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Fig 1: Switch Unit



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The car can be equipped with heated front seats and heated steering wheel. Both can be activated or deactivated through dedicated keys of the switch unit on the center console.

The driver and front passenger seats have two heating setting levels while the steering wheel has only one level.

On models equipped with Remote Start, the heated steering wheel and the heated seats will activate automatically during the remote start at temperatures below 40°F (4.4°C).

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When the occupants of the front seats request the activation of the heated seats (two heating levels) or the steering wheel through the central control panel, the command is sent via LIN line to the BCM. The BCM translates the command received and sends it via BH CAN to the seats/steering wheel heating control unit (CSWM). The CSWM will supply the heater pads placed on the front seat backrests and cushions and will receive the signal directly from the two temperature sensors (one per seat) in the cushions, to learn the temperature of the seats and implement the correct strategies for supplying the heater pads. The heater pads in the steering wheel cover are supplied directly by the CSWM, while the temperature signal is received by the SWS (steering wheel switch unit) and sent via LIN to the BCM which will put it on the CAN network.

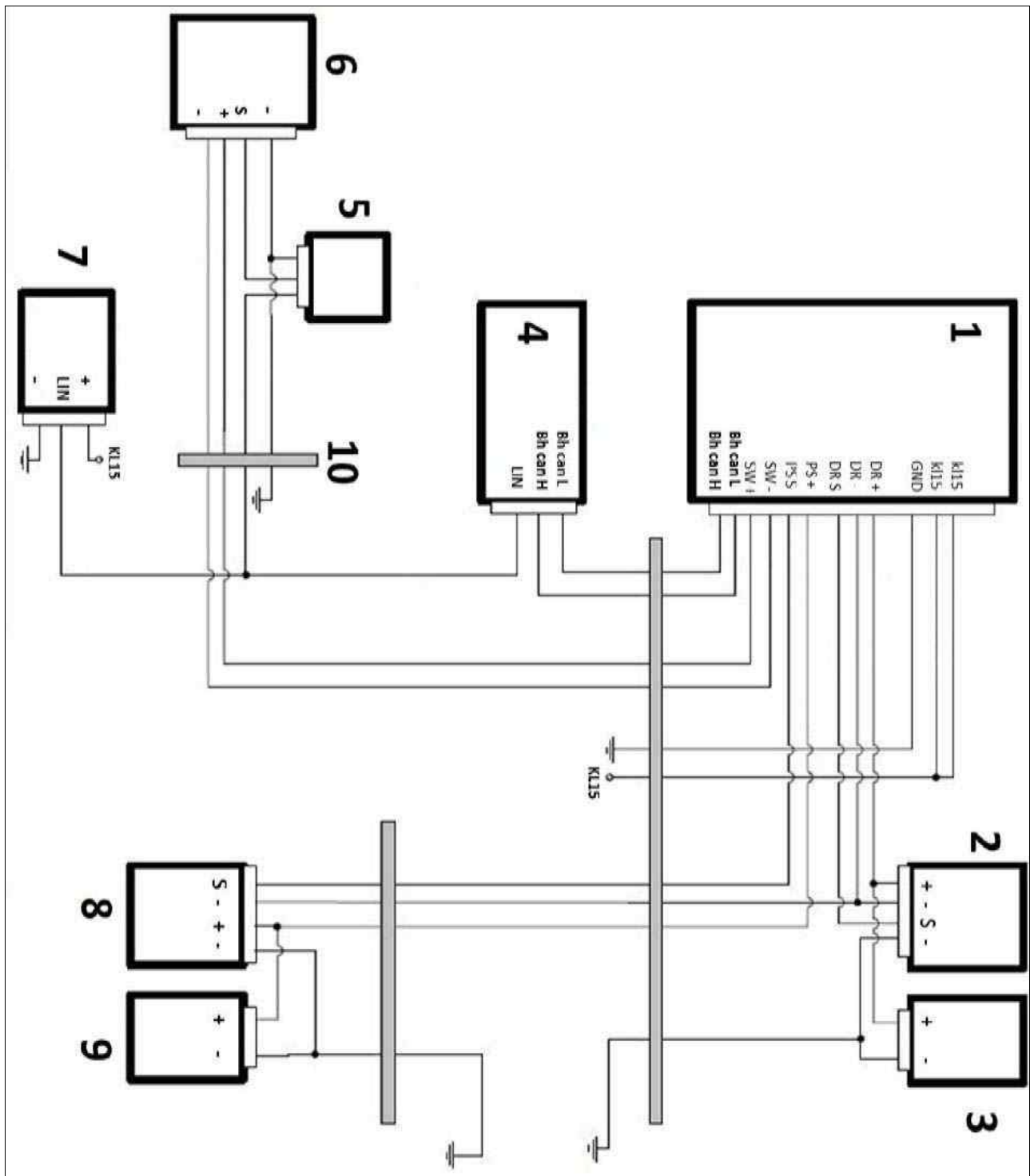
The CSWM monitors the operation of the system and will generate the appropriate DTCs in the event of failure.

When operating the heated seat switch, one of three switch positions can be selected: OFF, LOW, or HIGH. The CSWM can provide three levels of power to the heating elements for the HIGH setting. These power levels are changed by modulating the pulse width of the positive side of the circuit. The strategy used by the CSWM is to operate the heating element at the highest pulse-width until the target time or temperature for the pulse width is met. The CSWM then reduces the pulse width and repeats this process until the system times out. When the LOW setting is selected, the pulse width remains at 25% until the target temperature or time is reached (205 minutes for leather and 115 minutes for fabric). The following table provides an overview of the adjustment strategy used to control the amount of current provided to the seat heating elements:

Parameter name	Definition	Unit	Leather	Fabric
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Temp_OFF	Maximum temperature for heating program	°C	67	55
DH_S3	PWM for heating - high level 3	s	100%	100%
TempSH3	Maximum temperature for seat heating level 3	°C	50	34
T1S	First timing program for seat heating	min.	25	20
DH_S2	PWM for heating level 2	s	40%	70%
TempSH2	Maximum temperature for seat heating level 2	°C	55	38
T2S	Second timing program for seat heating	min.	85	35
DH_S1	PWM for heating level 1	s	40%	34%
TempSH1	Maximum temperature for seat heating level 1	°C	60	43
T3S	Third timing program for seat heating	min.	145	95
DL_S1	PWM for heating level Low	s	25%	25%
TempSL1	Maximum temperature for heating program Low	°C	65	48
T4S	Fourth timing program for seat heating	min.	205	115

Fig 1: Heated Systems Circuit Diagram



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1. CSWM
2. Cushion heater
3. Backrest heater
4. BCM

5. SWS (steering wheel switch unit)
6. Steering wheel heater
7. CSS (central control panel)
8. Cushion heater
9. Backrest heater
10. Clock spring junction

Power supply of the seat heating control unit reaches from relay switch located in the luggage compartment fuse box, through a line protected by a fuse.

Relay switch receives an ignition-operated power supply (INT) from the line protected by a fuse.

The control unit then connects via CAN to the other network nodes.

The BCM receives a direct power supply from the battery through the line protected by a maxi fuse located in the engine compartment junction unit.

The BCM receives an ignition-operated power supply (INT). This signal is used, amongst other things, to "wake up the network".

The coil activation signal reaches the BCM via the LIN line.

Controls for the steering wheel coil are sent through coil spring, whose control thermostat is located in the steering wheel controls.