

2022 CHEVROLET CORVETTE SERVICE MANUAL

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Front Suspension Leveling Description and Operation

Front Leveling Description and Operation

The Front Ride Height Control (FRHC) system is designed to raise the front of the vehicle out of trim (nominal unraised position of the suspension) position during low-speed driving scenarios in order to help avoid objects on the ground. This helps the vehicle transition onto inclined surfaces as well as drive over bumps in the road that exceed available front spoiler clearance, thus reducing the potential for damage to the vehicle.

The driver's ability to raise or lower the vehicle is provided primarily through a Lift/Lower Select Button located on the S86 Vehicle Stability Control System Switch. When that button is pressed, the vehicle will begin to raise or lower (level), depending upon the current ride height. If equipped with OnStar, the driver has the ability to save locations at which the front of the vehicle will automatically raise upon arriving at that location. Upon leaving a saved location, the front of the vehicle will automatically lower. The driver will also have the ability to delete a previously-saved location upon arrival at that location, delete all saved locations, and undo any previous save/delete action.

The system uses the following parameters to determine if available for use and may display "Lift System Unavailable" if not met:

- Doors Closed
- Power Mode Run
- Seat Belts Fastened
- Command to Raise or Lower is "True"
- Vehicle Speed is between 0-24MPH
- 4 raise attempts have not occurred within 40 seconds

If the vehicle is turned off when in the raised position, it will automatically lower. If a vehicle door is opened during lowering, the movement will pause and then continue to lower slowly after a period of time.

The front leveling system consists of the following electrical components:

- S86 Vehicle Stability Control System Switch
- Front Ride Height Leveling Subsystem
 - K218 Front Suspension Lifting/Leveling Hydraulic Power Pack Module
 - Fluid Reservoir
 - Front Ride Height Hydraulic Control Unit (HCU)
 - Front Ride Height Left/Right Front Actuator (includes displacement sensor)
- P16 Instrument Cluster
- K20 Engine Control Module
- K160 Brake System Control Module

Front Leveling Components

K218 Front Suspension Lifting/Leveling Hydraulic Power Pack Module

When the S86 Vehicle Stability Control Switch is pressed, the ALC will send pulse width modulate signals to the Right Front and Left Front Actuators to raise or lower vehicle after determining which state the vehicle is currently in.

S86 Vehicle Stability Control System Switch

When the Vehicle Stability Control Switch for ALC is pressed, it sends a signal to the K218 Front Suspension Lifting/Leveling Hydraulic Power Pack Module to adjust the ride height.

P16 Instrument Cluster

When the vehicle is commanded to raise or lower, the user will be provided with feedback indicating direction in which the vehicle is leveling (i.e., raising or lowering) and achieved ride height (i.e., trim or raised).

Messaging on the display informing the driver of FRHC activity; includes indication of current leveling activity (i.e., "Vehicle Raising," "Auto Raising Due to Location," "Vehicle Lowering," "Auto Lowering Due to Location") and feedback for location save/clear commands (e.g., "Location Remembered," "Auto Lift Location Deleted").

Persistent indicator showing leveling direction and current ride height state; includes flashing "up" indicator when vehicle is raising and solid "on" indicator when the raised state has been achieved and flashing "down" indicator when vehicle is lowering and no indication when the trim/lowered state has been achieved.

K20 Engine Control Module

The K20 Engine Control Module is used by the system to determine if the vehicle speed is within the limits to allow the system to operate.

K160 Brake System Control Module

The Electronic Stability Control system is enabled during conditions in which the front of the vehicle is not in the trim position (i.e., front of the vehicle is at the raised state or is in-between the trim and raised states).