













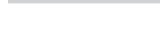




AUDI A8 '03 - Electrical Components

Self Study Programme 287

This Self Study Programme contains information on data bus networking (topology) and electrical components in the Audi A8 '03.

An understanding of the interaction of the components and distributed functions forms the necessary basis for successful fault-finding.

Wiring

-  Convenience CAN
-  Drive system CAN
-  Adaptive cruise control CAN
-  Dash panel insert CAN
-  MOST bus
-  LIN bus
-  Diagnosis CAN
-  Bidirectional wire
-  Reception wire
-  Transmission wire
-  Discrete wire
-  Wireless transmission – transmission signal
-  Wireless transmission – reception signal
-  Follow-up function
-  Prerequisite

This introduction contains explanatory notes to clarify the meanings of certain terms, designations and symbols used in this Self Study Programme.

More detailed information can be found in the following Self Study Programmes:

- SSP 282 – Audi A8 '03 Technical Features
- SSP 286 – New Data Bus Systems – LIN, MOST, Bluetooth™
- SSP 288 – Audi A8 '03 Distributed Functions
- SSP 289 – Adaptive cruise control in the Audi A8 '03
- SSP 293 – Audi A8 '03 Infotainment

Components and symbols

①

A number is used to designate the information sequence described in the corresponding text. The green circle symbolises the start of an information sequence.



The green arrow indicates input information.



The blue arrow indicates output information.

The layout of the individual components such as control units, switches or control elements as illustrated corresponds to the actual arrangement in the vehicle. Component designations are explained on the basis of their identifiers in the relevant text.



Components marked in red indicate the function master within a sequence of operations.



Components marked in yellow indicate the substitute master.



Definition of terms

Data bus network (topology)

The topology provides a general outline of the way in which control units fitted in the vehicle are interlinked by way of data bus systems.

It thus becomes clear which bus systems are used by the control units to exchange data.

Distributed functions

This term indicates that several control units are required to exchange information in order to implement a function.

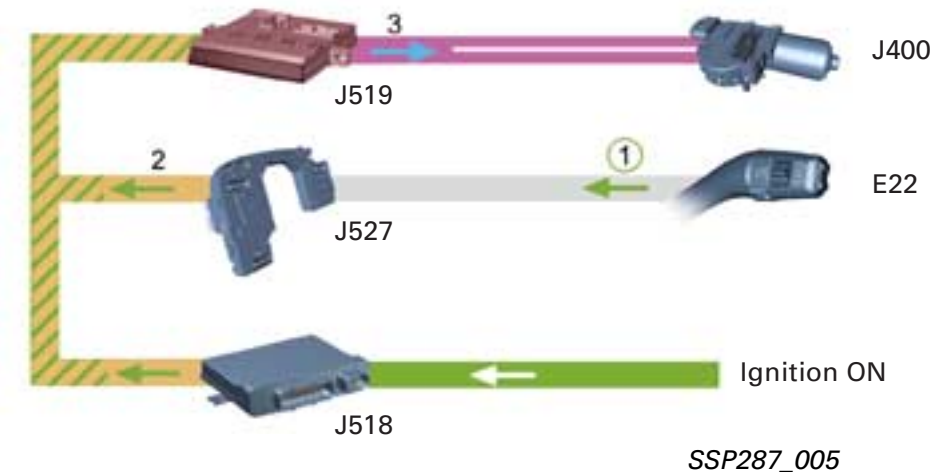
Function master

With distributed functions, one control unit is always responsible for the entire sequence of operations. The function master control unit gathers all input information. The requests resulting from this are then transmitted in the form of a message on the data bus system and read into the control units concerned for corresponding actuation of the appropriate connected components.

Substitute master

In the event of function master failure affecting major functions, the task of the function master is assumed by a control unit provided for this purpose and designed to maintain the sequence of operations (possibly with certain restrictions).

Example: Wiper speed 1 function



Prerequisite

Ignition switched on by way of electric ignition/starter switch or Advanced Key, so that entry and start authorisation control unit J518 transmits terminal 15 and 75x information to convenience CAN.

1 The intermittent wiper switch E22 transmits the information "Wiper speed 1" to the steering column electronics control unit J527.

2 The steering column electronics transmits the information "Wiper speed 1" to the onboard power supply control unit J519.

3 The onboard power supply control unit transmits the information "Wiper speed 1" via the LIN to the wiper motor control unit J400. The wiper motor control unit actuates the integrated motor.



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The Self Study Programme contains information on design features and functions.

The Self Study Programme is not intended as a Workshop Manual.

Values given are only intended to help explain the subject matter and relate to the software version applicable at the time of SSP compilation.

Use should always be made of the latest technical publications when performing maintenance and repair work.

New



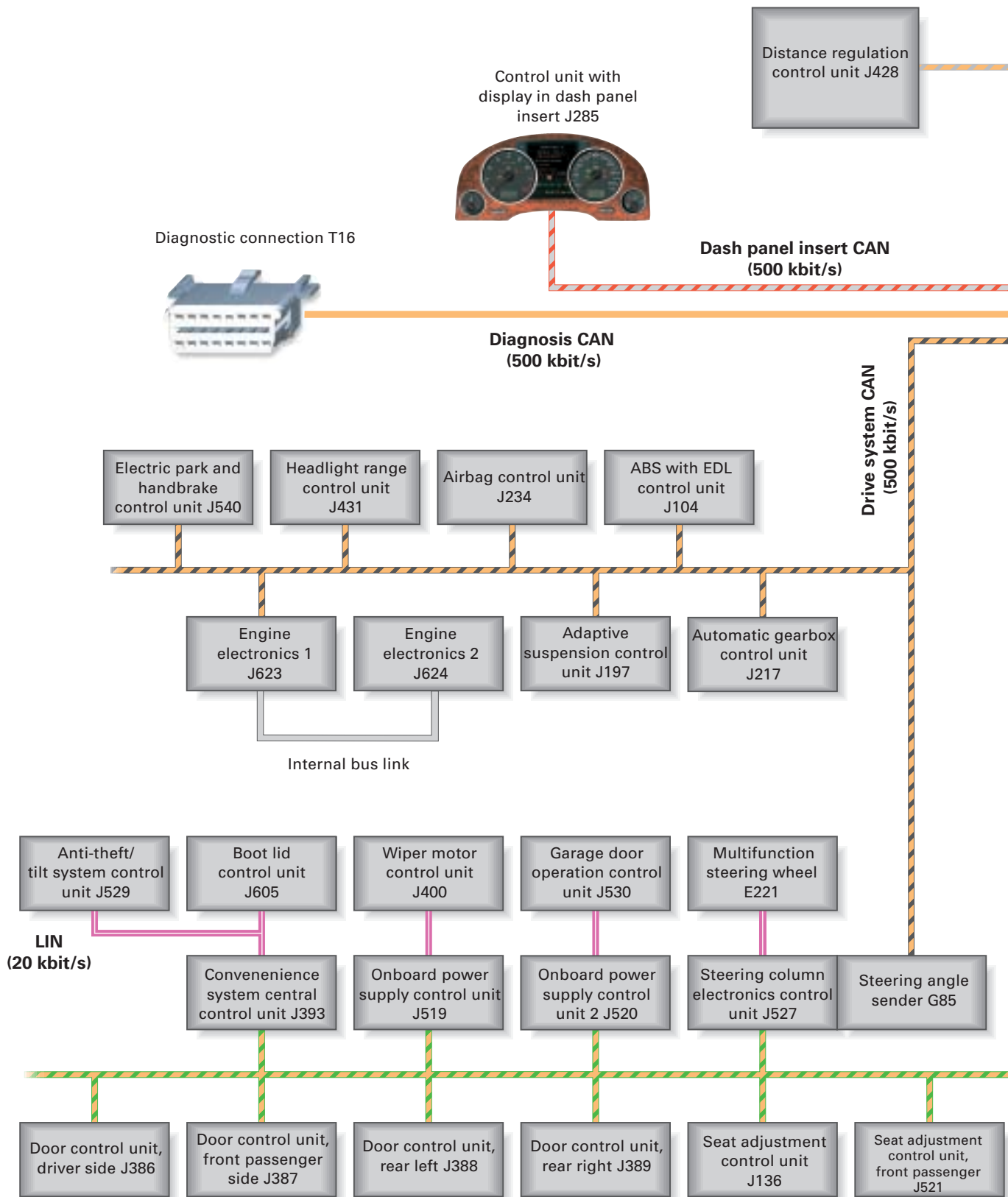
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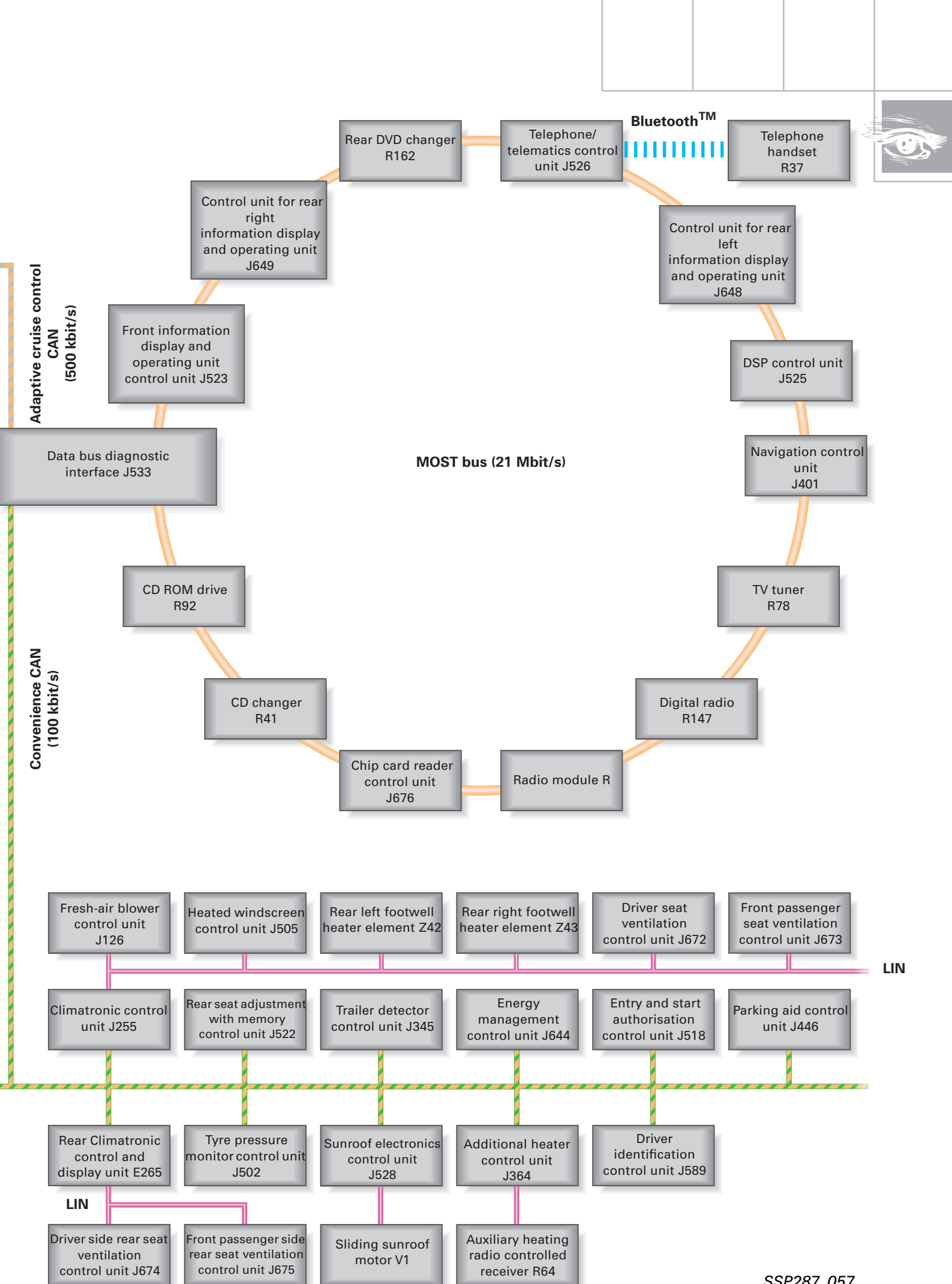


Introduction



Bus topology

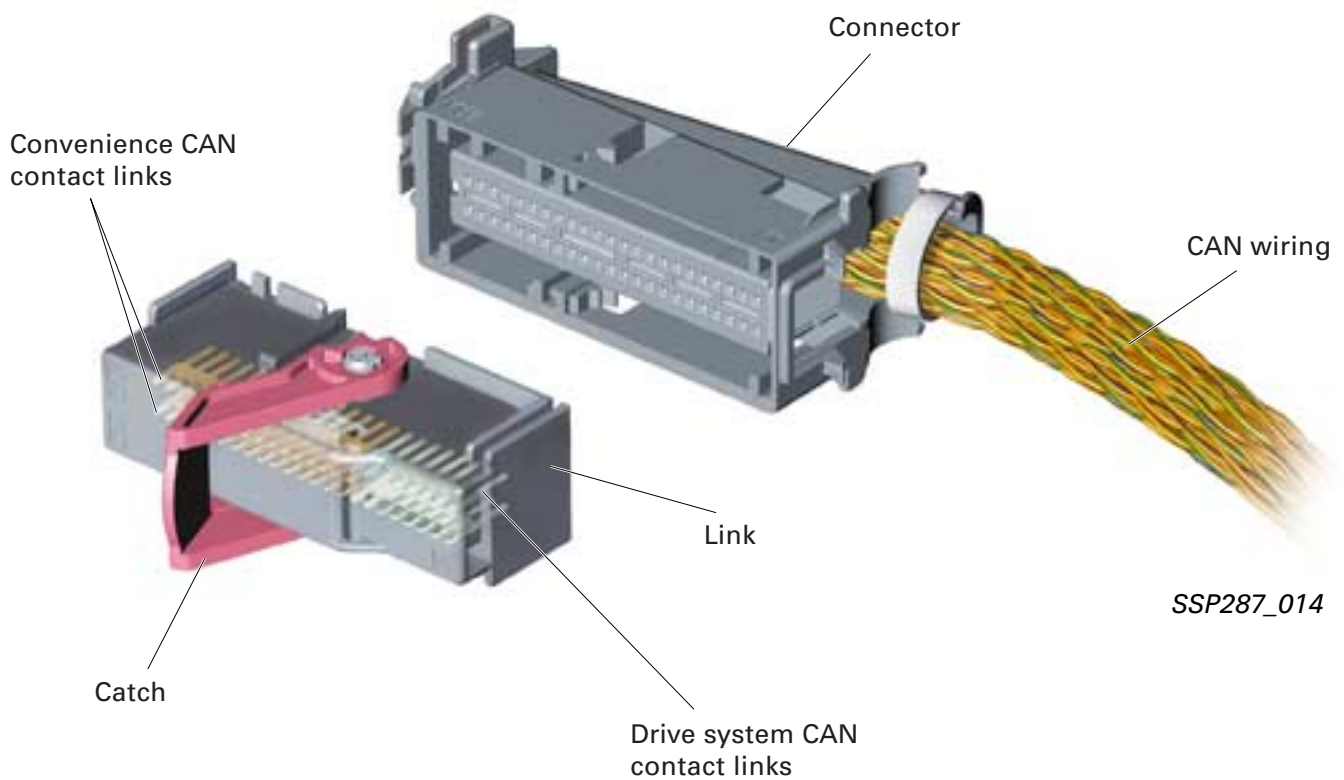




Control Units



Drive system CAN/ convenience CAN connectors




Two CAN bus connectors are used in the Audi A8 '03. The connectors form the central junction for both the convenience and the drive system CAN.

All CAN wires of the respective bus system control units are attached to the connectors.

Fitting locations

The connectors are installed on the right and left sides of the dash panel behind the end trim. The catch has to be unfastened before a link can be detached.

The pin assignments of the two connectors are different in left and right-hand drive vehicles.

 The pin assignments can be found in the appropriate Workshop Manual or under "Vehicle information" in assisted fault-finding.



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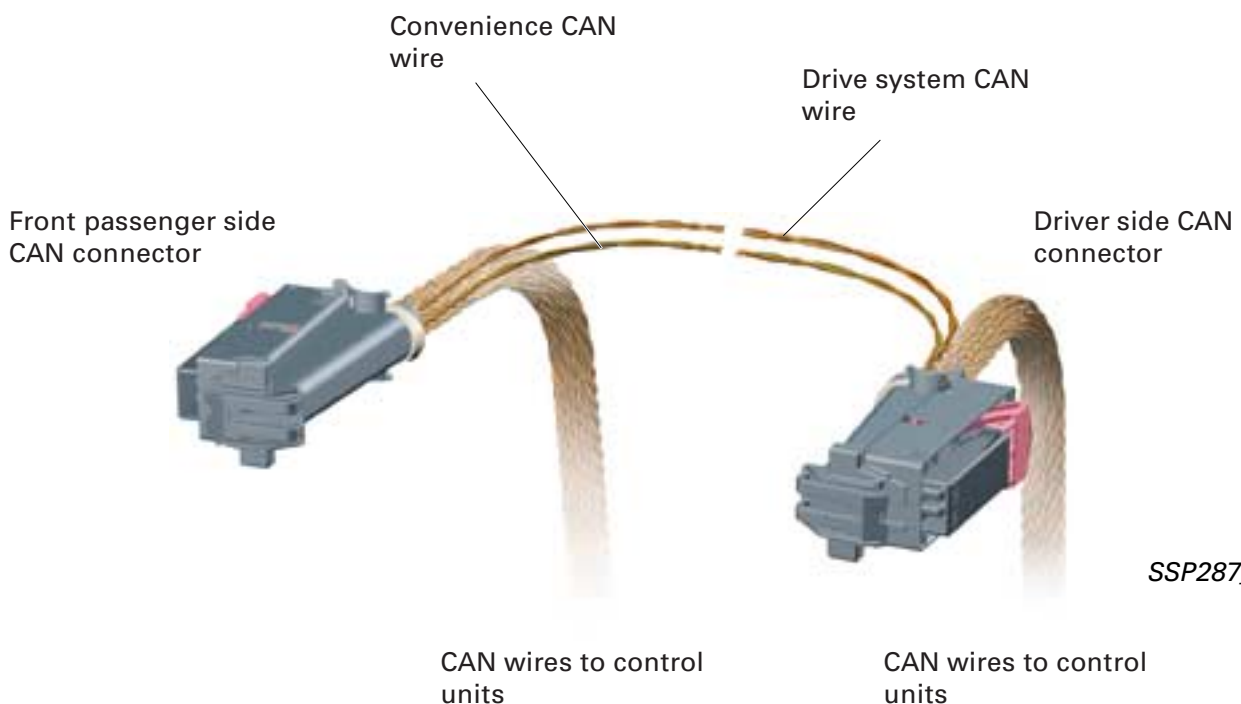
Control Units

Star connection

All drive system and convenience CAN control units are linked to the corresponding connector in star configuration.

Some of the control units of a bus system are linked to the right connector, whereas the others are linked to the left connector.

In turn, the left and right connectors are interlinked by a CAN wire so that ultimately all convenience CAN control units are interlinked, as are those of the drive system CAN.



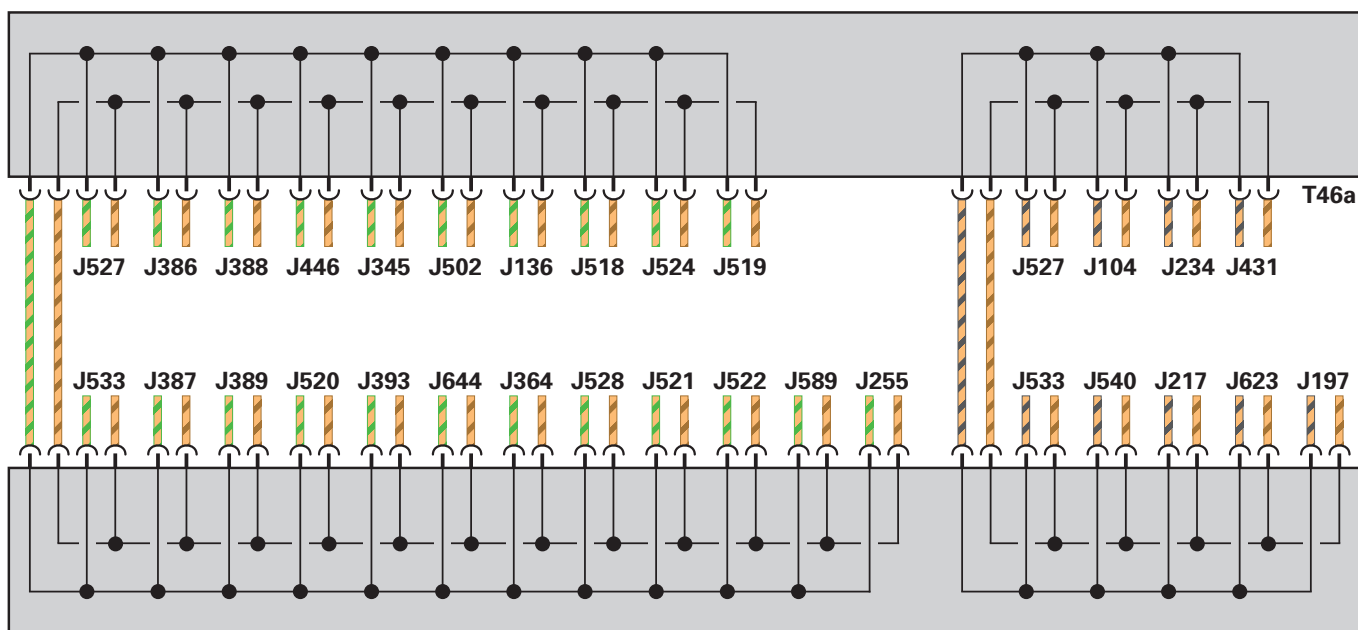
Test box

Use is made for the CAN connectors of the test box 1598/38.

This test box makes it possible to access the individual drive system and convenience CAN control unit wires with the digital storage oscilloscope of VAS 5051. Individual control units can also be disconnected from the bus system during fault-finding.

This is necessary, for example, when trying to localise CAN bus short circuits. The link connecting the CAN wires of the individual control units is inserted at the test box and can also be checked.

Block diagram



T46a
T46b
SSP287_018

Key

- | | | | |
|------|---|------|--|
| J104 | ABS with EDL control unit | J524 | Rear information display and operating unit control unit |
| J136 | Seat adjustment with memory control unit | J527 | Steering column electronics control unit |
| J197 | Adaptive suspension control unit | J528 | Sunroof electronics control unit |
| J217 | Automatic gearbox control unit | J533 | Data bus diagnostic interface |
| J234 | Airbag control unit | J540 | Electric park and handbrake control unit |
| J255 | Climatronic control unit | J589 | Driver identification control unit |
| J345 | Trailer detector control unit | J623 | Engine control unit |
| J364 | Additional heater control unit | J644 | Energy management control unit |
| J386 | Door control unit, driver side | T46a | 46-pin, black connector at left CAN breaker |
| J387 | Door control unit, front passenger side | T46b | 46-pin, black connector at right CAN breaker |
| J388 | Door control unit, rear left | | |
| J389 | Door control unit, rear right | | |
| J393 | Convenience system central control unit | | |
| J431 | Headlight range control unit | | |
| J446 | Parking aid control unit | | |
| J502 | Tyre pressure monitor control unit | | |
| J518 | Entry and start authorisation control unit | | |
| J519 | Onboard power supply control unit | | |
| J520 | Onboard power supply control unit 2 | | |
| J521 | Seat adjustment with memory control unit, front passenger | | |
| J522 | Seat adjustment with memory control unit, rear | | |

Colour code

- = Convenience CAN High
- = Convenience CAN Low
- = Drive system CAN High
- = Drive system CAN Low

