

## Multi-information display (MID)

The multi-information display (**MID**) represents an integrated display and operating unit for the audio system, telephone, clock and the on-board computer. The **MID** only indicates existing information and transfers button signals to connected communication devices. Some calculations are not carried out by the **MID**.

The main functions of these devices can be operated and indicated from the **MID**. Secondary functions of the connected communication devices can be set on the devices themselves. The secondary functions of the audio system are, for example, controlled from the radio operating panel which is located behind a hinged panel.

The communication devices are connected to each other and the **MID** via a serial one-wire bus, the information bus (**I-bus**). Following users can be connected to the **MID**:

- **CLOCK**: The clock functions are included in the instrument cluster electronics.
- **ON-BOARD COMPUTER**: The on-board computer functions are included in the instrument cluster electronics.
- **AUDIO**: Radio functions
- **TELEPHONE**: Telephone functions

When a button is pressed, the **MID** transfers the signal via the **I-bus** to the corresponding communication device. The corresponding function must be understood and triggered by the device which has written the menu line.

On request of a communication device to the **MID**, the communication device sends a message to the **MID**. The text received by the **MID** is converted into a readable form and the information then indicated. Messages which cannot be evaluated are ignored.

### Note

The MID control unit is connected to the I-bus. For this reason, not only is the data link involved in a diagnosis connection between the service tester and the MID control unit but also the I-bus link. In the case of faults in the diagnostic procedure, the diagnosis link must be checked between the diagnosis socket and the instrument cluster electronics (IKE). In addition, the I-bus link between IKE and MID must also be checked.

## MID control panel

The **MID** control panel consists of a main display for function displays and a menu display for button labelling as well as the corresponding buttons.

The communication device to be operated is selected by means of labelled selection buttons on the **MID**. The corresponding device sends its display information to the **MID**.

The volume for the radio and telephone system is set by means of a volume control on the **MID**.

The **MID** can be switched on and off by pressing the volume control.

The search rocker switch is arranged above the volume control. It can be used to implement following functions:

- Radio operation: Station search, radio
- Cassette operation: Music search
- CD operation: Title search
- Telephone operation: Paging in telephone register

## MID variants

The **MID** is installed in several variants:

- **MID** to operate radio (**AUDIO**), telephone (**TEL**), on-board computer (**BC**) and clock (**CLOCK** symbol)
- **MID** to operate radio (**AUDIO**) and on-board computer (**BC**)
- **MID** to operate radio (**AUDIO**) and clock (**CLOCK** symbol)
- **MID** as on-board computer (**BC**) and clock (**CLOCK** symbol)
- Rear compartment **MID**: The **MID** is coded as a rear compartment **MID** by a jumper on the control unit connector (pin 5 and pin 11 connected). The **MID** is set automatically to a new diagnosis address when the control unit is plugged in. All other functions remain unchanged.

## On-board computer test functions

The test functions which could be called up in the on-board computer (**BC**) in the previous series for testing, checking the coding and for fast defect determination cannot be called up on the **MID**.

If required, these test functions must be called up by pressing the check-control button and the reset button for the trip odometer on the instrument cluster electronics (**IKE**). The functions offered here basically correspond to the scope of functions as known from previous versions.

## MID system test

The **MID** offers an integrated function test for simple system testing in the workshop and when conducting repairs "on site".

During this period of time, the display is blocked for all connected communication devices. The test menu used during the function test is generated by the **MID** itself, the tests are carried out by the **MID** without the participation of external devices. The test is also possible without the **I-bus** connected.

Function test selection:

- Ignition lock in position 0
- On the **MID**, press and hold the first and last menu button
- Then switch ignition lock to position 1 or 2.

When the **MID** function test is selected, the hardware status ("HW X.X"), software status ("SW X.X") as well as the **MID** version ("V X") are indicated in the main display.

Following tests are offered for selection in the test menu:

- Display test  
The main display and the special lettering are driven one after the other and then together at 3 second clock pulse cycles. The test display is then activated with several test patterns. The test menu appears once again on conclusion of the test.
- Test of button functions  
Visual feedback takes place in the display every time a button is pressed. The identification letter of the pressed button is shown in the main display. The menu buttons, selection buttons, search rocker switch and the radio ON/OFF button are tested. End of test takes place automatically 5 s after the last button is pressed.
- Test of volume control (only if installed)  
Visual feedback is provided in the display in every stage of the volume control. A counter is shown in the main display which is incremented by 1 for every rotary step in clockwise direction and decremented by 1 for every rotary step in counterclockwise direction. One complete turn corresponds to 36 steps. The test is ended by selecting a new test from the test menu or by ending the system test.
- Test of function LEDs  
Each of the LEDs installed is driven for 3 seconds. The test is concluded automatically, the test menu reappears at the end of the test.

End of function test:

The test is concluded when the ignition lock is switched from position 1 to position 0 or after a time of 5 s has elapsed after the last button to be pressed.

## I-bus user test

At regular intervals of 10 s, the **MID** requests the device status from the connected communication devices **AUDIO**, **TELEPHONE** and **IKE**. If a valid response is not obtained over 2 request cycles, the corresponding device is blocked in the **MID**. i.e. the information of the communication device is cleared in the display and the relevant selection button is blocked. In this case, the **MID** enters the corresponding device as being faulty in its defect code memory.

The status inquiries are continued for the defective communication device in order to give it the chance of signalling again.

Resumption of normal operation and thus cancellation of the user lockout, takes place after two successful status scanning cycles. The entry in the defect code memory is then set to "does not exist at present".

Possible defect code entries:

Defect code	Defect

1	No valid status feedback from the instrument cluster electronics ( <b>IKE</b> )
2	No valid status feedback from the radio ( <b>AUDIO</b> )
3	No valid status feedback from the telephone ( <b>TELEPHONE</b> )