

## Heated Seats Description and Operation (Front)

### Heated Seat Components

The heated seat system consists of the following components:

- Driver and passenger heated seat switches
- Driver and passenger seat back heater elements
- Driver and passenger seat cushion heater elements
- Driver and passenger seat back temperature sensors
- Driver seat module
- Driver door module
- Passenger door module

### Heated Seat System Operation

The driver and passenger heated seats have 2 heat zone operating modes with 3 heat level modes and will operate only while the engine is running. The heat zones are determined by which of the 2 heated seat buttons are pressed, while the heat level is determined by the number of times they are pressed. Pressing the seat cushion button 1 time will activate the seat back and cushion heater elements in the high mode. Each time the seat cushion button is pressed the seat back and cushion heat level is reduced from high to medium, low, and off. Pressing the heated seat back button 1 time will activate only the seat back heater element in the high mode. Each time the seat back button is pressed the seat back heat level is reduced from high to medium, low, and off. During heated seat operation the heat zone operating mode may be changed without affecting the current heat level mode.

The heated seat switches are momentary contact switches and are inputs to the driver and passenger door modules. Battery voltage is supplied to the switch assembly from the door module, and when a heated seat switch is pressed and released a brief switch signal voltage is supplied to the door module. Whenever the door module receives an active heated seat switch input, the next heated seat operating mode is determined by whatever the current mode may be. The seat heater elements are controlled by the driver seat module using inputs from the door modules through Class 2 serial data circuit messages. The driver seat module controls the voltage supply and the ground circuits to the seat heater elements. When a heated seat function is commanded active, the seat module will switch battery voltage to the heater element supply circuits, and ground is provided through low side drive control circuits. During heated seat operation both the seat back and cushion heater elements are supplied battery voltage. The seat module grounds the appropriate control circuits for back only or back and cushion heating modes, and opens or closes the active control circuits as necessary in order to maintain the desired seat temperature. The seat module relies on inputs from thermistors located in the driver and passenger seat backs to control heated seat temperatures. The thermistors are 2 wire sensors supplied with a 5-volt referenced signal circuit and a low reference circuit from the seat module. Resistance through the thermistors varies with temperature causing the heated seat sensor signal circuit voltage levels to decrease as the seat back temperatures rise. The seat modules allow heated seat operation only while the engine is running which is determined by a Class 2 serial data circuit message from the powertrain control module.