

2022 CHEVROLET CORVETTE SERVICE MANUAL

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Memory Seats Description and Operation

The memory seat system consists of the following components:

- Seat adjuster switch
- Seat memory switch
- Seat adjuster memory module
- Seat horizontal motor
- Seat front vertical motor
- Seat rear vertical motor
- Seat recline motor

Seat Adjuster Switch

Ground is supplied at all times to the seat adjuster switch. Battery positive voltage is supplied at all times to the seat adjuster switch through a 10 A fuse located in the fuse block. When the seat adjuster switches are pressed, the appropriate signal message is sent to the seat adjuster memory module, via a LIN message. The seat adjuster memory module then commands the appropriate seat motor to move in response to the switch signal message.

Seat Adjuster Memory Module Power and Grounds

Battery positive voltage is supplied at all times to the seat adjuster memory module through a 30 A fuse located in the fuse block. This voltage is used by the module to apply power to the seat motor when commanded ON. Battery positive voltage is also applied at all times to the seat adjuster memory module through a 10 A fuse located in the fuse block. This voltage is used to power up the module. Ground is provided to the seat adjuster memory module through the module ground circuit and ground connection.

Seat Motors

There are 4 motors that move the position of the seat. These are the seat horizontal motor, seat front vertical motor, seat rear vertical motor, and the seat back recline motor. The horizontal motor moves the entire seat forward and rearward. The seat front vertical motor moves the front of the seat cushion up or down. The seat rear vertical motor moves the rear of the seat cushion up and down. The recline motor moves the angle of the seat back forward or rearward.

The seat adjuster memory module controls all seat motors via half bridges that are connected to a single power rail internal to the module. The module connects each of the seat motor outputs together when a seat motor is not in operation. The seat adjuster memory module continually checks the motor control circuits for shorts to ground or voltage. If a fault is detected with a motor control circuit movement of the related motor is inhibited. All of the motors operate independently of each other. Each motor contains an electronic circuit breaker (PTC), which will reset only after voltage has been removed from the motor.

All seat motors are reversible. For example, when a seat switch is pressed to move the entire seat forward, a signal is sent from the seat adjuster switch to the seat adjuster memory module, via the LIN message. In response to this signal, the module applies battery voltage through the seat horizontal motor forward control circuit and ground through the seat horizontal motor rearward control circuit to the motor. The motor runs in order to drive the entire seat forward. Moving the entire seat rearward works similarly to moving the entire seat forward, except that battery voltage and ground are applied on the opposite circuits causing the motor to run in the opposite direction. All of the motors are powered this way.

Position Detection

Note:

There are no physical position sensors used to detect the seat position and movement.

To monitor the seat position, the seat adjuster memory module counts the electrical pulses of each seat motor. During seat motor operation, the electrical pulses are counted and the direction of the seat movement is monitored to determine the seat position.

The seat adjuster memory module determines seat position by keeping a running counter where movement in the forward/upward direction adds counts and movement in the rearward/down direction subtracts counts.

The value of these counters, which represent seat positions, are stored in memory for future seat memory recall operation. During a memory seat position recall, the seat adjuster memory module moves the seat in such a way to return it the stored counter value.

Memory Functions

Note:

The seat adjuster memory module does not store the mirror and column positions. The seat memory control sends a serial data messages to the respective modules to recall their locally stored memory position.

In all power modes except crank, memory recalls can be initiated by pressing and holding one of the memory position buttons until the seat reaches the stored memory position associated with the activated button. This is called a supervised recall.

The seat memory switch is supplied ground at all times. The seat adjuster memory module supplies set and memory recall signal circuits to the seat memory switch. When a memory recall switch is pressed, the signal circuit from the seat adjuster memory module is pulled low through the switch contacts and a series of resistors indicating the memory recall request. In response to this signal, the seat adjuster memory module commands the appropriate seat motors to move to the pre-recorded seat positions stored in memory.

Refer to the Owner's Manual for storing memory positions.

Seat Entry Memory Recall and Seat Exit Memory Recall

The seat adjuster memory module will not perform Seat Entry Memory Recall and Seat Exit Memory Recall functions unless these options are enabled in vehicle personalization using the radio/HVAC controls.

Refer to Instruments and Controls/Vehicle Personalization in the Owner's Manual for the following memory personalization options:

- Seat Entry Memory Recall
- Seat Exit Memory Recall

The radio/HVAC controls reports the seat memory recall option settings to the seat adjuster memory module via serial data message. The module will then store the memory recall option setting and examine it before making a memory seat adjustment. The seat memory recall option setting stored within the module will not change until the seat memory recall option setting in vehicle personalization is changed.

Memory Store and Recall Conditions

Note:

Memory function requires a position be saved to the activated memory switch that is being recalled.

Memory Store Preconditions:

- RUN power mode
- No Stuck or Active Switches (seat, mirror, column, HUD)
- No SIR Disable
- No Load Shed 3
- No output motor drive faults detected
- No position plausibility faults detected
- No child lockout "rear"
- Not limit switch fault
- No memory switch fault
- Memory ID is 1 or 2

Memory Recall Preconditions:

- No Stuck or Active Switches (seat, mirror, column, HUD)
- No SIR Disable
- No Load Shed 3
- No output motor drive faults detected
- No position plausibility faults detected
- No child lockout “rear
- Not limit switch fault
- No memory switch fault
- Memory ID is 1 or 2
- LIN communications Active
- Not currently performing a memory store
- A position has been saved to the recalled memory position

Memory Recall Termination Conditions:

- Precondition no longer met
- Active memory button changed
- Recall completed
- Exceed the max allowed recall time (30 seconds)
- OTA Programming Requested

Auto Memory Recall Preconditions:

- Note:

Auto Memory Recall is suspended during Start power mode.

- Valid Memory ID and Driver ID
- Valid Power Mode
- No Active or Stuck Switches
- No SIR disable
- Vehicle is Stopped
- No Load Shed 3
- No ASIL “A output fault detected
- No position plausibility faults detected
- No child lockout “rear
- Not limit switch fault
- No memory switch fault
- A position has been saved to the recalled memory position
- Enabled for Current Driver

Auto Memory Recall Termination Conditions:

- Precondition no longer met, except being Parked
- Exceed any recall completion times

- Ignition On terminates Seat Exit Memory
- Ignition Off terminates Seat Entry Memory
- OTA Programming Requested

Memory Recall Termination Data Displays:

The termination causes can be viewed through the Seat Memory Recall History data displays. The following are possible memory recall termination causes:

- No Recall Requested
- Seat Entry/Exit Recall Completed
- Memory Button 1 Recall Initiated
- Memory Button 1 Recall Completed
- Memory Button 2 Recall Initiated
- Memory Button 2 Recall Completed
- Memory Button Exit Recall Initiated
- Memory Button Exit Recall Completed
- Terminated by Other then following
- Memory switch stuck or Invalid
- Memory Switch (Not including SET) out of Range
- Memory SET switch Active or 1, 2, Exit switch changed
- Seat Switch Active or Stuck
- Mirror Switch Active or Stuck
- HUD Switch Active or Stuck
- No Position 1 stored
- No Position 2 Stored
- No Position Exit Stored
- Load Shed 3
- Sir Disabled
- Limit Switch Active or Fault
- Seat Entry “Not Parked” terminated
- Invalid Power Mode
- Seat Forward Rearward Motor Control Fault
- Seat Front Up/Down Motor Control Fault
- Seat Rear Up/Down Motor Control Fault
- Recline Forward Rearward Motor Control Fault
- Seat Front Up/Down Motor Position Fault
- Seat Rear Up/Down Motor Position Fault
- Recline Forward Rearward Motor Position Fault