

2022 CHEVROLET CORVETTE SERVICE MANUAL

- **SEARCH**

1. **Seats**

2. **Seat Heating and Cooling**

3. **Description and Operation**

- 4.

Heated/Vented Seat Description and Operation

Heated and Vented Seat Components

The heated/vented seat system consists of the following components:

- Heated and vented seat switches
- Body control module
- Front seat heater control module
- Driver seat cushion heating element
- Driver seat cushion temperature sensor
- Driver seat back heating element
- Driver seat back temperature sensor
- Driver seat cushion blower motor
- Driver seat back blower motor
- Passenger seat cushion heating element
- Passenger seat cushion temperature sensor
- Passenger seat back heating element
- Passenger seat back temperature sensor
- Passenger seat cushion blower motor
- Passenger seat back blower motor

Heated/Vented Seat Switches

The driver and passenger heated and vented seat switches are located near the HVAC controls on the center stack. The BCM is the heated and vented seat system master. It monitors heated/vented seat switch activations to determine user requested operating mode. Based on the requested operating mode, the BCM sends a LIN Bus serial data message to the front seat heater control module how to drive the self-regulated heating pads or ventilation motors. The BCM also controls the indicators used to provide the operator with feedback as to the operating status of the system. With each press of the switch, the system will cycle through High, Medium, Low, and then back to Off again. 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

The front seat heater control module controls heated seat operation for the driver and passenger seats. When active, power is applied to the seat cushion and back heater elements through a common pulse width modulated (PWM) voltage supply control circuit. Each individual heater element is switched to ground by the module through a common low side drive control circuit.

When inactive the front seat heater control module connects the heating element low side outputs to a common reference point internal to the module which is biased to approximately 3.5 V. The module uses this biased voltage in order to check the high side and low side control circuits for a short to battery or ground before enabling the driver and passenger seat heating elements. During heated seat operation, the front seat heater control module interrupts control of the heating elements every 10 s for approximately 10 ms to make this biased voltage check.

With both the seat cushion and seat back heater elements disconnected, if the high side output of the module is measured it will display a low current 12 V bleed off voltage. This bleed off voltage does not have a meaningful diagnostic purpose. With one or both of the heater elements

connected you would just see the 3.5 V biased voltage from this circuit.

Temperature Regulation

The seat back and cushion temperature sensors (thermistors) are packaged with the seat heating elements located just under the seat covers. The front seat heater control module supplies each temperature sensor with a 5 V reference signal circuit and a low reference circuit. The module monitors the voltage from the signal circuit to determine the temperature of the seat.

The temperature sensor varies in resistance based on the temperature of the heating element causing the signal voltage to change. Once the module senses the seat reached the set temperature, it will then begin regulate the current flow through the heater elements in order to maintain the desired seat temperature based on the feedback voltage from the sensor.

If the heated seats are on high, the temperature level may automatically be lowered after approximately 30 min of operation.

Front Vented Seat Operation

Each vented seat consists of 2 blower motors; one in the seat back and one in the seat cushion. During vented seat operation, the vented seat blower motors move cabin air through channels in the foam pad and small holes in the seat covers causing a cooling effect to the occupant.

With the ignition ON, battery voltage from the ignition main relay is applied through a 10 A fuse located in the rear body fuse block to the seat cushion and seat back blower motors. Ground for each blower motor is provided through separate ground circuits and a common ground connection.

When the front seat heater control module receives a ventilation seat command, it sends a low side drive pulse width modulation (PWM) signal through the blower motor control circuit to the seat back and cushion blower motors indicating the seat ventilation command. The logic in the blower motors sets the blower speed to the switch set point. The blower motors run causing a cooling effect to the occupant.

Auto Heated Seat Operation with Ignition ON

Refer to Heated and Ventilated Front Seats and Vehicle Personalization in the Owner's Manual for information regarding Auto Heated and Ventilation Seat operation.

Heated and Cooled Seat Operation During Remote Start

Refer to Vehicle Personalization in the Owner's Manual for Remote Start Auto Heated and Ventilation Seats.

During remote start, the heated seats will turn ON when the ambient temperature is below 10°C (50°F).

During remote start, the seat ventilation system will turn ON when the ambient temperature is above 27°C (80°F).

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.