

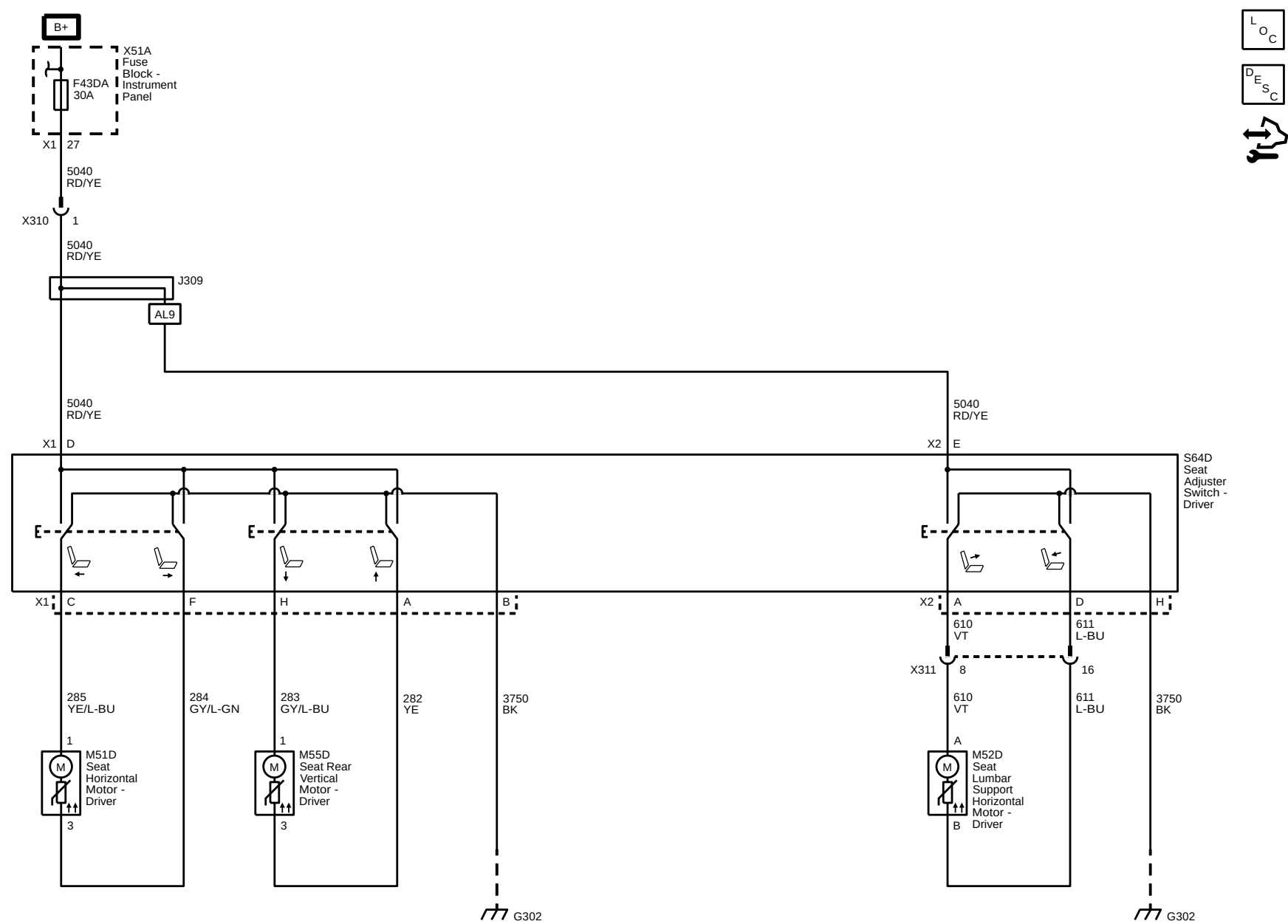
Seats

Power Seats

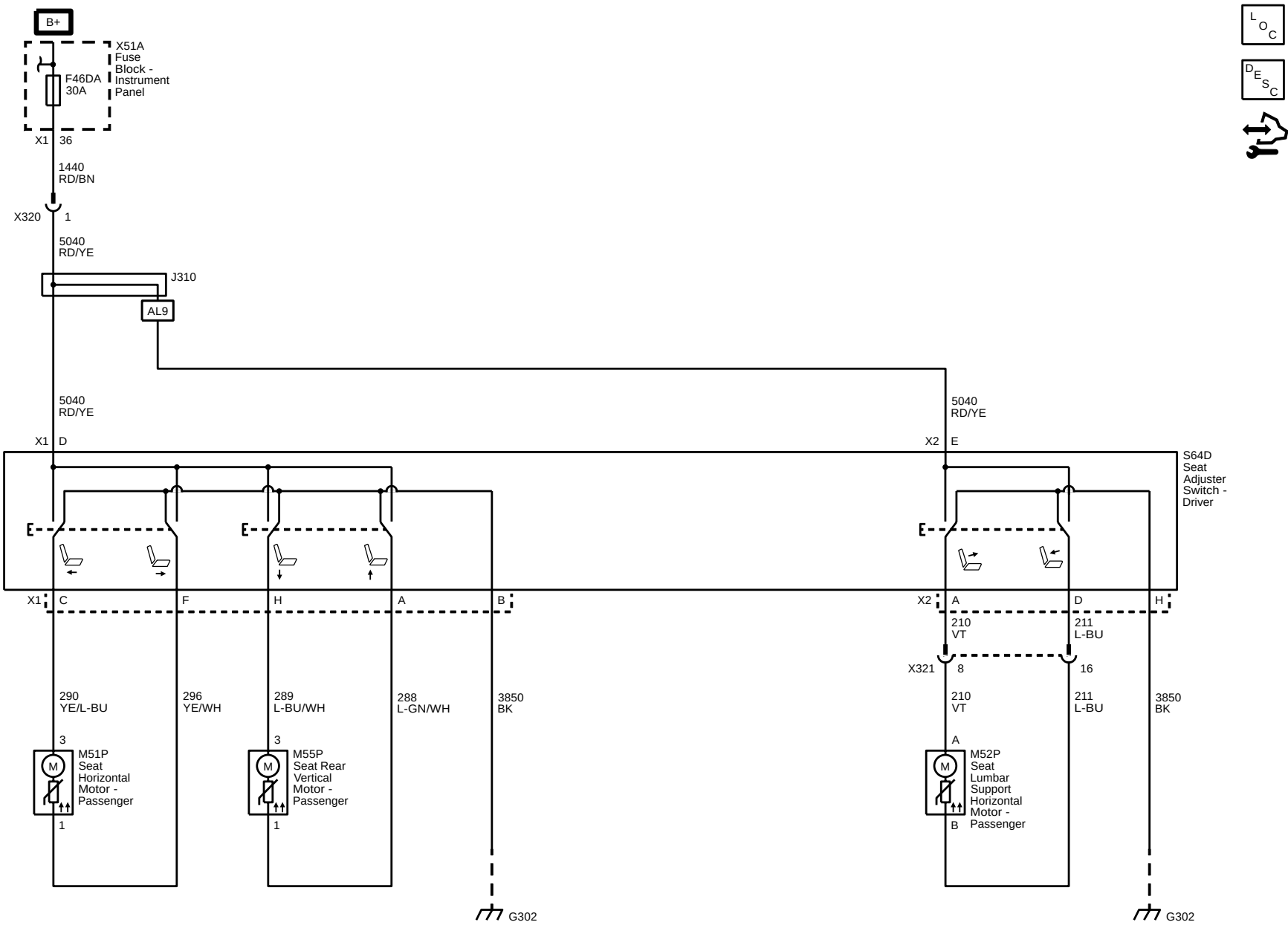
Schematic and Routing Diagrams

Driver Seat Schematics

Power Seat



Power Seat



Description and Operation

Power Seats System Description and Operation

The power seat system consists of the following components:

- Seat adjuster switch
- Seat horizontal motor
- Seat rear vertical motor

The seat adjuster switches provide both power and ground to the selected seat motors. The switches are closed to the switch ground circuit while they are in an inactive state.

The seat motors operate independently of each other. Each motor contains an electronic circuit breaker (PTC) that opens in the event of a circuit overload and will reset only after voltage has been removed from the circuit. There are two seat position motors. They are the horizontal motor and the rear vertical motor. The horizontal motor moves the entire seat forward and rearward while the seat rear vertical motor moves the entire seat up and down.

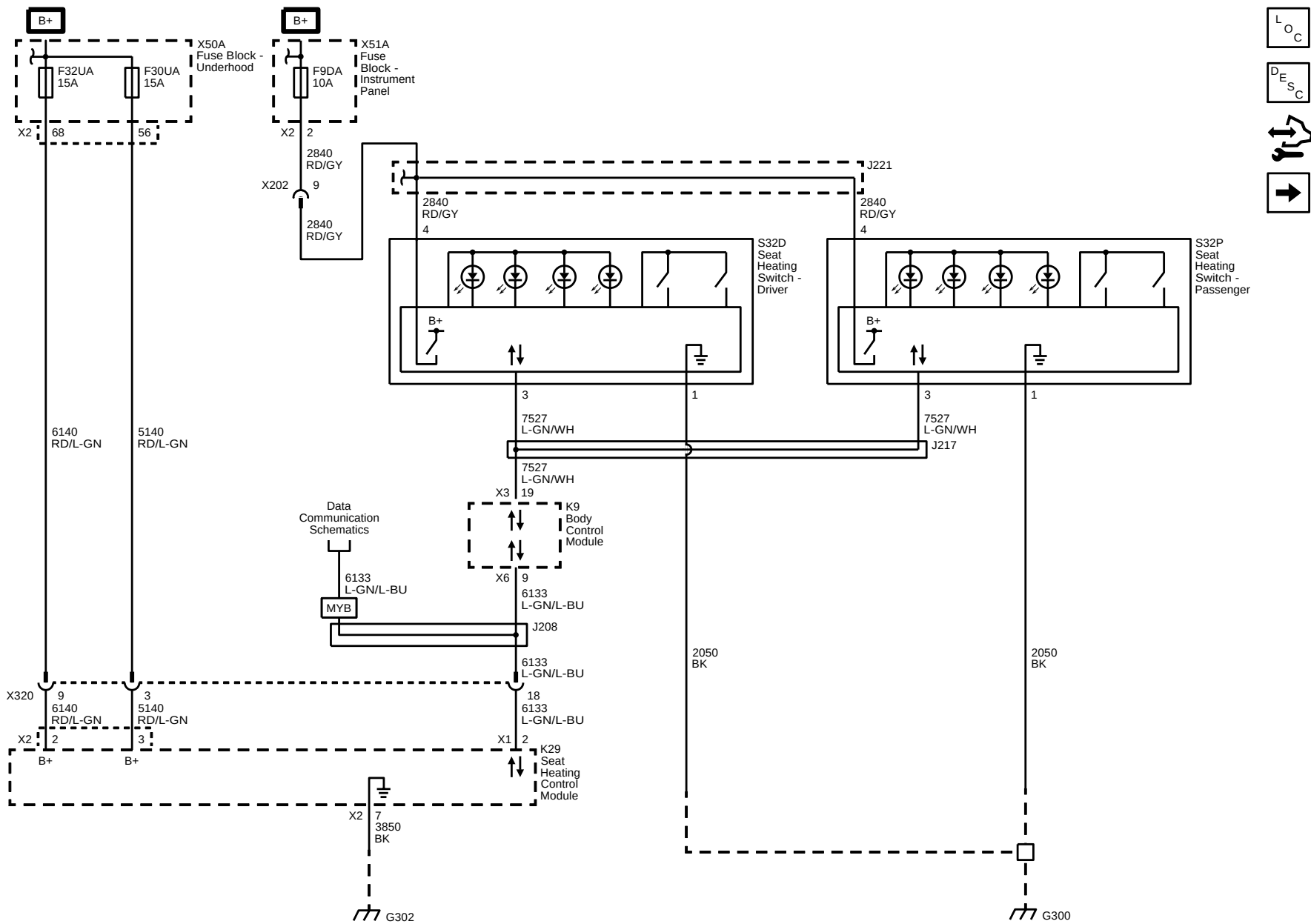
The motors are reversible, for example, when the seat horizontal forward switch is pressed to move the entire seat forward, battery voltage is applied through the switch contacts and the seat horizontal motor forward control circuit to the motor. With the horizontal motor rearward switch contacts closed to the switch ground circuit, the motor runs in order to drive the entire seat forward until the switch is released. Moving the entire seat rearward works similarly to moving the entire seat forward, except that battery voltage and ground are applied on opposite circuits causing the motor to run in the opposite direction. The seat rear vertical motor is also powered this way.

Seat Heating and Cooling

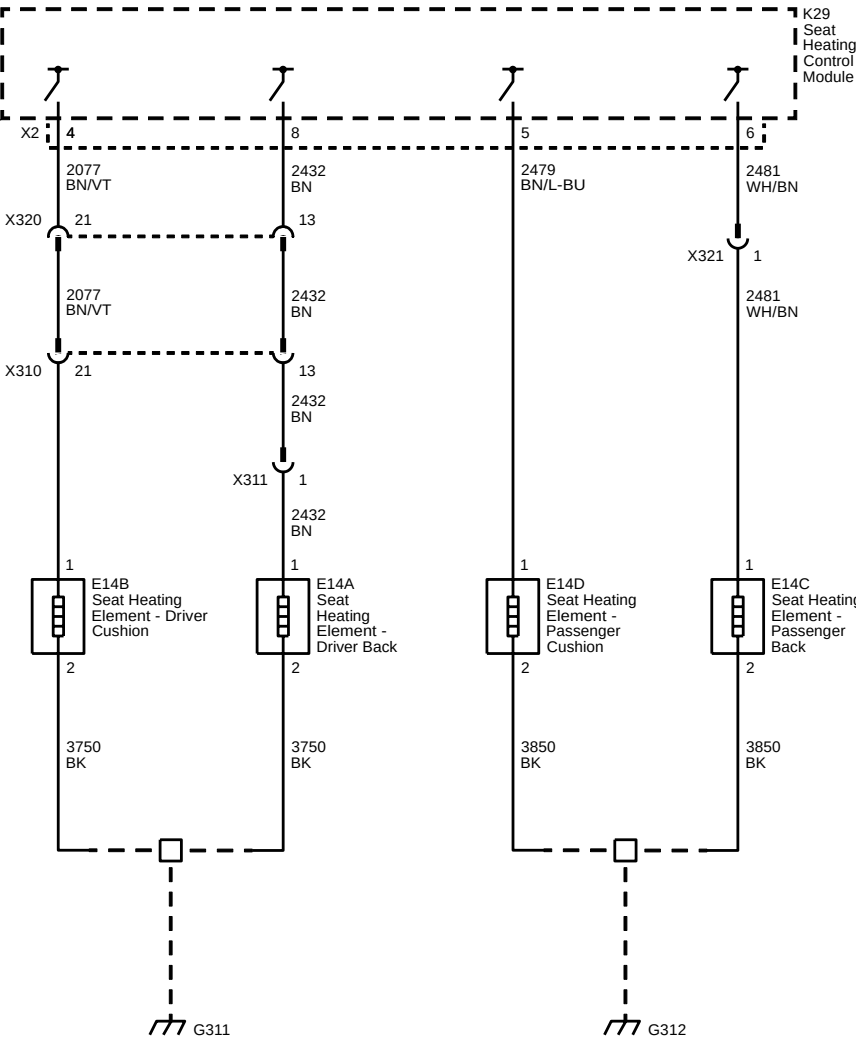
Schematic and Routing Diagrams

Heated/Cooled Seat Schematics

Power, Ground, Serial Data and Switches (KA1)



Heating Elements (KA1)



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Description and Operation

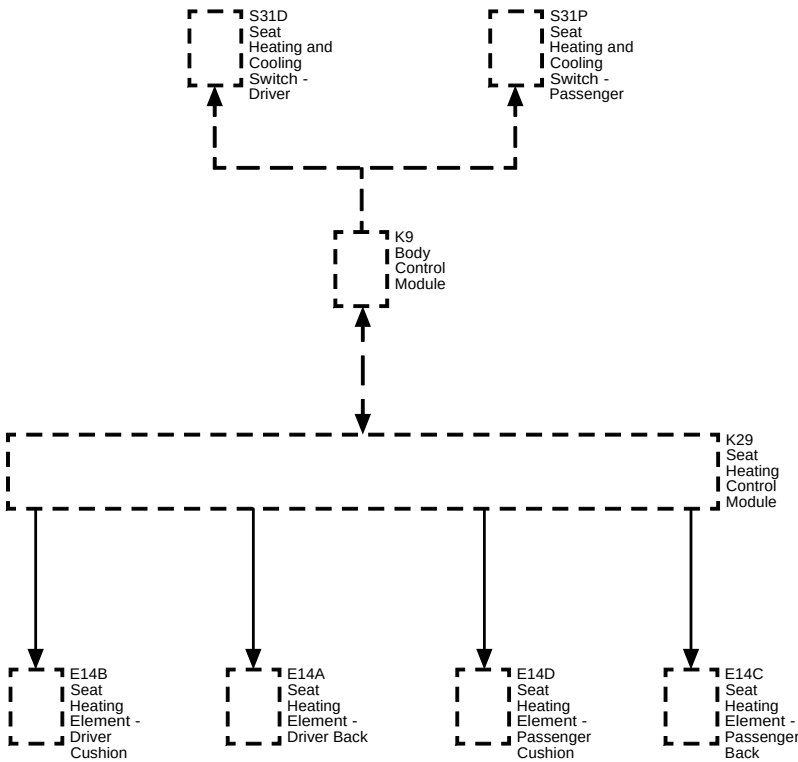
Heated Seats Description and Operation

Heated Seat Components

The heated seat system consists of the following components:

- Seat heating switch
- Body control module
- Seat heating control module
- Seat cushion heating element
- Seat back heating element

Cooled Seat Block Diagram



Heated Seat Switches

The driver and passenger heated seats switches are located in the switch control panel. The body control module (BCM) monitors each switch activation to determine which seat is activated and at what temperature level. With each press of the switch, the system will cycle through High, Medium, Low, and then back to Off again.

When a heated seat switch is pressed, a LIN bus serial data message is sent from the switch to the body control module (BCM) indicating the heated seat command. The BCM serves as the heated seat system master to determine the requested operating mode. The BCM then sends a LIN bus serial data message to the seat heating control module indicating the heated seat command. The BCM also controls the seat temperature and mode indicators, via the serial data line, used to provide the operator with feedback as to the operating status of the system.

Heated Seat Operation

When the seat heating control module receives a heated seat command, it applies a high side drive pulse width modulated (PWM) signals driven at the required duty cycles to generate the appropriate effective voltage to the

heating elements to attain the commanded seat temperature.

This heated seat system utilizes a self-regulating heating element system, which is different from the non-regulated heating element systems with seat temperature sensors previously used on GM vehicles. In the self-regulating type of system, temperature feedback to a control module is not required for temperature regulation. The heating element material itself regulates the surface temperature based on the effective voltage applied to the heating element.

Load Shed Management

The electrical power management function is designed to monitor the vehicle electrical load and determine when the battery is potentially in a high discharge condition. The heated seat system is one of the vehicle loads that is subject to reduction during a battery discharge condition. For more information on load management refer to [Electrical Power Management Description and Operation](#).