

2022 CHEVROLET CORVETTE SERVICE MANUAL

- **SEARCH**

1. **Driver Information and Entertainment**
2. **Cellular, Entertainment, and Navigation**
3. **Description and Operation**
- 4.

OnStar Description and Operation (UI3)

The Emergency Road Assistance Global Navigation Satellite System (ERA GLONASS) consists of the following components:

- Telematics communication interface control module
- Telematics two button assembly
- Microphone
- Cellular antenna
- GPS antenna
- Back up battery
- Backup speaker

This system also interfaces with the factory installed vehicle audio system.

Telematics Communication Interface Control Module

The ERA Glonass system uses Global System for Mobile Communication (GSM) to communicate data and voice signals over the national cellular network. The module is capable of up to 3G speeds and houses 2 technology systems, one to process Global Positioning System (GPS/Glonass) data, and another for cellular information.

The telematics communication interface control module has two antenna inputs, a cellular signal and a GPS/Glonass signal. The ERA Glonass system uses the Global Navigation Satellite System (GNSS), which is a combination of United States Global Positioning System (GPS) signals and Russian Glonass satellite system. GPS/Glonass signals are used to provide location on demand.

Dedicated circuits are used to connect the telematics communication interface control module to a microphone, button assembly, radio, backup speaker and Back Up Battery (BUB). The telematics communication interface control module communicates with the rest of the vehicle over the single wired low speed CAN bus. Power is provided by a dedicated, fused B+ circuit. Ground is provided through the vehicle wiring harness attached to the module. The power mode state is determined by the telematics communication interface control module through serial data messaging. The telematics communication interface control module will power down 3 seconds after the button assembly LED shuts off.

ERA Glonass Two Button Assembly

The two button assembly may be part of the rear view mirror, or a separate, stand alone unit. The button assembly is comprised of 2 buttons and one status LED. The buttons are defined as follows:

- The SOS button, when pressed allows the user to start a manual emergency call.
- The TEST button, which has two functions. First it allows the user to cancel an emergency call before the call has been established with the call center. Second, if pressed longer than 4 seconds allows the user to enter the system test mode.

When pressed, each button completes a circuit across a resistor allowing a specific voltage to be returned to the telematics communication interface control module on the keypad signal circuit. Depending on the voltage range returned the module is able to identify which button has been pressed.

The status LED is located near the buttons on the button assembly. The LED is green when the system is ON and operating normally. When the LED is red, this indicates a system malfunction is present. When the LED is illuminated and flashing, it is an indication that a call is in progress. In the event there is a malfunction and the system is still able to make a call, the LED will flash red during the call however, the call functionally might be limited related to the issue that is present. During night mode the module provides a PWM signal to dim the brightness of the LED.

When the SOS button is pressed the LED will start blinking green and a voice prompt will instruct the customer to either press the SOS button again to continue with the emergency call, or press the TEST button to cancel. If the user does not press either of the buttons in a certain amount of time the module will go back into standby mode and inform the customer via a voice

prompt.

In the case of a callback from the call center the LED will be solid red or green. A solid red LED indicates an emergency call related DTC has been set by the telematics communication interface control module, otherwise the LED will be solid green.

After a call to the call center the module will stay in callback mode for 20 minutes with the ignition ON or OFF and the LED will be on solid during this time. After 20 minutes there will be a voice prompt and the LED will turn off. After that the module will stay registered to the network for an additional 100 minutes.

ERA Glonass Test Mode

After entering Test Mode the telematics communication interface control module will test the functionality of the keypad, LED indicator, microphone, and audio. At the end of Test Mode the module will send a Minimum Set of Data (MSD) message to the call center.

The MSD message contains control data, vehicle information, direction, position and time. When an emergency call is connected to the call center the MSD message is sent by in-band transmission by default. In the event in-band transmission is unsuccessful, Short Message Service (SMS) will be used as a backup.

To enter the Test Mode turn ignition ON and make sure the vehicle has not moved for at least 1 minute, then press and hold the TEST button for longer than 4 seconds. A series of voice prompts will instruct the user to perform certain functions. At the end of Test Mode one of two messages will be played, TEST OK or Emergency Call System Test Indicates a Failure.

Microphone

The microphone is located in the headliner or roof console. The telematics communication interface control module supplies approximately 10V to the microphone on the microphone signal circuit. The microphone modifies the 10V depending on the volume and voice being detected. A microphone low reference circuit or a drain wire provides a ground for the microphone. The microphone signal circuits pass through the telematics communication interface control module to support entertainment voice recognition. Thus, the module uses the same microphone as the infotainment system. In the event the infotainment system uses two microphones only one will pass through the telematics communication interface control module.

Cellular and GPS/Glonass Antennas

The antenna will have any of the following functions when equipped with ERA Glonass:

- Input cellular element
- Output cellular element
- GPS/Glonass element

The ERA Glonass system uses the input and output cellular antenna elements to send and receive cellular data. The cellular signal is carried by a coax cable that connects the antenna directly to the telematics communication interface control module.

The GPS/Glonass antenna element is used to collect the signals of the orbiting satellites. The GPS/Glonass signal is carried by a coax cable that connects directly to the telematics communication interface control module.

Back-up Battery

Note:

Do not disconnect the main vehicle battery or remove the telematics fuse with the ignition key in any position other than OFF. Disconnecting power to the telematics communication interface control module in any way while the ignition is ON or with retained accessory power activated may cause activation of the Back-Up Battery. This action is per design as the back-up battery is designed to provide power to the telematics communication interface control module so an emergency notification call can be made after an event where the main battery is disabled or unable to supply sufficient voltage to drive the module. The telematics communication interface control module naturally chooses the main supply voltage as its default supply. If an emergency call is active, or the network de-registration timer has not expired, and the main supply is removed or lost for any reason the module will use the Back-Up Battery as a power supply to continue the emergency call as long as the default supply can not be detected. If the module is in standby mode and the vehicle battery is disconnected the module will switch to the backup battery for three seconds. If there is no collision event or emergency button press within the three seconds the module will switch off to prevent damage to the backup battery. The back-up battery is not rechargeable and must be replaced if the diagnostics for the DTC (Replace Backup Power Source) indicate it is needed.

Audio System Interface

In the case of an emergency call the radio is muted and the telematics communication interface control module will use the external backup speaker which is connected directly to the module.

ERA Glonass Limitations

The proper operation of the ERA Glonass system is dependent on several elements outside the components integrated into the vehicle. These include the National Cellular Network Infrastructure and the GPS/Glonass.

Making an SOS key press in areas that lack sufficient cellular coverage or have a temporary equipment failure will result in either the inability of a call to complete with a data transfer or the complete inability to connect to the Call Center. In this case the module will use backup mechanism to store the MSD message into history. When the module succeeds in connecting to the network the stored MSD message will be sent to the call center.

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