

2022 CHEVROLET CORVETTE SERVICE MANUAL

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Active Noise Cancellation Description and Operation

The entertainment system on this vehicle may have several different configurations. To determine the specific configuration of the vehicle, please see the Service Parts ID Label, and refer to RPO Code List.

The main components of the Active Noise Cancellation system are:

- Microphones in the vehicle headliner. Use schematics to determine the number of microphones in each vehicle.
- A discrete engine speed (RPM) signal from the engine control module to the amplifier/active noise cancellation module.
- Active Noise Cancellation electronics and software integrated into the audio amplifier/active noise cancellation module.
- The vehicle speaker system, connected to the amplifier/active noise cancellation module, to output the desired cancellation frequencies.

The Active Noise Cancellation system is operational under the following conditions:

- The amplifier/active noise cancellation module has passed all self diagnostic checks
- All doors are closed
- Battery voltage is between 9.5 V and 16 V
- The vehicle cabin temperature is less than 140°F (60°C)
- Engine speed is between 550 and 3000 RPM

The Active Noise Cancellation system is a method used to reduce the perception of certain undesirable sounds generated by the engine into the vehicle cabin. The system uses microphone and engine speed signals, software integrated into the amplifier/active noise cancellation module, and the vehicle speakers to determine and generate the correct frequencies needed to achieve the desired reduction.

The microphones are located in the headliner to monitor noise/sounds in the vehicle cabin, and are directly connected to the amplifier/active noise cancellation module. The amplifier/active noise cancellation module also receives a discrete engine speed (RPM) signal from the engine control module. The amplifier/active noise cancellation module processes these inputs to determine the frequency of the undesirable sound. The amplifier/active noise cancellation module then calculates the appropriate cancellation frequency and outputs a cancellation signal (audio tone) to the vehicle speakers to reduce the perception of undesirable sounds by the vehicle occupants so the vehicle cabin appears quieter and without vibration.

ESE Engine Sound Enhancement (if equipped with NKD)

The ESE feature improves the natural sounds of powertrain and exhaust systems. It uses the microphones and tachometer inputs (under heavy acceleration conditions) to modify the sound and play it back through the speakers. This feature is always enabled and there are no controls to enable or disable the system.