

Remote Functions

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Description and Operation

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Keyless Entry System Description and Operation

Remote Keyless Entry And Anti-Theft System

The remote keyless entry and anti-theft system can perform the following functions:

- Remotely lock and unlock the vehicle doors with a hand-held high frequency transmitter.
- Sense intrusion into the vehicle through the doors, the tailgate, or the hood.
- Activate a warning to signal an intrusion.
- Help the driver find the vehicle in a parking area.
- Automatically relock the doors if a door or the trunk is not opened within 30 seconds after the vehicle has been unlocked by the remote keyless entry.
- Communicate serial data to a scan tool to help diagnose system faults.

The remote keyless entry and anti-theft system consists of the following components:

- Keyless entry and anti-theft control module/receiver
- Security indicator
- Tailgate open switch
- Door open switches
- Central locking unit
- Flashing turn signal lamps
- Siren
- Hood open switch

Remote Locking And Unlocking

The handheld transmitter locks and unlocks the vehicle doors by sending radio waves to the control module/receiver in the vehicle. The effective range of the transmitter varies between 5 and 10 meters (approximately 16 to 32 feet), depending on whether or not objects such as other vehicles are blocking the path of the radio waves.

The transmitter has a LOCK button and an UNLOCK button which only function when the ignition is OFF. Pressing the UNLOCK button has the following effects:

- The doors are unlocked.
- The turn signal lamps flash twice.
- The control module is disarmed.

Pressing the LOCK button has the following effects:

- The doors are locked.
- The turn signal lamps flash once.
- The control module is armed.

The transmitter has a replaceable battery. The battery is designed to last at least two years before replacement is necessary.

Security Indicator

There is a security indicator on the instrument panel. After the LOCK button of the transmitter is pressed, the module is placed in the armed mode,

and the security indicator flashes. The security indicator turns ON for 1/8â€second and OFF for 7/8â€second. It then flashes at that frequency until the control module/receiver is disarmed.

Intrusion Sensing

The anti-theft function is armed if the transmitter sends the LOCK message to the control module/receiver when the ignition is OFF.

When the hood, the door, or the tailgate is opened, the hood open switch, the door open switch, or the tailgate open switch will change its input to ground. The alarm will be activated if the hood open sensor, the door open sensor, or the tailgate open sensor changes its input to ground before either of the following conditions occurs:

An UNLOCK message is received from the transmitter.

Siren

The remote keyless entry system is armed when the LOCK message is received from the transmitter when the ignition is OFF. When the system is armed, it will activate the siren and flash the turn signals for 28â€seconds if any of the following conditions occurs:

- A door is opened (front door open switch input is changed to ground).
- The tailgate is opened (tailgate open switch input is changed to ground).
- The hood is opened while the anti-theft system is armed (hood open switch input is changed to ground).

The siren is disarmed when any of the following conditions occurs:

- The ignition switch is turned ON with the key.
- The UNLOCK button or the LOCK button on the remote transmitter is pressed.

Vehicle Locator

The remote keyless entry system assists the driver in locating the vehicle. When the vehicle is unlocked with the remote control, the turn signals flash twice to indicate the location of the vehicle. The duration of the flashes and the length of time between flashes is used to indicate certain vehicle conditions. Refer to Fault or Alarm Indication in this section.

Autolocking (Safety Lock)

The remote keyless entry system features an autolocking control. If the doors are unlocked with the remote transmitter when the control module/receiver is in the armed mode, the doors are automatically relocked after 30â€seconds unless any of the following events occur:

- The door is opened.
- The ignition switch is turned ON.
- The tailgate is opened.
- The hood is opened.

Control Module/Receiver

The remote keyless entry control module/receiver is contained in the tie bar center. The module/receiver processes signals from the remote transmitter and the intrusion sensors, and it activates the alarm if an intrusion is detected.

The control module/receiver will not communicate with transmitters from other vehicles because there are over fourâ€billion possible electronic password combinations, and passwords are not duplicated. The control module/receiver has an attached antenna to detect signals from the transmitter.

Fault Or Alarm Indication

When the UNLOCK button on the remote transmitter is pressed, the control module/receiver will flash the parking lights to indicate information about the remote keyless entry and anti-theft system.

Normal Condition: If there has not been an intrusion, and no fault has been detected, the control module/receiver will signal a normal condition when the UNLOCK button is pressed. The parking lights will flash twice for 0.5 second, with a 0.5 second pause between flashes.

Fault Indication

If there is a fault in the remote keyless entry and anti-theft system, the control module/receiver will signal the fault when the UNLOCK

button is pressed. The parking lights will flash twice for 1â€second, with a 0.5â€second pause between flashes.

Alarm Indication

If there has been an intrusion since the last time the LOCK button was pressed, the control module/receiver will signal that there has been an intrusion when the UNLOCK button is pressed. The parking lights will flash twice for 0.5â€second, with a 1.5â€second pause between flashes.

Alarm and fault information will be erased the next time the transmitter arms the control module/receiver by transmitting a LOCK message.

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Diagnostic Information and Procedures

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Symptoms - Keyless Entry

Important:

The following steps must be completed before using the symptom tables.

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the Keyless Entry System. Refer to [Checking Aftermarket Accessories](#).
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.
- Inspect that the transmitter is the correct model for the vehicle. An incorrect module will not operate.

Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions . Refer to [Testing for Intermittent Conditions and Poor Connections](#).

Symptoms list

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

[Keyless Entry System Malfunction](#)

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Keyless Entry System Malfunction

Diagnostic Instructions

- Perform the [Diagnostic System Check - Vehicle](#) prior to using this diagnostic procedure.
- Review [Strategy Based Diagnosis](#) for an overview of the diagnostic approach.
- [Diagnostic Procedure Instructions](#) provides an overview of each diagnostic category.

Circuit/System Description

The keyless entry system is a vehicle entry device. The keyless entry will unlock the vehicle doors or open the rear compartment when a corresponding button on the keyless entry transmitter is pressed. This is accomplished by the keyless entry transmitter sending a radio frequency to the theft deterrent module. The theft deterrent module then sends a signal to the door lock relay over the appropriate signal circuit. A low transmitter battery or radio frequency (RF) interference from aftermarket devices such as 2-way radios, power inverters, cellular phone chargers, computers, etc. may cause a system malfunction. High RF traffic areas, such as gas stations which use pay-at-the-pump RF transponders, may also cause interference that could lead to a malfunction.

Diagnostic Aids

For the Keyless Entry Tester, inspect the keyless entry transmitter part number to determine that it is the correct model for the vehicle. A wrong model transmitter may pass the test, but it will not activate the vehicle remote system.

Reference Information

Schematic Reference

[Remote Function Schematics](#)

Connector End View Reference

[Master Electrical Component List](#)

Description and Operation

[Keyless Entry System Description and Operation](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Special Tools

Keyless Enter Tester

Circuit/System Verification

Attempt to program the keyless entry transmitter, refer to [Remote Control Door Lock Transmitter Programming](#). The transmitter should program.

Circuit/System Testing

1. Verify that the transmitter is the correct transmitter for the vehicle.

2.
 - If not the correct transmitter, replace the transmitter.
3. Place the transmitter on the test pad of the and press each transmitter button one at a time. The tester should sound a tone and illuminate a green light with each button press.
4.
 - If one or more buttons does not sound the tone and illuminate the green light, replace the transmitter battery and retest with the . If the condition continues after battery replacement, replace the transmitter.
5. Operate the transmitter while observing the scan tool Last Key Pressed On Fob function parameter for the appropriate transmitter. The parameter should correspond with the function selected on the transmitter.
6.
 - If the parameter does not match the function selected on the transmitter, replace the transmitter.
7. If all circuits test normal, replace the theft deterrent module.

Perform the [Diagnostic Repair Verification](#) after completing the diagnostic procedure.

- [Remote Control Door Lock Transmitter Programming](#)
- [Control Module References](#) for RCDLR replacement, setup, and programming

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Repair Instructions

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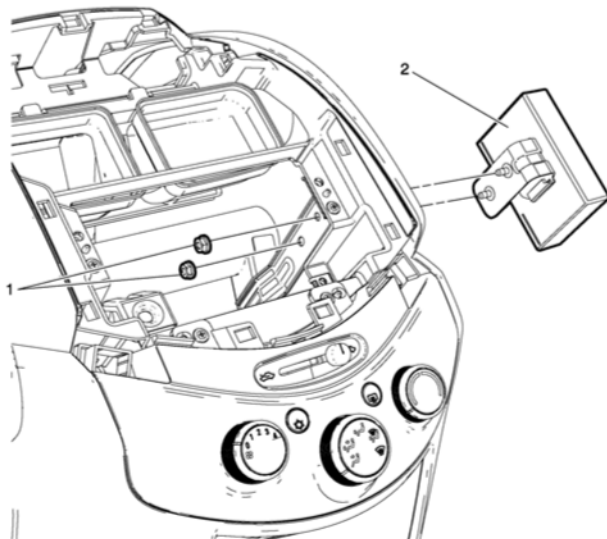
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Keyless Entry Control Module Replacement





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Callout	Component Name
Preliminary Procedures	
1. Remove the instrument panel compartment. Refer to Instrument Panel Compartment Replacement .	
2. Remove the radio. Refer to Radio Replacement .	
1	Keyless Entry Control Module Nut (Qty: 2) Caution: Refer to Fastener Caution . Tighten 8 N·m (71 lb·in)

Callout	Component Name
2	Keyless Entry Control Module Procedure 1. Disconnect the electrical and antenna cable connectors. 2. Remove the keyless entry control module and bracket assembly. 3. Remove the keyless entry control module from the bracket.

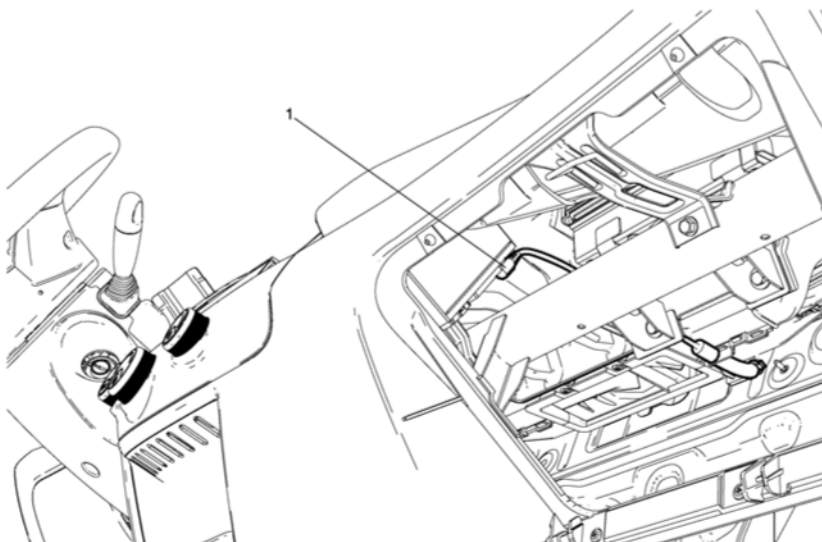
Related Part Information

Part Name	Catalog Name	Part Code
Keyless Entry Control Module	MODULE,KEYLESS ENTRY CONT	6922A

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Remote Control Door Lock Receiver Antenna Replacement





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Callout	Component Name
Preliminary Procedure	
Remove the instrument panel compartment. Refer to Instrument Panel Compartment Replacement .	
1	Remote Control Door Lock Receiver Antenna Procedure 1. Disconnect the antenna cable connector from the keyless entry control module. 2. Disconnect the antenna cable clip. 3. Remove the remote control door lock receiver antenna.

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Remote Control Door Lock Transmitter Programming

Important:

All transmitters that are to be recognized by the remote control door lock receiver (RCDLR) must be programmed in a single programming sequence. If the system is placed in program mode it will erase all previously programmed transmitters upon the receipt of the programming signal from the first transmitter. Up to five transmitters can be programmed. Do not operate or program the transmitters in the vicinity of other vehicles that are in the keyless entry program mode. This prevents the programming of the transmitters to the incorrect vehicle.

Transmitter Programming Procedure

1. Important:

Turn the ignition to ON before installing in the scan tool. Failure to connect in this procedure may cause communication errors and the programming procedure will not complete. Any keys that are not programmed at this time will no longer function.

2. Turn ON the ignition with the engine OFF.

3. Install the scan tool.

4. Select PROGRAMMING KEY FOBS from the BODY menu.

5. Follow the scan tool instructions with each key until all keys are programmed.

6. Turn the ignition to the LOCK position, disconnect the TECH 2 and test all the keys.

Specifications

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Fastener Specifications

Reusable Threaded Fastener Tightening Specifications

Application	Specification
	Metric (English)
Note:	
All fasteners listed in this table can be reused after removal.	
Keyless Entry Control Module Nut	8â€%N-mâ€%(71â€%olbâ€%in)

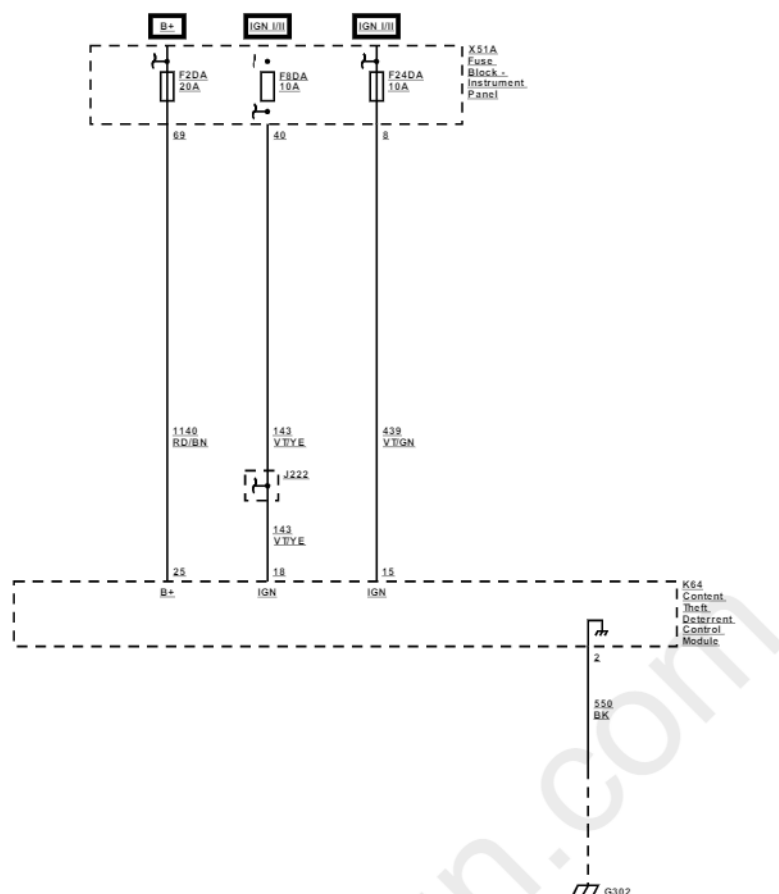
Schematic and Routing Diagrams

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Remote Function Schematics

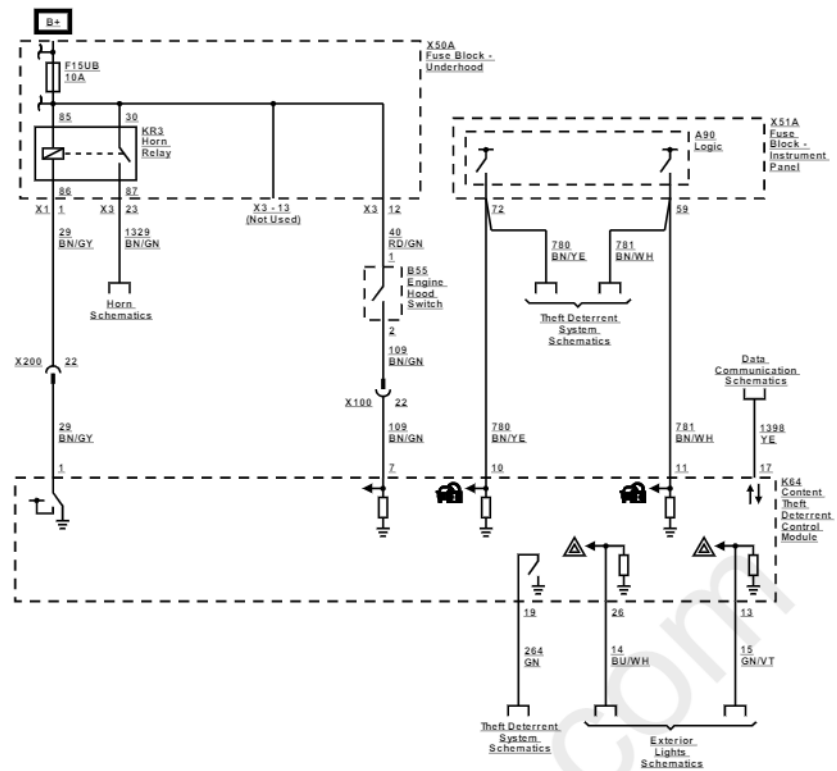
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Module Power and Ground



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Keyless Entry



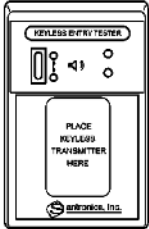
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Special Tools and Equipment

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Special Tools

Illustration	Tool Number/ Description
	J-43241 Keyless Entry Tester

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