Audi > B5 Platform > 1996 - 2002
1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Engine Code(s): ATW
24 - Multiport Fuel Injection (MFI)

Data transfer between Engine Control Module (ECM) and CAN-capable control modules, checking

Note:

- Data exchange between individual control modules occurs via a bus system.
- The term "CAN-bus" refers to a system that transports and distributes data.
- The wire connections between the control modules, via which data is transferred, are referred to as data wires.
- Data is transferred to the connected control modules serially (one after the other) via these data wires (i.e. engine speed, accelerator position).

Checking bus system

The DTC table suggested checking the data exchange between the Engine Control Module (ECM) and CAN capable control modules.

- Connect VAS5051 tester or VAG1551 scan tool and select control module for engine electronics using "address word" 01 => page 01-9. Ignition must remain switched on.

When indicated on display

- Press buttons -0- and -8- to select "Read Measuring Value Block" and press -Q- button to confirm input.

Note:

Measuring value blocks 125 and 126 indicate the participants in the powertrain data-BUS.

```
Read measuring value block Q
Enter display group number XXX
```

When indicated on display

- Press buttons -1-, -2- and -5- to select "display group number 125" and press -Q- button to confirm input.

```
Read Measuring Value Block 125 →
1 2 3 4
```

When indicated on display

- Check indications in display fields 1 through 4.

CAN capable control modules connected to the Engine Control Module (ECM) are indicated:

- No indication: Control module not CAN-capable
- Indication 1: CAN capable control module is connected to databus
- Indication 0: CAN capable control module is not connected to databus

- Check under display group 126 in the same manner.
- Press → button.

```
Rapid data transfer HELP
Select function XX
```

When indicated on display

- Press buttons -0- and -6- to select "End output" and press -Q- button to confirm input.

```
Rapid data transfer HELP
Enter address word XX
```

When indicated on display

- Press button 0- twice to select "Automatic test sequence", address word 00. Press -Q- button to confirm input.
  - DTC memory of all OBD capable systems in the vehicle will be checked.

When a control module responds with its identification, the display indicates the number of stored errors or indicates "no malfunctions recognized".

DTCs stored in the system are indicated in sequence and printed out. Then the VAG1551 scan tool sends the next address word.

```
VAG - On Board Diagnostic (OBD) HELP
1- Rapid data transfer*
2- Blink code output*
```

The automatic test sequence is over when the following indication appears on the display

If a malfunction related to the"powertrain databus" or the "CAN-bus" is indicated:

- Check whether the Engine Control Module (ECM) and other CAN capable control modules installed are appropriate for this vehicle (part no. and coding).

If the correct control modules are installed:

- Check to be sure multi-pin connectors of control modules are securely connected.

If multi-pin connectors are properly secured:

- Check CAN bus system

Checking a "two-line bus system"

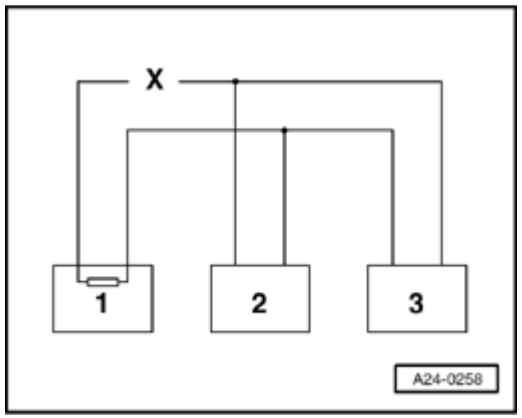
Three or more control modules are communicating across a "two-line bus system".

- Analyze DTCs stored in memories of control modules.

Note:

This analysis will help you locate the cause of the line malfunction.

Example 1:



From the DTCs stored in the memories, you have determined that control module 1 is not communicating with control modules 2 and 3.

Control module	DTCs stored in DTC memories:
1	• Missing signal from control module 2 • Missing signal from control module 3
2	• Missing signal from control module 1
3	• Missing signal from control module 1

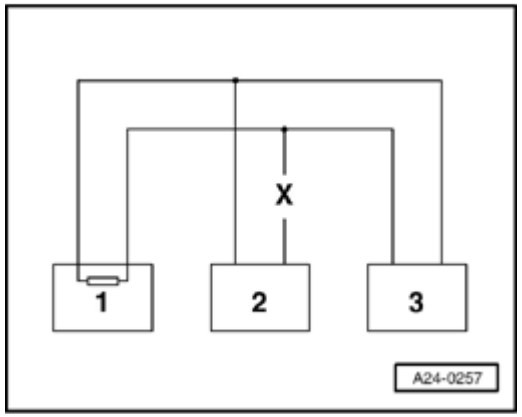
- Switch ignition off.

- Disconnect control modules connected across bus wires and check bus wires for an open circuit.

=> Electrical Wiring Diagrams, Troubleshooting & Component Locations

- Replace control module 1 if no malfunctions can be found in bus wires.

Example 2:



From the DTCs stored in the memories, you have determined that control module 2 is not communicating with control modules 1 and 3.

Control module	DTCs stored in DTC memories:
1	• Missing signal from control module 2
2	• Missing signal from control module 1 • Missing signal from control module 3
3	• Missing signal from control module 2

- Switch ignition off.

- Disconnect control modules connected across bus wires and check bus wires for an open circuit.

=> Electrical Wiring Diagrams, Troubleshooting & Component Locations

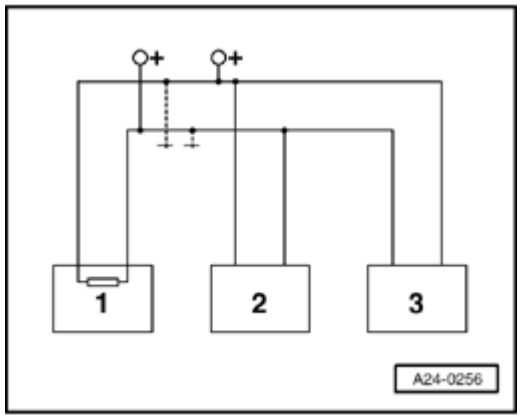
- Replace control module 2 if no malfunctions can be found in bus wires.

Example 3:

Using the DTCs stored in the memories, you have determined that none of the control modules are sending or receiving signals.

Control module	DTCs stored in DTC memories:
1	• Powertrain databus faulty
2	• Powertrain databus faulty
3	• Powertrain databus faulty

- Switch ignition off.



- Disconnect control modules connected across bus wires and check bus wires for a short circuit to B+ and Ground (GND).

=> Electrical Wiring Diagrams, Troubleshooting & Component Locations

If you cannot determine a cause for the DTC "Powertrain databus malfunction, check whether the DTC is caused by one of the control modules.

All control modules that use the CAN-bus are still disconnected. Ignition is switched off.

- Connect one control module.
- Connect VAG 1551 scan tool. Switch ignition on, and erase DTC memory of control module just connected. End scan tool output using "End Output" function 06.
- Switch ignition off and then on.
- Leave ignition on for 10 seconds. Read DTC memory of control module just connected.
- If DTC "Powertrain databus malfunction" is displayed, replace control module just connected.
- If DTC "Powertrain databus malfunction" is not displayed, connect next control module and repeat procedure.