

CENTER CONSOLE SWITCH CENTER (SZM)

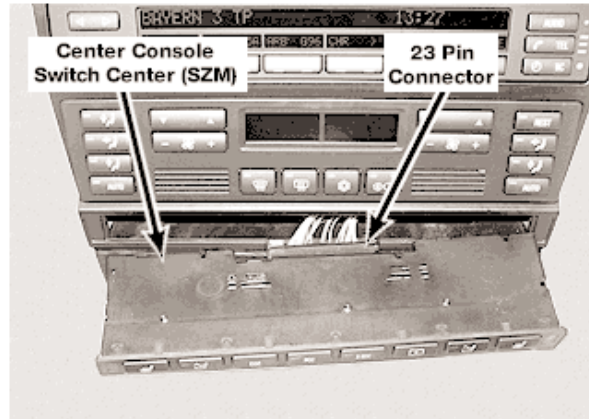
OVERVIEW

The 1999 Model Year E38 and E39 vehicles are equipped with a new Center Console Switch Center (SZM).

The SZM directly controls:

- Front Seat Heating
- Rear Window Roller Blind

The SZM provides a diagnostic interface with the DIS/MoDiC via the K BUS for the seat heating and Rear Roller Blind systems.



SZM also provides a unitized switching center for Park Distance Control (PDC), Dynamic Stability Control (DSC III) and Electronic Damper Control (EDC).

The switch signal output for these systems is a direct output signal. All diagnosis functions are carried out through their respective control systems.

SEAT HEATING OPERATION

The front seat heaters are adjustable through three ranges of heating output temperature.

Pressing the respective seat heater button once provides stage 1. All three LEDs illuminate and the heating elements are provided regulated output current producing a seat temperature of 111°F.



Pressing the button a second time provides stage 2. The top LED switches off and the heating elements are regulated to an output temperature of 102°F. Pressing the button a third time provides stage 3. The top and middle LEDs are off and the heating elements are regulated to an output temperature of 95°F.

The SZM monitors the seat heating element temperature via an NTC feedback signal to regulate the output current which maintains the seat temperature.

Seat heating is switched off by pressing the button a fourth time, pressing and holding the button for more than 1 second or when the ignition is switched off.

SZM MONITORING OF SEAT HEATING

Battery Voltage: The SZM switches current supply to the heating elements off when battery voltage drops below 11.4 volts. However, the heating stage LEDs remain on. Regulated output current resumes when battery voltage raises above 12.2 volts for more than 5 seconds.

SZM Internal Temperature: The power output stages for the seat heating elements generate a considerable amount of heat when in stage 1 operation. The SZM monitors its own internal temperatures and reduces the heating output when internal temperatures rise to a temperature of 185°F or switches it off completely above 203°F.

As with battery voltage monitoring, the heating stage LEDs remain on when these temperatures are exceeded.

Fault Monitoring: The SZM monitors the temperature sensors and heating mats for faults. Detected faults are stored in the SZM. Fault Symptom Troubleshooting in conjunction with stored faults will initiate the diagnostic paths using the DIS/MoDiC.

The following faults can be recognized:

- Shorts or opens in the wiring circuits.
- Shorts or opens in the temperature sensors
- Open in heating element.

If a short is detected in the temperature sensor, the seat heating is switched off to prevent overheating. The Stage LEDs are also switched off with this fault present.

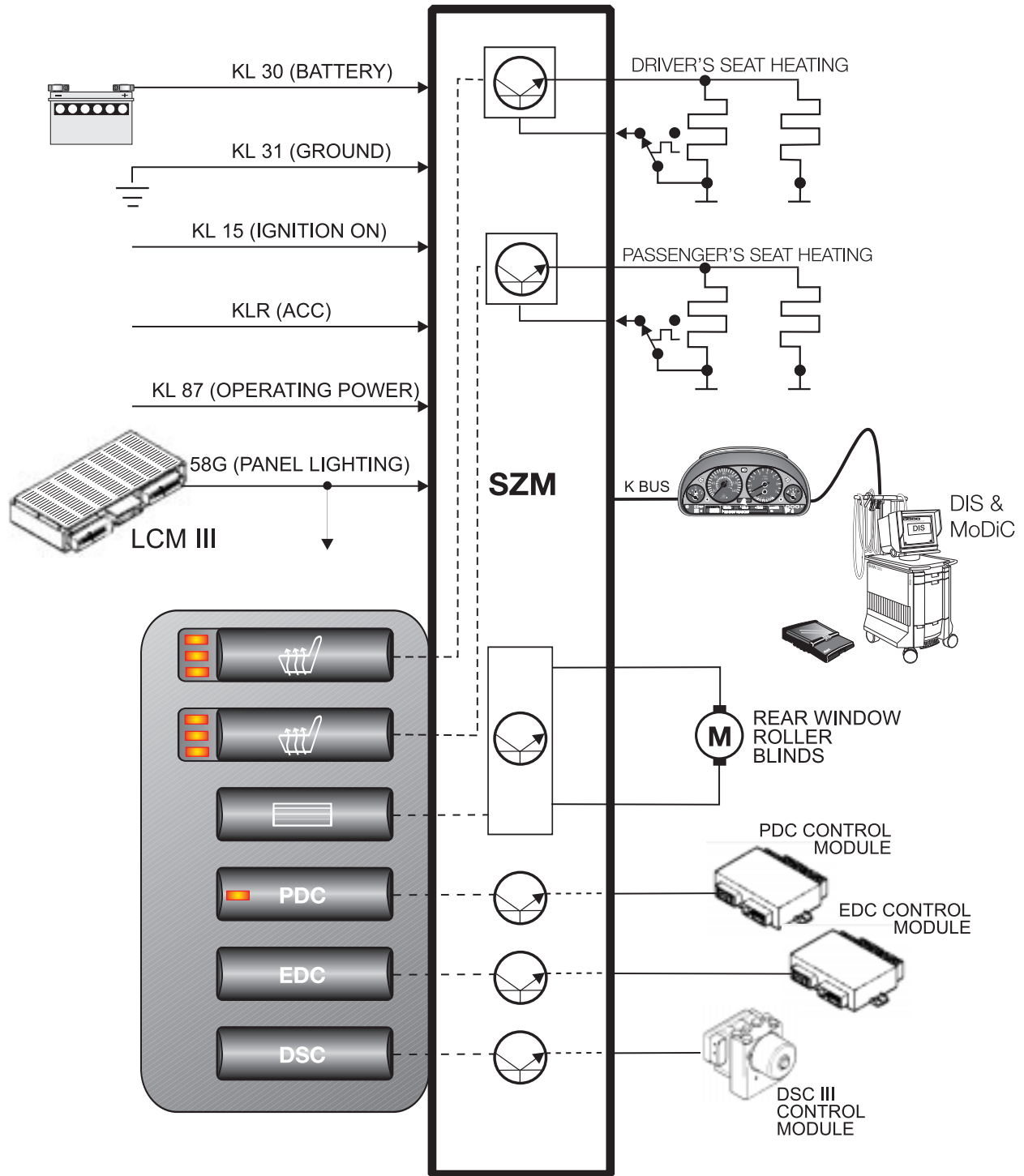
REAR WINDOW ROLLER SUNBLIND OPERATION

The roller sunblind is activated by momentarily pressing and releasing (one touch) the sunblind rocker switch in the SZM. The SZM activates the motor in the appropriate direction. The SZM switches the motor off when the motor amperage increases indicating the blind has reached the end of its intended travel.

Fault Monitoring: The SZM continually monitors the motor drive amperage loads to determine jamming or blockages. If current values exceed preset values, the motor is switched off immediately.

Faults are stored in the SZM for opens or shorts in the motor or motor's wiring circuit. The SZM also provides diagnostic requests to monitor the switch input status via the DIS/MoDiC.

SZM IPO SCHEMATIC



1999 MODEL YEAR NAVIGATION SYSTEMS

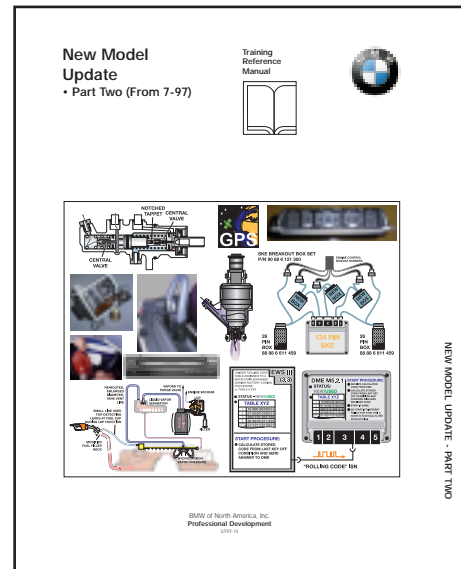
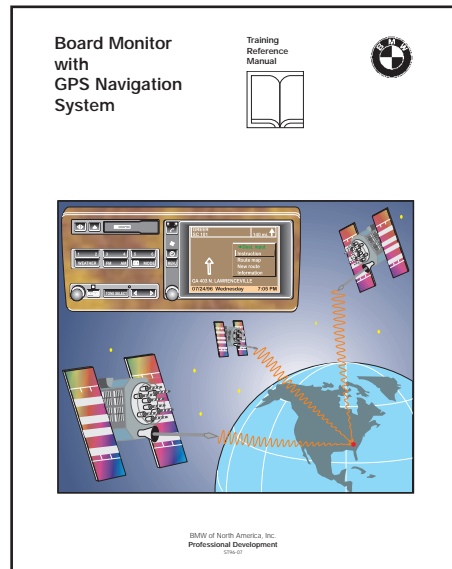
OVERVIEW

The 1999 Model Year has expanded Navigation System availability for all BMW vehicles. The E38/E39 systems are primarily carry over from previous systems with software improvements.

Currently there is one Navigation system available for the E46 which is based on the familiar Mark II original equipment system. In the future there will be three additional systems (refer to chart on next page).

For background information on previous model year Mark II, Mark III and E36 Accessory Navigation Systems refer to:

- On-Board Monitor with GPS Navigation System
- 1998 New Model Update (titled 1997 Part 2).



This section will cover the changes that occurred to the systems where different for the E46 Mark II system. The release of future systems (E46 Radio Navigation and E46 Mark III accessory system and E46 Mark III monochrome accessory system) will be addressed when released.