Operator's Manual / Functional Description

for

SIEMENS - DAIMLER BENZ

Immobilizer System
Type FBS 2b Hash

Functional description of the Daimler Benz Immobilizer System 2b Hash (transponder immobilizer)

The Daimler Benz Immobilizer 2b Hash is a transponder immobilizer. It consists of a control unit with a transponder aerial and a transponder which is integrated within a key.

The driver and the signal interface of the transponder immobilizer are located on the pcb of the control unit and connected to the inductive transponder aerial via a double-pole connector.

The control unit comprises a CAN bus interface to the engine management system.

The bus interfacing is implemented via another double-pole connector. The immobilizer logic is permanently connected to terminal 30 in the vehicle and operates in economy mode as long as the ignition is switched off. It is only activated by a voltage applied to terminal 15 as soon as the ignition is switched on. In this case, the processor of the control unit operates the driver for the resonant circuit to the transponder aerial, which is tuned to an operating frequency of 125 kHz. The resonant circuit's coil - i.e. the transponder aerial - emits a magnetic field of identical frequency.

If a transponder aligned to the immobilizer logic is located within a few centimeters of the transponder aerial (in the ignition key), it is then activated. After transponder identification, the coding in the transponder is changed (Write mode; duration ≤ 2.0s). Data transmission of the new coding into the transponder is effected amplitude-modulated and PPM-encoded via the transponder aerial as well.

Parts list of the Daimler Benz Immobilizer 2b Hash

MLFB Number	Component
5WK4 8697	Control unit, ECE variant
5WK4 8698	Control unit, USA variant

Label Design

Siemens FBS 2b Hash, 315 MHz
Variants: 5WK4 8697, 5WK4 8698
FCC ID: KR5FBS2BHASH
CAN: xxx xxx xxx

SIEMENS AG
FCC ID: KR5FBS2BHASH
EXHIBIT #: _____

This device complies with part of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interferences, and (2) this device must accept any interference received. Including interference that may cause undesired operation.

Technical data

Service voltage:	9 to 16 V
Closed-circuit current:	≤ 3 mA
Service temperature range:	-40°C to +85°C
Line frequency:	125 kHz $\pm$ 1 kHz
Field intensity:	< 100 dBµV/m (measured at a distance of 3 m)
Transponder range:	< 10 cm

<u>Description of starting-up the Daimler Benz Immobilizer 2b Hash</u>

The test setup of the Daimler Benz Immobilizer 2b Hash consists of the following components:

- 1 control unit
- 1 transponder aerial with integrated transponder
- 1 test box with connecting cable

The components are set up as follows:
First, connect the test box to the control unit. Then, connect the test box to a switchable 12V DC supply. Next, connect the transponder aerial to the control unit (central double-pole connector on the control unit). Finally, switch on the 12V service voltage.

Operation:
First set the switch for terminal 15 (ignition key) on the test box to ON. Then, the aerial will emit until the terminal 15 switch is reset to OFF.

This procedure does not correspond to the normal operating mode of the transponder's function! The transponder is normally integrated within the key; however, for irradiation measurement, it was glued into the transponder aerial.

This procedure is intended to facilitate the irradiation measurement. Normally, the transponder aerial emits only max. 0.7 s in the scope of the read process, and max. 2.0 s during the subsequenty write process.

Should you encounter any problems or have any queries, please do not hesitate to contact:

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