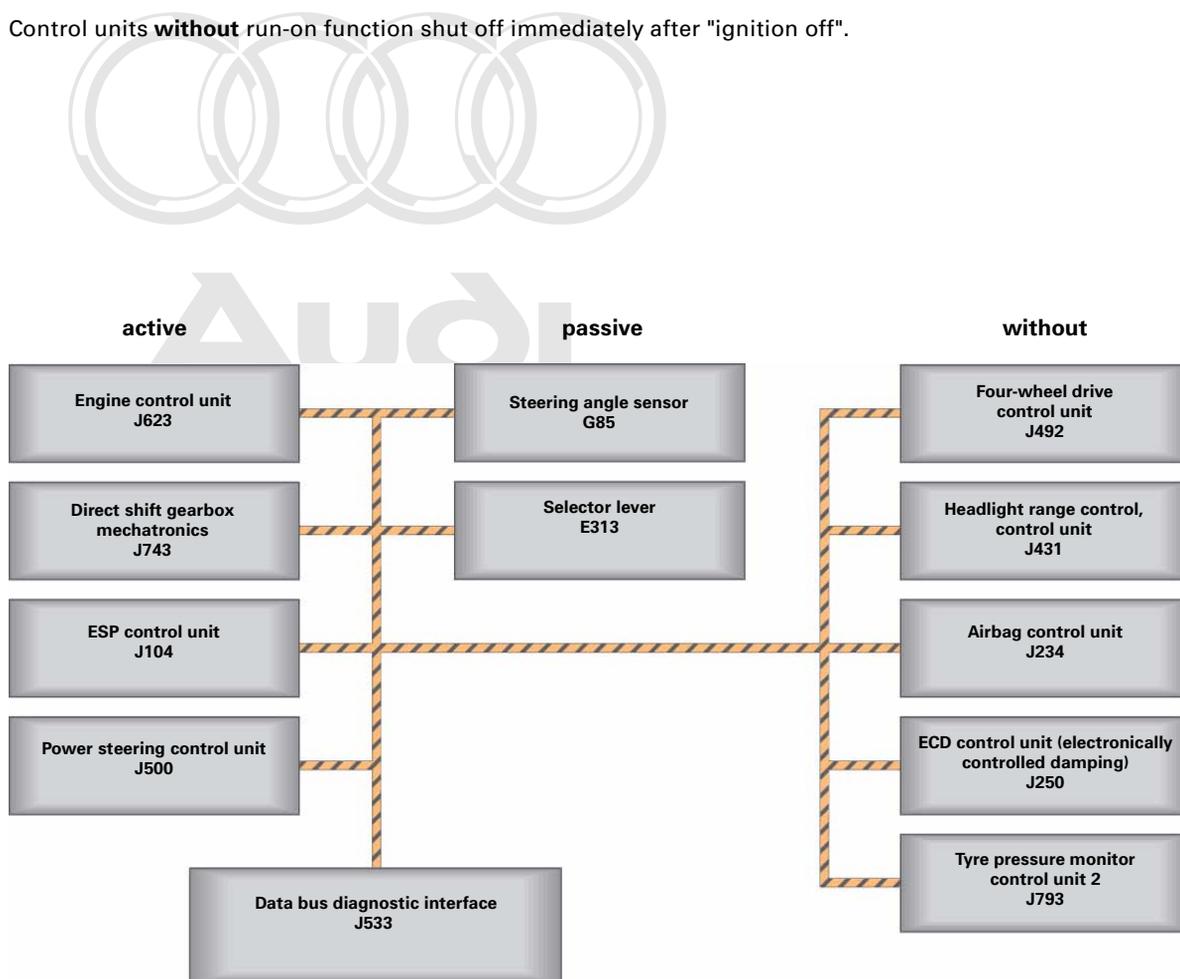
As in the Audi A3 '04, information transmitted across the powertrain CAN bus includes a run-on function. This allows the various control units to transmit information relevant to safety even when the ignition is off.

With regard to terminal 15 run-on, there are three different groups of powertrain CAN bus control units: Active and passive control units as well as control units without run-on.

**Active** control units are control units which are able to keep the powertrain CAN bus awake.

**Passive** control units remain awake until the gateway signals it is ready to enter Sleep mode, but cannot independently keep the powertrain CAN bus awake.

Control units **without** run-on function shut off immediately after "ignition off".



382\_045

## Coding the gateway

### Difference to the Audi A3 '04

When coding the gateway, the derivative (body version) "Coupé, sports car" must be selected for the Audi TT Coupé '07.

### Reference



For information on coding the gateway, refer to Self-Study Programme 312.

## Control unit with display in dash panel insert J285



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### Variants of the control unit with display in dash panel insert J285

#### Lowline variant

The Lowline variant is the basic version. The basic version has, in lieu of a centre display, dedicated warning lamps which indicate warnings and fault conditions in the system to the driver. The low washer fluid warning lamp, previously available only in the Highline variant, has been added.

#### Midline variant

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The Midline variant is only used in vehicles with automatic gearbox which do not have a driver information system (DIS). In the Midline variant, the centre display is used only for gear indication and ambient temperature display. The ambient temperature display is standard equipment in the Audi TT Coupé '07.

#### Highline variant

The Highline variant has a centre display with a resolution of 64 x 88 pixels in lieu of the warning lamps. Warnings and fault conditions are indicated by yellow and red icons on the centre display.

The Highline variant is fitted automatically in combination with the following optional equipment:

- Screen navigation
- Mobile phone adapter with multifunction steering wheel
- Cruise control system

## Immobiliser IV

The immobiliser is integrated in dash panel insert J285.  
The immobiliser data is stored in the FAZIT database of AUDI AG.

The immobiliser IV can be adapted using the Audi diagnostic testers in the "Guided Fault Finding" and in the "Guided Functions" modes.

The diagnostic tester must be online in order to make a connection to the FAZIT database.

The dash panel insert is addressed via the address word 17 and the immobiliser via the address word 25.  
This means that data blocks, adaption channels and fault memories are handled separately.



### Reference

For further information on immobiliser IV as well as the FAZIT database, refer to Self-Study Programme 294.

## New features of the onboard computer

The onboard computer has the following new features:

- In the Audi TT Coupé '07 the mileage since the last reset of the onboard computer is indicated on onboard computer levels 1 and 2. The maximum range of the mileage indicator is 9999.9 kilometres and the resolution is 100 metres.
- The driving time display range was extended from 99:59 h to 999:59 h on both onboard computer levels.
- Each individual display variable of the onboard computer can be deactivated separately in the convenience menu under "SET". This applies to both onboard computer levels.
- All display variables of the onboard computer can be reset in the convenience menu under "SET".



### Note

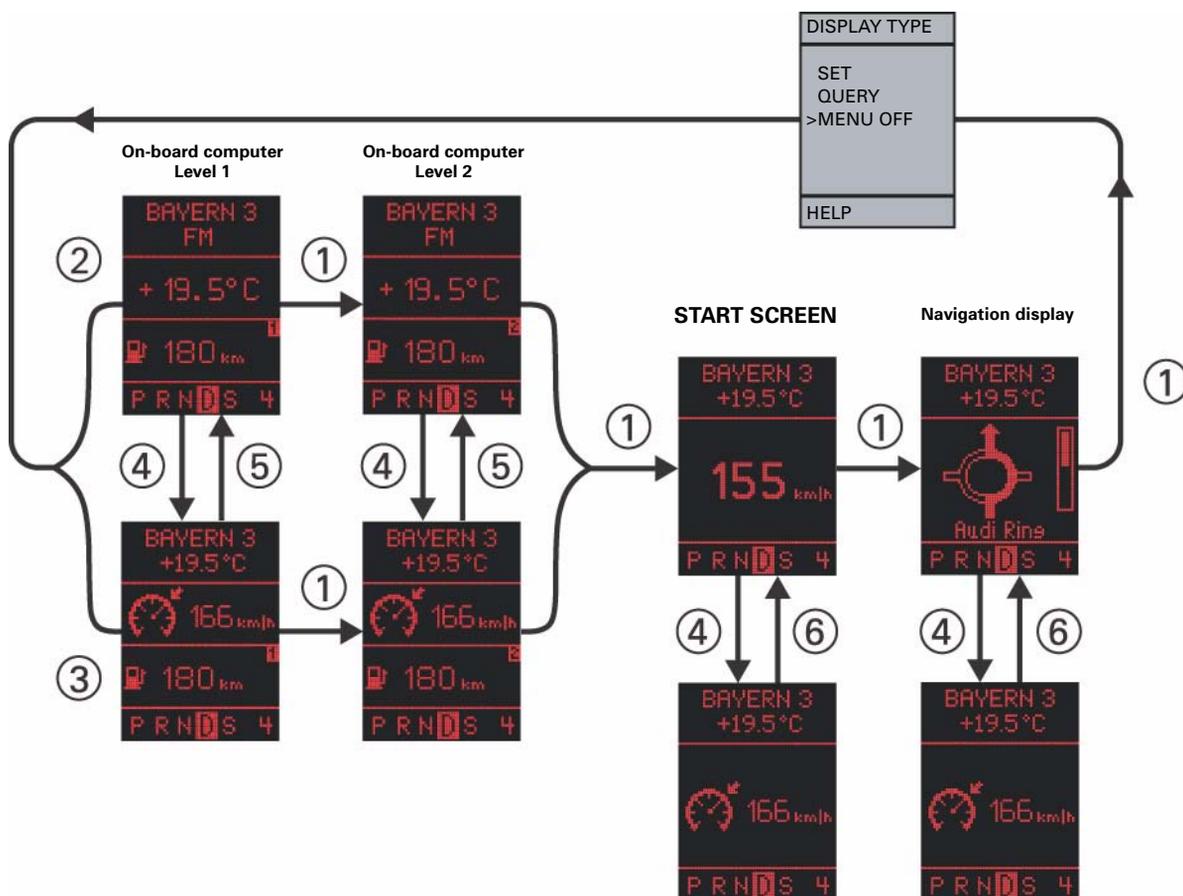
The new features described in this section of control unit with display in dash panel insert J285 of the Audi TT Coupé '07 will also be introduced in the current Audi A3 '04 after the transition from model year 2006 to 2007.

## Display of cruise control system speed setting

When the cruise control system is active, the current speed setting is indicated on the centre display of the dash panel insert in the Audi TT Coupé '07. If one of the two onboard computer levels is shown on the centre display, the set speed is indicated continuously. The speed is normally displayed in the position where the ambient temperature is indicated.

If the digital speedometer is shown on the centre display or if it is currently being used by the navigation system, the set speed is displayed after activating the cruise control system for 3 seconds, after which the display returns automatically to the original screen.

After "terminal 15 on", the function shown on the dash panel insert centre display before "terminal 15 off" is restored. In the example below, the digital speedometer is displayed.



### Description of the various options

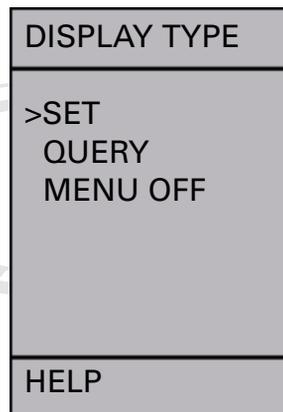
- ① Press Reset key on onboard computer
- ② Press Reset key on onboard computer when cruise control system is inactive
- ③ Press Reset key on onboard computer when cruise control system is active
- ④ Set a speed when the cruise control system is active
- ⑤ Cancel set speed when the cruise control system is active
- ⑥ automatically after 3 seconds

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## The extended convenience menu - menu option "SET"

It is possible to go from onboard computer levels 1 and 2 and the digital speedometer to the menu shown by pressing the Reset key on the onboard computer:

In the menu option "SET" the driver can change the settings of the control unit with display in dash panel insert or onboard computer, and can also make settings in different control units. In this way it is possible to set for example the central locking system and acoustic parking system. The windscreen wipers can also be adjusted to the service position in this way.



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All setting options are shown below in the associated menu structure:

### SET

#### Clock

Current time  
12h or 24h mode  
Current Date  
Date display mode

#### Computer

##### Computer 1

Reset all values in onboard computer 1  
Display range on / off  
Display driving time on / off  
Display mileage on / off  
Display average fuel consumption on / off  
Display average speed on / off  
Display current fuel consumption on / off

##### Computer 2

Reset all values in onboard computer 2  
Display range on / off  
Display driving time on / off  
Display mileage on / off  
Display average fuel consumption on / off  
Display average speed on / off  
Display current fuel consumption on / off

#### Speed alarm

Switch speed alarm on or off  
Set speed alarm threshold (in increments of 10 kph)

#### Language

German  
English  
Francais  
Italiano  
Espanol  
Portugues

#### Units

Display distances in kilometres or miles  
Fuel consumption display in l/100km or in km/l  
Temperature display in °C or °F

#### Lights

##### Indicating

Convenience indicator (= motorway indicator function)  
on or off

#### Wiper

##### Front

Service position on or off

#### Window

Convenience opening on or off

#### Doors

##### Unlocking

Unlock driver's door or all doors  
Horn mode on or off

##### Lock

Switch Autolock on or off  
Horn mode on or off

#### Control unit

##### Rear

Volume: Levels 1, 2, 3, 4 or 5  
Pitch: Levels 1, 2, 3, 4 or 5

## The extended convenience menu - menu option "QUERY"

All querying options are shown below in the associated menu structure:

### QUERY

#### Service

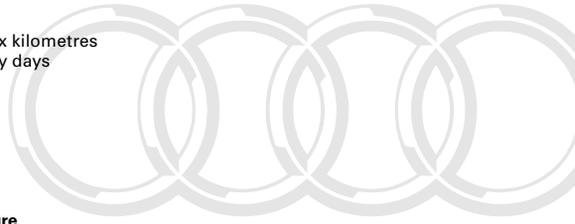
Service in: x kilometres  
y days

#### Vehicle ID

VIN

#### Engine oil temperature

Engine oil temperature: x degrees



# Audi

DISPLAY TYPE
SET >QUERY MENU OFF
HELP

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## The extended convenience menu - menu option "MENU OFF"

To return to the display of onboard computer variables, select the menu option "MENU OFF", press the Reset key on the onboard computer and return to onboard computer level 1.

DISPLAY TYPE
SET QUERY >MENU OFF
HELP

382\_009

## Onboard power supply control unit J519

### Function

The onboard power supply control unit in the Audi TT Coupé '07 basically has the same main functions as the control unit in the Audi A3 '04.

The onboard power supply control unit controls:

- the outside light
- the charge indicator lamp
- terminal 58s
- the load management system
- terminals 15, 50 and 30G
- the electric fuel pump II relay
- the windscreen wiper
- the heated rear window
- the signal horn
- the interior light



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### Installation location

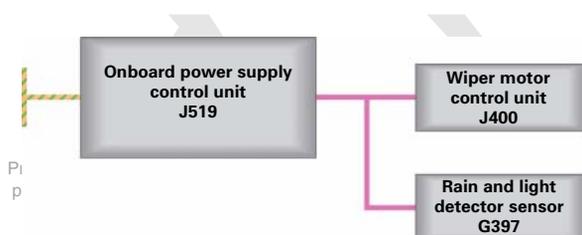
The onboard power supply control unit is housed under the dash panel on the left, and can be accessed by removing the dash panel trim in the driver footwell.



### System overview

The onboard power supply control unit is integrated in the convenience CAN bus within the vehicle networking system.

It also performs the function of the LIN master for the wiper motor control unit and the rain and light detector sensor.



382\_046

### Reference



For further information on the outside light control, activation of the charge indicator lamp, the dimming function (terminals 58s and 58d), the load management system, the terminal management system as well as the fuel pump relay control, refer to Self-Study Programme 312.

## Battery

The battery is installed in the boot on the right and can be accessed by removing the cargo-area floor. The Audi TT Coupé '07 does not have a slave start connector because the battery is directly accessible. Therefore, battery charging and auxiliary power supply are via the battery terminals. For trickle charging of showroom vehicles, a suitable charger, e.g. VAS 5059A, VAS 5900 or VAS 5903 must be connected in order to conserve battery power.



If the battery is discharged or faulty, the boot lid can be released using an emergency release device. For information on the emergency release device, refer to the Audi TT Coupé '07 Owner's Manual.

### The following batteries are used

- 61Ah / 330A
- 72Ah / 380A
- 75Ah / 420A (dry-cell battery for the North American market)
- 80Ah / 380A

### The choice of battery is dependent on

- engine variant
- trim package
- country spec package

## Battery test

The battery acid level is tested in the conventional manner by visual inspection. If the acid level in the battery cells is too low, then the battery must be replaced.

As in the predecessor model, battery voltage is measured under load using battery tester VAS 5097A.



### Reference

For further information as well as safety instructions, please refer to the current service literature.

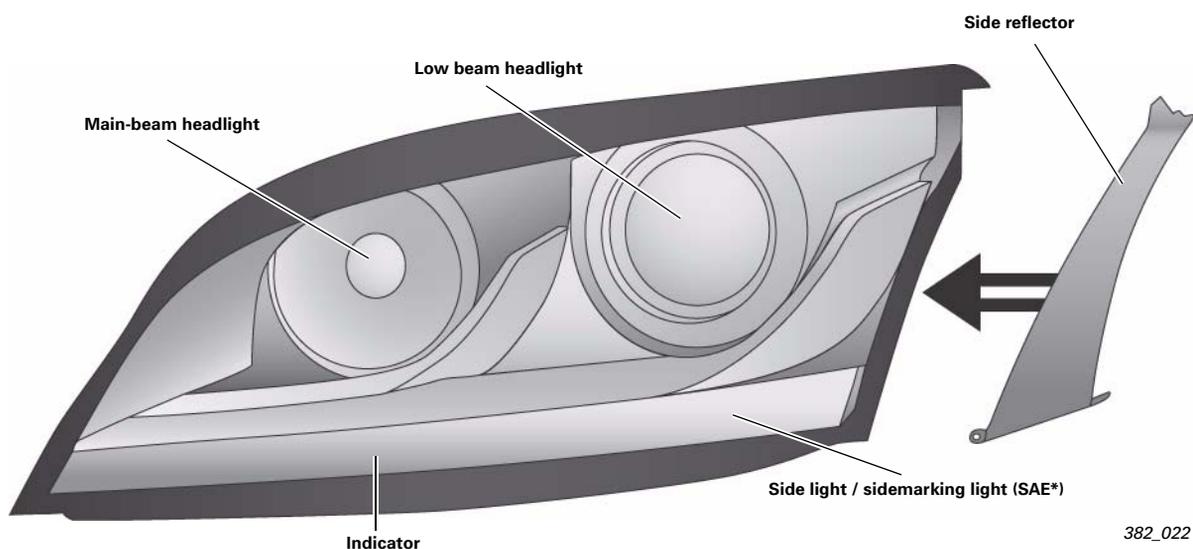
## Front outside light

### Headlight

Generally, in the case of the Audi TT Coupé '07, a distinction is made between three variants:

- Halogen headlight
- Bi-xenon headlight
- Bi-xenon headlight with AFS

### Configuration of the front lamps in the halogen headlight variant



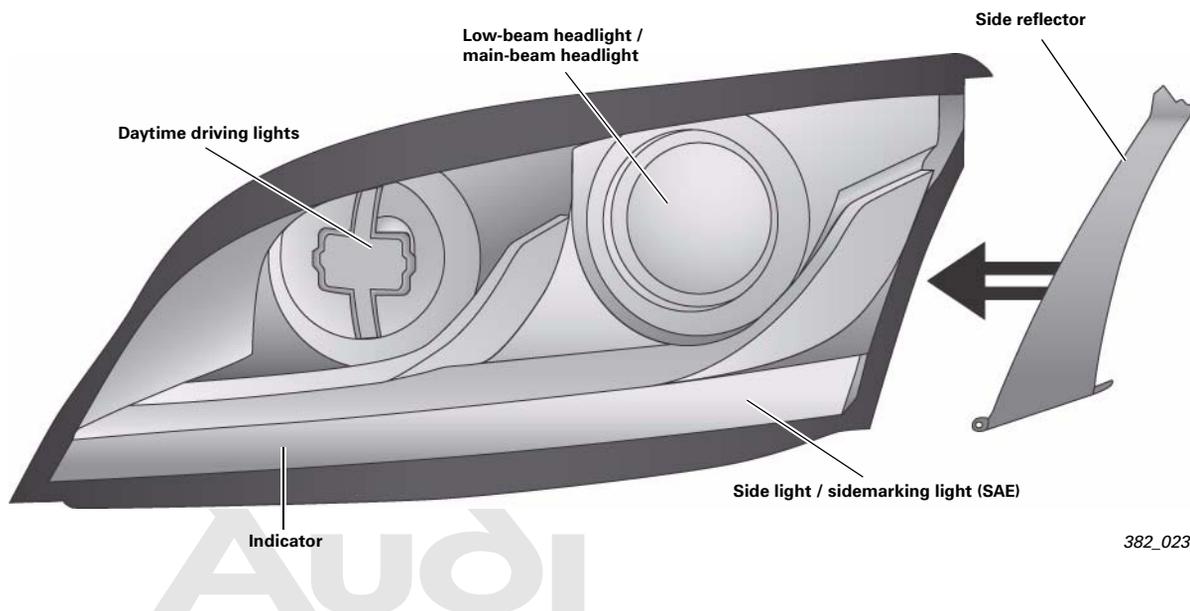
### The following bulbs are used in the halogen headlight variant:

12 V bulb	Type	Rated power
Side light	W5W	5 watts
Low-beam headlight	H7	55 watts
Main-beam headlight	H7	55 watts
Indicator	H21W	21 watts
Sidemarking lights (SAE*)	WY5W	5 watts

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\* country-specific variant for the North American market

## Configuration of the front lights in the bi-xenon headlight and bi-xenon headlight with AFS variants



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### The following bulbs are used in the bi-xenon headlight or bi-xenon with AFS variant:

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12 V bulb	Type	Rated power
Side light	H6W	6 watts
Low beam headlight	D1S	35 watts
Main-beam headlight	D1S	35 watts
Indicator	H21W	21 watts
Sidemarking lights (SAE)	WY5W	5 watts

### Light bulb replacement

All light bulbs in the headlights can be replaced using the vehicle tool kit. The headlights can be removed without taking off the bumper.

For information on light bulb replacement, refer to the Audi TT Coupé '07 Owner's Manual.

Since gas discharge lamps are subject to special safety requirements, replacement of such lights should be referred to an authorised workshop.



#### Note

For instructions for removing the headlights and details of safety requirements for gas discharge lamps, please refer to the current service literature.

## Fog light



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The fog lights on the Audi TT Coupé '07 are located in the bumper. An H11 bulb with a rating of 55 watts is used as a lighting element. The bulb can be replaced with the vehicle tool kit.

For instructions for removing the fog lights, refer to the Audi TT Coupé '07 Owner's Manual.

## Sidelight

The sidelight uses LED technology and is housed in the door mirror housing. The sidelight is activated by the respective door control unit. The sidelight and the electrically adjustable outer mirror glass drive motor can be replaced individually by the service workshop.

Refer to the current Workshop Manual!



382\_038

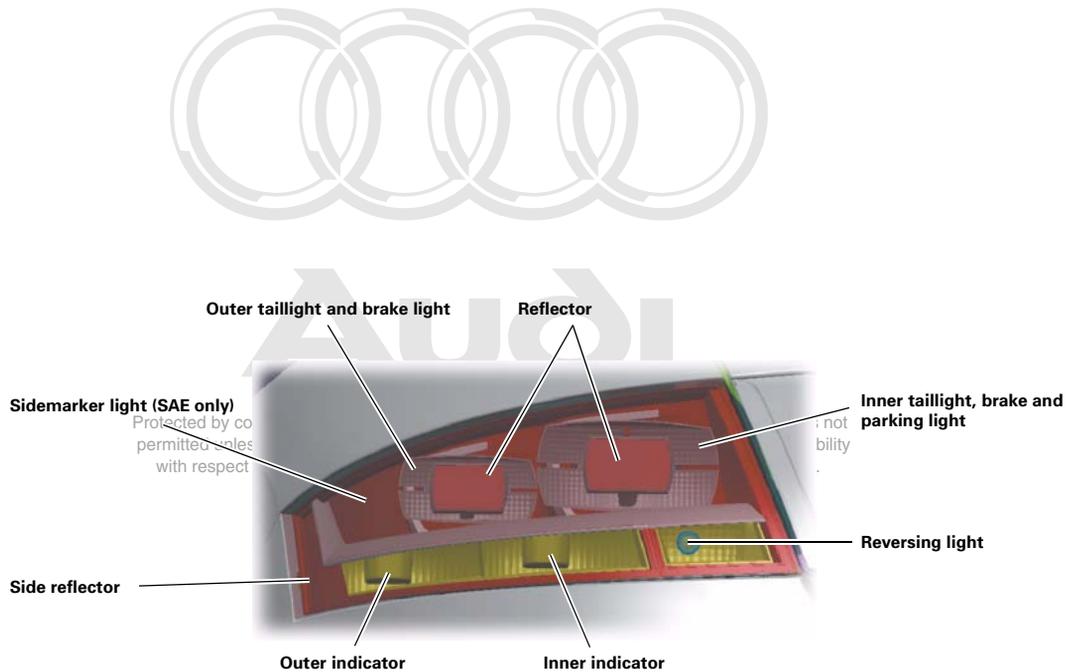
## Rear outside light

The rear lights on the Audi TT Coupé '07 are available in two variants:

- ECE variant for the European market
- SAE variant for the North American market

The differences between the two rear lights relate to the indicator and sidemarker lights:

- ECE variant: reflector in the area of the indicator in yellow-brown and rear lights without sidemarker light
- SAE variant: reflector in the area of indicators in red and rear lights with sidemarker light



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The following lighting elements are used in the rear lights on the Audi TT Coupé '07:

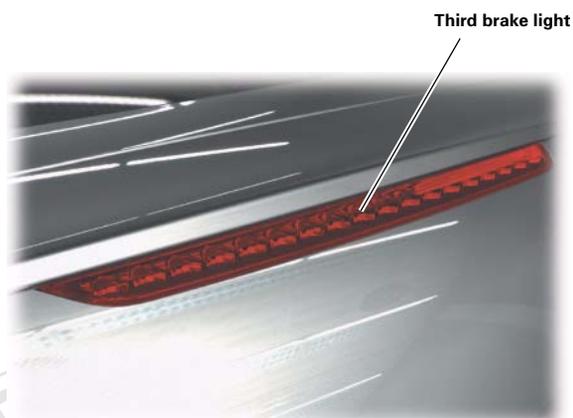
	12 V bulb	Type	Rated power
Taillight and brake light	P21W		21 watts
Reversing light	W16W		16 watts
Indicator	W16W		16 watts

## Third brake light

The third brake light is located in the bootlid under the rear spoiler.

It uses LED technology and can only be replaced as a complete assembly. Replacement of the third brake light should be referred to an authorised workshop.

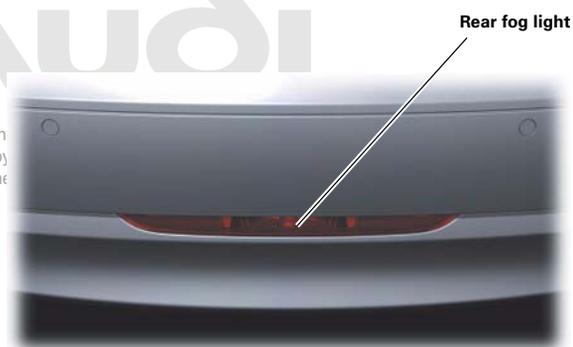
Refer to the current Workshop Manual.



382\_039

## Rear fog light

The rear fog light in the Audi TT Coupé '07 is fitted at the centre of the rear bumper. An H21W bulb with a rating of 21 watts is used as a lighting element. The bulb can be replaced from below without taking off the bumper. The lamp socket is secured in the lamp housing by means of a bayonet fitting.



382\_037

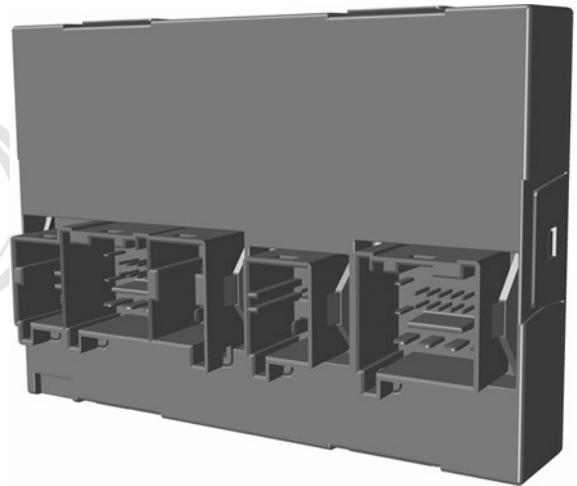
## Convenience system central control unit J393

### Tasks of the convenience system central control unit J393

The convenience system central control unit J393 of the Audi TT Coupé '07 is based on the convenience system control unit in the Audi A3 '04. Its range of functions has been extended to include an "electrically adjustable rear spoiler" function.

Convenience system central control unit J393 has the following tasks:

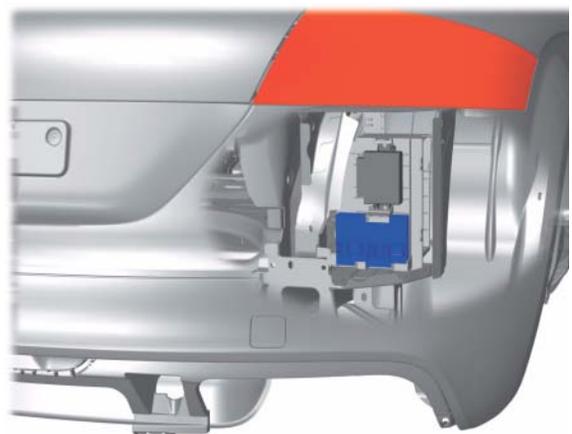
- Central locking master
- Anti-theft alarm system master
- LIN master for communication with the components of the antitheft alarm system
- Control of the "electrically adjustable rear spoiler"
- Activation of the luggage compartment lights
- Read-in of the handbrake contact switch
- Data exchange with other control units across the convenience CAN bus
- Self-diagnosis and diagnosis of connected components



382\_003

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In the Audi TT Coupé '07, the convenience system central control unit J393 is located at the rear right on a control unit holder. It is located directly under the parking aid control unit J446, if installed in the vehicle.



382\_001

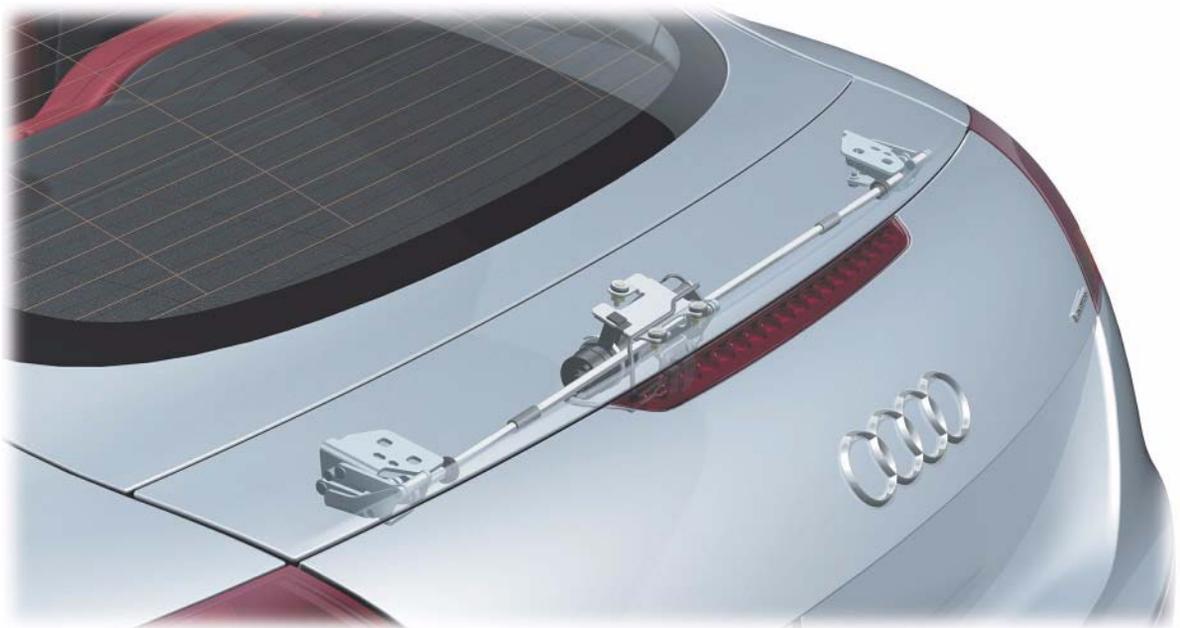
# Electrical system and convenience electronics

## Electrically adjustable rear spoiler

### Introduction

The Audi TT Coupé '07 has, as standard, an "electrically adjustable rear spoiler" function. The extended rear spoiler provides additional driving stability when driving at high speeds.

Rear spoiler in lower end position (retracted)



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382\_011

Rear spoiler in upper end position (extended)



382\_010

## Function and operation

### Automatic mode

The rear spoiler is extended automatically when a speed of 120 kph is exceeded. When the vehicle speed drops below the 80 kph speed threshold again, the rear spoiler is retracted automatically.



382\_007

### Manual mode

The rear spoiler can be extended up to a speed of 120 kph by flicking the adjustable rear spoiler switch E127.

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The rear spoiler can also be retracted and extended within a road range between 20 kph and 120 kph by flicking the adjustable rear spoiler switch E127. The rear spoiler cannot be retracted at speeds of 120 kph or higher.

When driving at speeds of between 0 kph and 20 kph, the switch must be kept pressed while the rear spoiler is retracting. If the switch is released while the rear spoiler is retracting, the rear spoiler will stop in its momentary position. Actuating the switch again will cause the rear spoiler to extend again.

The adjustable rear spoiler warning lamp K242 integrated in switch E127 comes on whenever the rear spoiler is extended manually. As soon as the rear spoiler is retracted again or the system switches to Automatic mode because the vehicle is travelling faster than 120 kph, the warning lamp goes out again.



#### Note

When the Transport mode is activated, the Automatic mode is active and the "Manual mode" is deactivated. It is not possible to extend and retract the rear spoiler by actuating the adjustable rear spoiler switch when Transport mode is set.

## System behaviour in case of malfunction

A detected system malfunction is indicated to the driver by activating a rear spoiler warning lamp in the rev counter. If no fault has occurred, this indicator lamp comes on for 3 seconds after turning on the ignition and goes out again.



382\_014

In the case of the following faults, the rear spoiler is extended for safety reasons:

- The convenience system central control unit J393 receives no road speed signal
- The convenience system central control unit no longer receives any CAN messages
- Implausible signals to rear spoiler adjustment limit switches 1 and 2 are detected
- The convenience system central control unit is supplied with undervoltage ( $U < 10.5 \text{ V}$ )

### Note



If a fault is detected in the "electrically adjustable rear spoiler" function, the ESP can no longer be switched off manually. If the ESP was switched off at this time, it is reactivated automatically.



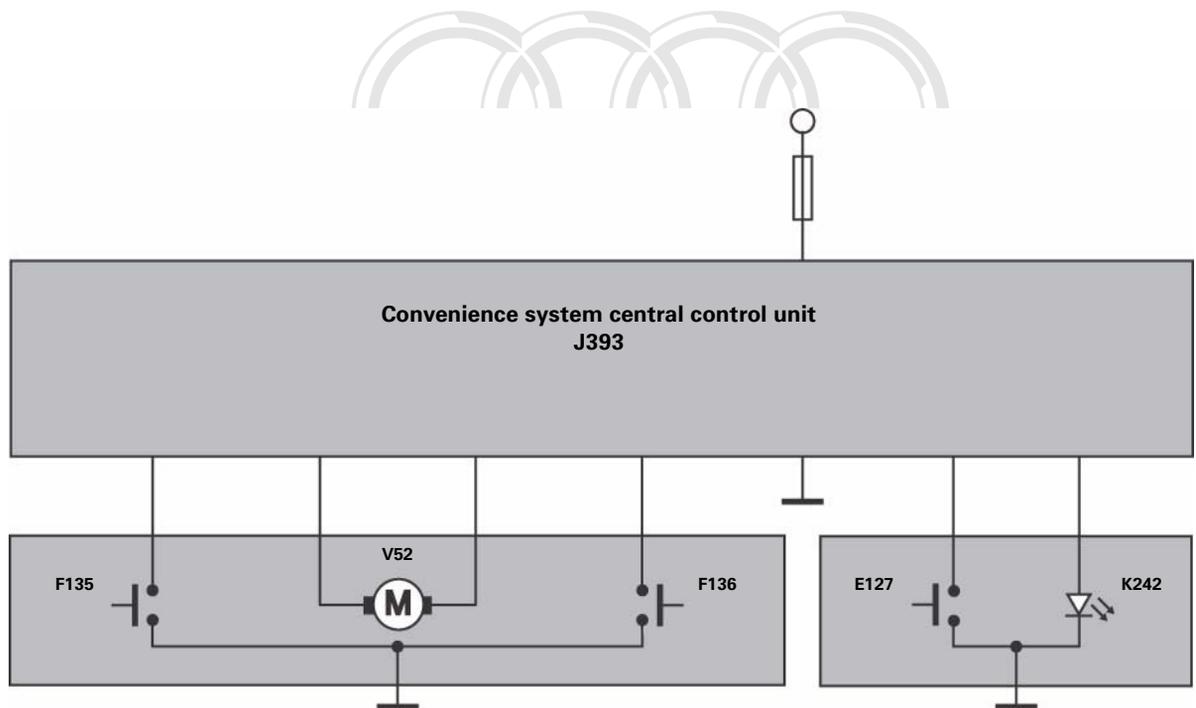
# Audi

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## Integration of the function into the vehicle

The "electrically adjustable rear spoiler" function is implemented in the convenience system central control unit J393. The control unit activates the adjustable rear spoiler motor V52 and reads in the two limit switches F135 and F136, which are used to identify both limit positions of the rear spoiler.

The convenience system control unit J393 also reads in the adjustable rear spoiler switch E127 and activates the adjustable rear spoiler warning lamp K242 in the button according to the current status.



382\_008

### Legend

- E127 Adjustable rear spoiler switch
- F135 Rear spoiler adjustment limit switch 1
- F136 Rear spoiler adjustment limit switch 2
- J393 Convenience system central control unit
- K242 Adjustable rear spoiler warning lamp
- V52 Adjustable rear spoiler motor

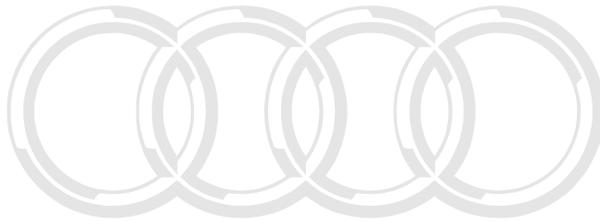
## Design of the "electrically adjustable rear spoiler"

The "electrically adjustable rear spoiler" consists of two components which can be ordered separately:

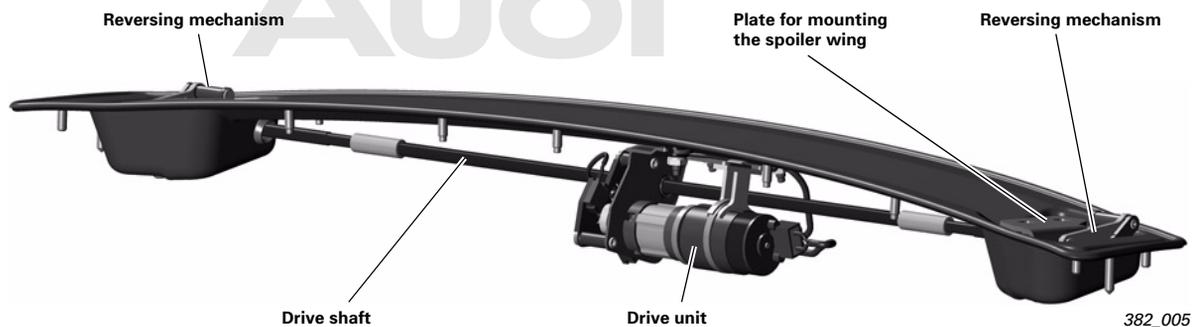
- the rear spoiler module
- the spoiler wing

A DC motor mounted on the rear spoiler module transmits a rotary movement to the input shaft via a gear and special joint (four-way joint). The shaft converts this movement to a lifting movement by means of left and right reversing mechanisms. The lifting movement moves the spoiler wing mounted on the rear spoiler module from the lower limit position to the upper limit position or vice versa, depending on momentary position of the rear spoiler.

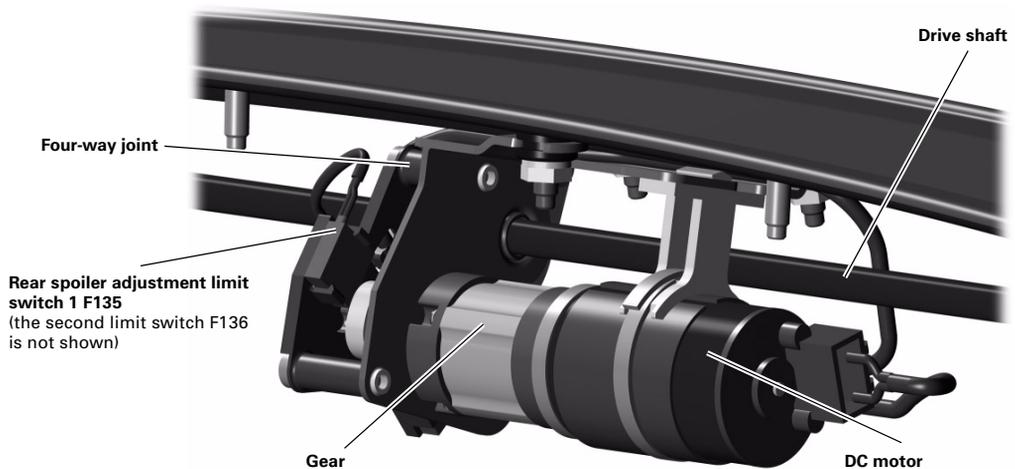
Two limit switches for detecting the lower and upper limit positions are actuated by the four-way joint.



### Complete rear spoiler module without mounted spoiler wing



### Adjustable rear spoiler drive unit



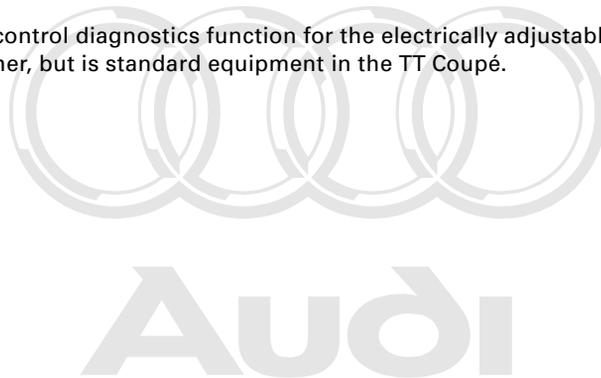
## Diagnosis

The scope of diagnosis in the convenience system central control unit J393 has been extended to include the new function. Address word 46 is assigned to the convenience system central control unit in the diagnostic tester.

There is a new data block for the "electrically adjustable rear spoiler" function. It contains the following information:

- Switch for detecting the end position "rear spoiler retracted" is actuated or not actuated
- Switch for detecting the end position "rear spoiler extended" is actuated or not actuated
- Adjustable rear spoiler switch E127 is actuated or not actuated
- Warning lamp K242 in the adjustable rear spoiler switch E127 is on or off

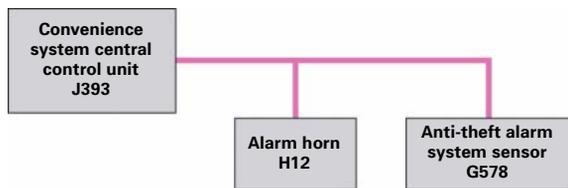
There is adaption or final control diagnostics function for the electrically adjustable rear spoiler. It is not included in the coding either, but is standard equipment in the TT Coupé.



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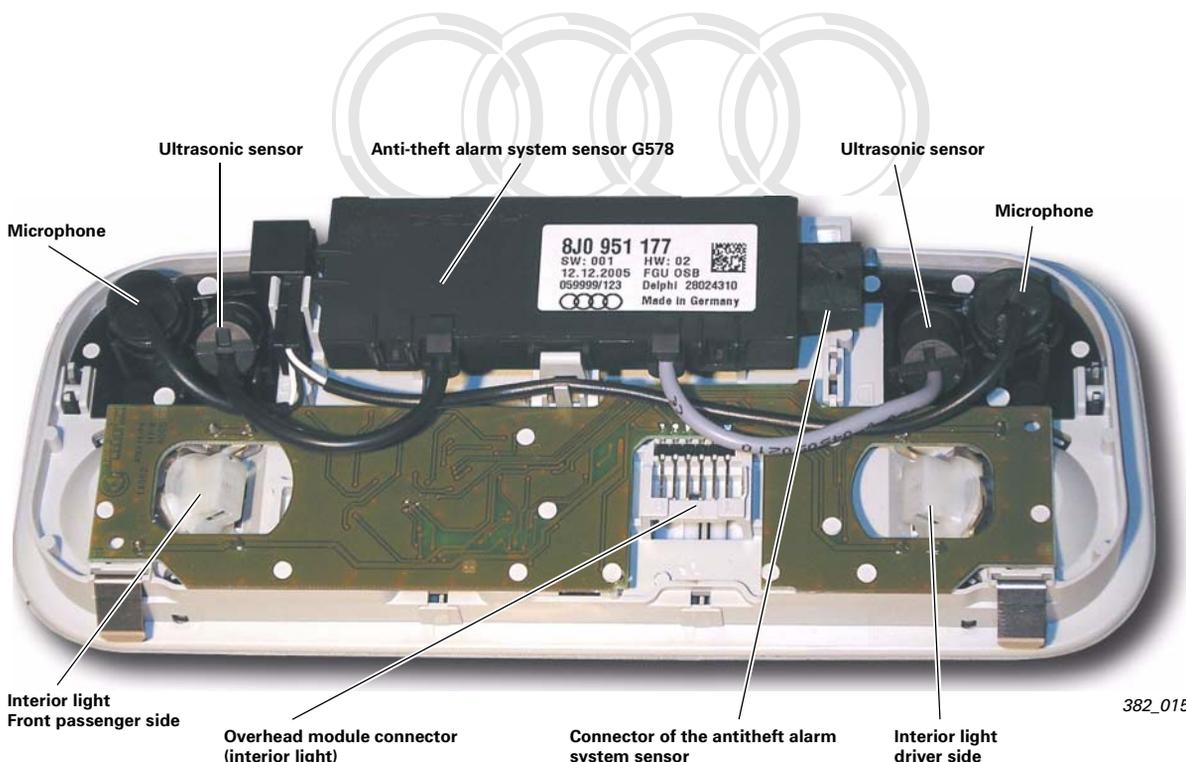
## New features of the antitheft alarm system

In the Audi TT Coupé '07 the interior monitor sender/receiver module 1 G303 and the antitheft/tilt system control unit J529 are combined as a unit - the antitheft alarm system sensor G578. This means that the convenience system central control unit J393 in combination with the optional "antitheft alarm system" two LIN users in the Audi TT Coupé '07.



382\_018

The new antitheft alarm system sensor G578 is integrated in the overhead module of the Audi TT Coupé '07. It has a 4-pin connector and is connected via a LIN bus line to the convenience system central control unit J393.



382\_015

## Parking aid control unit J446

### Introduction

The Audi TT Coupé '07 is equipped for the first time with an acoustic parking system with ultrasonic sensors as featured previously in other Audi models. A 4-channel rear acoustic parking system is available as optional equipment.

The term "4-channel rear acoustic parking system" means that 4 acoustic parking sensors which monitor the area behind the vehicle are integrated in the rear bumper cover.

### Acoustic parking system control unit J446

The acoustic parking system control unit J446 is a carry-over part from the Audi A3 '04. Both the hardware and the software are identical.

The systems in the Audi TT Coupé '07 and in the Audi A3 '04 (different installation positions of the acoustic parking sensor in the rear bumper) are differentiated by the software based on the control unit coding.



382\_002

In the Audi TT Coupé '07, the acoustic parking system control unit is located at the rear right on a control unit holder. It is arranged above the convenience electronics central control unit J393.



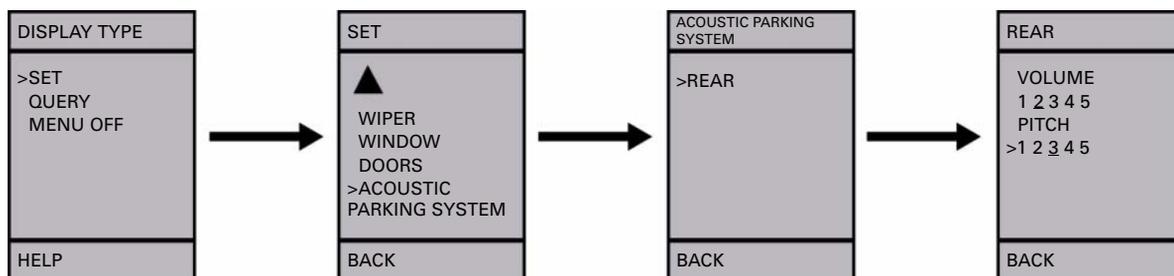
382\_000

## Acoustic parking system adjustment options

In the Audi TT Coupé '07, the volume and pitch (frequency) of the acoustic parking system can, for the first time, be adjusted via the "Extended convenience menu" in the control unit with display in dash panel insert.

Alternatively, these settings can be made at the service centre using the diagnostic tester. There are appropriate adaption channels in the acoustic parking system control unit for this purpose.

The relevant menu can be accessed as follows:

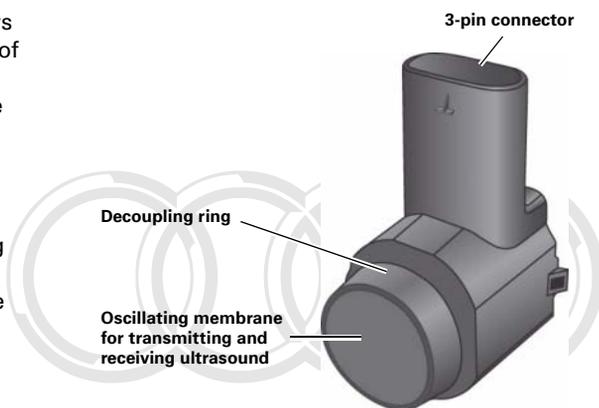


382\_017

## Acoustic parking sensor of the acoustic parking system

So-called fifth-generation acoustic parking sensors are used in the Audi TT Coupé '07. This generation of sensors was used for the first time by Audi in the Audi Q7. These sensors are much smaller than the fourth generation sensors and no longer have a fixed plastic housing which accommodates the oscillating membrane.

It has been replaced by an expandable decoupling ring, which is fitted on the ultrasonic sensor. The decoupling ring must be removed to paint the acoustic parking sensor.



382\_021

# Audi

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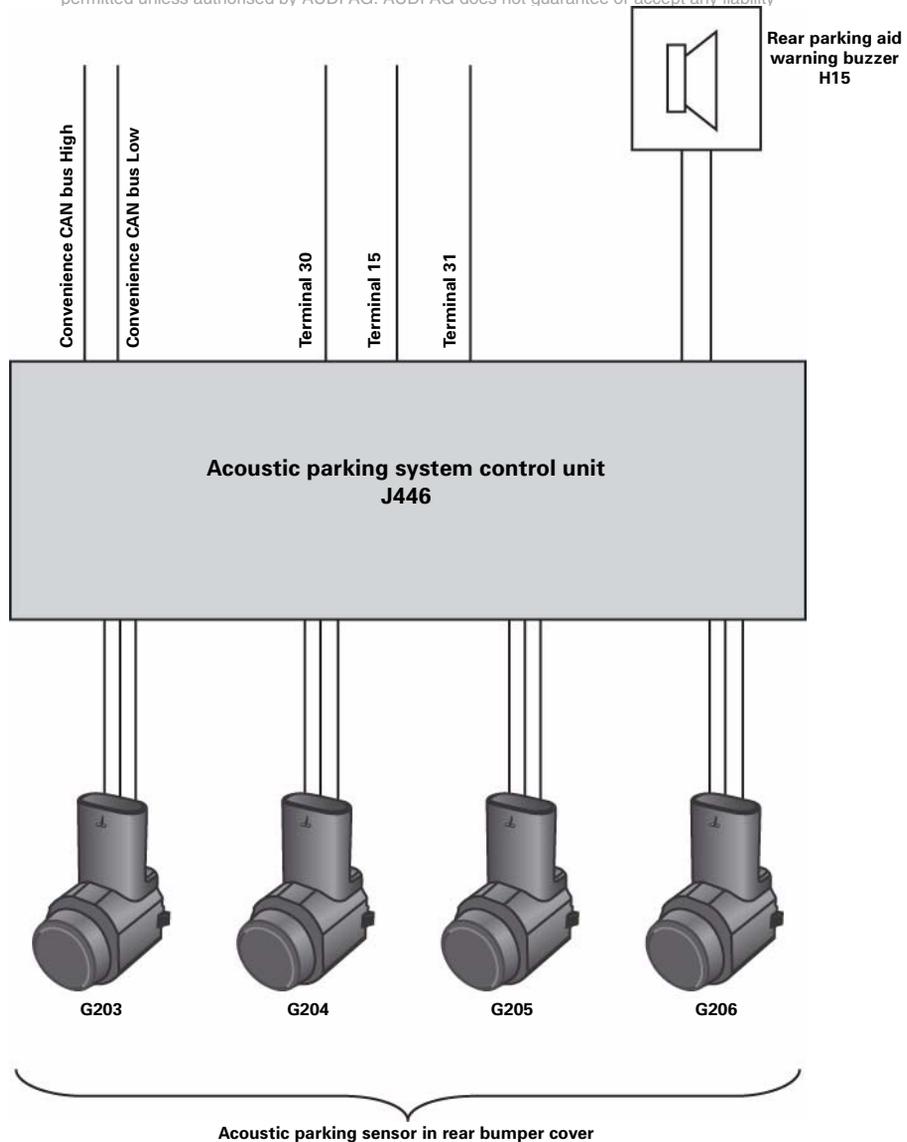
## System overview

The following lines lead to the acoustic parking system control unit:

- 2 lines from the convenience CAN bus
- 3 lines to the power supply
- 2 lines for the rear parking aid warning buzzer H15
- 3 lines to each of the 4 acoustic parking sensors (2 lines for power supply and one digital signal line for data exchange)



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382\_006

## Chorus, concert and symphony radios in 2-DIN housing



382\_058

A new generation of radios is used in the Audi TT Coupé '07. The main new features are an FM tuner with phase diversity as well as MP3 compatible CD drives in the concert and symphony radios.

### Specifications - all radios

Tuner	
	RDS FM/AM radio
	Display of stored station with RDS name display
	FM tuner with phase diversity
Internal and external drives	
	Internal CD drive, CD text capable: information stored on the audio CD about the artist and title is shown on the display The internal drive in the concert and symphony radios is MP3 compatible.
	Control of an optional auxiliary 6-disc CD changer or an optional auxiliary iPod adaptor

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Table cont'd

Telephone



Mute function for handsfree telephone: If the mobile phone adapter is factory-fitted, muting is via the infotainment CAN bus. A direct wiring plug contact is provided for retrofit solutions.

LF input for handsfree telephone: when the radio is switched on, the vehicle loudspeakers are used as loudspeakers for the handsfree telephone. The handsfree telephone cannot be operated via the radio.

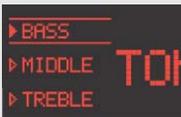
Control



Control via optional multifunction steering wheel

Display on the driver information display

Sound



Integrated 2 x 20 W amplifiers, connectivity for auxiliary amplifier

Speed-dependent volume control (GALA) via infotainment CAN bus

Sound coding according to body type (saloon/Avant/Cabrio), interior trim (fabric/leather) and engine type (petrol/diesel engine)..

Service



Comfort coding: after the power supply to the radio has been disconnected, it is not necessary to enter a PIN if the radio is restored to operation in the same vehicle.

Diagnosis via CAN bus (TT, A3 8P) or L-wire (A4 8E)



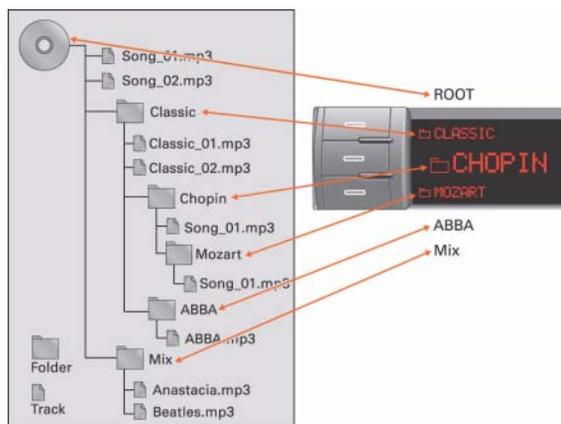
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## concert radio

The concert radio has all the features of the chorus radio. The single-CD drive is also MP3 compatible, i.e. MP3 CDs can be played.

The diagram shows the arrangement of the folders on the MP3 CD in the radio. Folders which do not contain MP3 files are not shown on the radio display. When selecting a folder, the previous folder, the folder currently selected and the next folder are shown on the display.

The first 16 letters of the CD folder name are shown on the radio display.



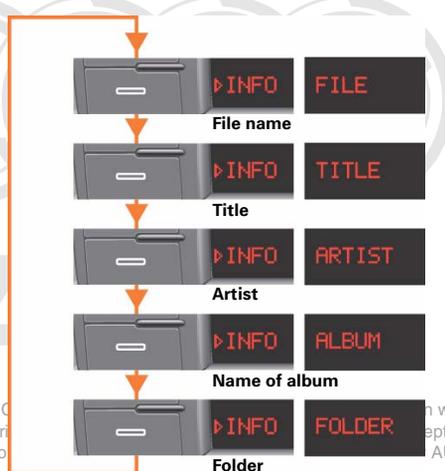
382\_070

In MP3 playback mode, the ID3 tag of the MP3 file can be viewed by pressing the INFO key. The Info key can be used to scroll from one display to another.

The file name, title, artist and album can be displayed.

Menu texts are displayed in English.

The display language of the radios cannot be changed.



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382\_071

### Note



In the case of the concert and symphony radios, only the internal CD drive is MP3 compatible. The optional auxiliary CD changer cannot play MP3 CDs. The CD changer featured in the Audi A3 8P and Audi A4 8E is fitted in the Audi TT Coupé '07.

The amplifier in the concert radio is not used in the Audi TT Coupé '07. A 5-channel DSP amplifier is installed in combination with the concert radio as standard. An auxiliary BOSE sound amplifier is optional.

## symphony radio

The symphony radio has all the features of the concert radio.

The symphony radio is additionally equipped with an internal MP3 compatible 6-disc CD changer.

In addition, the radio has the ability to record Traffic information Messages (TIM key = Traffic Information Message). Traffic Information Messages stored by the radio can be played back by briefly pressing the TIM key. Holding the TIM key down activates a function which allows two time periods to be programmed during which Traffic Information Messages are recorded by the radio even when it is switched off.



### Note

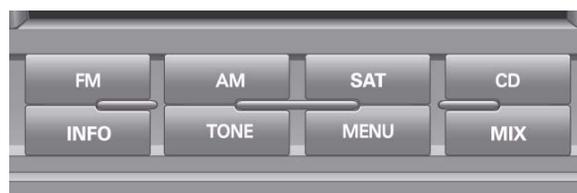
The radio has a higher power consumption in TIM record standby mode than when completely switched off. Please deactivate the TIM function to perform static current measurements on the vehicle.

## Technical variants

In addition to the Audi TT Coupé '07, these radios will in future also be used in other Audi models equipped with the infotainment CAN bus. The necessary adjustments are basically the type of front trim panel and the diagnosis path (CAN, L-wire, etc.)

## Country spec versions

The concert and symphony radios are modified for the North American market.



382\_054

The modifications are:

- different function key lettering and functions
  - SAT: the radio can also be used to control the Sirius satellite tuner
  - INFO: the Info key can be used to read information on the set radio station when the radio is in operation. In MP3 mode, the name of the album (ALBUM), the name the artist (ARTIST) and the CD title (TITLE) are read off the ID3 tag of the MP3 file.
  - MIX: the Mix key can be used to select a track mix from audio CDs or MP3 CDs.
- Optimisation of the FM/AM tuner for the North American market
  - RDBS in lieu of RDS
  - Station seek adapted to the frequency spacings of the radio stations

The concert radio will also be available in a variant for Japan at a later date.

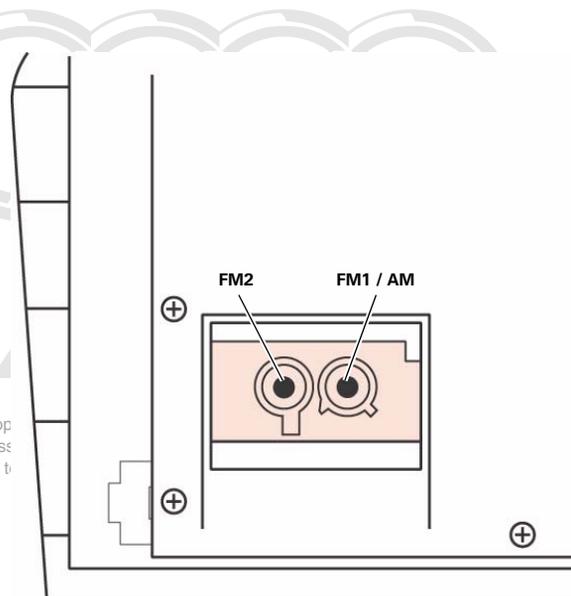
## Aerial system

Radios with phase diversity have two aerial inputs which can be diagnosed individually. The radios differ in this respect from the previous radios or the current radio navigation systems.

Radios with phase diversity do not have a separate diversity switch. The Diversity function is integrated in the radio. Only one aerial is connected to each of the two radio aerial inputs, thus simplifying diagnosis. Each aerial signal can be read out in a separate data block.

Although only two aerials are used, reception quality and interference immunity are better than those of the previous systems.

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### Note

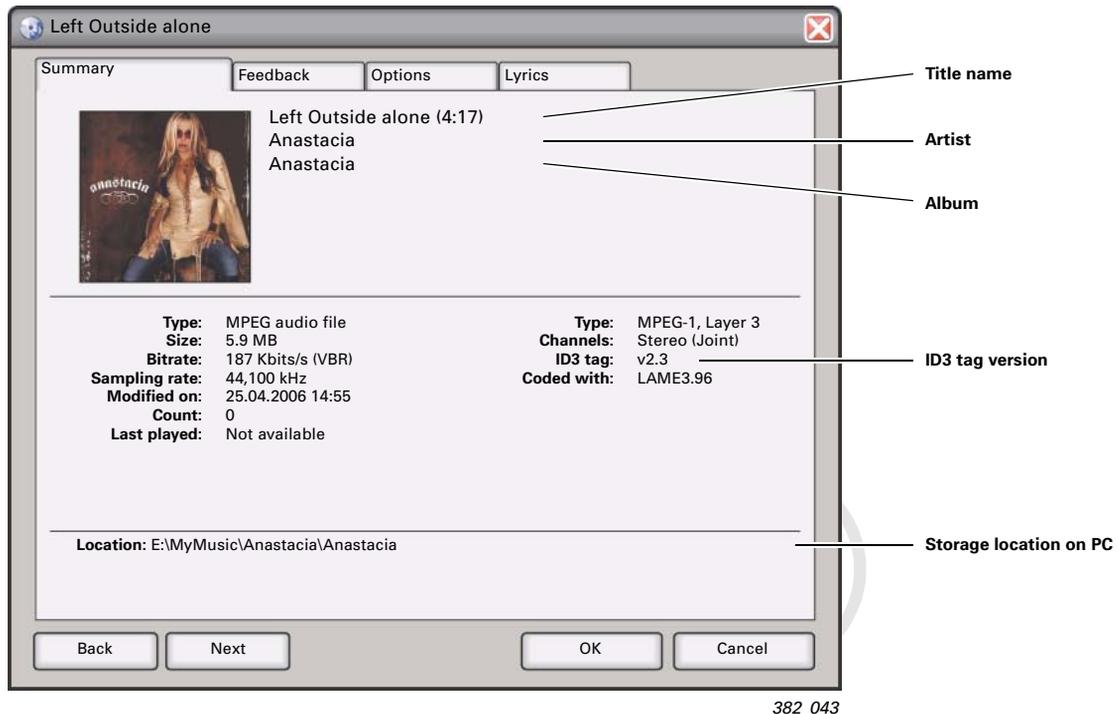
Different aerials are used by the new radios and navigation systems. For this reason, radios cannot be replaced with navigation systems in the unchanged FM aerial system. Reception is much poorer when the wrong aerial system is used.

Although different FM aerials are used, the radios and navigation systems have the same aerial connectors. The differences between the aerials are described on page 52.

## MP3 basics - ID3 tag

The ID3 tag is a field containing additional information which can be attached to MP3 audio files. ID3 stands for "Identify an MP3".

MP3 files can, but need not necessarily, contain ID3 tags.



382\_043

An ID3 tag contains information on the selected MP3 file. The main contents of the ID3 tag are the name of the artist, the name of the album as well as the name of the track. The ID3 tag is an integral part of the MP3 file. The ID3 tag can be used to call up details of the track title, even on compact MP3 player displays.

The ID3 tag can be generated and edited on the PC using standard MP3 converters and player software.

The ID3 tag version can be read out as illustrated, e.g. using Apple iTunes, the PC software for the Apple iPod.

### Note



There exist various versions of the ID3 tag. To find out which versions support the drive, please refer to the instruction manual for the Audi MP3 drive. Only then is it possible to show information on the system display.

## Audi Navigation (BNS 5.0)



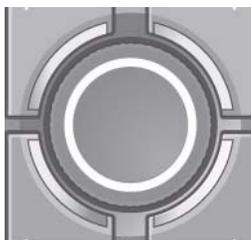
382\_048

When model year 2007 is launched, the BNS 5.0 navigation system in the Audi A3, A4, TT will replace the current BNS 4.1 navigation system.

The system combines the concept of the Navigation System Plus (RNS-E) with the display of the MMI basic system. Unlike the Navigation plus system, the BNS 5.0 navigation system features CD navigation and a monochrome screen but no SD/MMC card reader.

For the first time, it is possible to navigate even with the navigation CD removed, which means that the drive can also be used to play audio CDs.

## Specifications



### Control

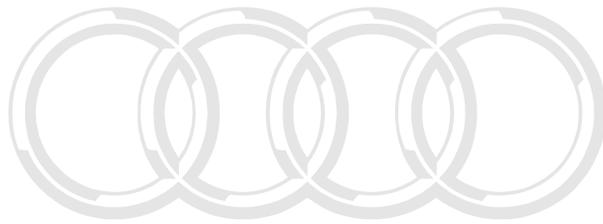
- 6 inch monochrome display with MMI basic display
- MMI operating logic as well as 6 function keys
- Control via optional integrated multifunction steering wheel
- Route indication by means of directional arrows on driver information display
- Display and voice output in 9 different languages
- The desired language (German, English, French, Italian, Dutch, Portuguese, Swedish, Spanish and Czech) can be copied from the navigation CD to the system and converted, depending on the selection made in the language menu.

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### Navigation

- CD navigation with voice output and route display on the dash panel insert. In total, 10 different navigation CDs are available for Europe. The navigation CDs of the predecessor system cannot be used. All CDs contain all major routes in Europe (Major Routes of Europe). The map data for the navigation CD is supplied by Teleatlas.
- Dynamic navigation with TMC
- The navigation CD can be removed after the route has been generated. This means that it is possible to navigate and simultaneously use the CD drive to play back audio CDs or MP3 CDs.
- Destination input by location, post code, POIs or longitude and latitude
- Routes with up to 6 waypoints can be generated
- Route memory
  
- **Country CDs** are available for the following countries (where digitised): Alps, Benelux, Germany, France, United Kingdom/Ireland, Italy, Spain/Portugal, Scandinavia/Finland.



# Audi



### Radio

- Dual FM tuner with switched diversity for optimum reception, as well as simultaneous dynamic station list updating and TMC reception
- AM tuner for medium wave and long wave



### Internal and external drives

- Internal CD drive, MP3 compatible
- Control of an optional auxiliary 6-disc CD changer or an optional auxiliary iPod adaptor
- No connectivity for additional auxiliary source (AUX).

### Note

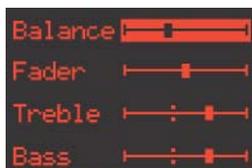


In the case of the BNS 5.0 navigation system, only the internal CD drive is MP3 compatible. The optional auxiliary CD changer cannot play MP3 CDs. Audi TT Coupé '07 comes with the CD changer system previously featured in the Audi A3 8P and Audi A4 8E.



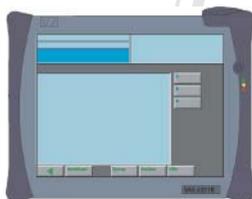
## Telephone

- Operation of the optional factory-fitted mobile phone adapter with navigation system speller
- Mute function for handsfree telephone: If the mobile phone adapter is factory-fitted, muting is via the infotainment CAN bus. A direct wiring plug contact is provided for retrofit solutions. Retrofit solutions cannot be operated with the navigation system.
- LF input for handsfree telephone: when the radio is switched on, the vehicle loudspeakers are used as loudspeakers for the handsfree telephone.



## Sound

- Integrated 2 x 20 W amplifier
- Auxiliary sound amplifier connected
- Connectivity for optional auxiliary BOSE sound amplifier
- Speed-dependent volume control (GALA) via infotainment CAN bus
- Basic sound setting via body version coding (A4 saloon/Avant/Cabrio, A3, TT).



## Service

- Comfort coding: after the power supply to the radio has been disconnected, it is not necessary to enter the 4-digit PIN if the radio is restored to operation in the same vehicle.
- Diagnosis via CAN bus (TT, A3 8P) or L-wire (A4 8E). The scope of diagnosis (data blocks, adaption, coding, etc.) is basically the same as for diagnosis of the Navigation plus system (RNS-E).
- The system software can be updated as required with a flash CD.

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## Technical variants

In addition to the Audi TT Coupé '07, the navigation system will in future also be used in other Audi models equipped with the infotainment CAN bus. The necessary adjustments are basically the shape of the front trim panel, the CAN communication and the diagnosis path (CAN, L-wire, etc.)

## Simultaneous navigation and CD playback

With the BNS 5.0 navigation system, it is possible to navigate and listen to CDs simultaneously. For this purpose, the system is equipped with an internal memory into which the required map data can be loaded after entering the navigation destination.



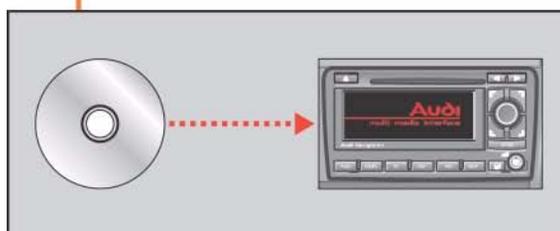
Load navigation CD

After entering the route, the system first computes the distance to the route destination.



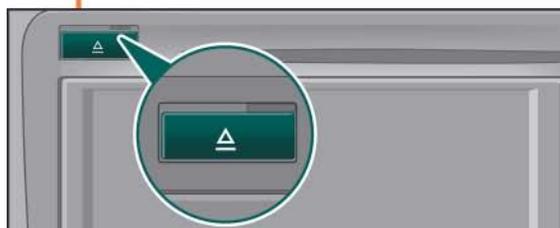
Enter navigation route

The map features of the route are then copied to a memory integrated in the system. If the CD is removed during the copy process, the system displays the following query *"Do you want to cancel loading the route features?"* to indicate that the corridor has not been loaded completely.

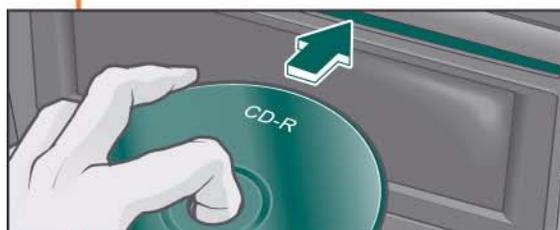


System copying corridor from CD

After completing the copy process, the navigation CD can easily be removed. The map data copied to the internal memory is also available for navigating to other route destinations within the copied area. This means that it is not necessary to load the navigation CD to navigate to each new navigation destination.



Remove navigation CD



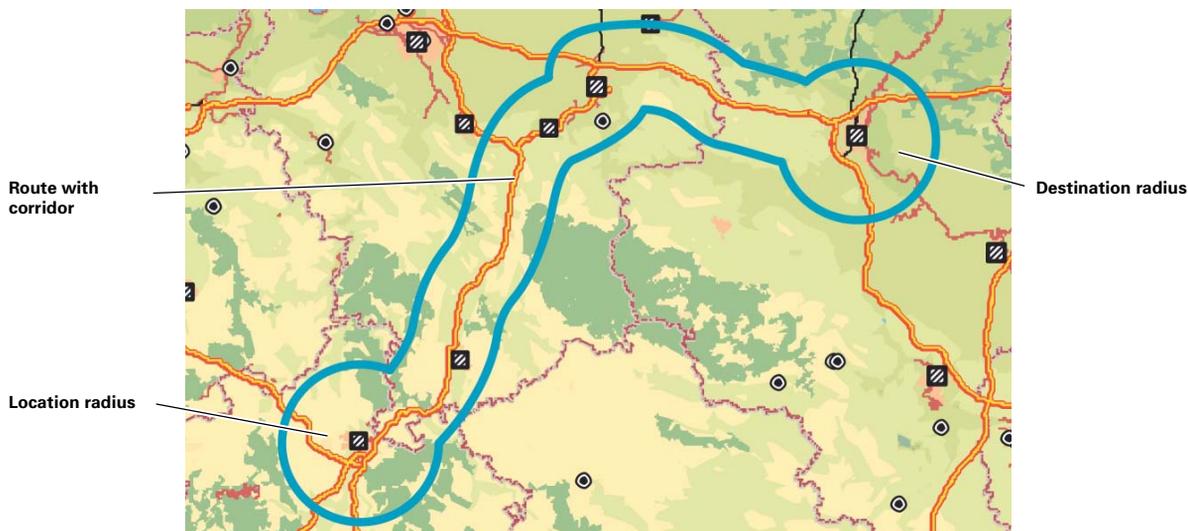
Load audio CD



Play audio CD

382\_049

## Behaviour of the internal map memory while driving



382\_053

After entering the route destination a map section is copied to an internal memory. The map section consists of a location radius, a destination radius as well as a slightly narrower route corridor in between.

When the vehicle is driving towards the destination, the location of the vehicle changes. To make optimum use of internal memory, the position and size of the location radius are updated continuously by the system when the navigation CD is loaded. Likewise, the size of the destination radius as well as the width of the corridor are updated continuously in the internal memory. In the event that the navigation CD is removed, this ensures that the optimum map section is always stored in the system memory.

When the navigation CD is removed from the system, the map content stored at the time of removal of the CD remains stored in the system memory. The map content remains stored in the deactivated system for 72 hours. This enables one to enter a route from town A to town B and to navigate between town A to town B over a lengthy period of time without having to reload the navigation CD.

If the actual location and the destination are too far apart when the navigation CD is removed, the system may request that the navigation CD be reloaded while navigating to the destination.

The size of the corridor is defined by the size of the system memory. Due to the different density of the navigation data in towns and in sparsely populated areas, it is not possible to specify the size of the corridor area.

### Note



When map data is stored in the system, the static current consumption of the system rises slightly. Map data can only be cleared prematurely by disconnecting the system from the power supply. Please bear this fact in mind when performing static current measurements on the vehicle.

## Sound systems

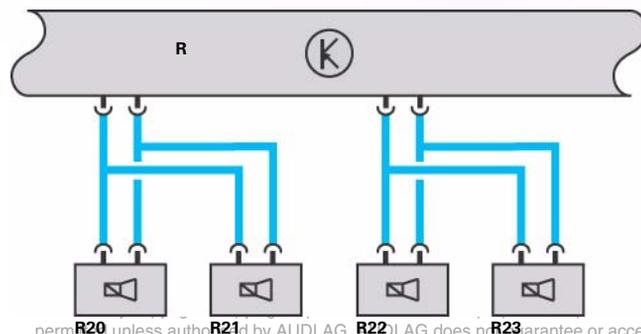
### Basic sound (standard equipment with chorus radio)

The Audi TT Coupé '07 is equipped as standard with a two-way loudspeaker system. The treble loudspeakers are installed in the dash panel, while the bass loudspeakers are installed in the front doors. This variant is only available in combination with the standard chorus radio. The 2 x 20 watt amplifier is also integrated in the chorus radio.

The loudspeakers are diagnosed via the radio, i.e. via address word 56.



382\_050



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### Legend

J525 Digital sound package control unit  
 R Radio  
 R14 Rear left treble loudspeaker  
 R16 Rear right treble loudspeaker  
 R20 Front left treble loudspeaker  
 R21 Bass loudspeaker, front left  
 R22 Front right left treble loudspeaker  
 R23 Bass loudspeaker, front right  
 R103 Front left mid-range loudspeaker

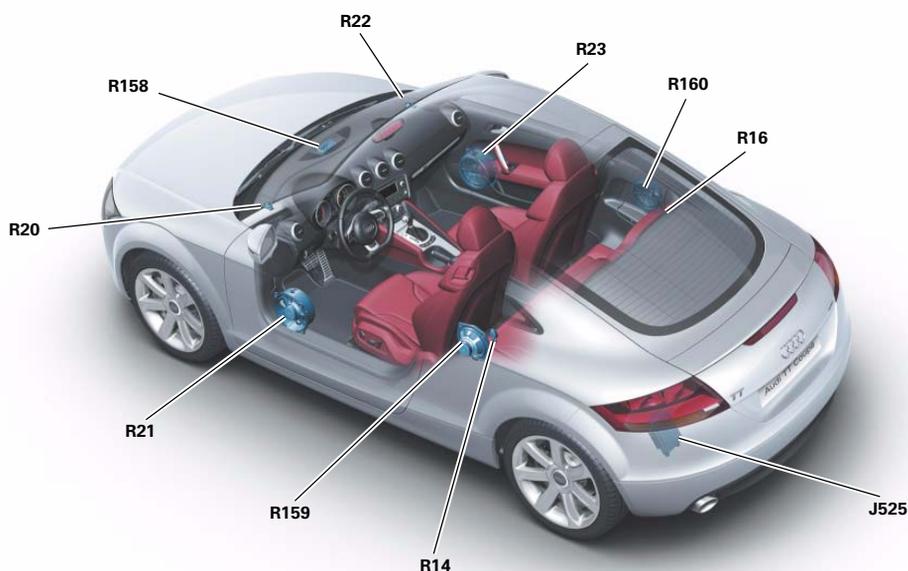
R104 Front right mid-range loudspeaker  
 R105 Rear left mid-range loudspeaker  
 R106 Rear right mid-range loudspeaker  
 R148 Centre loudspeaker (subwoofer)  
 R158 Mid-range/treble loudspeaker, centre  
 R159 Mid-range/treble loudspeaker, rear left  
 R160 Mid-range/treble loudspeaker, rear right  
 R164 Microphone unit in front roof module

## Standard sound system

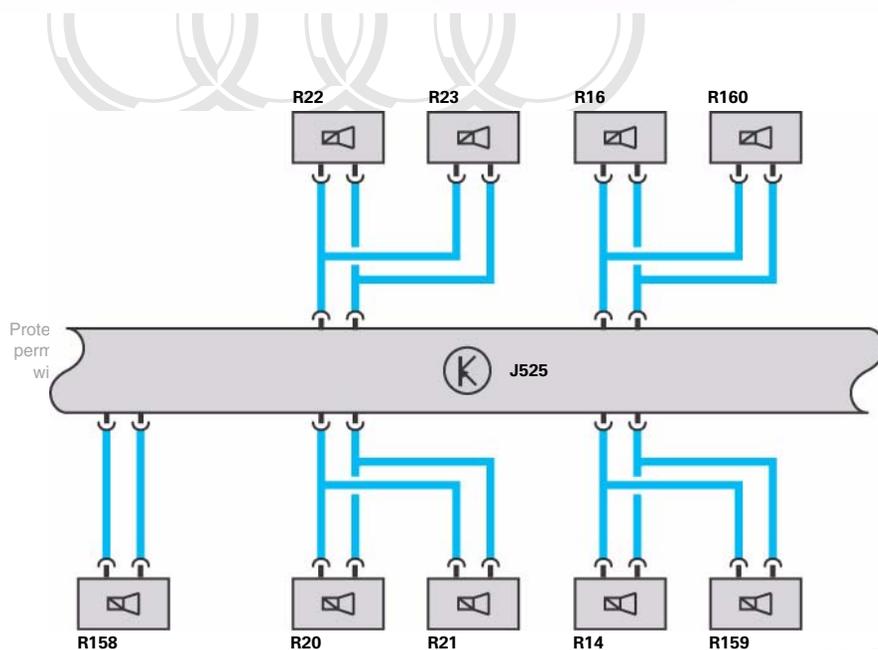
This sound system has an auxiliary 5-channel DSP amplifier, the digital sound package control unit J525 which is diagnosable via CAN. The amplifier supplies the front two-way systems, the rear two-way systems and the central loudspeakers integrated in the dash panel.

The standard sound system is standard equipment of the concert and symphony radios as well as the navigation systems with MMI operating logic. These radios or navigation systems do not use an internal amplifier.

All loudspeakers are diagnosed via the amplifier, i.e. via address word 47. Vehicle model, equipment, networking and type of driving noise compensation are also coded in the amplifier.



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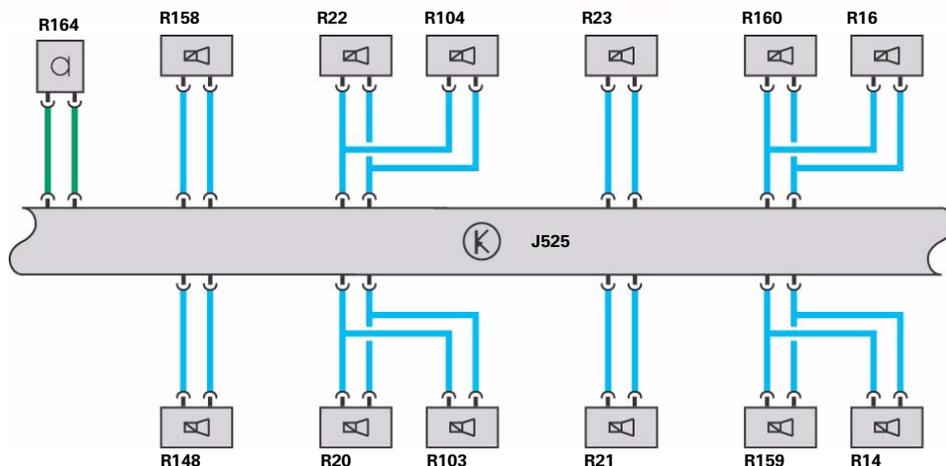
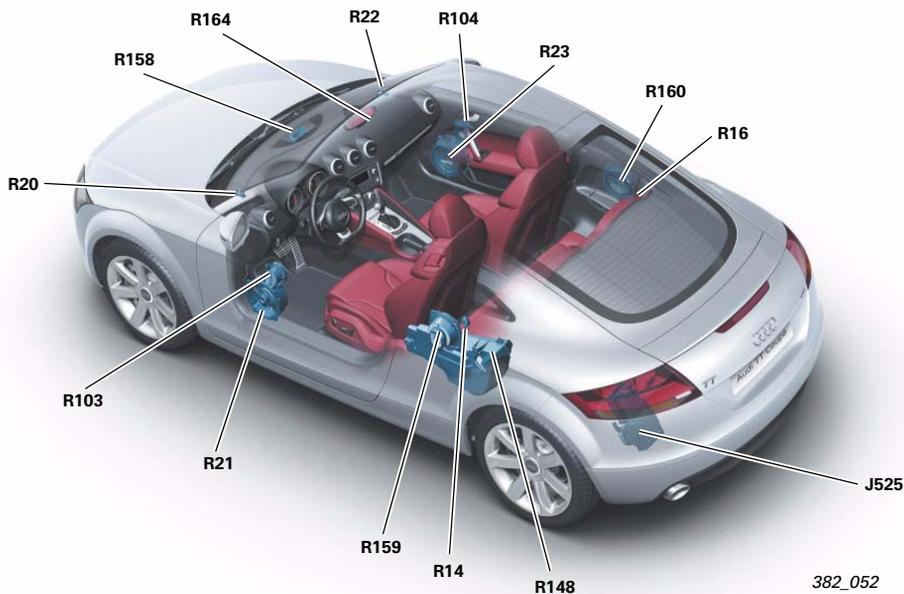
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## BOSE Surround Sound

In the Audi TT Coupé '07, a BOSE surround sound system is optional in combination with the concert and symphony radios as well as Audi navigation systems. The sound system features BOSE 6000 amplifier technology with 8-channel DSP amplifier and Audio Pilot which set new standards for this automobile class. The amplifier drives a total of 12 loudspeakers. It was adapted specially for use in the TT Coupé.

Compared with the standard sound system, a three-way system and an additional subwoofer are installed in the left-hand side trim of the rear seat bench. As with other current BOSE sound systems - a microphone is integrated in the overhead module to record background noise. The DSP amplifier utilises the background noise information picked up by the microphone to frequency-adjust the output signals to the loudspeakers, resulting in a well-balanced sound.

All loudspeakers are diagnosed via the amplifier, i.e. via address word 47. Vehicle model, equipment, networking and type of driving noise compensation are also coded in the amplifier.



382\_055

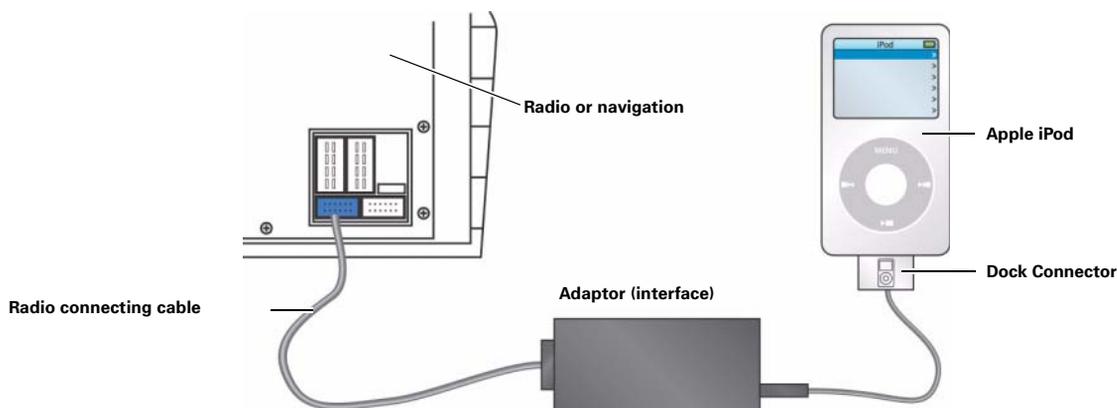
## Apple iPod adaptor

The iPod by Apple is a very popular and versatile MP3 player. Various versions of the Apple iPod are currently available on the market. The iPod has up to 60 GB (gigabytes) of memory. This is enough to store about 15,000 songs on the device.

The Apple iPod adaptor can be ordered with the new vehicle or purchased as an OEM accessory.



382\_035



382\_032

The Audi iPod adaptor can be used to connect the Apple iPod to radios with communication CAN bus. The adaptor converts the CD changer messages from the radio for the iPod. It can be connected as an alternative to the CD changer. Simultaneous operation of the CD changer and iPod adaptor is not possible, because both devices use the same port on the radio. All iPods with Dock Connector, a 30-pin blade terminal, can be connected to the adaptor iPod. Models without a Dock Connector, e.g. with USB port only, cannot be connected to the iPod adaptor.



The iPod adaptor allows the iPod to be operated using the CD changer control functions. The displays on radios or navigation systems support only CD changers with max. 6 discs and max. 99 tracks per CD. For this reason, they cannot display folders, artists and tracks like the iPod display. To overcome this system limitation of the CD changer interface, an operating concept adapted to the interface has been developed.



382\_033

The Apple iPod and the associated PC software (iTunes) have a function for programming playlists. A playlist can have a freely selectable name and contain any number of songs in a fixed sequence. This feature has been utilised. The iPod adaptor loads the first 5 playlists in alphabetical order. The corresponding CD number is assigned to each playlist. The first alphabetical playlist appears on the radio as CD 1, the second playlist as CD 2, and so on. All tracks are loaded in alphabetical order of artist as CD 6.



382\_034

To program special playlists for use of the iPod in the car, it is recommended to place a number in front of the playlist name.

When playlists are sorted in alphabetical order, a number always takes precedence over the letter "A". The playlists "1\_Mozart", "2\_Beethoven", "3\_Chopin", etc. are loaded by the adaptor based on the preceding number in the order CD1 = 1\_Mozart, CD2 = 2\_Beethoven, CD3 = 3\_Chopin.

The songs are displayed as Track 01, Track 02, etc. like on the CD changer. The numbering on the radio display goes up to Track 99. All tracks in a playlist can be played. If more than 99 tracks are stored in a playlist, only the last two digits of the track number are displayed for tracks 100 and upwards. Track 00 is displayed for track 200 and Track 37 for track 1037.



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When the radio is on, the rechargeable battery of the iPod is charged using the iPod adaptor. To disconnect the iPod from the adaptor, switch the radio off.

**Note**



For further information on the adaptor function and handling the iPod on the adaptor, please refer the relevant Audi instruction manual.

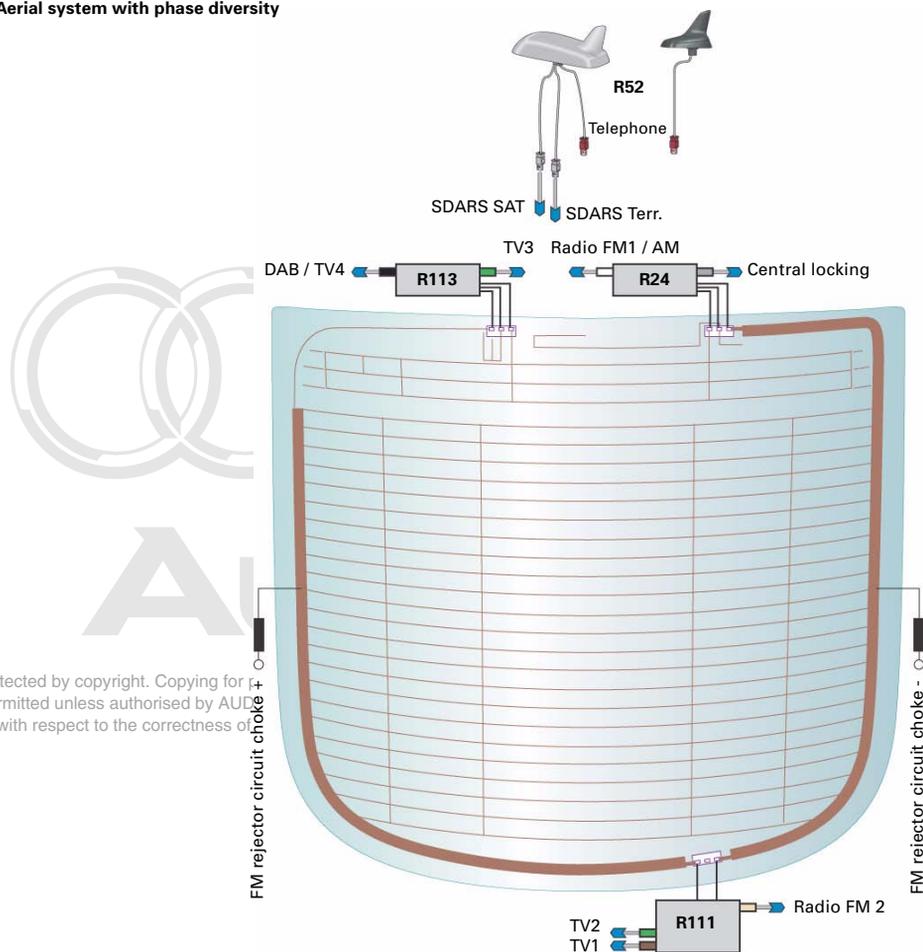
## Aerials

In the Audi TT Coupé '07, most aerials are integrated in the rear window. Only the navigation aerial (GPS), the telephone and digital satellite radio (North America only) aerials are integrated in the roof aerial.

The amplifiers for the various systems are fitted at the top left and right, as well as the bottom right of the rear window. The bottom right aerial module is available in variants for phase diversity and switched diversity.

Various FM aerial systems are installed in the vehicle to serve the various radio tuner systems. Radios with phase diversity for FM reception (= chorus, concert or symphony radios) have a different FM aerial system to radios with switched diversity (= Navigation plus (RNS-E) or Navigation (BNS 5.0))

Aerial system with phase diversity



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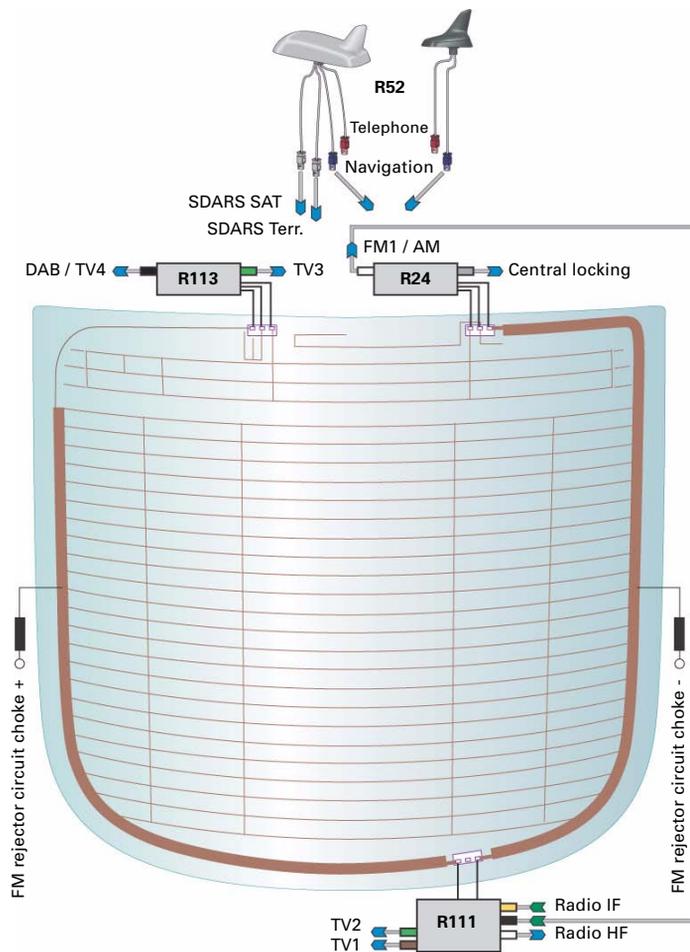
382\_029



**Note**

Only the aerial modules required for the existing equipment are fitted in the vehicle.

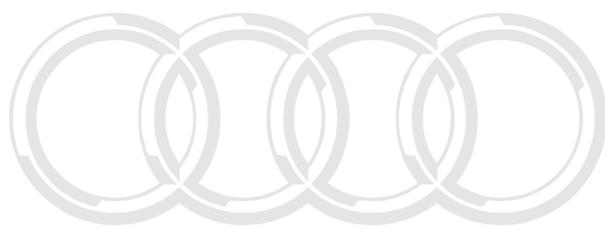
**Aerial system with switched diversity**



382\_026

Aerial	Function
Aerial amplifier R24	Analogue radio aerial amplifier (FM1, AM) Central locking aerial amplifier
Radio/telephone/navigation aerial R52	Telephone aerial, navigation aerial Digital satellite radio aerial (SDARS, North America only)
Aerial amplifier 2 R111	Analogue radio aerial amplifier (FM2) TV aerial amplifier -1- TV aerial amplifier -2-  with switched diversity only: Analogue radio aerial amplifier (FM3, FM4, Diversity)
Aerial amplifier 4 R113	TV aerial amplifier -3- TV aerial amplifier -4- Digital terrestrial radio aerial amplifier (DAB)

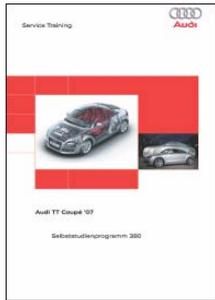
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# Self-study programmes on the TT Coupé



## SSP 380 Audi TT Coupé '07

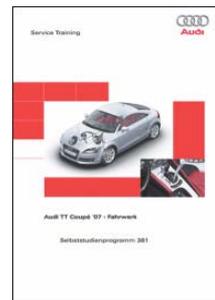
- Body
- Occupant protection
- Engine
- Suspension system
- Electrical system
- Air conditioning
- Infotainment

Order number: A06.5S00.25.20

## SSP 381 Audi TT Coupé '07 - Suspension System

- Front axle
- Rear axle
- Shock absorber system
- Brake system

Order number: A06.5S00.26.20



## SSP 382 Audi TT Coupé '07 - Electrical and Infotainment Systems

- Networking
- Bus topology
- Convenience electronics
- Infotainment

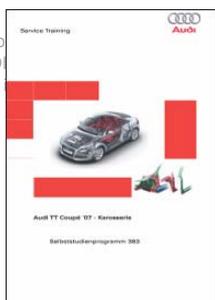
Order number: A06.5S00.27.20



## SSP 383 Audi TT Coupé '07 - Body

- Audi Space Frame
- Production processes and joining methods
- Surface finish
- Electromechanical rear spoiler
- Repair concept
- Passive safety concept

Order number: A06.5S00.28.20



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