

Keyless Entry

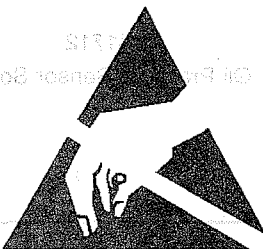
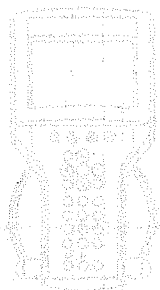
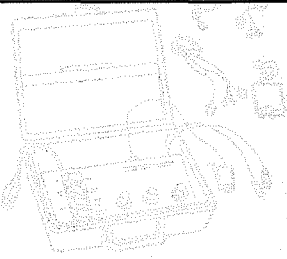
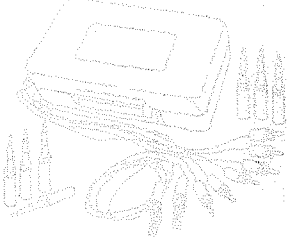
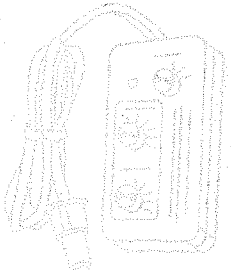
Specifications

GM SPO Group Numbers

Application	GM SPO Group Number
Remote Control Door Lock Transmitter	10.000

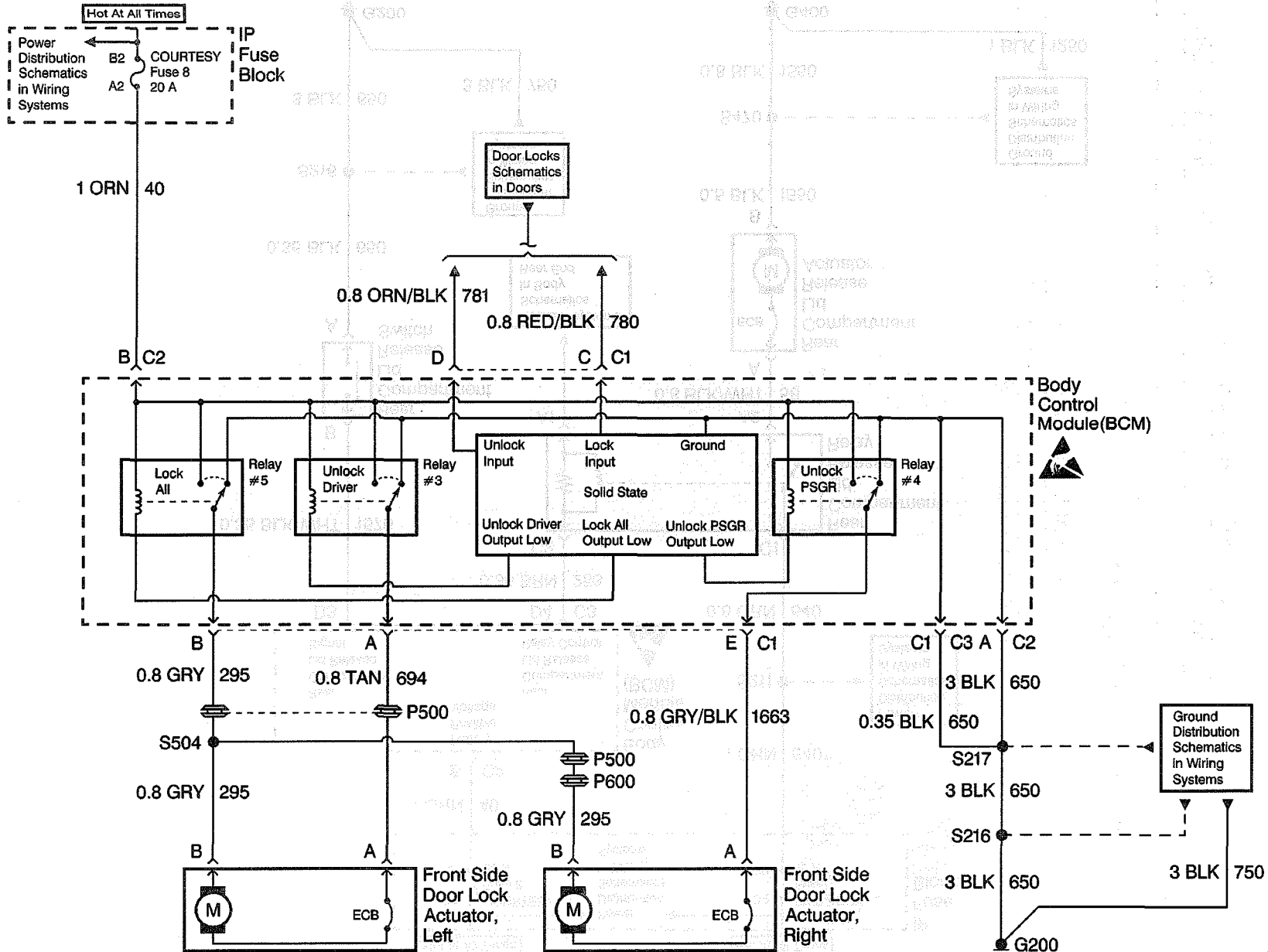
Schematic and Routing Diagrams

Keyless Entry Schematic Icons

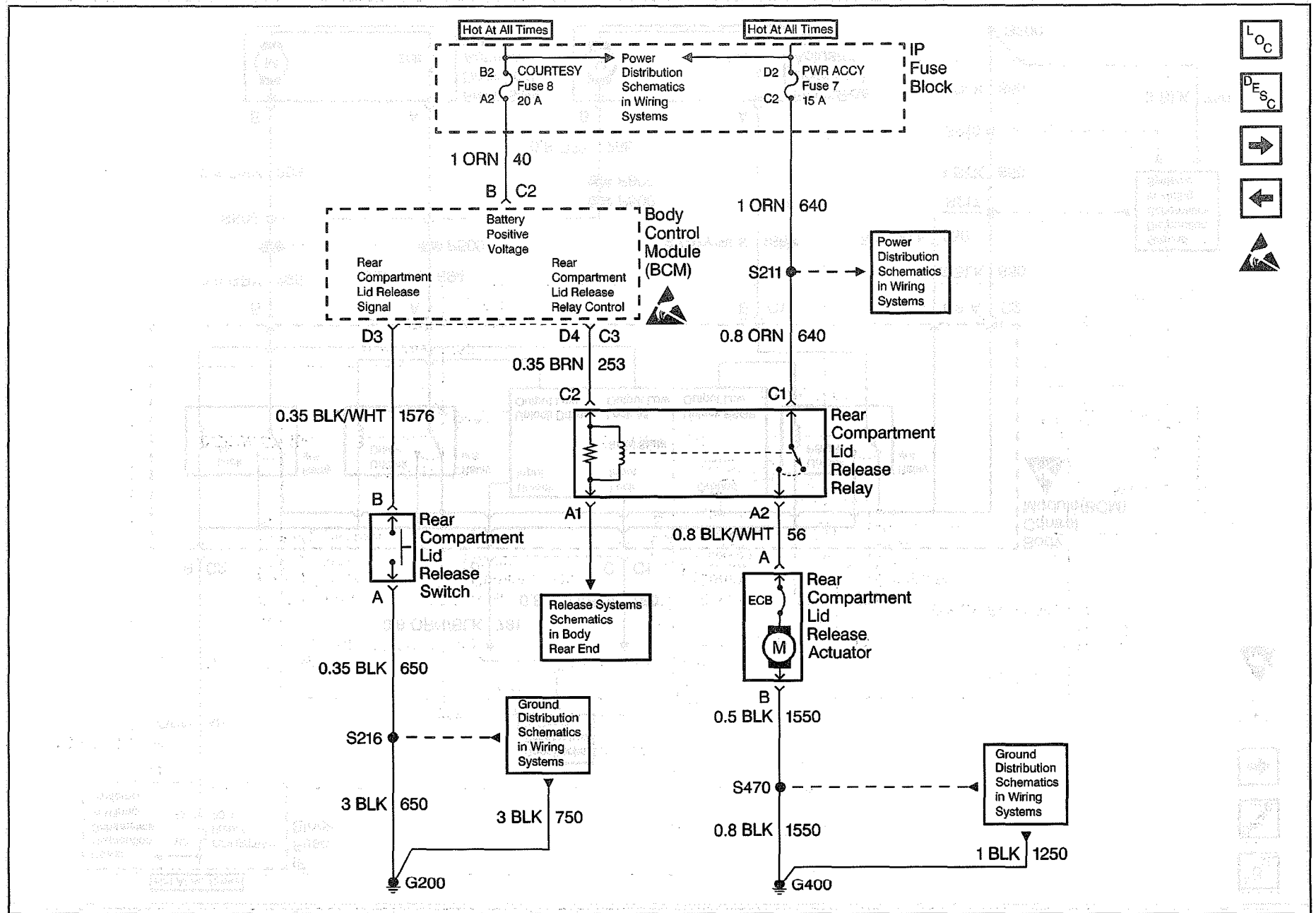
Icon	Icon Definition
	Refer to ESD Notice in Caution and Notices.
	
	
	
	
	

Keyless Entry Schematics (Body Control Module and Side Door Lock Actuators)

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Keyless Entry Schematics (Body Control Module and Rear Compartment Lid Release Components)



Body and Accessories



Component Locator

Keyless Entry Components

Name	Location	Locator View	Connector End View
Body Control Module (BCM)	Under the right side of the IP near the blower motor	<i>Body Control Module Component Views in Body Control Systems</i>	<i>Body Control Module Connector End Views in Body Control Systems</i>
Courtesy Lamp, Left Rear (Convertible)	Mounted in the left sail panel	—	—
Courtesy Lamp, Rear Compartment (Convertible)	In the center of the rear compartment, near the rear compartment lid release actuator	—	—
Courtesy Lamp, Right Rear (Convertible)	Mounted in the right sail panel	—	—
Dome Lamp (Coupe)	On the inside of the roof, near the hatch	—	—
Front Side Door Lock Actuator	Inside the rear of the door	<i>Power Door Systems Component Views in Doors</i>	<i>Power Door Systems Connector End Views in Doors</i>
Inside Rearview Mirror	Mounted to the inside center of the windshield	<i>Lighting Systems Component Views in Lighting Systems</i>	<i>Lighting Systems Connector End Views in Lighting Systems</i>
IP Compartment Lamp	Inside the top center of the IP compartment	<i>Instrument Panel, Gauges, and Console Component Views in Instrument Panel, Gauges and Console</i>	—
IP Fuse Block	On the left end of the IP carrier	<i>Instrument Panel, Gauges, and Console Component Views in Instrument Panel, Gauges and Console</i>	—
Rear Compartment Lid Release Actuator	In the center of the end panel, in the cargo compartment	<i>Body Rear End Component Views in Body Rear End</i>	<i>Body Rear End Connector End Views in Body Rear End</i>
Rear Compartment Lid Release Relay	Under the left side of the IP, near C200	<i>Body Rear End Component Views in Body Rear End</i>	—
Rear Compartment Lid Release Switch	In the driver knee bolster, left of the steering column	—	<i>Body Rear End Connector End Views in Body Rear End</i>
C200C (13 cavities)	Cross car to IP harness, between the left kick panel and the steering column	<i>Harness Routing Views in Wiring Systems</i>	<i>Inline Harness Connector End Views in Wiring Systems</i>
C200D (48 cavities)	Part of the IP harness, between the left kick panel and the steering column	<i>Harness Routing Views in Wiring Systems</i>	<i>Inline Harness Connector End Views in Wiring Systems</i>
G200	Near the left A-pillar, bolted to the IP mounting stud behind the kick panel	<i>Harness Routing Views in Wiring Systems</i>	—
G400	Bolted to the rear compartment lid release actuator bracket in the rear compartment	<i>Harness Routing Views in Wiring Systems</i>	—
P500	Between the driver door and A-pillar	<i>Harness Routing Views in Wiring Systems</i>	—
P600	Between the passenger door and A-pillar	<i>Harness Routing Views in Wiring Systems</i>	—

Keyless Entry Components (cont'd)

Name	Location	Locator View	Connector End View
S211	In the IP harness, main branch, approximately 7 cm (2.8 in) from the rear compartment lid release relay breakout	—	—
S216	In the IP harness, main branch, approximately 10 cm (4 in) from the instrument cluster breakout	—	—
S217	In the IP harness, main branch, approximately 18 cm (6.8 in) from the body control module (BCM) breakout	—	—
S220	In the cross car harness, main branch, approximately 9 cm (3.5 in) from C200C breakout	—	—
S241	In the IP harness, main branch, approximately 4 cm (1.6 in) from the antenna cable breakout	—	—
S247	In the IP harness, approximately 16 cm (6.3 in) from G200 breakout	—	—
S317 (Convertible)	In the IP harness, main branch, approximately 40 cm (15.8 in) from the left rear courtesy lamp breakout	—	—
S470	In the IP harness, approximately 6 cm (9.5 in) from the G400 breakout	—	—
S504	In the cross car harness, approximately 11 cm (4.3 in) from the left outside rearview mirror breakout	—	—

No	Yes	Action	Step
Go to Control Entry BCM Diagnostics in Body Control Systems	Go to Step 2	Attempt to operate the rear compartment lid release and the power door locks. Are the rear compartment lid release and the power door locks operational?	1
Go to Step 3	Go to Diagnostic Trouble Code (DTC) List/Type	Check the body control module (BCM) DTCs. Refer to Diagnostic Trouble Code (DTC) Diagnostic in Body Control Systems. Record the BCM Breakout of the following codes: • DTC 41 • DTC 42 • DTC 43 • DTC 44 • DTC 45	2
Go to Symptoms - Keyless Entry	Go to Diagnostic Trouble Code (DTC) List/Type in Body Control Systems	Does the BCM Breakout any other DTCs?	3

Diagnostic Information and Procedures

A Diagnostic Starting Point - Keyless Entry

Begin the system diagnosis with *A Diagnostic System Check - Remote Keyless Entry*. The Diagnostic System Check will provide the following information:

- The identification of the control module(s) which command the system.
- The identification of any stored diagnostic trouble codes (DTCs) and their status.

The use of the Diagnostic System Check will identify the correct procedure for diagnosing the system and where the procedure is located.

Diagnostic Trouble Code (DTC) List/Type

Description	Module
DTC 41 Last Message Received Valid	Body Control Module (BCM)
DTC 42 Last Message Received Invalid	Body Control Module (BCM)
DTC 43 Last Message Received with Sumcheck Error	Body Control Module (BCM)
DTC 44 Last Message Received with Encryption Error	Body Control Module (BCM)
DTC 45 Receiver Processing in 20 Second Lockout	Body Control Module (BCM)

A Diagnostic System Check - Remote Keyless Entry

Step	Action	Yes	No
1	Attempt to operate the rear compartment lid release and the power door locks. Are the rear compartment lid release and the power door locks operational?	Go to Step 2	Go to <i>Cannot Enter BCM Diagnostics</i> in Body Control Systems
2	Check for body control module (BCM) DTCs. Refer to <i>Diagnostic Trouble Code (DTC) Displaying</i> in Body Control System. Does the BCM flash any of the following codes? • DTC 41 • DTC 42 • DTC 43 • DTC 44 • DTC 45	Go to <i>Diagnostic Trouble Code (DTC) List/Type</i>	Go to Step 3
3	Does the BCM flash any other DTCs?	Go to <i>Diagnostic Trouble Code (DTC) List/Type</i> in Body Control System	Go to <i>Symptoms - Keyless Entry</i>

DTC 41 Last Message Received Valid**Conditions for Setting the DTC**

The signal received by the BCM from the remote control door lock transmitter was valid. No malfunctions are detected by the BCM.

Action Taken When the DTC Sets

The remote control door lock transmitter and the BCM functions operate normally.

Conditions for Clearing the DTC

DTC 41 is set when all of the following conditions occur:

- The BCM is in the diagnostic mode.
- Any button on the remote control door lock transmitter is pressed.
- The BCM and the remote control door lock transmitter are operating correctly.

DTC 41 is automatically cleared after it is displayed.

Any button on the remote control door lock transmitter must be pressed again to display DTC 41 again.

DTC 41 Last Message Received Valid

Step	Action	Value(s)	Yes	No
1	Did you perform the Remote Keyless Entry Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Remote Keyless Entry
2	Attempt to operate all of the remote functions using the transmitter. Do all of the transmitter functions operate properly?	—	Go to Step 3	Go to Keyless Entry System Inoperative
3	Important: Perform the set up procedure for the body control module (BCM). Replace the BCM. Refer to <i>Body Control Module Replacement</i> in Body Control System. Did you complete the replacement?	—	System OK	—

DTC 42 Last Message Received Invalid

Conditions for Setting the DTC

The signal received by the BCM from a remote control door lock transmitter was not assigned to the BCM.

Action Taken When the DTC Sets

All of the remote control door lock transmitter functions do not operate.

Conditions for Clearing the DTC

DTC 42 is set when all of the following conditions occur:

- The BCM is in the diagnostic mode.
- Any button on the remote control door lock transmitter is pressed.
- The BCM does not recognize the transmitter being used.

DTC 42 is automatically cleared after it is displayed. Any button on the remote control door lock transmitter must be pressed again to display DTC 42.

DTC 42 Last Message Received Invalid				
Step	Action	Value(s)	Yes	No
1	Did you perform the Keyless Entry Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Remote Keyless Entry
2	Attempt to operate all of the remote functions using the transmitter. Do all of the transmitter functions operate properly?	—	Go to Step 3	Go to Keyless Entry System Inoperative
3	Important: Perform the set up procedure for the body control module (BCM). Replace the BCM. Refer to <i>Body Control Module Replacement</i> in Body Control System. Did you complete the replacement?	—	System OK	—

- Diagnostic Aids**
- DTC 42 may be set due to the following conditions:
- The remote control door lock transmitter was defective.
 - A transmitter was used without programming it to the BCM.
 - Another transmitter was used in the immediate area.

DTC 43 Last Message Received with Sumcheck Error**Conditions for Setting the DTC**

The signal was received by the BCM from a remote control door lock transmitter that is programmed to the BCM. The message did not pass the sumcheck security test.

Action Taken When the DTC Sets

All of the remote control door lock transmitter functions do not operate.

Conditions for Clearing the DTC

DTC 43 is set when all of the following conditions occur:

- The BCM is in the diagnostic mode.
- Any button on the remote control door lock transmitter is pressed.
- The transmitter signal does not pass the sumcheck security test.

DTC 43 is automatically cleared after it is displayed. Any button on the remote control door lock transmitter must be pressed again to display DTC 43 again.

Diagnostic Aids

If DTC 43 is set, the remote control door lock transmitter is out of synchronization with the BCM. This can be caused by any of the following conditions:

1. The transmitter buttons were pressed more than 256 times while out of range of the BCM.
2. The transmitter buttons were pressed more than 10 times while out of the range of the BCM immediately after the transmitter battery was replaced.
3. The transmitter signal encountered noise from the surrounding environment.
4. The transmitter was defective.

DTC 43 Last Message Received with Sumcheck Error

Step	Action	Value(s)	Yes	No
1	Did you perform the Remote Keyless Entry Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Remote Keyless Entry
2	Attempt to operate all of the remote functions using the transmitter. Do all of the transmitter functions operate properly?	—	Go to Step 3	Go to Keyless Entry System Inoperative
3	Important: Perform the set up procedure for the body control module (BCM). Replace the BCM. Refer to <i>Body Control Module Replacement</i> in Body Control System Did you complete the replacement?	—	System OK	—

DTC 44 Last Message Received with Encryption Error**Conditions for Setting the DTC**

The signal was received by the BCM from a remote control door lock transmitter that was programmed to the BCM. The message did not pass the encryption security test.

Action Taken When the DTC Sets

All of the remote control door lock transmitter functions do not operate.

Conditions for Clearing the DTC

DTC 44 is set when all of the following conditions occur:

- The BCM is in the diagnostic mode.
- Any button on the remote control door lock transmitter is pressed.
- The transmitter signal does not pass the encryption security test.

DTC 44 is automatically cleared after it is displayed.

Any button on the remote control door lock transmitter must be pressed again to display DTC 44.

Diagnostic Aids

If DTC 44 is set, the remote control door lock transmitter is out of synchronization with the BCM. This can be caused by any of the following conditions:

1. The transmitter was in the synchronization or program mode while out of the range of the BCM.
2. The transmitter signal encountered noise from the surrounding environment.
3. The transmitter was defective.

DTC 44 Last Message Received with Encryption Error

Step	Action	Value(s)	Yes	No
1	Did you perform the Remote Keyless Entry Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Remote Keyless Entry
2	Attempt to operate all of the remote functions using the transmitter. Do all of the transmitter functions operate properly?	—	Go to Step 3	Go to Keyless Entry System Inoperative
3	Important: Perform the set up procedure for the body control module (BCM). Replace the BCM. Refer to <i>Body Control Module Replacement</i> in Body Control System. Did you complete the replacement?	—	System OK	

DTC 45 Receiver Processing in 20 Second Lockout**Conditions for Setting the DTC**

At least 50 consecutive signals were received by the BCM from a remote control door lock transmitter that was programmed to the BCM. All of the signals did not pass the encryption security test.

Action Taken When the DTC Sets

The BCM stops processing all transmitter signals for 20 seconds. All of the remote control door lock transmitter functions do not operate.

Conditions for Clearing the DTC

DTC 45 is set when all of the following conditions occur:

- The BCM is in the diagnostic mode.
- Any button on the remote control door lock transmitter is pressed.

DTC 45 is automatically cleared after it is displayed. Any button on the remote control door lock transmitter must be pressed again to display DTC 45.

Diagnostic Aids

If DTC 45 is set, the remote control door lock transmitter is out of synchronization with the BCM. This can be caused by any of the following conditions:

1. The transmitter was in the synchronization or the program mode while out of the range of the BCM.
2. The transmitter was defective.

DTC 45 Receiver Processing in 20 Second Lockout

Step	Action	Value(s)	Yes	No
1	Did you perform the Remote Keyless Entry Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Remote Keyless Entry
2	Attempt to operate all of the remote functions using the keyless entry transmitter. Do all of the transmitter functions operate properly?	—	Go to Step 3	Go to Keyless Entry System Inoperative
3	Important: Perform the set up procedure for the body control module (BCM). Replace the BCM. Refer to <i>Body Control Module Replacement</i> in Body Control System. Did you complete the replacement?	—	System OK	—

Step	Action	Value(s)	Yes	No
1	Did you perform the Remote Keyless Entry Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Remote Keyless Entry
2	Attempt to operate all of the remote functions using the keyless entry transmitter. Do all of the transmitter functions operate properly?	—	Go to Step 3	Go to Keyless Entry System Inoperative
3	Important: Perform the set up procedure for the body control module (BCM). Replace the BCM. Refer to <i>Body Control Module Replacement</i> in Body Control System. Did you complete the replacement?	—	System OK	—

Symptoms - Keyless Entry

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

1. Perform *A Diagnostic System Check - Remote Keyless Entry* before using the Symptom Tables in order to verify that no DTCs are set.
2. Review the system operation in order to familiarize yourself with the system functions. Refer to *Keyless Entry System Operation*.

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the Keyless Entry System. Refer to *Checking Aftermarket Accessories* in Wiring Systems.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to *Testing for Intermittent and Poor Connections* in Wiring Systems.

Symptom List

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

- *Courtesy Lamps Inoperative with Transmitter*
- *Keyless Entry System Does Not Change Customization Modes*
- *Keyless Entry System Inoperative*

Courtesy Lamps Inoperative with Transmitter

Step	Action	Value(s)	Yes	No
1	Did you perform the Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Remote Keyless Entry
2	Unlock the doors using the keyless entry transmitter. Do the courtesy lamps illuminate and remain on for approximately 40 seconds?	—	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	Open the driver door. Do the courtesy lamps illuminate?	—	Go to Step 4	Go to Courtesy Lamps Inoperative
4	Important: Perform the set up procedure for the body control module. Replace the body control module (BCM). Refer to <i>Body Control Module Replacement</i> in Body Control System. Did you complete the replacement?	—	Go to Step 5	—
5	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	—

Keyless Entry System Does Not Change Customization Modes

Step	Action	Value(s)	Yes	No
1	Did you perform the Remote Keyless Entry Diagnostic System Check?	—	Go to Step 2	Go to A Diagnostic System Check - Remote Keyless Entry
2	Important: Perform the set up procedure for the body control module. Replace the BCM. Refer to <i>Body Control Module Replacement</i> in Body Control System. Did you complete the replacement?	—	System OK	—

Keyless Entry System Inoperative

Step	Action	Yes	No
1	Did you perform the Diagnostic System Check?	Go to Step 2	Go to A Diagnostic System Check - Remote Keyless Entry
2	Press each button of the transmitter one at a time. Does the system operate normally?	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	Lock and unlock the door locks using the controls inside the vehicle. Do the locks operate properly?	Go to Step 4	Go to Symptoms - Doors in Doors
4	Press the rear compartment release button inside the vehicle. Does the rear compartment release operate properly?	Go to Step 5	Go to Symptoms - Body Rear End in Body Rear End
5	Important: Inspect that the keyless entry transmitter is the correct model for the vehicle remote system. A wrong model transmitter may pass this test but will not activate the vehicle remote system. 1. Turn on the J 43241 Keyless Entry Tester. 2. Place the transmitter on the J 43421 test pad. 3. Press each button of the transmitter one at a time. Does a tone sound and the green light illuminate on the J 43421 after each button is pressed?	Go to Step 10	Go to Step 6
6	Do any of the buttons on the transmitter sound the tone and illuminate the green light when pressed?	Go to Step 9	Go to Step 7
7	Replace the transmitter battery. Refer to <i>Transmitter Battery Replacement</i> . Did you complete the replacement?	Go to Step 8	—
8	1. Turn on the J 43241 Keyless Entry Tester. 2. Place the transmitter on the J 43421 test pad. 3. Press each button of the transmitter one at a time. Does a tone sound and the green light illuminate on the J 43421 after each button is pressed?	Go to Step 10	Go to Step 9
9	Replace the transmitter. You must perform the programming procedure. Refer to <i>Transmitter Programming/Synchronization</i> . Did you complete the replacement?	Go to Step 13	—
10	Operate the transmitter within range of the vehicle. Do all of the RFA functions operate normally?	Go to Step 13	Go to Step 11
11	Important: All transmitters which are to be recognized by the Body Control Module (BCM) 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. Perform the programming procedure. Refer to <i>Transmitter Programming/Synchronization</i> . Did the following actions occur? 1. Both doors locked. 2. The drivers door unlocked. 3. The rear compartment lid opened.	Go to Step 13	Go to Step 12
12	Important: Perform the set-up procedure for the Body Control Module. Replace the body control module. Refer to <i>Body Control Module Replacement</i> in Body Control System. Did you complete the replacement?	Go to Step 13	—
13	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

Repair Instructions

Transmitter Battery Replacement

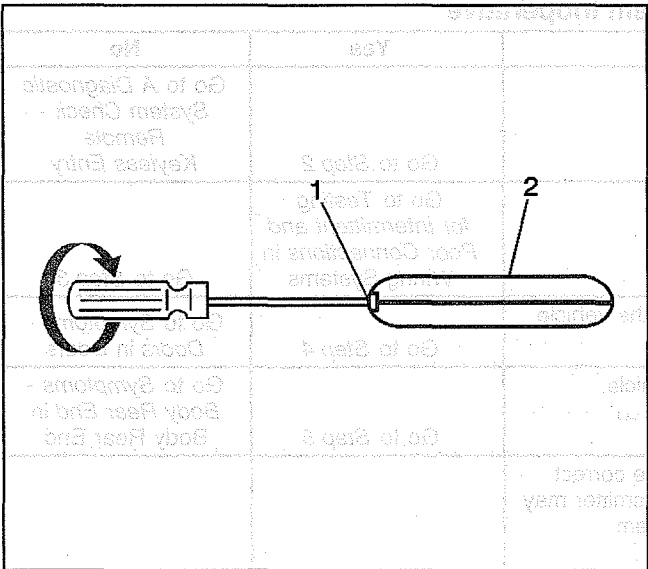
Removal Procedure

- 1. Place the transmitter (2) face down on a clean surface.
- 2. Insert a small screwdriver or coin into the slot (1) on the transmitter (2).
- 3. Carefully turn the screwdriver in the slot until the cover releases.

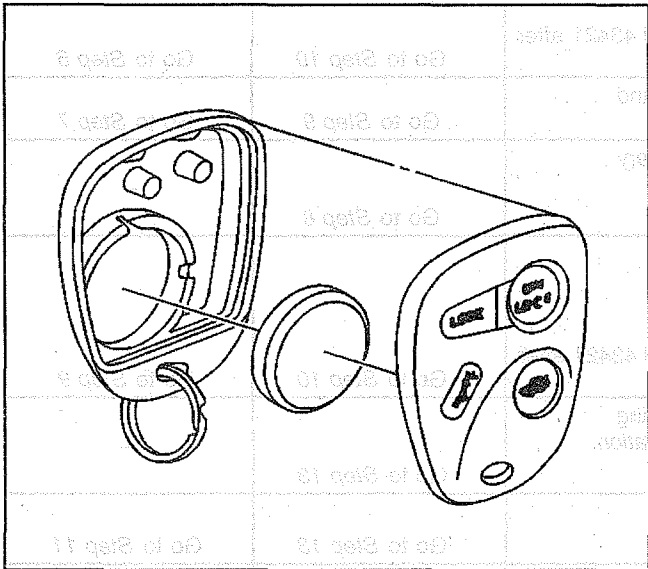
- 4. Remove the cover while being careful not to damage the seal.
- 5. Remove the battery from the transmitter.

Installation Procedure

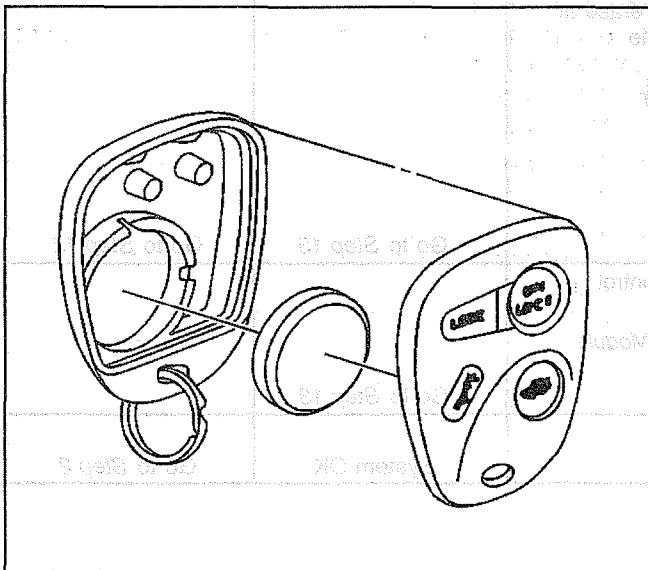
- 1. Install a new battery (CR 2032 or equivalent).
- 2. Inspect that the seal is properly positioned.
- 3. Snap the two halves together.
- 4. Synchronize the transmitter to the receiver. Refer to *Transmitter Programming/Synchronization*.



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Transmitter Programming/Synchronization

Programming Transmitters

Important:

- Programming of the transmitters cannot be done simultaneously. The first transmitter must be completely done before the second transmitter is programmed.
- When you replace a lost or damaged transmitter, program all of the transmitters.
The first transmitter code that you program will always be in four memories unless additional transmitters are programmed.
- Program the remote keyless entry system for one vehicle at a time.

If you program two or more vehicles and the vehicles are close to each other, one transmitter could be programmed to more than one vehicle.

The transmitter may not communicate or becomes out of synchronization with the receiver if any of the following situations occurs:

- The transmitter battery is disconnected.
- The vehicle battery is disconnected.
- The transmitter and the vehicle are separated for 2 weeks or more.
- The receiver is disconnected.

Perform the synchronizing procedure if the transmitter does not communicate or becomes out of synchronization with the receiver. If the transmitter and/or receiver are replaced, perform the following programming procedure:

1. Turn the ignition switch to the OFF position.
2. Remove the RADIO fuse (#17).
3. Cycle the ignition switch from the OFF position to the RUN position 3 times within 5 seconds.

The body control module (BCM) will verify entry into the programming mode by performing the following actions:

- 3.1. Locking both of the doors
- 3.2. Unlocking the drivers door
- 3.3. Releasing the rear compartment lid
4. Press and hold both the LOCK and UNLOCK buttons on the first transmitter for approximately 15 seconds.

The following actions will occur:

- The BCM will confirm that the transmitter code is programmed by performing the following actions:
 - Locking both of the doors
 - Unlocking the drivers door
 - Releasing the rear compartment lid
- Any transmitter code that was previously programmed is erased.
- The BCM is programmed to the transmitter.

5. If you are programming the BCM to match additional transmitters, repeat step 4. You may program up to 4 transmitters. This must be done before the RADIO fuse is reinstalled.

6. Place the ignition switch in the OFF position.

Important: The remote keyless entry system will not be operational if the program input line (RADIO fuse) is open.

7. Replace the RADIO fuse (#17).
8. If at any time it is necessary to restart the procedure, turn the ignition OFF and proceed again with step number 1.

Functional Check

After the system has been programmed stand within 20 feet of the vehicle and proceed as follows:

1. Lock all doors by depressing the lock button.
2. Unlock the drivers door and activate the interior lights (unless the interior lights are already on) by depressing the unlock button once.

The interior lights will stay on for approximately 40 seconds or until the ignition switch is turned ON. The interior lights cannot be reactivated by depressing the lock or unlock buttons until it has timed out.

3. Unlock the passenger door (interior lights should already be on) by depressing the unlock a second time within 5 seconds of the first activation.
4. Release the rear hatch and activate the interior lights (unless the interior lights are already on) for approximately 40 seconds by depressing the hatch release button twice when the vehicle is in park or the park brake is applied.

5. On vehicles with the content theft security system, activate the horns and lights by pushing the panic button on the key fob.

Push the panic button a second time to deactivate the horns and lights.

Repeat steps 1 through 5 with the second transmitter.

Synchronizing Transmitters

Perform the following procedure if a transmitter cannot communicate or becomes out of synchronization with the receiver:

1. Move a programmed transmitter within range.
2. Press the LOCK and UNLOCK buttons on the transmitter simultaneously for 8 seconds.
3. The door locks should cycle and the parking lamps should flash to confirm synchronization. Repeat this procedure for each additional transmitter if needed.

Description and Operation

Keyless Entry System Description

The remote keyless entry system performs the following operations:

- Locks the front side doors
- Unlocks the front side doors
- Turns on the interior lamps
- Releases the rear compartment lift window panel
- Arms the universal theft-deterrent system, if equipped
- Disarms the universal theft-deterrent system, if equipped

Vehicles that are equipped with the theft-deterrent system are also equipped with a panic button.

Pressing the panic button activates the following components:

- The horn
- The parking lights

The body control module (BCM) receives the panic button signal. The BCM is located above the right instrument panel insulator on the heating, ventilation and air conditioning (HVAC) module.

Important: The remote keyless entry system is intended to be used as a supplementary vehicle entry device. The remote keyless entry system is not intended to replace a door lock key. The remote keyless entry system is intended to be used in conjunction with a door lock key. The remote keyless entry system could be disabled due to one of the following conditions:

- Radio frequency interference
- Low transmitter battery power level

Due to the above conditions, the driver should always maintain access to a door lock key.

The remote keyless entry system operates on a 315 MHz radio frequency at a low energy level. If the system fails to operate from a normal distance, inspect for the following conditions:

- There are weak batteries in the remote transmitter. The expected battery life is two years.
- The transmitter and the BCM are not synchronized.
- Trees, bushes or other objects are blocking the signal.
- The system is in close proximity to one of the following radio transmitters:
 - A radio station tower
 - An airport transmitter
 - Mobile radios
 - CB radios

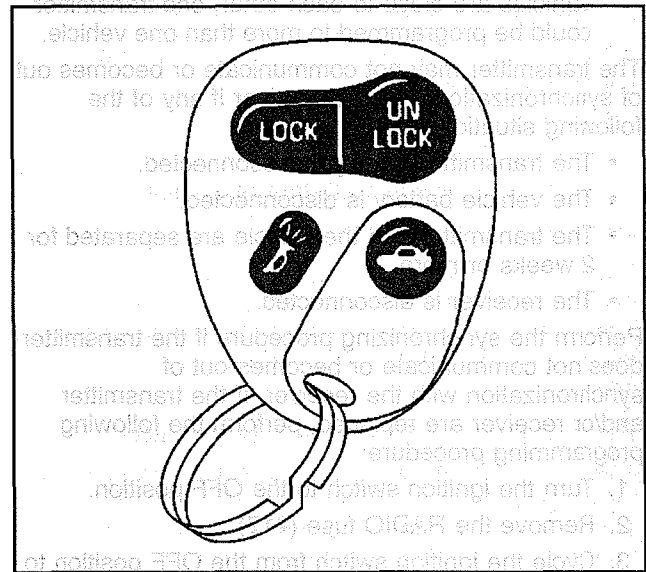
The remote control door lock transmitter is a hand-held item that is attached to a key ring. The transmitter has 3 or 4 buttons that control the functions of the system. The transmitter complies with Part 15 of the federal communications commission (FCC) rules. Operation is subject to the following conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference which the device receives.

This type of interference includes any interference that may cause undesired operation.

Keyless Entry System Operation

Unlocking the Doors



1. Press the UNLOCK button once in order to perform the following operations:
 - Unlock the drivers side door
 - Activate the illuminated entry
 - Disarm the universal theft-deterrent system
2. Press the UNLOCK button a second time, within 5 seconds, in order to unlock the passenger door.

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Releasing the Rear Compartment Lift Window Panel

1. On vehicles with an automatic transmission, perform one of the following operations:
 - Place the shift lever in the PARK position.
 - Turn the ignition switch to the OFF position.
2. On vehicles with a manual transmission, perform both of the following operations:
 - Turn the ignition switch to the ON position.
 - Set the park brake.
3. Press the button marked with the vehicle symbol in order to perform the following operations:
 - Release the rear compartment lift window panel
 - Activate the illuminated entry

Locking the Doors

Press the LOCK button in order to perform the following operations:

- Lock all of the doors
- Deactivate the illuminated entry
- Arm the universal theft-deterrent system

Panic Mode

Press the button that is marked with the horn symbol in order to activate the emergency panic mode. This mode will activate the horn and the parking lights intermittently until the panic mode button is pressed again.

Remote Control Door Lock Transmitter

The remote control door lock transmitter transmits a radio signal to the body control module (BCM). The BCM controls the functions of the transmitter. The transmitter range is approximately 9 m (30 feet).

The transmitter data is encrypted, and changes with each use. If the transmitter buttons are pressed too many times out of range from the vehicle the transmitter and the BCM will get out of synchronization. This will result in the transmitter appearing not to work at all. This situation will occur after the transmitter button is depressed more than 256 times when it is out of range from the vehicle. This may also be necessary if the transmitter battery has been replaced and the buttons were pushed a few times out of range. If the transmitter and the BCM get out of synchronization, re-synchronize the transmitter and the BCM. Refer to *Transmitter Programming/Synchronization*

Body Control Module (BCM)

The Body Control Module (BCM) is battery fed. The BCM is always monitoring the transmitter signal. When the BCM receives the correct transmitter signal the following actions occur:

1. A transistor driver energizes the correct lock control relay coil.
2. The transistor driver will arm the universal theft-deterrent, if equipped.
3. The doors lock.

The BCM also regulates which lock control relays will be energized in order to perform the following operations:

- Unlock the doors
- Release the rear compartment lift window panel
- Disarm the universal theft-deterrent, if equipped

For replacement of the BCM, refer to *Body Control Module Replacement* in Body Control System.

Keyless Entry System Circuit Description

Circuit Operation

The body control module (BCM) is designed with an internal antenna. The BCM picks up transmitted radio frequencies from a hand held remote control door lock transmitter. The transmitter has sufficient power for operating the system from up to 7–10 meters (22–33 ft) from the vehicle.

The side door lock actuators and the rear compartment lid release actuator contain an electronic circuit breaker (ECB). ECB resistance increases if the actuator is overloaded. Resistance returns to normal after the voltage is removed from the actuator terminals.

Remote Control Door Lock Transmitter Functions

Lock

When the lock button on the remote control door lock transmitter is pressed, the body control module (BCM) grounds the coil of relay 5. A voltage pulse is applied from the BCM through circuit 295 to both side door lock actuators. Ground is applied from G200 through circuit 650, the BCM and circuit 694 and circuit 1663 to the actuators. The driver and passenger doors lock. The BCM turns off all of the courtesy lamps as a visual confirmation that a lock function was performed.

Unlock

When the unlock button on the remote control door lock transmitter is pressed once, the body control module (BCM) grounds the coil of relay 3. A voltage pulse is applied from the BCM through circuit 694 to the left side door lock actuator. Ground is applied from G200 through circuit 650, the BCM and circuit 295 to the actuator. The driver door unlocks. The BCM also grounds the dome/courtesy lamps through CKT 156 for approximately 40 seconds to provide illuminated entry. The BCM then initiates the theater dimming function until the BCM receives an ignition ON input.

When the unlock button on the transmitter is pressed a second time within 5 seconds, the BCM grounds the coil of relay 3. A voltage pulse is applied from the BCM through circuit 1663 to the right side door lock actuator. Ground is applied from G200 through circuit 650, the BCM and circuit 295 to the actuator. The passenger door unlocks.

Rear Compartment Lid Release

Automatic Transmission

Voltage is applied at all times from the PWR ACCY fuse through circuit 640 to the normally open contacts of the rear compartment lid release relay. When the rear compartment lid release button on the remote control door lock transmitter is pressed twice, voltage is applied from the body control module (BCM) through circuit 253 to the coil of the rear compartment lid release relay. If the transmission is in the PARK or NEUTRAL position, the relay is energized. The relay then applies battery voltage through circuit 56 to the rear compartment lid release actuator. Ground is applied from G400 through circuit 1550 to the actuator. The rear compartment lid opens.

Manual Transmission

Voltage is applied at all times from the PWR ACCY fuse through circuit 640 to the normally open contacts of the rear compartment lid release relay. When the rear compartment lid release button on the remote control door lock transmitter is pressed twice, voltage is applied from the body control module (BCM) through circuit 253 to the coil of the rear compartment lid release relay. If the park brake is set, the park brake switch is closed and the relay is energized. The relay then applies battery voltage through circuit 56 to the rear compartment lid release actuator. Ground is applied from G400 through circuit 1550 to the actuator. The rear compartment lid opens.

Illuminated Entry Operation

The dome lamp (coupe) or the rear courtesy lamps illuminate whenever a remote control door lock transmitter unlock request is received by the body control module (BCM). The BCM provides voltage through circuit 149 to the dome lamp (coupe) or the rear courtesy lamps (convertible). Ground is applied from the BCM through circuit 156 to the lamps. The lamps illuminate whenever a remote control door lock transmitter request is received.

With a LOCK request, the dome lamp (coupe) or the rear courtesy lamps (convertible) are immediately turned off. This action provides visual confirmation that a lock function was performed.

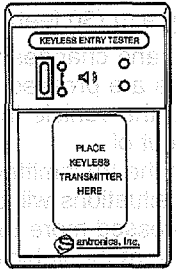
With an unlock or a rear compartment lid release request, the dome lamp (coupe) or the rear courtesy lamps (convertible) are turned on. The lights remain on for 40 seconds in order to provide illuminated entry and hatch area illumination.

Illuminated entry is disabled when the BCM detects ignition ON voltage.

Programming the Body Control Module

The body control module (BCM) is capable of being programmed for up to four keyless entry transmitters. When four transmitters are programmed, they must be programmed one after the other during the same program sequence. Transmitters may not be programmed simultaneously. The BCM can only be programmed by the transmitters while in the program mode.

Special Tools and Equipment

Illustration	Tool Number/ Description
	J 43241 Keyless Entry Tester