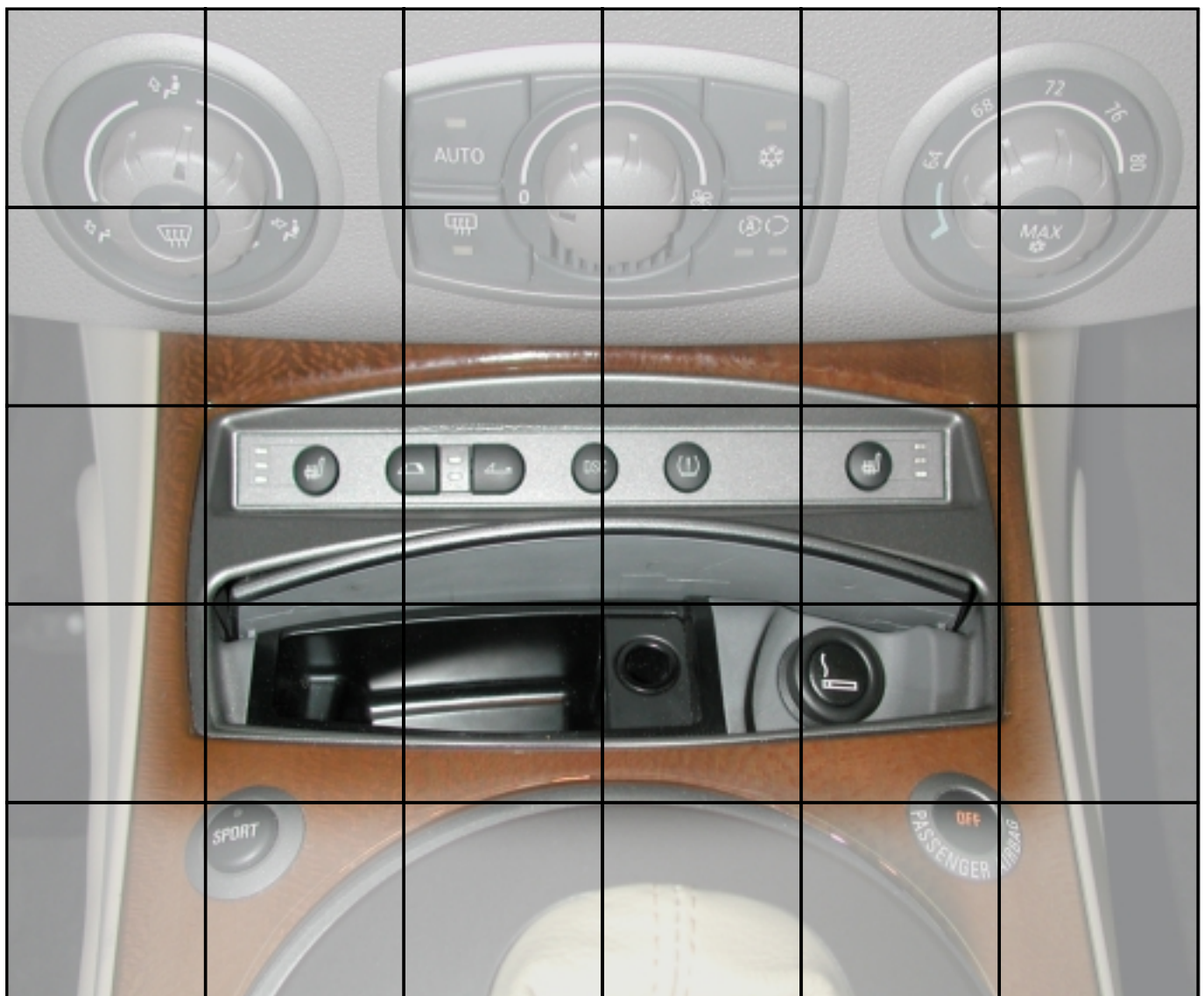




E85 Driving Dynamics Systems Seminar Working Material



NOTE

The information contained in this training course manual is intended solely for participants of the BMW Service Training course.
Refer to the relevant "Technical Service" information for any changes/supplements to the Technical Data.

© 2001 BMW AG

München, Germany. Reprints of this manual or its parts
require the written approval of BMW AG, München
VS-42 MFP-HGK-BRK-E85_0500

Contents

	Page
CHAP 1 E85 Driving dynamics systems	1
Introduction	1
Components/installation locations	2
System overview	4
- Input/output signals	4
- DSC block diagram	6
System functions	8
Operational control	8

E85 Driving dynamics systems

Introduction

In addition to the ABS, ASC and CBC functions already known, the dynamic stability control (DSC) system now incorporates a further function in the Z4, i.e. the DTC (dynamic traction control).

The DSC module MK 60 known from the E46 is installed in the E85. The DTC function can be activated with the DSC button and makes available two subfunctions:

- Sports tuning of the automatic stability control (ASC) + Dynamic stability control (DSC)
- Distinctly improved traction, particularly on ground with low coefficient of friction

The remaining functions have essentially remained the same.

An indicator lamp with the letters "DTC" is illuminated in the instrument cluster when the DTC function is active.

The DSC warning lamp in the instrument cluster flashes when the system intervenes in the control procedure.

Components/installation locations

The system consists of following components:

- DSC module MK60
- Wheel speed sensors
- DSC sensor
- DSC button

The **DSC module MK 60** is installed in the engine compartment at the front left on the MacPherson strut tower. The control unit and valve block form one unit.

The **DSC sensor** is located under the seat on the right-hand side of the vehicle and is connected via a separate CAN to the DSC module. It registers the transverse acceleration and the yaw rate.



KT-10300

Fig. 1: DSC sensor E85

Index	Explanation
1	DSC sensor

E85 Driving Dynamics Systems

The **DSC button** is located in the centre console switch center next to the RPA button.



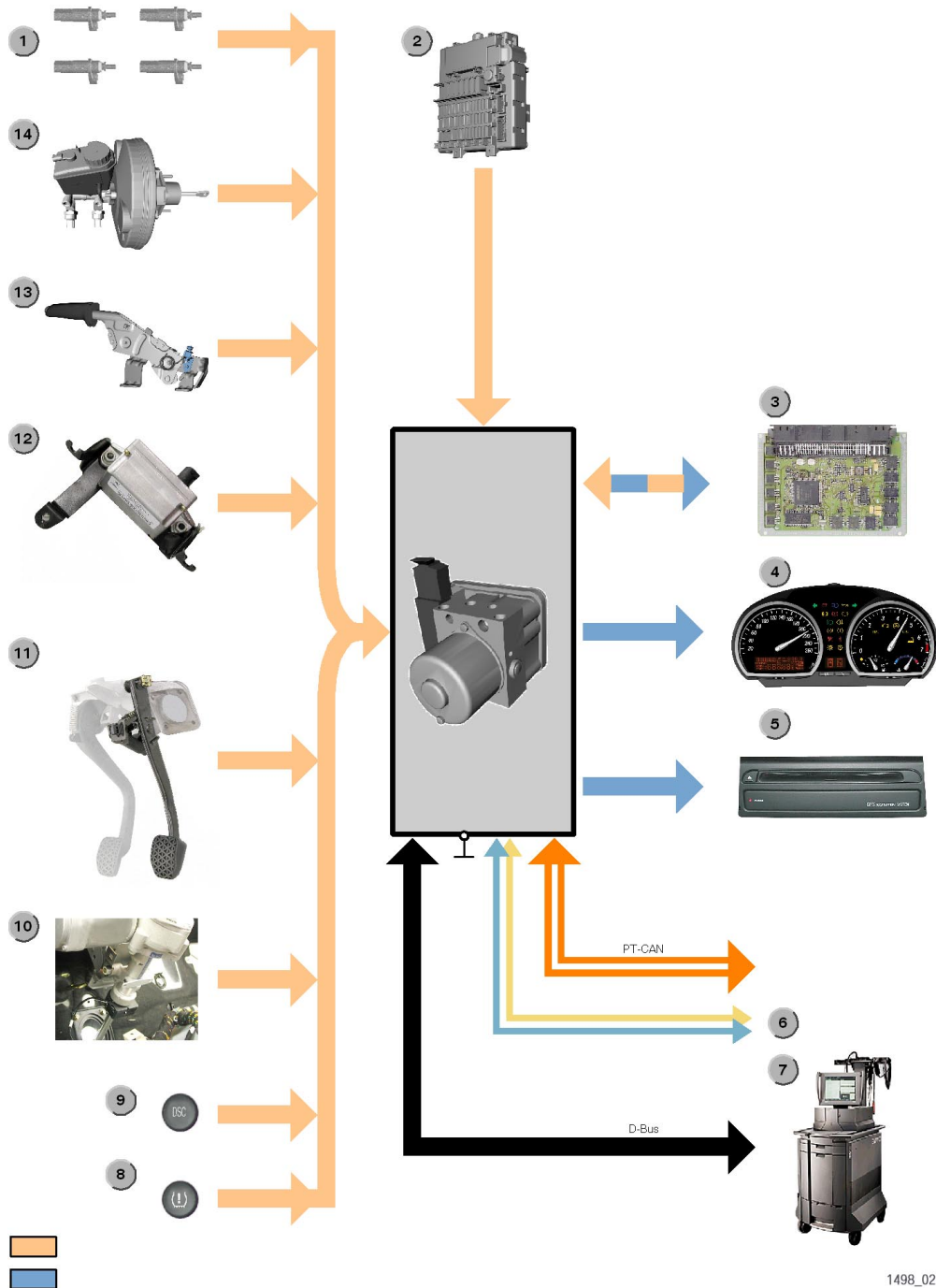
KT-10287

Fig. 2: E85 Installation location of DSC button

Index	Explanation	Index	Explanation
1	DSC button	2	RPA button

System overview

- Input/output signals



1498_02
KT-10054

Fig. 3: DSC system overview with input/output signals

E85 Driving Dynamics Systems

Index	Explanation	Index	Explanation
1	Wheel-speed sensors	9	DSC button
2	Power distribution box with terminal 30 (double) and terminal 15	10	Steering angle sensor
3	Engine management MS45.0	11	Brake light switch
4	Instrument cluster	12	DSC sensor
5	Navigation computer	13	Handbrake switch
6	Private CAN (DSC-CAN High and DSC-CAN Low) between DSC sensor and DSC module	14	Sensors: 2 pressure sensors in master brake cylinder and one brake fluid sensor
7	Group tester 1 or DISplus	PT-CAN	Powertrain CAN
8	RPA button	D-Bus	Diagnosis bus

- DSC block diagram

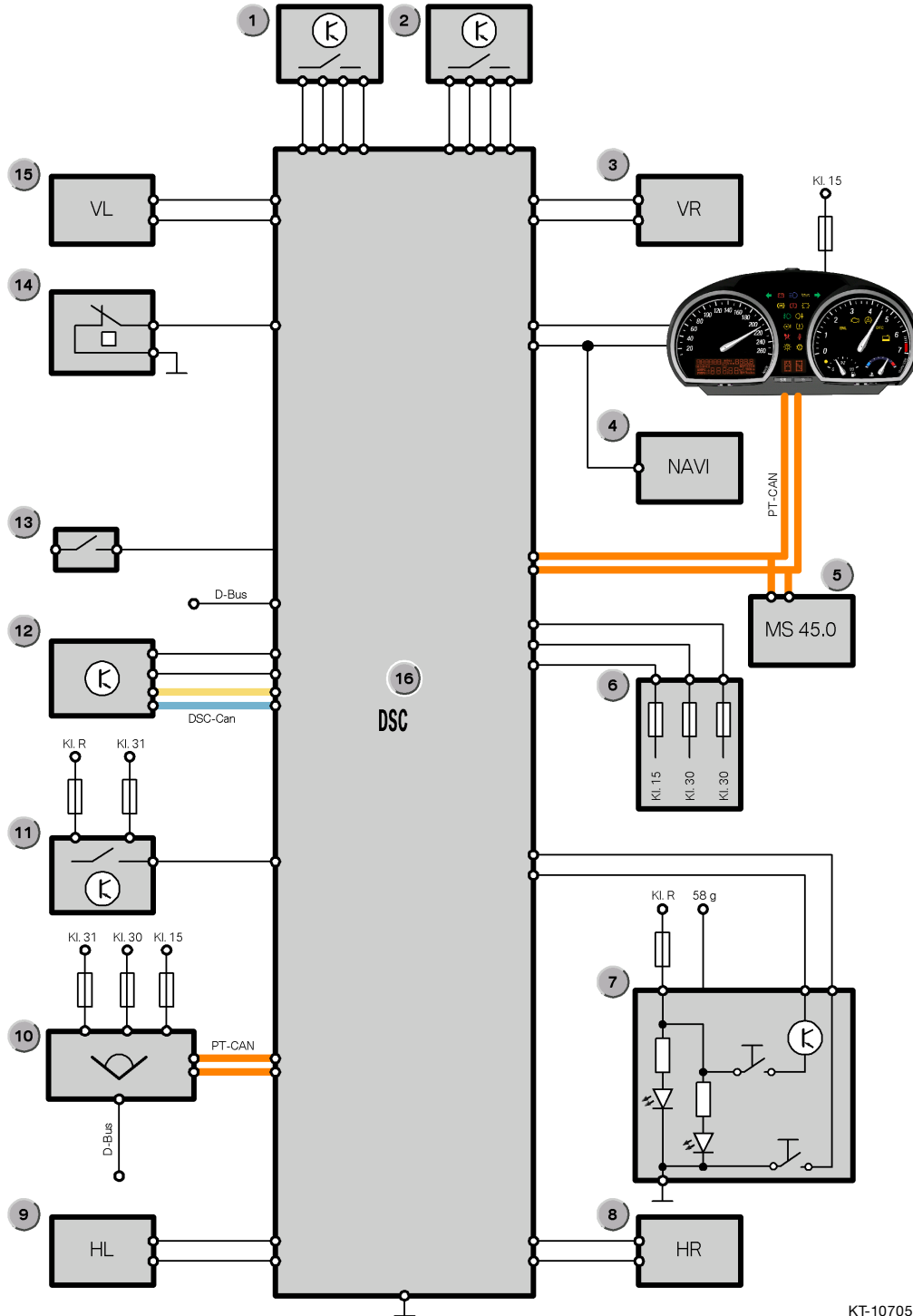


Fig. 4: DSC block diagram

KT-10705

E85 Driving Dynamics Systems

Index	Explanation	Index	Explanation
1	Pressure sensor, master brake cylinder	13	Handbrake light switch
2	Pressure sensor, master brake cylinder	14	Brake-fluid sensor
3	Front right wheel speed sensor	15	Front left wheel speed sensor
4	Navigation computer	Kl. 15	Terminal 15
5	Engine control unit	Kl. 30	Terminal 30
6	Power distribution box	Kl. 31	Terminal 31
7	DSC and RPA buttons	Kl. R	Radio terminal
8	Rear right wheel speed sensor	58g	Locator light
9	Rear left wheel speed sensor	PT-CAN	CAN bus powertrain
10	Steering angle sensor	DSC-Can	Private CAN between DSC sensor and DSC module
11	Brake light switch	D-Bus	Diagnosis bus
12	DSC sensor		

System functions

In certain situations (e.g. accelerating on an uphill gradient on a snow-covered road), in addition to brake intervention at the spinning wheel the previous ASC function reduced the engine output to such an extent that, although the vehicle remained extremely stable in its tracks, only little propulsion was available.

DTC achieves maximum possible traction essentially by expanded ASC and DSC control thresholds.

Compared to the ASC/DSC function, DTC mode allows for a little more "drift" at low speeds and transverse acceleration.

On approaching higher speeds and transverse acceleration, the DTC function acts more and more like the "normal" ASC and DSC function.

Operational control

DTC mode is activated by briefly pressing the DSC button. A DTC symbol in the instrument cluster provides the driver with visual confirmation.

By pressing the DSC button without interruption and for longer than 3 seconds the ASC/DSC function switches off completely and the DSC symbol is illuminated in the instrument cluster. The ABS function, however, is always retained unchanged.

The ASC/DSC function is reactivated by briefly pressing the DSC button once again. The visual symbol goes out.

The DSC symbol flashing signals to the driver that an ASC/DSC control intervention is active.