ABL-DIT-B6100_00005 - Bus test, I-bus/K-bus - V.6

Procedure

Data transmission on the D-bus is OK.

The instrument cluster was detected during identification.

The connection to the DME/DDE and the ABS/ASC/DSC is interrupted.

When conducting repairs, refer to the information provided in the functional description!

Functional Description

Test requirements: Before working through a test module first ensure that the diagnosis cable and the tester are in satisfactory condition. In case of doubt, carry out a diagnosis test on a different vehicle or use the selftest to check the diagnosis cable. The "Selftest - Diagnosis cable" (selected in Administration) is employed to determine whether the diagnosis cable and the diagnostic interface are in satisfactory condition. For this procedure the diagnosis cable must be connected to the test socket on the rear of the tester.

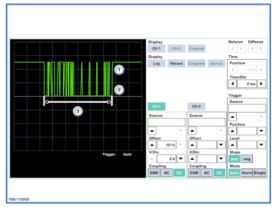
Test sequence: This test module conducts a check of the bus systems (I-/K- and D-bus). In the course of this test communications are established with the following control units: DME/DDE, ABS/ASC/DSC, KOMBI, IHKA/IHKR/IHR, ZKE, RADIO, BMI/MID and LCM/LSZ. The IDs of the control units are read out as part of the test.

If the identification data are transmitted without errors , this indicates that the bus is functioning correctly. If several control units are not detected, then either the bus connection (plugs, wires) or the voltage supply is disconnected. The fault patterns for total failure of a control unit and for an uninstalled control unit are identical. The control units tested in the test module are assessed upon completion of each test step.

If it proves impossible to establish communications with the vehicle , this indicates an interruption in data transfer on the D bus. The prescribed response is to carry out fault diagnosis on the D-bus wire.

Potential defects are short circuits to earth and battery voltage as well as open circuits. These conditions render it impossible to transmit data between the control units. This also applies to the I-/K-bus if no control units are recognised and no control units can be identified during the brief test. The prescribed response is to carry out fault diagnosis on the bus line.

The following is a freeze-frame image representing bus voltage. This bus voltage is a sample illustration and portrays the basic structure of a bus telegramme.



FBD-10000

1 Bus voltage too high
2 Bus voltage too low
3 Telegramme length

The fault patterns have the following designations :

- Open circuit: No voltage on the bus line
- Short circuit to positive: No voltage change on the bus, the voltage on the bus is $U < U_{Batt}$
- Short circuit to earth No voltage change on the bus, the voltage on the bus is U =0V

Potential causes include:

- Open wire or circuit
- Abrasion on a wire
- Defective plug connectors / damage to contacts / dirt / corrosion
- Defective control units
- Defect in voltage supply to control units
- Wiring fire

When conducting fault diagnosis on a bus wire please use the prescribed test routines for oscilloscope testing and the wiring check.

Interference from control units in the bus system

The **causes** of these faults may lie in the software.

An effect of software errors can be interference in telegrammes, leading to a failure to execute operations and thus to malfunctions.

Instructions for identifying a control unit generating interference in the bus system:

- Remove the fuses from the control units on the bus, one after the other
- Each time you remove a fuse, repeat the bus test
- If data transmissions return to normal status when one control unit is disconnected, then you have identified the control unit that is generating interference in data transmissions
- This control unit must be replaced - for this operation please observe the currently applicable **Hotline Information Bulletin (HIL)** and **Service Information Bulletin (SI)**