

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Keyless Entry - C/K SUV

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SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Receiver	2 N.m	18 lb in

SCHEMATIC AND ROUTING DIAGRAMS

KEYLESS ENTRY SCHEMATICS

Refer to Power Door Locks in System Wiring Diagrams .

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC STARTING POINT - KEYLESS ENTRY

Begin the system diagnosis with **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 ability of the control module(s) to communicate through the serial data circuit
- 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 SYSTEM CHECK - REMOTE KEYLESS ENTRY

Test Description

The numbers below refer to the step numbers on the diagnostic table.

2: Lack of communication may be due to a partial malfunction of the class 2 serial data circuit or due to a total malfunction of the class 2 serial data circuit. The specified procedure will determine the particular condition.

5: The presence of DTCs which begin with "U" indicate some other module is not communicating. The specified procedure will compile all the available information before tests are performed. Any other body control module DTCs displayed by the scan tool do not apply to Remote Keyless Entry and should be

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diagnosed in the applicable section.

Diagnostic System Check - Remote Keyless Entry

Step	Action	Yes	No
1	Install a scan tool. Does the scan tool power up?	Go to Step 2	Go to <u>Scan Tool Does Not Power Up</u> in Data Link Communications
2	1. Turn ON the ignition, with the engine OFF. 2. Attempt to establish communication with the following control modules. - body control module - passenger door module Does the scan tool communicate with all of the listed control modules?	Go to Step 3	Go to <u>Scan Tool Does Not Communicate with Class 2 Device</u> in Data Link Communications
3	IMPORTANT: The engine may start during the following step. Turn OFF the engine as soon as you have observed the Crank power mode. 1. Access the Class 2 Power Mode in the Diagnostic Circuit Check on the scan tool. 2. Rotate the ignition switch through all positions while observing the ignition switch power mode parameter. Does the ignition switch parameter reading match the ignition switch position for all switch positions?	Go to Step 4	Go to <u>Power Mode Mismatch</u> in Body Control System
4	Select the display DTCs function on the scan tool. - body control module - passenger door module Does the scan tool display any DTCs?	Go to Step 5	Go to <u>Symptoms - Keyless Entry</u>
5	Does the scan tool display any DTCs which begin with a "U"?	Go to <u>Scan Tool Does Not Communicate with Class 2 Device</u> in Data Link Communications	Go to <u>Diagnostic Trouble Code (DTC) List</u> in Body Control System

SCAN TOOL OUTPUT CONTROLS

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Scan Tool Output Controls

Scan Tool Output Control	Additional Menu Selections	Description
Special Functions	Program All Key Fobs	The Passenger door module will erase all previously programmed key fobs and then program the first fob as Fob 1, the next fob as Fob 2, and any additional fobs as Fob 3 and Fob 4.
Special Functions	Program Individual Key Fob	The Passenger door module will program a key fob to any one of 4 possible positions: Key Fob 1-4.

SCAN TOOL DATA LIST

Scan Tool Data List

Scan Tool Parameter	Data List	Units Displayed	Typical Data Value
Operating Conditions: Ignition ON, Engine OFF			
Fob 1 Battery	Passenger Door Module Data	OK, Low	OK
Fob 2 Battery	Passenger Door Module Data	OK, Low	OK
Fob 3 Battery	Passenger Door Module Data	OK, Low	OK
Fob 4 Battery	Passenger Door Module Data	OK, Low	OK
Last Fob Button Pressed	Passenger Door Module Data	Lock, Unlock, Panic	Unlock
Last FOB Used	Passenger Door Module Data	FOB 1-4	FOB 1
Fob 1 Programmed	Passenger Door Module Data	Yes, No	Yes
Fob 2 Programmed	Passenger Door Module Data	Yes, No	Yes
Fob 3 Programmed	Passenger Door Module Data	Yes, No	No
Fob 4 Programmed	Passenger Door Module Data	Yes, No	No

SCAN TOOL DATA DEFINITIONS

Fob 1 Battery

The scan tool displays OK to indicate a good battery voltage level was last received.

Fob 2 Battery

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The scan tool displays OK to indicate a good battery voltage level was last received.

Fob 3 Battery

The scan tool displays OK to indicate a good battery voltage level was last received.

Fob 4 Battery

The scan tool displays OK to indicate a good battery voltage level was last received.

Last Fob Button Pressed

The scan tool displays Dr. Door Unlock, All Door Unlock, Door Lock, Rear Release or Panic Alarm indicating the last input received from a programmed fob.

Last Fob Used

The scan tool displays FOB 1-4 to indicate the number of the last transmitter used

Fob 1 Programmed

The scan tool displays Yes/No. The scan tool displays Yes if a transmitter is programmed to this numeric position.

Fob 2 Programmed

The scan tool displays Yes/No. The scan tool displays Yes if a transmitter is programmed to this numeric position.

Fob 3 Programmed

The scan tool displays Yes/No. The scan tool displays Yes if a transmitter is programmed to this numeric position.

Fob 4 Programmed

The scan tool displays Yes/No. The scan tool displays Yes if a transmitter is programmed to this numeric position.

SYMPTOMS - KEYLESS ENTRY

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

1. Perform Diagnostic System Check - Remote Keyless Entry before using the Symptom Tables in order to verify that all of the following are true.
 - There are no DTCs set.

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- The control module(s) can communicate via the serial data link.
2. Review the system operation in order to familiarize yourself with the system functions. Refer to Keyless Entry System Description and Operation.

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the Remote 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 Conditions and Poor Connections in Wiring Systems.

Symptom List

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

- Panic Mode Inoperative
- Keyless Entry System Inoperative

PANIC MODE INOPERATIVE

Panic Mode Inoperative

Step	Action	Yes	No
1	Did you perform the Remote Keyless Entry System Diagnostic System Check?	Go to Step 2	Go to <u>Diagnostic System Check - Remote Keyless Entry</u>
2	With the keyless entry transmitter, attempt to operate the panic function. Do the horns, park lamps, and headlamps all pulse on and off?	Go to <u>Testing for Intermittent Conditions and Poor Connections</u> in Wiring Systems	Go to Step 3
3	Do any of the panic functions operate?	Go to Step 4	Go to <u>Keyless Entry System Inoperative</u>
4	Do the headlamps flash?	Go to Step 5	Go to <u>Symptoms - Lighting Systems</u> in Lighting Systems
5	Do the park lamps flash?	Go to <u>Horns Inoperative</u> in	Go to <u>Symptoms - Lighting Systems</u>

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Horns

In Lighting Systems

KEYLESS ENTRY SYSTEM INOPERATIVE

Keyless Entry System Inoperative

Step	Action	Yes	No
1	Did you perform the Diagnostic System Check?	Go to Step 2	Go to <u>Diagnostic System Check - Remote Keyless Entry</u>
2	Press each button of the transmitter one at a time. Does the system operate normally?	Go to <u>Testing for Intermittent Conditions and Poor Connections</u> 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 <u>Diagnostic System Check - Door Systems</u> in Doors
4	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. See <u>Special Tools and Equipment</u>. 2. Place the transmitter on the J 43241 test pad. See <u>Special Tools and Equipment</u>. 3. Press each button of the transmitter one at a time. Does a tone sound and the green light illuminate on the J 43241 after each button is pressed? See <u>Special Tools and Equipment</u>.	Go to Step 8	Go to Step 5
5	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 6
6	Replace the transmitter battery. Refer to <u>Transmitter Battery Replacement</u> . Did you complete the replacement?	Go to Step 7	-
	1. Turn on the J 43241 Keyless Entry Tester. See <u>Special Tools and Equipment</u>. 2. Place the transmitter on the J 43241 test pad. See <u>Special Tools and Equipment</u>.		

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7	3. Press each button of the transmitter one at a time. Does a tone sound and the green light illuminate on the J 43241 after each button is pressed? See <u>Special Tools and Equipment</u> .	Go to Step 8	Go to Step 9
8	Perform the transmitter synchronization procedure. Refer to <u>Transmitter Resynchronization</u> . Did the locks cycle to lock then unlock?	Go to Step 12	Go to Step 10
9	Replace the transmitter. Did you complete the replacement?	Go to Step 10	-
10	Perform the transmitter programming procedure. Refer to <u>Transmitter Programming</u> . Did the locks cycle to lock then unlock?	Go to Step 12	Go to Step 11
11	IMPORTANT: When replacing the Passenger Door Module (PDM), perform the Program all Transmitters procedure. Refer to <u>Transmitter Programming</u>. Replace the PDM. Refer to <u>Switch Replacement - Door Lock and Side Window - Passenger</u> in Doors. Did you complete the replacement?	Go to Step 12	-
12	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

REPAIR INSTRUCTIONS

REMOTE CONTROL DOOR LOCK RECEIVER REPLACEMENT

The remote control door lock module is incorporated into the passenger side window switch module. Refer to **Switch Replacement - Door Lock and Side Window - Passenger** in Doors.

TRANSMITTER BATTERY REPLACEMENT

Removal Procedure

Under normal use, the battery in the transmitter will last about 2 years. For battery replacement, use a Panasonic® 3 volt, type CR2032, or equivalent.

1. Open the transmitter case and perform the following steps:
 1. Insert a dime between the 2 halves of the transmitter near the key ring hole.
 2. Twist the dime.

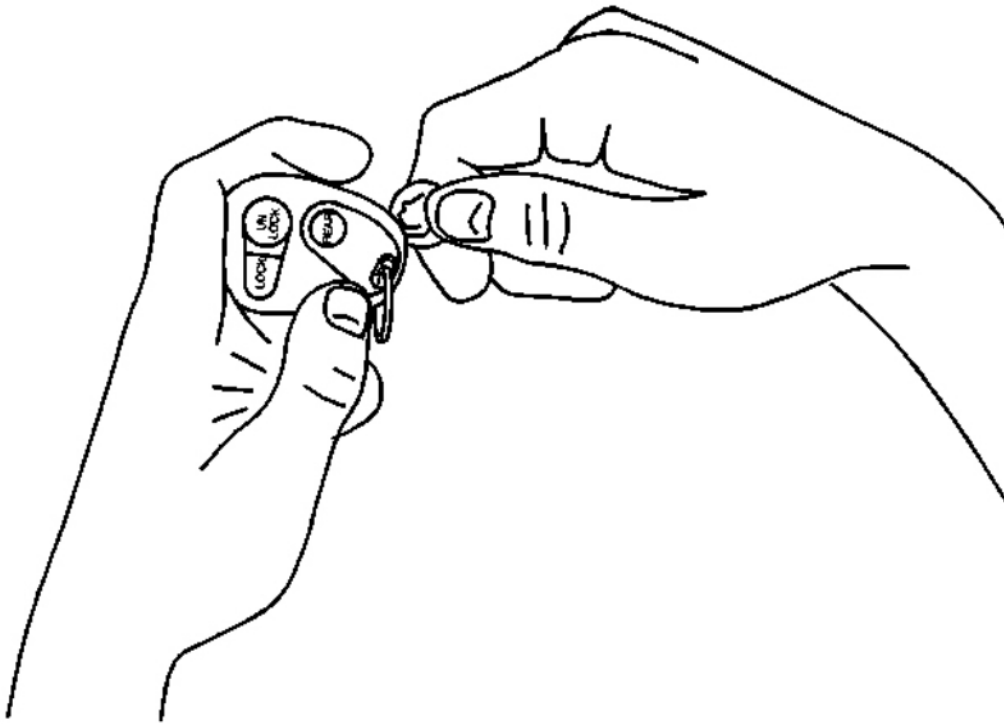


Fig. 1: Opening Transmitter Case
Courtesy of GENERAL MOTORS CORP.

2. Remove the battery.

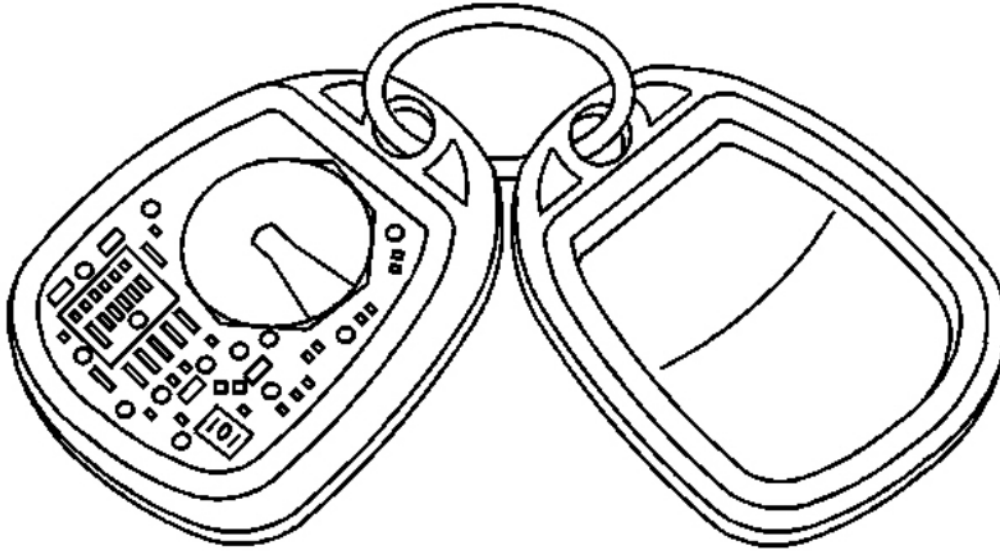


Fig. 2: Removing Transmitter Battery
Courtesy of GENERAL MOTORS CORP.

Installation Procedure

1. Install the battery with the (+) positive side down.
2. Close the transmitter case and perform the following steps:
 1. Align the top and bottom covers.
 2. Press together the top and the bottom covers.
 3. Inspect the operation of the transmitter.

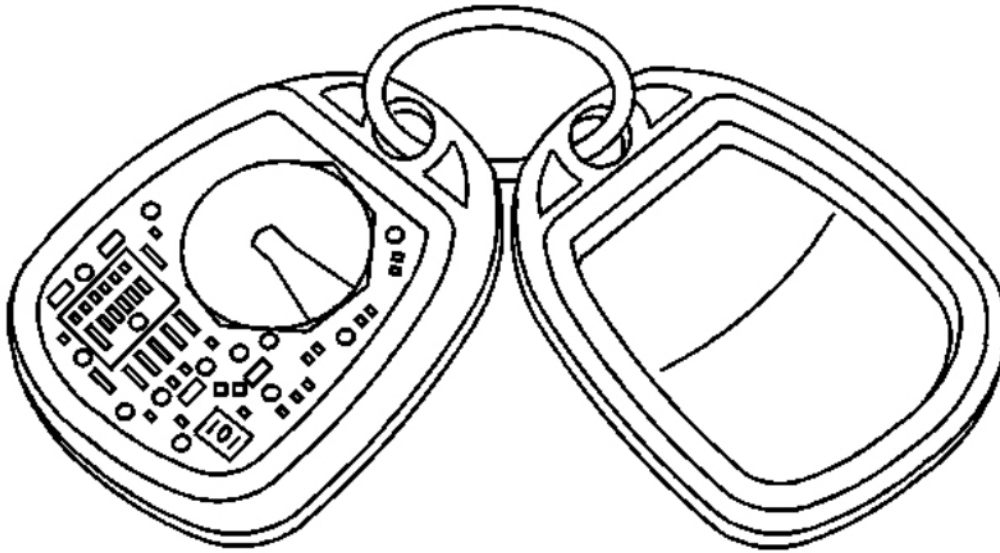


Fig. 3: Installing Transmitter Battery
Courtesy of GENERAL MOTORS CORP.

TRANSMITTER PROGRAMMING

IMPORTANT: 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.

There are 3 methods for programming transmitters, which are listed below as methods 1-3. Up to 4 transmitters may be programmed to the passenger door module (PDM). Each programmed transmitter is given a position of #1-#4 in the PDM memory.

Method 1 - No Tools Required, Program All Transmitters

IMPORTANT: All transmitters which are to be recognized by the PDM must be programmed in a single programming sequence. When using this program method, all previously programmed transmitters will be erased upon the receipt of the programming signal from the first transmitter.

The order in which the transmitters are programmed will determine its numbering position within the PDM memory. The first transmitter programmed will be transmitter #1, and the second transmitter programmed will be transmitter #2. The number stamped on the transmitter case is for reference

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only; #2 can be programmed as #1, or vice versa. Additional unnumbered transmitters are also available.

1. Close all the vehicle doors.
2. Insert the ignition key into the ignition lock cylinder.
3. Press and hold the door unlock switch.
4. While holding the door lock switch in the unlock position, cycle the ignition ON, OFF, ON, OFF.
5. Release the door unlock switch. The doors will lock and unlock to confirm the program mode.
6. Press and hold the LOCK button and the UNLOCK button simultaneously on one transmitter. After a delay of approximately 15 seconds, the doors will lock and unlock to confirm the programming of that transmitter.
7. Repeat the previous step to program up to 4 transmitters.
8. Turn the ignition switch to the RUN position in order to exit the keyless entry transmitter programming mode.
9. Operate the transmitter functions in order to verify correct system operation.

Method 2 - Scan Tool Required, Program Individual Transmitter

IMPORTANT: All transmitters which are to be recognized by the PDM must be programmed in a single programming sequence. When using this program method, all previously programmed transmitters will be erased upon the receipt of the programming signal from the first transmitter.

The order in which the transmitters are programmed will determine its numbering position within the PDM memory. The first transmitter programmed will be transmitter #1, and the second transmitter programmed will be transmitter #2. The number stamped on the transmitter case is for reference only; #2 can be programmed as #1, or vice versa. Additional unnumbered transmitters are also available.

Only use this option if you are certain which transmitter, #1-#4, is being replaced, or the new transmitter can be programmed into a previously unused position within the PDM memory.

1. Install a scan tool.
2. Turn the ignition ON, with the engine OFF.
3. Use the scan tool in order to access the passenger door module Special Function menu.
4. Select Program Individual Key Fob to program specific transmitters.
5. Follow the directions on the scan tool in order to program the transmitter or transmitters.
6. Operate the transmitter functions in order to verify correct system operation.

Method 3 - Scan Tool Required, Program All Transmitters

IMPORTANT: All transmitters which are to be recognized by the PDM must be programmed in

a single programming sequence. When using this program method, all previously programmed transmitters will be erased upon the receipt of the programming signal from the first transmitter.

The order in which the transmitters are programmed will determine its numbering position within the PDM memory. The first transmitter programmed will be transmitter #1, and the second transmitter programmed will be transmitter #2. The number stamped on the transmitter case is for reference only; #2 can be programmed as #1, or vice versa. Additional unnumbered transmitters are also available.

1. Install a scan tool.
2. Turn the ignition ON, with the engine OFF.
3. Use the scan tool in order to access the passenger door module Special Function menu.
4. Select Program All Key Fobs to clear the PDM memory.
5. Follow the directions on the scan tool in order to program the transmitters.
6. Operate the transmitter functions in order to verify correct system operation.

DESCRIPTION AND OPERATION

KEYLESS ENTRY SYSTEM DESCRIPTION AND OPERATION

The keyless entry system is a supplementary vehicle entry device. Radio frequencies or discharged batteries may disable the system.

Keyless entry can operate the following components:

- The door locks
- The interior lamps
- The parking lamps
- The headlamps
- The puddle lamps (if equipped)
- The horn

The keyless entry system has the following main components:

- The transmitters
- The passenger door module (PDM)

The PDM communicates with the body control module (BCM) through the keyless entry serial data circuit. When you press a button on a transmitter, the transmitter sends a signal to the PDM. The PDM sends a request to the BCM and the BCM performs the appropriate function.

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Unlock Button

Press the UNLOCK button once in order to perform the following functions:

- Unlock the driver door only.
- Illuminate interior lamps for a predetermined amount of time or until the ignition is turned to the RUN position with a valid key.
- Illuminate the puddle lamps (if equipped) for a predetermined amount of time or until the ignition switch is turned to the RUN position with a valid key.
- Disarm the content theft deterrent (CTD) system (if equipped).
- Deactivate the CTD system when in the Alarm Mode (if equipped).

Unlock All Doors (Second Operation)

Press the UNLOCK button a second time within 3 seconds of the first press in order to perform the following functions:

- Unlock all doors.
- Flash the parking lamps twice.

Lock All Doors

Pressing the lock button will:

- Lock all of the doors.
- Turn the interior lamps on for 2 seconds.
- Turn the puddle lamps on (if equipped) for 2 seconds.
- Arm the content theft deterrent (CTD) system (if equipped).

Press the LOCK button again within 3 seconds of the first press in order to perform the following functions:

- Chirp the horn.
- Turn the interior lamps on for 2 seconds.
- Turn the puddle lamps on (if equipped) for 2 seconds.

Panic Alarm

IMPORTANT: On some export vehicles the panic alarm will not reset after a predetermined amount of time. The panic alarm must be manually turned OFF using one of the methods listed below.

A single press of the transmitter panic button will:

- Pulses the horn.

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- Illuminates the interior lamps.
- Flash the parking lamps.
- Flash the headlamps.
- Turn the puddle lamps on (if equipped).

All of the above will occur for a predetermined amount of time or until:

- The Panic button on the transmitter is pressed again.
- The vehicle is unlocked with the key.
- The ignition switch is turned to the RUN position with a valid key

Keyless Entry Personalization

Personalization of the remote activation verification is only available on select vehicles equipped with either a Driver Information Center or a Secondary Information Center. For mode descriptions and programming instructions, refer to **Driver Personalization** in Personalization.

Rolling Code

The keyless entry system uses rolling code technology. Rolling code technology prevents anyone from recording the message sent from the transmitter and using the message in order to gain entry to the vehicle. The term "rolling code" refers to the way that the keyless entry system sends and receives the signals. The transmitter sends the signal in a different order each time. The transmitter and the PDM are synchronized to the appropriate order. If a programmed transmitter sends a signal that is not in the order that the PDM expects, then the transmitter is out of synchronization. This occurs after 256 presses of any transmitter button when it is out of range of the vehicle.

Transmitter Resynchronization

Resynchronization may be necessary due to the security method used by this system. The transmitter does not send the same signal twice to the receiver. The receiver will not respond to a signal that has been sent previously. This prevents anyone from recording and playing back the signal from the transmitter.

To resynchronize your transmitter, stand close to your vehicle and press and hold the lock and unlock buttons on the transmitter at the same time for 15 seconds. The door locks should cycle to confirm synchronization. If the locks do not cycle, see your dealer for service.

SPECIAL TOOLS AND EQUIPMENT

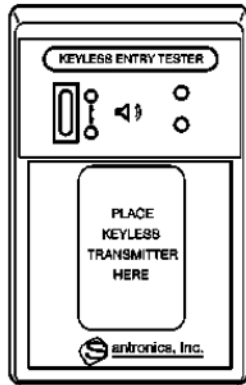
SPECIAL TOOLS

Special Tools

Illustration	Tool Number/ Description

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J 43241
Keyless Entry Tester