

## DESCRIPTION AND OPERATION

### Anti-Theft

**NOTE:** The smart junction box (SJB) is also known as the generic electronic module (GEM).

The perimeter alarm system consists of:

- Anti-theft alarm horn
- Anti-theft hood switch
- Convertible top ajar switch (if equipped)
- Door ajar switches
- Door disarm switch
- Door lock control switch
- Intrusion/inclination sensor
- Luggage compartment lid ajar switch
- Luggage compartment lid disarm switch
- Remote keyless entry (RKE) transmitter
- Traffic horn(s)
- SJB

### Perimeter Alarm System

**NOTE:** The convertible top (if equipped), the luggage compartment lid, and all doors must be closed for the interior motion sensing feature to activate.

**NOTE:** The perimeter alarm system includes a motion detection system that monitors the vehicle interior and a vehicle inclination sensor that detects changes in vehicle inclination.

**NOTE:** The inclination sensing feature must be disarmed before raising the vehicle on a hoist to prevent false alarms.

The anti-theft perimeter alarm feature is controlled by the SJB. The perimeter alarm system is designed to warn the driver in the event of an unauthorized entry to the vehicle and is also designed to help prevent the unwanted towing of the vehicle. When the vehicle is locked and armed, the perimeter alarm system monitors the following:

- Doors
- Hood
- Luggage compartment lid
- Movement inside the vehicle
- Change in vehicle inclination/tilt

If unauthorized activation of the above inputs occurs, the system flashes the turn signals and sounds the anti-theft alarm horn and the traffic horns.

The interior motion detection and vehicle inclination sensing systems operate only when the vehicle is locked using the RKE transmitter or when using the door lock control switch with the accompanying door open and all the doors are then closed. For vehicles with a convertible top, the top must be in the fully closed and latched position for the interior motion sensing system to arm. If the vehicle is locked using the key in the driver door lock cylinder, the system monitors the doors, the luggage compartment lid and the hood, but the interior motion and the vehicle inclination sensing does not arm. Do not arm the interior motion detection system if movement within the vehicle is likely to occur. Do not arm the vehicle inclination sensing system when the vehicle is in transport. For correct operation of the interior motion detection system, make sure all the windows are closed prior to arming the system. This helps prevent accidental alarm activation due to external influences and makes sure that correct interior motion detection occurs. The interior motion sensing system does not arm if either door is ajar.

### Arming the System

When armed, the perimeter alarm system is designed to notify the driver of an unauthorized entry. When unauthorized entry or towing occurs, the system flashes the turn signal lamps and interior lamps and sounds the anti-theft alarm horn and the traffic horns. The system is ready to arm whenever the key is out of the ignition lock cylinder. Any of the following actions arm the alarm system:

- Pressing the RKE transmitter lock control one time to arm the system.
- Locking all the doors using the door lock control switch while the driver or passenger door is open, and then closed.
- Locking the driver door with the key in the driver door lock cylinder (this does not arm the interior motion or vehicle inclination sensing systems).

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**DESCRIPTION AND OPERATION (Continued)**

**NOTE:** Deactivating an activated alarm by pressing the PANIC button on the RKE transmitter returns the system to an armed state.

**NOTE:** Unlocking the luggage compartment inhibits the interior motion and inclination sensing systems, but the perimeter alarm system continues to monitor the doors, hood and inclination sensor. Once the luggage compartment lid is closed, the interior motion sensing system is again monitored.

If all the closures (doors, luggage compartment lid and hood) are closed, the turn signal lamps flash once if the LOCK button on the RKE transmitter is pressed once. If the vehicle is locked again within 3 seconds (using the RKE transmitter), the vehicle locks again, the turn signal lamps flash and the horn chirps. If any closure is not properly closed, the turn signal lamps do not flash and the horn chirps twice. The system waits 20 seconds after locking before arming the perimeter alarm. After the 20 second pre-arm phase, the door lock control switch is disabled (if door lock inhibit function is configured on) to further protect the vehicle.

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**Disarming the System**

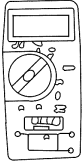
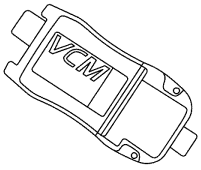
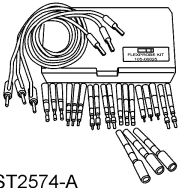
The perimeter alarm system can be disarmed by:

- Unlocking the doors using the RKE transmitter.
- Unlocking the driver door with the key in the driver door lock cylinder.
- Turning the ignition key to the ON position with a programmed PATS ignition key.

## DIAGNOSIS AND TESTING

### Anti-Theft

#### Special Tool(s)

 <p>ST1137-A</p>	<p>73III Automotive Meter 105-R0057</p>
 <p>ST2834-A</p>	<p>Vehicle Communication Module (VCM) and Integrated Diagnostic System (IDS) software with appropriate hardware, or equivalent scan tool</p>
 <p>ST2574-A</p>	<p>Flex Probe Kit 105-R025C or equivalent</p>

#### Principles of Operation

**NOTE:** The smart junction box (SJB) is also known as the generic electronic module (GEM).

The SJB monitors the door ajar switches, the hood switch, the luggage compartment lid ajar switch, and the intrusion/inclination sensor.

If any intrusion is detected without the alarm being deactivated, the SJB energizes the anti-theft alarm horn, the traffic horn, and causes the turn signal lamps to flash in regular intervals.

The system arms when the driver door is locked with the key (no intrusion or inclination protection), the doors are locked with the remote keyless entry (RKE) transmitter, or the doors are locked with the door lock control switch (with the door open) and then the accompanying door is closed. The SJB monitors the status of all entry points. If any entry point is open, the alarm arms everything except for the open entry point. The SJB adds the entry point to the protected status when the closure of the open entry point is detected. Note that only when the system is armed by locking the door using the key in the door lock cylinder is there no intrusion/inclination protection. Arming the system (locking the doors) using the RKE transmitter or using the door lock control switch allows the intrusion/inclination protection to also arm.

**NOTE:** The intrusion sensing feature is not activated if either door or the convertible top (if equipped) is open when the vehicle is armed.

The SJB inhibits the intrusion/inclination sensor and the luggage compartment lid ajar inputs if the luggage compartment lid is opened with a key or the RKE transmitter. Once the luggage compartment lid is closed, the intrusion/inclination sensor and the luggage compartment lid ajar switch are monitored by the SJB.

#### Perimeter Alarm Arming

The system can be armed using any of the following methods:

- Press the door lock control switch to the LOCK position with the accompanying door open, then close it (then wait 20 seconds for the pre-arm phase to expire).
- Press the LOCK button on the RKE transmitter (then wait 20 seconds for the pre-arm phase to expire).
- Turn the key in the door lock cylinder to the LOCK position (then wait 20 seconds for the pre-arm phase to expire). This is the only way to arm the perimeter alarm system without also arming the inclination/intrusion feature.

## DIAGNOSIS AND TESTING (Continued)

### Perimeter Alarm Disarming

The system can be disarmed using any of the following methods (these steps will also deactivate an activated alarm):

- Press the UNLOCK button on the RKE transmitter.
- Turn the key in the door lock cylinder to the UNLOCK position.
- Turn a programmed passive anti-theft system (PATS) key in the ignition lock cylinder to the ON position.

### Perimeter Alarm Deactivation

To deactivate an activated alarm (this step will not disarm the alarm), press the PANIC button on the RKE transmitter.

### Perimeter Alarm Inhibit

To inhibit (stop/prevent) an armed system from activating the alarm (the perimeter alarm will continue to be armed), open the luggage compartment lid using the key in the luggage compartment lid lock cylinder.

### Inspection and Verification

1. Verify the customer concern.
2. Visually inspect for obvious signs of mechanical or electrical damage.

### Visual Inspection Chart

Mechanical	Electrical
<ul style="list-style-type: none"> <li>• Anti-theft alarm horn</li> <li>• Convertible top ajar switch</li> <li>• Door ajar switches</li> <li>• Door disarm switch</li> <li>• Hood switch</li> <li>• Luggage compartment lid ajar switch</li> <li>• Luggage compartment lid disarm switch</li> <li>• Remote keyless entry (RKE) transmitter</li> </ul>	<ul style="list-style-type: none"> <li>• Smart junction box (SJB) fuse 10 (5A)</li> <li>• Wiring, terminals or connectors</li> <li>• Intrusion/inclination sensor</li> <li>• SJB</li> </ul>

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.

4. **NOTE:** Make sure to use the latest scan tool software release.

If the cause is not visually evident, connect the scan tool to the data link connector (DLC).

5. **NOTE:** The vehicle communication module (VCM) LED prove-out confirms power and ground from the DLC are provided to the VCM.

If the scan tool does not communicate with the VCM:

- Check the VCM connection to the vehicle.
- Check the scan tool connection to the VCM.
- Refer to Section 418-00, No Power To The Scan Tool, to diagnose no communication with the scan tool.

6. If the scan tool does not communicate with the vehicle:
  - Verify the ignition key is in the ON position.
  - Verify the scan tool operation with a known good vehicle.
  - Refer to Section 418-00 to diagnose no response from the PCM.
7. Carry out the network test.
  - If the scan tool responds with no communication for one or more modules, refer to Section 418-00.
  - If the network test passes, retrieve and record the continuous memory DTCs.
8. Clear the continuous DTCs and carry out the self-test diagnostics for the SJB.
9. If the DTCs retrieved are related to the concern, go to DTC Charts. For all other DTCs, refer to Section 419-10.
10. If no DTCs related to the concern are retrieved, GO to [Symptom Chart](#).

**DIAGNOSIS AND TESTING (Continued)****DTC Charts****Smart Junction Box (SJB) DTC Chart**

<b>DTC</b>	<b>Description</b>	<b>Action</b>
B1519	Hood Switch Circuit Failure	GO to Pinpoint Test E.
B1833	Door Unlock Disarm Switch Circuit Short To Ground	GO to Pinpoint Test A.
B200A	VSM Inclination Failure	GO to Pinpoint Test G.
B200B	VSM Ultrasonic Failure	GO to Pinpoint Test G.
B200C	VSM Module Failure	GO to Pinpoint Test G.
B2569	Liftgate Disarm Switch Circuit Short to Ground	GO to Pinpoint Test F.
U2033	VSM Communication Link Failure	GO to Pinpoint Test G.
All other DTCs	—	REFER to Section 419-10.

**Symptom Chart****Symptom Chart**

<b>Condition</b>	<b>Possible Sources</b>	<b>Action</b>
<ul style="list-style-type: none"> <li>No communication with the smart junction box (SJB)</li> </ul>	<ul style="list-style-type: none"> <li>Fuse(s)</li> <li>Wiring, terminals or connectors</li> <li>SJB</li> </ul>	<ul style="list-style-type: none"> <li>REFER to Section 418-00.</li> </ul>
<ul style="list-style-type: none"> <li>The anti-theft system does not arm/disarm — using the door disarm switch</li> </ul>	<ul style="list-style-type: none"> <li>Wiring, terminals or connectors</li> <li>Door disarm switch</li> <li>SJB</li> </ul>	<ul style="list-style-type: none"> <li>GO to Pinpoint Test A.</li> </ul>
<ul style="list-style-type: none"> <li>The anti-theft system does not arm/disarm — using the remote keyless entry (RKE) transmitter</li> </ul>	<ul style="list-style-type: none"> <li>RKE transmitter</li> <li>SJB</li> </ul>	<ul style="list-style-type: none"> <li>GO to Pinpoint Test B.</li> </ul>
<ul style="list-style-type: none"> <li>The anti-theft system does not disarm — using the ignition lock cylinder</li> </ul>	<ul style="list-style-type: none"> <li>Wiring, terminals or connectors</li> <li>Controller area network (CAN) error</li> <li>Inoperative/unprogrammed key</li> <li>Passive anti-theft system (PATS) transceiver</li> <li>PCM</li> <li>SJB</li> </ul>	<ul style="list-style-type: none"> <li>REFER to Section 419-01B to continue diagnosis of the PATS.</li> </ul>
<ul style="list-style-type: none"> <li>The anti-theft system does not operate correctly — no anti-theft alarm horn or traffic horn</li> </ul>	<ul style="list-style-type: none"> <li>Wiring, terminals or connectors</li> <li>Traffic horn</li> <li>Anti-theft alarm horn</li> <li>SJB</li> </ul>	<ul style="list-style-type: none"> <li>GO to Pinpoint Test C.</li> </ul>
<ul style="list-style-type: none"> <li>The anti-theft system does not operate correctly — anti-theft alarm horn and traffic horn are continuously on</li> </ul>	<ul style="list-style-type: none"> <li>Wiring, terminals or connectors</li> <li>SJB</li> </ul>	<ul style="list-style-type: none"> <li>GO to Pinpoint Test D.</li> </ul>

**DIAGNOSIS AND TESTING (Continued)****Symptom Chart (Continued)**

Condition	Possible Sources	Action
<ul style="list-style-type: none"> <li>The anti-theft system does not operate correctly — turn signals do not flash when arming</li> </ul>	<ul style="list-style-type: none"> <li>Wiring, terminals or connectors</li> <li>Door ajar switch(es)</li> <li>Hood switch</li> <li>Luggage compartment lid ajar switch</li> <li>SJB</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">GO to Pinpoint Test E.</a></li> </ul>
<ul style="list-style-type: none"> <li>The alarm system does not operate correctly — the alarm activates/does not activate when the luggage compartment is opened with the key</li> </ul>	<ul style="list-style-type: none"> <li>Wiring, terminals or connectors</li> <li>Luggage compartment lid disarm switch</li> <li>SJB</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">GO to Pinpoint Test F.</a></li> </ul>
<ul style="list-style-type: none"> <li>The alarm system does not operate correctly — intrusion and inclination sensing</li> </ul>	<ul style="list-style-type: none"> <li>Fuse</li> <li>Wiring, terminals or connectors</li> <li>Intrusion/inclination sensor module</li> <li>SJB</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">GO to Pinpoint Test G.</a></li> </ul>

**Pinpoint Tests****Pinpoint Test A: The Anti-Theft System Does Not Arm/Disarm — Using The Door Arm/Disarm Switch**

Refer to [Wiring Diagrams Cell 117, Remote Keyless Entry and Alarm for schematic and connector information.](#)

**NOTE:** The intrusion and inclination protection features cannot be activated with the door disarm switch. This allows raising the vehicle on a hoist, transporting or towing the vehicle, or when authorized motion inside the vehicle is likely.

**Normal Operation**

The door disarm switch is located in the driver door lock cylinder and grounds circuit 1315 (LB/PK) or circuit 1313 (LB/BK) to the smart junction box (SJB), which arms or disarms the system. The ajar switches are monitored for a ground signal by the SJB. Ground is supplied to the door disarm switch by circuit 1205 (BK). When an arm request is received by the SJB, the ajar switch positions are queried. If any door, hood, or luggage compartment lid is ajar, the turn signal lamps do not flash and the horn will chirp twice. Only the closed doors will begin the pre-arm phase, and as soon as the open body closure is closed, it will begin its pre-arm phase. If the doors, hood and luggage compartment lid are closed when the remote keyless entry (RKE) transmitter LOCK button is pressed, the perimeter alarm will begin its pre-arm phase of 20 seconds. After the pre-arm phase, the system will be armed.

- DTC B1833 (Door Unlock Disarm Switch Circuit Short To Ground) — sets when there is a short to ground on circuit 1313 (LB/BK) or if the door disarm switch is shorted internally.

**This pinpoint test is intended to diagnose**

**DIAGNOSIS AND TESTING (Continued)**

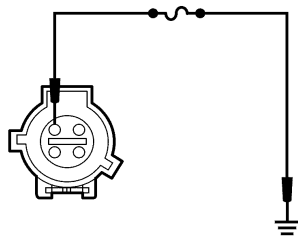
the following:

- Wiring, terminals or connectors
- Door disarm switch
- SJB

**PINPOINT TEST A: THE ANTI-THEFT SYSTEM DOES NOT ARM/DISARM — USING THE DOOR ARM/DISARM SWITCH**

**NOTICE:** Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.

Test Step		Result / Action to Take
<b>A1</b>	<b>RETRIEVE THE RECORDED SJB DTCs FROM BOTH CONTINUOUS AND ON-DEMAND SELF-TESTS</b>	<p><b>Yes</b> For DTC B1833, GO to <b>A3</b>. For all other DTCs, REFER to Section 419-10.</p> <p><b>No</b> GO to <b>A2</b>.</p>
	<ul style="list-style-type: none"> <li>• Retrieve the recorded SJB DTCs from the continuous and on-demand self-tests.</li> <li>• <b>Are any DTCs recorded?</b></li> </ul>	
<b>A2</b>	<b>CHECK THAT THE DRIVER DOOR LOCK AND UNLOCK PIDs READ CORRECTLY</b>	<p><b>Yes</b> GO to <b>A7</b>.</p> <p><b>No</b> GO to <b>A3</b>.</p>
	<ul style="list-style-type: none"> <li>• Enter the following diagnostic mode on the scan tool: SJB DataLogger.</li> <li>• Monitor the SJB PID DRUNLKDIS (driver door disarm) with the key in the door lock cylinder turned to the unlock position and with the key at-rest.</li> <li>• Monitor the SJB PID DRLKCYL (driver door lock) with the key in the door lock cylinder turned to the lock position and with the key at-rest.</li> <li>• <b>Do the SJB PID values read “ACTIVE” with the lock cylinder in the UNLOCK or LOCK position, and “OFF” with the lock cylinder in the at-rest position?</b></li> </ul>	
<b>A3</b>	<b>CHECK THE DOOR DISARM SWITCH</b>	
	<ul style="list-style-type: none"> <li>• Disconnect: Door Disarm Switch <b>C509</b>.</li> <li>• Monitor the SJB PID DRUNLKDIS (driver door disarm), while connecting a fused jumper wire between the door disarm switch <b>C509-1</b>, circuit 1313 (LB/BK), harness side and ground.</li> </ul>	

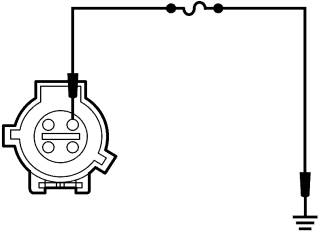
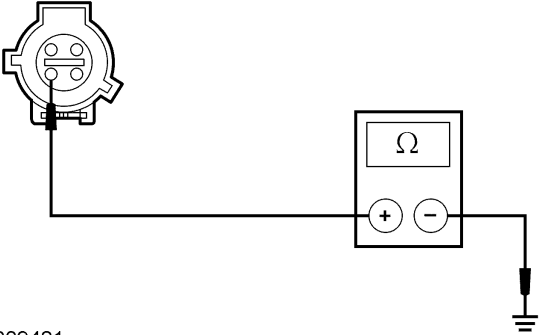


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**DIAGNOSIS AND TESTING (Continued)**

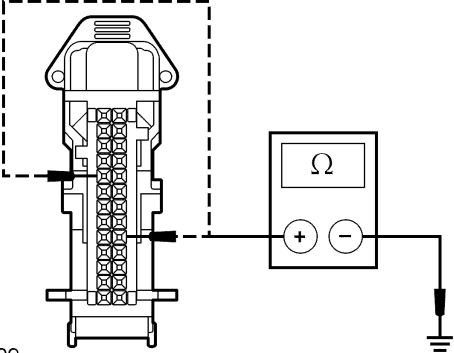
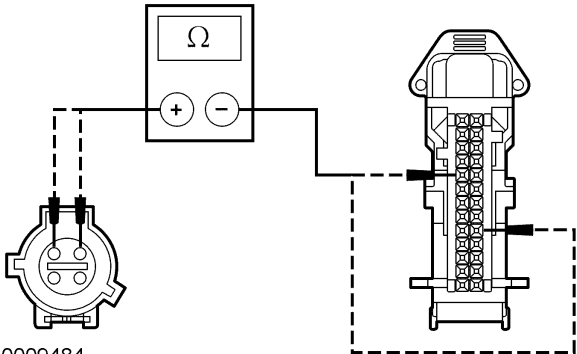
**PINPOINT TEST A: THE ANTI-THEFT SYSTEM DOES NOT ARM/DISARM — USING THE DOOR ARM/DISARM SWITCH (Continued)**

Test Step		Result / Action to Take
<b>A3</b>	<b>CHECK THE DOOR DISARM SWITCH (Continued)</b>	
	<ul style="list-style-type: none"> <li>Monitor the SJB PID DRLKCYL (driver door lock), while connecting a fused jumper wire between the door disarm switch <b>C509-2</b>, circuit 1315 (LB/PK), harness side and ground.</li> </ul>  <p>N0090182</p> <ul style="list-style-type: none"> <li>Do the SJB PID values read “ACTIVE” with the lock cylinder in the UNLOCK or LOCK position, and “OFF” with the lock cylinder in the at-rest position?</li> </ul>	<p><b>Yes</b> REMOVE the jumper wire. GO to <b>A4</b>.</p> <p><b>No</b> REMOVE the jumper wire. GO to <b>A5</b>.</p>
<b>A4</b>	<b>CHECK CIRCUIT 1205 (BK) FOR AN OPEN</b>	
	<ul style="list-style-type: none"> <li>Measure the resistance between the door disarm switch <b>C509-3</b>, circuit 1205 (BK), harness side and ground.</li> </ul>  <p>N0009481</p> <ul style="list-style-type: none"> <li>Is the resistance less than 5 ohms?</li> </ul>	<p><b>Yes</b> INSTALL a new door disarm switch. REFER to Door Disarm Switch in this section. CLEAR the DTCs. REPEAT the self-test. TEST the system for normal operation.</p> <p><b>No</b> REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test. TEST the system for normal operation.</p>
<b>A5</b>	<b>CHECK CIRCUITS 1313 (LB/BK) AND 1315 (LB/PK) FOR A SHORT TO GROUND</b>	
	<ul style="list-style-type: none"> <li>Disconnect: SJB <b>C2280e</b>.</li> </ul>	

(Continued)

**DIAGNOSIS AND TESTING (Continued)**

**PINPOINT TEST A: THE ANTI-THEFT SYSTEM DOES NOT ARM/DISARM — USING THE DOOR ARM/DISARM SWITCH (Continued)**

Test Step		Result / Action to Take
<b>A5</b>	<p><b>CHECK CIRCUITS 1313 (LB/BK) AND 1315 (LB/PK) FOR A SHORT TO GROUND (Continued)</b></p> <ul style="list-style-type: none"> <li>Measure the resistance between the SJB C2280e-9, circuit 1313 (LB/BK), harness side and ground; and between the SJB C2280e-18, circuit 1315 (LB/PK), harness side and ground.</li> </ul>  <p>N0027609</p> <ul style="list-style-type: none"> <li><b>Are the resistances greater than 10,000 ohms?</b></li> </ul>	<p><b>Yes</b> GO to <b>A6</b>.</p> <p><b>No</b> REPAIR the circuit in question. CLEAR the DTCs. REPEAT the self-test.</p>
<b>A6</b>	<p><b>CHECK CIRCUITS 1313 (LB/BK) AND 1315 (LB/PK) FOR AN OPEN</b></p> <ul style="list-style-type: none"> <li>Measure the resistance between the door disarm switch C509-1, circuit 1313 (LB/BK), harness side and the SJB C2280e-9, circuit 1313 (LB/BK), harness side; and between the door disarm switch C509-2, circuit 1315 (LB/PK), harness side and the SJB C2280e-18, circuit 1315 (LB/PK), harness side.</li> </ul>  <p>N0009484</p> <ul style="list-style-type: none"> <li><b>Are the resistances less than 5 ohms?</b></li> </ul>	<p><b>Yes</b> GO to <b>A7</b>.</p> <p><b>No</b> REPAIR the circuit in question. TEST the system for normal operation</p>
<b>A7</b>	<p><b>CHECK FOR CORRECT SJB OPERATION</b></p> <ul style="list-style-type: none"> <li>Disconnect all the SJB connectors.</li> <li>Check for:                     <ul style="list-style-type: none"> <li>— corrosion</li> <li>— damaged pins</li> <li>— pushed-out pins</li> </ul> </li> <li>Connect all the SJB connectors and make sure they seat correctly.</li> <li>Operate the system and verify the concern is still present.</li> <li><b>Is the concern still present?</b></li> </ul>	<p><b>Yes</b> INSTALL a new SJB. REFER to Section 419-10. TEST the system for normal operation.</p> <p><b>No</b> The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR the DTCs. REPEAT the self-test. TEST the system for normal operation.</p>

**DIAGNOSIS AND TESTING (Continued)**

**Pinpoint Test B: The Anti-Theft System Does Not Arm/Disarm — Using The Remote Keyless Entry (RKE) Transmitter**

This pinpoint test is intended to diagnose the following:

- RKE transmitter
- SJB

**Normal Operation**

The smart junction box (SJB) receives lock/unlock commands from the remote keyless entry (RKE) transmitter. The SJB then arms/disarms the perimeter alarm system.

**PINPOINT TEST B: THE ANTI-THEFT SYSTEM DOES NOT ARM/DISARM — USING THE REMOTE KEYLESS ENTRY (RKE) TRANSMITTER**

Test Step		Result / Action to Take
<b>B1</b>	<b>CHECK THE RKE TRANSMITTER FOR CORRECT DOOR LOCK OPERATION</b>	<b>Yes</b> GO to <b>B2</b> .  <b>No</b> REFER to Section 501-14.
	<ul style="list-style-type: none"> <li>• Lock and unlock the door locks using the RKE transmitter.</li> <li>• <b>Do the door locks operate correctly?</b></li> </ul>	
<b>B2</b>	<b>CHECK THE INTERIOR LAMP OPERATION</b>	<b>Yes</b> GO to <b>B3</b> .  <b>No</b> REFER to Section 417-02.
	<ul style="list-style-type: none"> <li>• Lock the doors with the RKE transmitter.</li> <li>• Press the UNLOCK button on the RKE transmitter.</li> <li>• <b>Do the interior lamps turn off when the doors are locked and illuminate when the doors are unlocked?</b></li> </ul>	
<b>B3</b>	<b>CHECK FOR CORRECT SJB OPERATION</b>	<b>Yes</b> INSTALL a new SJB. REFER to Section 419-10. TEST the system for normal operation.  <b>No</b> The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. TEST the system for normal operation.
	<ul style="list-style-type: none"> <li>• Disconnect all the SJB connectors.</li> <li>• Check for:                         <ul style="list-style-type: none"> <li>— corrosion</li> <li>— damaged pins</li> <li>— pushed-out pins</li> </ul> </li> <li>• Connect all the SJB connectors and make sure they seat correctly.</li> <li>• Operate the system and verify the concern is still present.</li> <li>• <b>Is the concern still present?</b></li> </ul>	

**Pinpoint Test C: The Anti-Theft System Does Not Operate Correctly — No Anti-Theft Alarm Horn or Traffic Horn**

This pinpoint test is intended to diagnose the following:

- Wiring, terminals or connectors
- Anti-theft alarm horn
- Traffic horn
- SJB

Refer to [Wiring Diagrams Cell 117, Remote Keyless Entry and Alarm for schematic and connector information.](#)

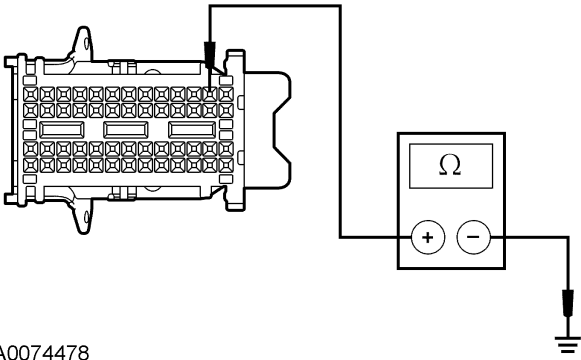
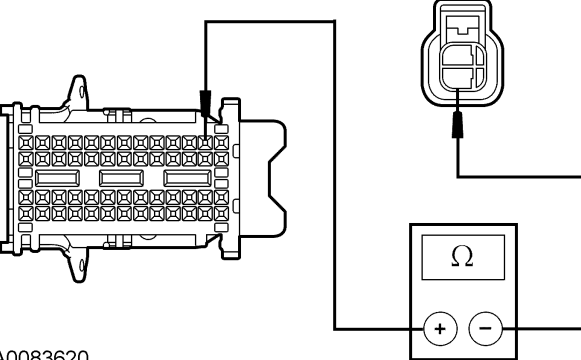
**Normal Operation**

When the system is armed, the door ajar, the anti-theft hood, and the luggage compartment lid ajar switches are monitored by the smart junction box (SJB). If the SJB detects an opening of any of these entry points without a disarm command, or if the ignition switch is cycled to the ON position without the PCM sensing a valid passive anti-theft system (PATS) key, the SJB supplies voltage to the anti-theft alarm horn on circuit 1324 (BK/LG) and grounds the horn relay control circuit for the traffic horn. The anti-theft alarm horn is grounded on circuit 1205 (BK).

**DIAGNOSIS AND TESTING (Continued)**

**PINPOINT TEST C: THE ANTI-THEFT SYSTEM DOES NOT OPERATE CORRECTLY — NO ANTI-THEFT ALARM HORN OR TRAFFIC HORN**

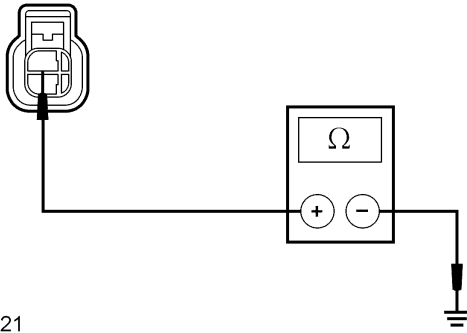
**NOTICE:** Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.

Test Step		Result / Action to Take
<b>C1</b>	<b>CHECK THE TRAFFIC HORN OPERATION</b> <ul style="list-style-type: none"> <li>Press the horn button.</li> <li><b>Does the traffic horn sound?</b></li> </ul>	<b>Yes</b> GO to <b>C2</b> . <b>No</b> REFER to Section 413-06.
<b>C2</b>	<b>CHECK THE ANTI-THEFT ALARM HORN OPERATION</b> <ul style="list-style-type: none"> <li>Ignition OFF.</li> <li>Connect the scan tool.</li> <li>Ignition ON.</li> <li>Enter the following diagnostic mode on the scan tool: SJB DataLogger.</li> <li>Using the active commands, activate the ALRM_HRN (anti-theft alarm horn).</li> <li><b>Does the anti-theft alarm horn sound?</b></li> </ul>	<b>Yes</b> GO to <b>C6</b> . <b>No</b> GO to <b>C3</b> .
<b>C3</b>	<b>CHECK CIRCUIT 1324 (BK/LG) FOR A SHORT TO GROUND</b> <ul style="list-style-type: none"> <li>Disconnect: SJB <b>C2280d</b>.</li> <li>Disconnect: Anti-Theft Alarm Horn <b>C3069</b>.</li> <li>Measure the resistance between the SJB <b>C2280d-12</b>, circuit 1324 (BK/LG), harness side and ground.</li> </ul>  <p>A0074478</p> <ul style="list-style-type: none"> <li><b>Is the resistance greater than 10,000 ohms?</b></li> </ul>	<b>Yes</b> GO to <b>C4</b> . <b>No</b> REPAIR the circuit. TEST the system for normal operation.
<b>C4</b>	<b>CHECK CIRCUIT 1324 (BK/LG) FOR AN OPEN</b> <ul style="list-style-type: none"> <li>Measure the resistance between the SJB <b>C2280d-12</b>, circuit 1324 (BK/LG), harness side and the anti-theft alarm horn <b>C3069-2</b>, circuit 1324 (BK/LG), harness side.</li> </ul>  <p>A0083620</p> <ul style="list-style-type: none"> <li><b>Is the resistance less than 5 ohms?</b></li> </ul>	<b>Yes</b> GO to <b>C5</b> . <b>No</b> REPAIR the circuit. TEST the system for normal operation.

(Continued)

**DIAGNOSIS AND TESTING (Continued)**

**PINPOINT TEST C: THE ANTI-THEFT SYSTEM DOES NOT OPERATE CORRECTLY — NO ANTI-THEFT ALARM HORN OR TRAFFIC HORN (Continued)**

Test Step		Result / Action to Take
<b>C5</b>	<b>CHECK CIRCUIT 1205 (BK) FOR AN OPEN</b> <ul style="list-style-type: none"> <li>Measure the resistance between the anti-theft alarm horn <b>C3069-1</b>, circuit 1205 (BK), harness side and ground.</li> </ul>  <p>A0083621</p> <ul style="list-style-type: none"> <li><b>Is the resistance less than 5 ohms?</b></li> </ul>	<p><b>Yes</b>                      INSTALL a new anti-theft alarm horn. REFER to Anti-Theft Alarm Horn in this section. TEST the system for normal operation.</p> <p><b>No</b>                      REPAIR the circuit. TEST the system for normal operation.</p>
<b>C6</b>	<b>CHECK FOR CORRECT SJB OPERATION</b> <ul style="list-style-type: none"> <li>Disconnect all the SJB connectors.</li> <li>Check for:                             <ul style="list-style-type: none"> <li>— corrosion</li> <li>— damaged pins</li> <li>— pushed-out pins</li> </ul> </li> <li>Connect all the SJB connectors and make sure they seat correctly.</li> <li>Operate the system and verify the concern is still present.</li> <li><b>Is the concern still present?</b></li> </ul>	<p><b>Yes</b>                      INSTALL a new SJB. REFER to Section 419-10. TEST the system for normal operation.</p> <p><b>No</b>                      The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. TEST the system for normal operation.</p>

**Pinpoint Test D: The Anti-Theft System Does Not Operate Correctly — Anti-Theft Alarm Horn and Traffic Horn Continuously On**

Refer to [Wiring Diagrams Cell 117, Remote Keyless Entry and Alarm for schematic and connector information.](#)

**Normal Operation**

When the system is armed, the door ajar, the anti-theft hood, and the luggage compartment lid ajar switches are monitored by the smart junction box (SJB). If the SJB detects any unauthorized entry of these entry points without a disarm command, or if the ignition switch is cycled to the ON position without the PCM sensing a valid passive anti-theft system (PATS) key, the SJB supplies voltage to the anti-theft alarm horn on circuit 1324 (BK/LG) and grounds the horn relay control circuit for the traffic horn. The anti-theft alarm horn is grounded on circuit 1205 (BK).

**This pinpoint test is intended to diagnose the following:**

- Wiring, terminals or connectors
- SJB

**DIAGNOSIS AND TESTING (Continued)****PINPOINT TEST D: THE ANTI-THEFT SYSTEM DOES NOT OPERATE CORRECTLY — ANTI-THEFT ALARM HORN AND TRAFFIC HORN CONTINUOUSLY ON**

Test Step		Result / Action to Take
<b>D1</b>	<b>CHECK THE HORN OPERATION</b>	
	<ul style="list-style-type: none"> <li>Verify the operation of the anti-theft horn and traffic horn.</li> <li><b>Are both the anti-theft alarm horn and the traffic horn on?</b></li> </ul>	<p><b>Yes</b> GO to <b>D3</b>.</p> <p><b>No</b> If only the traffic horn is on, REFER to Section 413-06. If only the anti-theft alarm horn is on, GO to <b>D2</b>.</p>
<b>D2</b>	<b>CHECK THE ANTI-THEFT ALARM HORN OPERATION</b>	
	<ul style="list-style-type: none"> <li>Disconnect: SJB <b>C2280d</b>.</li> <li>Verify the anti-theft alarm horn operation.</li> <li><b>Is the anti-theft alarm horn on?</b></li> </ul>	<p><b>Yes</b> REPAIR circuit 1324 (BK/LG) for a short to voltage. TEST the system for normal operation.</p> <p><b>No</b> GO to <b>D3</b>.</p>
<b>D3</b>	<b>CHECK FOR CORRECT SJB OPERATION</b>	
	<ul style="list-style-type: none"> <li>Disconnect all the SJB connectors.</li> <li>Check for: <ul style="list-style-type: none"> <li>— corrosion</li> <li>— damaged pins</li> <li>— pushed-out pins</li> </ul> </li> <li>Connect all the SJB connectors and make sure they seat correctly.</li> <li>Operate the system and verify the concern is still present.</li> <li><b>Is the concern still present?</b></li> </ul>	<p><b>Yes</b> INSTALL a new SJB. REFER to Section 419-10. TEST the system for normal operation.</p> <p><b>No</b> The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. TEST the system for normal operation.</p>

**Pinpoint Test E: The Anti-Theft System Does Not Operate Correctly — Turn Signals Do Not Flash When Arming**

Refer to [Wiring Diagrams Cell 117, Remote Keyless Entry and Alarm for schematic and connector information.](#)

**Normal Operation**

When the system is armed, the turn signal lamps flash once if all the ajar switches indicate a closed position. If any of them indicate an open position and the system is commanded to arm, the turn signal lamps will not flash.

- DTC B1519 (Hood Switch Circuit Failure) — sets when there is an open, or a short to voltage on circuit 1711 (VT/OG), if the hood switch is shorted internally or the smart junction box (SJB) may be damaged.

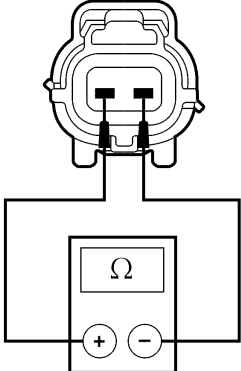
**This pinpoint test is intended to diagnose the following:**

- Wiring, terminals or connectors
- Door ajar switch(es)
- Hood switch
- Luggage compartment lid ajar switch
- SJB

**DIAGNOSIS AND TESTING (Continued)**

**PINPOINT TEST E: THE ANTI-THEFT SYSTEM DOES NOT OPERATE CORRECTLY — TURN SIGNALS DO NOT FLASH WHEN ARMING**

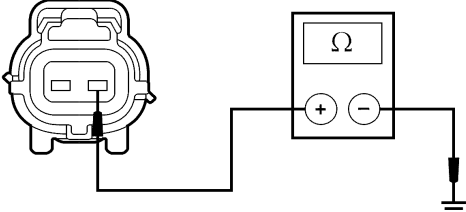
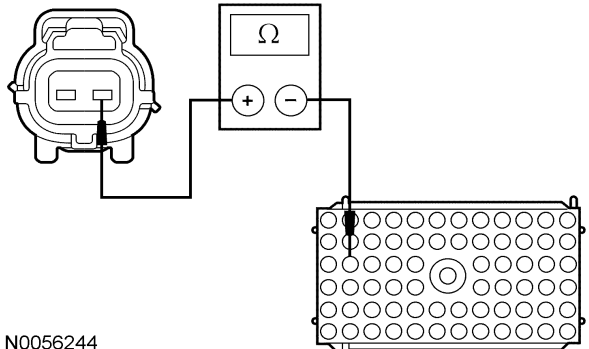
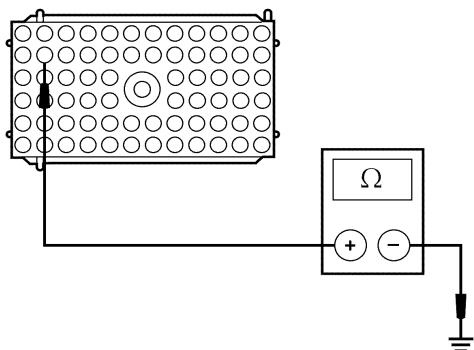
**NOTICE:** Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.

Test Step		Result / Action to Take
<b>E1</b>	<b>RETRIEVE THE RECORDED SJB DTCs FROM BOTH THE CONTINUOUS AND ON-DEMAND SELF-TESTS</b>	<b>Yes</b> GO to <b>E3</b> . <b>No</b> GO to <b>E2</b> .
	<ul style="list-style-type: none"> <li>Retrieve the recorded SJB DTCs from the continuous and on-demand self-tests.</li> <li><b>Is DTC B1519 recorded?</b></li> </ul>	
<b>E2</b>	<b>CHECK THE AJAR SWITCH STATUS TO THE SJB</b>	<b>Yes</b> GO to <b>E9</b> . <b>No</b> REFER to Section 417-02.
	<ul style="list-style-type: none"> <li>Close the hood, luggage compartment lid and the doors.</li> <li>Ignition ON.</li> <li>Enter the following diagnostic mode on the scan tool: SJB DataLogger.</li> <li>Monitor the SJB PIDs D__DR__SW (driver door ajar switch status), P__DR__SW (passenger door ajar switch status), HOOD__SW (hood ajar switch status), DECKLID (luggage compartment lid ajar switch status) for the door ajar switches, the hood switch and the luggage compartment lid ajar switch.</li> <li><b>Do the PIDs indicate the doors, hood and the luggage compartment lid are closed?</b></li> </ul>	
<b>E3</b>	<b>CHECK THE HOOD SWITCH FOR CORRECT OPERATION</b>	<b>Yes</b> GO to <b>E4</b> . <b>No</b> INSTALL a new hood switch. CLEAR the DTCs. REPEAT the self-test.
	<ul style="list-style-type: none"> <li>Ignition OFF.</li> <li>Disconnect: Hood Switch <b>C127</b>.</li> <li>Measure the resistance between the hood switch C127 pin 1, component side and the hood switch C127 pin 2, component side while pressing and releasing the switch.</li> </ul> <div style="text-align: center;">  <p>The diagram shows a top-down view of the hood switch assembly. Two electrical terminals are visible on the switch. A multimeter is connected across these two terminals. The multimeter display shows the Greek letter Omega (Ω), representing resistance. The multimeter has a positive (+) terminal and a negative (-) terminal.</p> </div> <p>N0012767</p> <ul style="list-style-type: none"> <li><b>Is the resistance less than 5 ohms with the hood switch pressed, and greater than 10,000 ohms with the hood switch released?</b></li> </ul>	

(Continued)

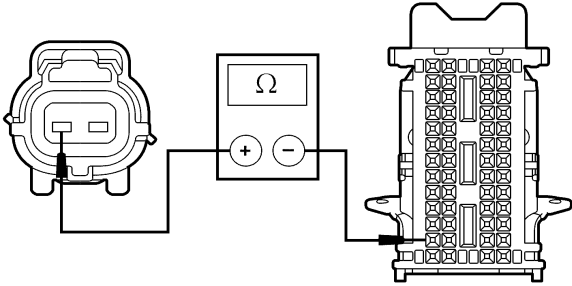
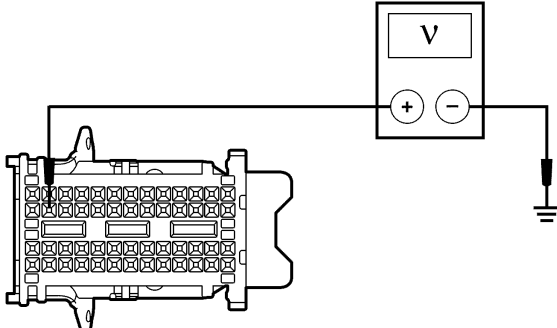
**DIAGNOSIS AND TESTING (Continued)**

**PINPOINT TEST E: THE ANTI-THEFT SYSTEM DOES NOT OPERATE CORRECTLY — TURN SIGNALS DO NOT FLASH WHEN ARMING (Continued)**

Test Step		Result / Action to Take
<b>E4</b>	<p><b>CHECK CIRCUIT 1205 (BK) FOR AN OPEN</b></p> <ul style="list-style-type: none"> <li>Measure the resistance between the hood switch C127-2, circuit 1205 (BK), harness side and ground.</li> </ul>  <p>N0056246</p> <ul style="list-style-type: none"> <li>Is the resistance less than 5 ohms?</li> </ul>	<p><b>Yes</b> GO to <b>E7</b>.</p> <p><b>No</b> GO to <b>E5</b>.</p>
<b>E5</b>	<p><b>CHECK CIRCUIT 1205 (BK) FOR AN OPEN BETWEEN THE HOOD SWITCH AND THE BUSSED ELECTRICAL CENTER (BEC)</b></p> <ul style="list-style-type: none"> <li>Measure the resistance between the hood switch C127-2, circuit 1205 (BK), harness side and the BEC C1035C-D11, harness side.</li> </ul>  <p>N0056244</p> <ul style="list-style-type: none"> <li>Is the resistance less than 5 ohms?</li> </ul>	<p><b>Yes</b> GO to <b>E6</b>.</p> <p><b>No</b> REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.</p>
<b>E6</b>	<p><b>CHECK CIRCUIT 1205 (BK) FOR AN OPEN BETWEEN THE BEC AND GROUND</b></p> <ul style="list-style-type: none"> <li>Measure the resistance between the BEC C1035C-E11, harness side and ground.</li> </ul>  <p>N0056245</p> <ul style="list-style-type: none"> <li>Is the resistance less than 5 ohms?</li> </ul>	<p><b>Yes</b> INSTALL a new BEC. CLEAR the DTCs. REPEAT the self-test.</p> <p><b>No</b> REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.</p>

(Continued)

**DIAGNOSIS AND TESTING (Continued)****PINPOINT TEST E: THE ANTI-THEFT SYSTEM DOES NOT OPERATE CORRECTLY — TURN SIGNALS DO NOT FLASH WHEN ARMING (Continued)**

	Test Step	Result / Action to Take
<b>E7</b>	<p><b>CHECK CIRCUIT 1711 (VT/OG) FOR AN OPEN</b></p> <ul style="list-style-type: none"> <li>Ignition OFF.</li> <li>Disconnect: SJB C2280c.</li> <li>Measure the resistance between the hood switch C127-1, circuit 1711 (VT/OG), harness side and the SJB C2280c-15, circuit 1711 (VT/OG), harness side.</li> </ul>  <p>N0056248</p> <ul style="list-style-type: none"> <li><b>Is the resistance less than 5 ohms?</b></li> </ul>	<p><b>Yes</b> GO to <b>E8</b>.</p> <p><b>No</b> REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.</p>
<b>E8</b>	<p><b>CHECK CIRCUIT 1711 (VT/OG) FOR A SHORT TO VOLTAGE</b></p> <ul style="list-style-type: none"> <li>Ignition OFF.</li> <li>Disconnect: SJB C2280c.</li> <li>Ignition ON.</li> <li>Measure the voltage between the SJB C2280c-15, circuit 1711 (VT/OG), harness side and ground.</li> </ul>  <p>A0074482</p> <ul style="list-style-type: none"> <li><b>Is any voltage indicated?</b></li> </ul>	<p><b>Yes</b> REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.</p> <p><b>No</b> GO to <b>E9</b>.</p>
<b>E9</b>	<p><b>CHECK FOR CORRECT SJB OPERATION</b></p> <ul style="list-style-type: none"> <li>Disconnect all the SJB connectors.</li> <li>Check for: <ul style="list-style-type: none"> <li>corrosion</li> <li>damaged pins</li> <li>pushed-out pins</li> </ul> </li> <li>Connect all the SJB connectors and make sure they seat correctly.</li> <li>Operate the system and verify the concern is still present.</li> <li><b>Is the concern still present?</b></li> </ul>	<p><b>Yes</b> INSTALL a new SJB. REFER to Section 419-10. REPEAT the self-test. TEST the system for normal operation.</p> <p><b>No</b> The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR the DTCs. REPEAT the self-test. TEST the system for normal operation.</p>

**DIAGNOSIS AND TESTING (Continued)**

**Pinpoint Test F: The Alarm System Does Not Operate Correctly — The Alarm Activates/Does Not Activate When The Luggage Compartment Is Opened With The Key**

Refer to [Wiring Diagrams Cell 117, Remote Keyless Entry and Alarm for schematic and connector information.](#)

**Normal Operation**

The smart junction box (SJB) monitors the luggage compartment lid disarm switch status. The luggage compartment lid disarm switch grounds circuit 1350 (WH/PK) when the luggage compartment lid lock cylinder is turned to open with the key, completing the ground path to circuit 1205 (BK). The SJB receives this ground signal and inhibits (stops) the alarm from activating due to the luggage compartment lid. The intrusion sensor does not arm, but the alarm is still armed for the doors and the hood. When the luggage compartment lid is closed, the luggage compartment lid and the intrusion sensor are again monitored by the SJB. After the 20 second pre-arm phase, the luggage compartment lid and the intrusion sensor also become armed again.

- DTC B2569 (Liftgate Disarm Switch Circuit Short to Ground) — sets when either the luggage compartment lid disarm switch is internally shorted, circuit 1350 (WH/PK) is shorted to ground, or the SJB is damaged.

This pinpoint test is intended to diagnose the following:

- Wiring, terminals or connectors
- Luggage compartment lid disarm switch
- SJB

**PINPOINT TEST F: THE ALARM SYSTEM DOES NOT OPERATE CORRECTLY — THE ALARM ACTIVATES/DOES NOT ACTIVATE WHEN THE LUGGAGE COMPARTMENT LID IS OPENED WITH THE KEY**

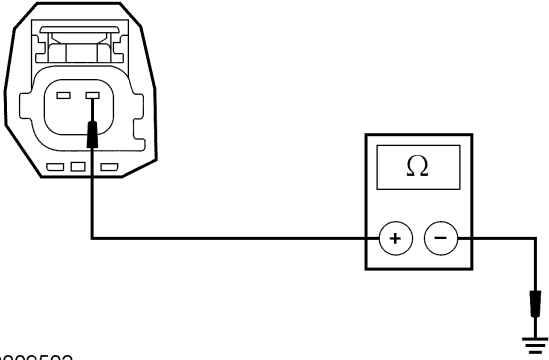
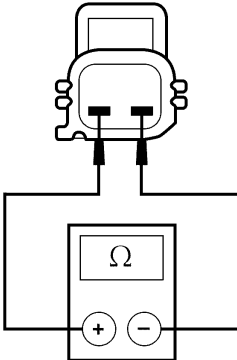
**NOTICE:** Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.

Test Step		Result / Action to Take
F1	CHECK CIRCUIT 1205 (BK) FOR AN OPEN	
	<ul style="list-style-type: none"> <li>• Disconnect: Luggage Compartment Lid Disarm Switch <a href="#">C483</a>.</li> </ul>	

(Continued)

**DIAGNOSIS AND TESTING (Continued)**

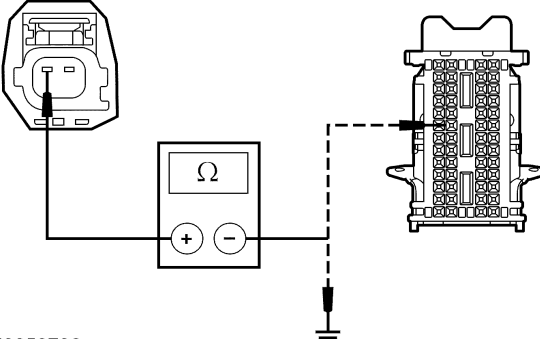
**PINPOINT TEST F: THE ALARM SYSTEM DOES NOT OPERATE CORRECTLY — THE ALARM ACTIVATES/DOES NOT ACTIVATE WHEN THE LUGGAGE COMPARTMENT LID IS OPENED WITH THE KEY (Continued)**

Test Step		Result / Action to Take
<b>F1</b>	<p><b>CHECK CIRCUIT 1205 (BK) FOR AN OPEN (Continued)</b></p> <ul style="list-style-type: none"> <li>Measure the resistance between the luggage compartment lid disarm switch C483-1, circuit 1205 (BK), harness side and ground.</li> </ul>  <p>N0009502</p> <ul style="list-style-type: none"> <li><b>Is the resistance less than 5 ohms?</b></li> </ul>	<p><b>Yes</b> GO to <b>F2</b>.</p> <p><b>No</b> REPAIR the circuit. TEST the system for normal operation.</p>
<b>F2</b>	<p><b>CHECK THE LUGGAGE COMPARTMENT LID DISARM SWITCH</b></p> <ul style="list-style-type: none"> <li>Measure the resistance between the luggage compartment lid disarm switch C483 pin 1 and pin 2, component side while turning and releasing the key in the luggage compartment lock cylinder.</li> </ul>  <p>N0009486</p> <ul style="list-style-type: none"> <li><b>Is the resistance less than 5 ohms with the key unlocking the luggage compartment lid lock cylinder and greater than 10,000 ohms otherwise?</b></li> </ul>	<p><b>Yes</b> GO to <b>F3</b>.</p> <p><b>No</b> INSTALL a new luggage compartment lid disarm switch (part of the luggage compartment lid lock cylinder). REFER to Section 501-14. CLEAR the DTCs. REPEAT the self-test.</p>
<b>F3</b>	<p><b>CHECK CIRCUIT 1350 (WH/PK) FOR AN OPEN OR SHORT TO GROUND</b></p> <ul style="list-style-type: none"> <li>Disconnect: SJB C2280c.</li> </ul>	

(Continued)

**DIAGNOSIS AND TESTING (Continued)**

**PINPOINT TEST F: THE ALARM SYSTEM DOES NOT OPERATE CORRECTLY — THE ALARM ACTIVATES/DOES NOT ACTIVATE WHEN THE LUGGAGE COMPARTMENT LID IS OPENED WITH THE KEY (Continued)**

Test Step	Result / Action to Take
<p><b>F3 CHECK CIRCUIT 1350 (WH/PK) FOR AN OPEN OR SHORT TO GROUND (Continued)</b></p> <ul style="list-style-type: none"> <li>Measure the resistance between the luggage compartment lid disarm switch C483-2, circuit 1350 (WH/PK), harness side and the SJB C2280c-21, circuit 1350 (WH/PK), harness side; and between the luggage compartment lid disarm switch C483-2, circuit 1350 (WH/PK), harness side and ground.</li> </ul>  <p>N0050732</p> <ul style="list-style-type: none"> <li>Is the resistance less than 5 ohms between the luggage compartment lid disarm switch and the SJB; and greater than 10,000 ohms between the luggage compartment lid disarm switch and ground?</li> </ul>	<p><b>Yes</b> GO to <b>F4</b>.</p> <p><b>No</b> REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.</p>
<p><b>F4 CHECK FOR CORRECT SJB OPERATION</b></p> <ul style="list-style-type: none"> <li>Disconnect all the SJB connectors.</li> <li>Check for:                     <ul style="list-style-type: none"> <li>— corrosion</li> <li>— damaged pins</li> <li>— pushed-out pins</li> </ul> </li> <li>Connect all the SJB connectors and make sure they seat correctly.</li> <li>Operate the system and verify the concern is still present.</li> <li>Is the concern still present?</li> </ul>	<p><b>Yes</b> INSTALL a new SJB. REFER to Section 419-10. REPEAT the self-test. TEST the system for normal operation.</p> <p><b>No</b> The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR the DTCs. REPEAT the self-test. TEST the system for normal operation.</p>

**Pinpoint Test G: The Alarm System Does Not Operate Correctly — Intrusion and Inclination Sensing**

Refer to Wiring Diagrams Cell 117, Remote Keyless Entry and Alarm for schematic and connector information.

**NOTE:** Arming the system by using the door lock cylinder (door disarm switch) inhibits the intrusion and inclination sensing features. The intrusion and inclination sensing features can be activated with the remote keyless entry (RKE) transmitter or the door lock control switch. The convertible top, the luggage compartment, and all the doors must be closed for the intrusion sensing feature to activate.

**NOTE:** All the windows must be closed for correct intrusion sensing operation.

**NOTE:** The inclination sensing feature must be disarmed before raising the vehicle on a hoist to prevent false alarms.

**Normal Operation**

The intrusion and inclination sensor receives voltage on circuit 645 (WH/LB) and ground on circuit 1205 (BK). The sensor begins monitoring the interior volume and senses an intrusion through a change in interior volume or a change in vehicle inclination. When the intrusion sensor senses a change in state, the change is communicated to the SJB through circuit 340 (RD/LB). The smart junction box (SJB) then sounds the horns and flashes the turn signal lamps.

**DIAGNOSIS AND TESTING (Continued)**

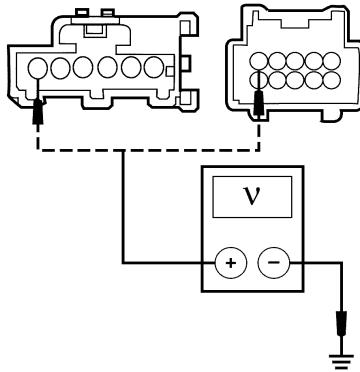
DTC Descriptions	Fault Trigger Conditions
• B200A — VSM Inclination Failure	Sets when there is a failure in the inclination sensor.
• B200B — VSM Ultrasonic Failure	Sets when there is a failure in the intrusion sensor.
• B200C — VSM Module Failure	Sets when there is a failure in the intrusion/inclination sensor module.
• U2033 — VSM Communication Link Failure	Sets when there is a failure in the intrusion/inclination sensor module communication link between the module and the SJB.

**This pinpoint test is intended to diagnose the following:**

- Fuse
- Wiring, terminals or connectors
- Intrusion and inclination sensor
- SJB

**PINPOINT TEST G: THE ALARM SYSTEM DOES NOT OPERATE CORRECTLY — INTRUSION AND INCLINATION SENSING**

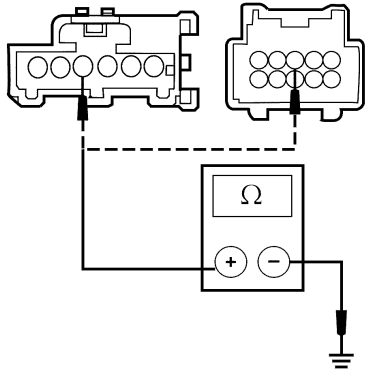
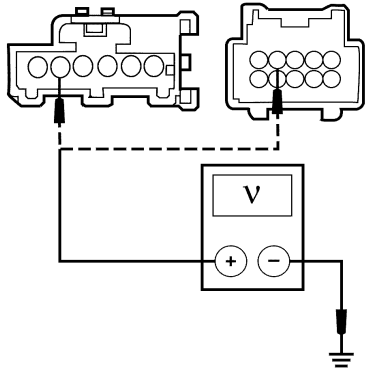
**NOTICE:** Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.

Test Step	Result / Action to Take
<p><b>G1 CHECK CIRCUIT 645 (WH/LB) FOR VOLTAGE</b></p> <ul style="list-style-type: none"> <li>• Close all the doors, the hood, the luggage compartment, and the convertible top (if equipped).</li> <li>• Disconnect: Overhead Console <b>C930</b> (Coupe) or <b>C9013</b> (Convertible).</li> <li>• Measure the voltage between the overhead console <b>C930-1</b> (coupe) or <b>C9013-1</b> (convertible), circuit 645 (WH/LB), harness side and ground.</li> </ul>  <p>N0062191</p> <ul style="list-style-type: none"> <li>• <b>Is the voltage greater than 10 volts?</b></li> </ul>	<p><b>Yes</b> GO to <b>G2</b>.</p> <p><b>No</b> VERIFY the SJB fuse 10 (5A) is OK. If OK, REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.</p>

(Continued)

**DIAGNOSIS AND TESTING (Continued)**

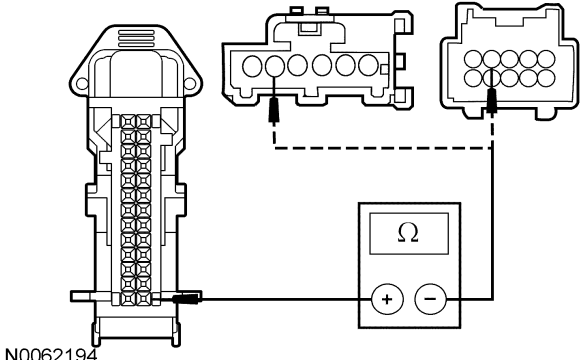
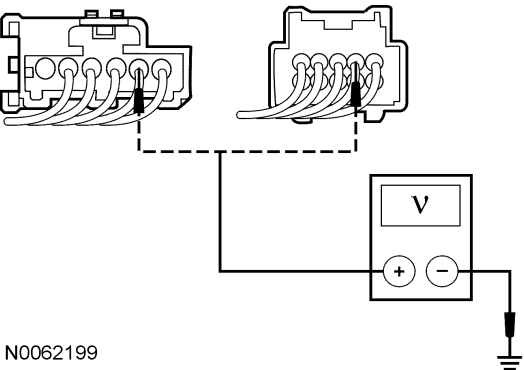
**PINPOINT TEST G: THE ALARM SYSTEM DOES NOT OPERATE CORRECTLY — INTRUSION AND INCLINATION SENSING (Continued)**

Test Step		Result / Action to Take	
<b>G2</b>	<p><b>CHECK CIRCUIT 1205 (BK) FOR AN OPEN</b></p> <ul style="list-style-type: none"> <li>Measure the resistance between the overhead console <b>C930-3</b> (coupe) or <b>C9013-3</b> (convertible), circuit 1205 (BK), harness side and ground.</li> </ul>  <p>N0062192</p> <ul style="list-style-type: none"> <li><b>Is the resistance less than 5 ohms?</b></li> </ul>	<p><b>Yes</b> GO to <b>G3</b>.</p> <p><b>No</b> REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.</p>	
<b>G3</b>	<p><b>CHECK THE COMMUNICATION LINK CIRCUIT 340 (RD/LB) FOR VOLTAGE</b></p> <ul style="list-style-type: none"> <li>Measure the voltage between the overhead console <b>C930-2</b> (coupe) or <b>C9013-2</b> (convertible), circuit 340 (RD/LB), harness side and ground.</li> </ul>  <p>N0062193</p> <ul style="list-style-type: none"> <li><b>Is the voltage greater than 10 volts?</b></li> </ul>		<p><b>Yes</b> GO to <b>G5</b>.</p> <p><b>No</b> GO to <b>G4</b>.</p>
<b>G4</b>	<p><b>CHECK THE COMMUNICATION LINK CIRCUIT 340 (RD/LB) FOR AN OPEN</b></p> <ul style="list-style-type: none"> <li>Disconnect: SJB <b>C2280f</b>.</li> </ul>		

(Continued)

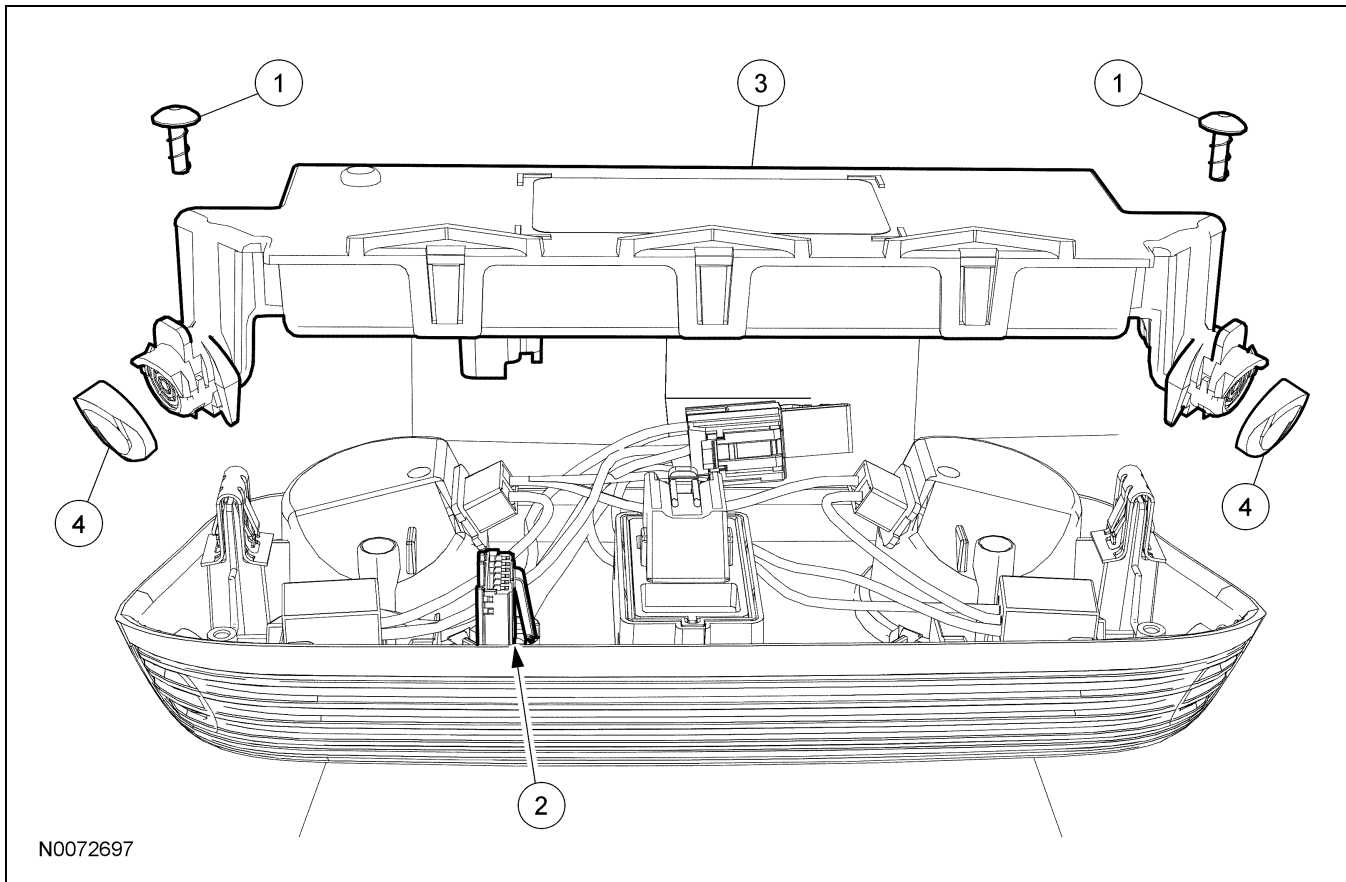
## DIAGNOSIS AND TESTING (Continued)

## PINPOINT TEST G: THE ALARM SYSTEM DOES NOT OPERATE CORRECTLY — INTRUSION AND INCLINATION SENSING (Continued)

Test Step	Result / Action to Take
<p><b>G4</b> CHECK THE COMMUNICATION LINK CIRCUIT 340 (RD/LB) FOR AN OPEN (Continued)</p> <ul style="list-style-type: none"> <li>Measure the resistance between the SJB C2280f-14, circuit 340 (RD/LB), harness side and the overhead console C930-2 (coupe) or C9013-2 (convertible), circuit 340 (RD/LB), harness side.</li> </ul>  <p>N0062194</p> <ul style="list-style-type: none"> <li>Is the resistance less than 5 ohms?</li> </ul>	<p><b>Yes</b> REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.</p> <p><b>No</b> GO to <b>G6</b>.</p>
<p><b>G5</b> CHECK FOR AN INTRUSION SENSOR ACTIVE SIGNAL</p> <ul style="list-style-type: none"> <li>Connect: Overhead Console C930 (Coupe) or C9013 (Convertible).</li> <li>Enter the following diagnostic mode on the scan tool: SJB DataLogger.</li> <li>Trigger the SJB active command ISM ACTIVE ON.</li> <li>While backprobing, measure the voltage between the overhead console C930-2 (coupe) or C9013-2 (convertible), circuit 340 (RD/LB), harness side and ground while triggering the active command ON.</li> </ul>  <p>N0062199</p> <ul style="list-style-type: none"> <li>Does the voltage momentarily drop to less than 10 volts?</li> </ul>	<p><b>Yes</b> INSTALL a new intrusion and inclination sensor. REFER to Intrusion and Inclination Sensor in this section.</p> <p><b>No</b> GO to <b>G6</b>.</p>
<p><b>G6</b> CHECK FOR CORRECT SJB OPERATION</p> <ul style="list-style-type: none"> <li>Disconnect all the SJB connectors.</li> <li>Check for: <ul style="list-style-type: none"> <li>corrosion</li> <li>damaged pins</li> <li>pushed-out pins</li> </ul> </li> <li>Connect all the SJB connectors and make sure they seat correctly.</li> <li>Operate the system and verify the concern is still present.</li> <li>Is the concern still present?</li> </ul>	<p><b>Yes</b> INSTALL a new SJB. REFER to Section 419-10. REPEAT the self-test. TEST the system for normal operation.</p> <p><b>No</b> The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR the DTCs. REPEAT the self-test.</p>

## REMOVAL AND INSTALLATION

### Intrusion and Inclination Sensor



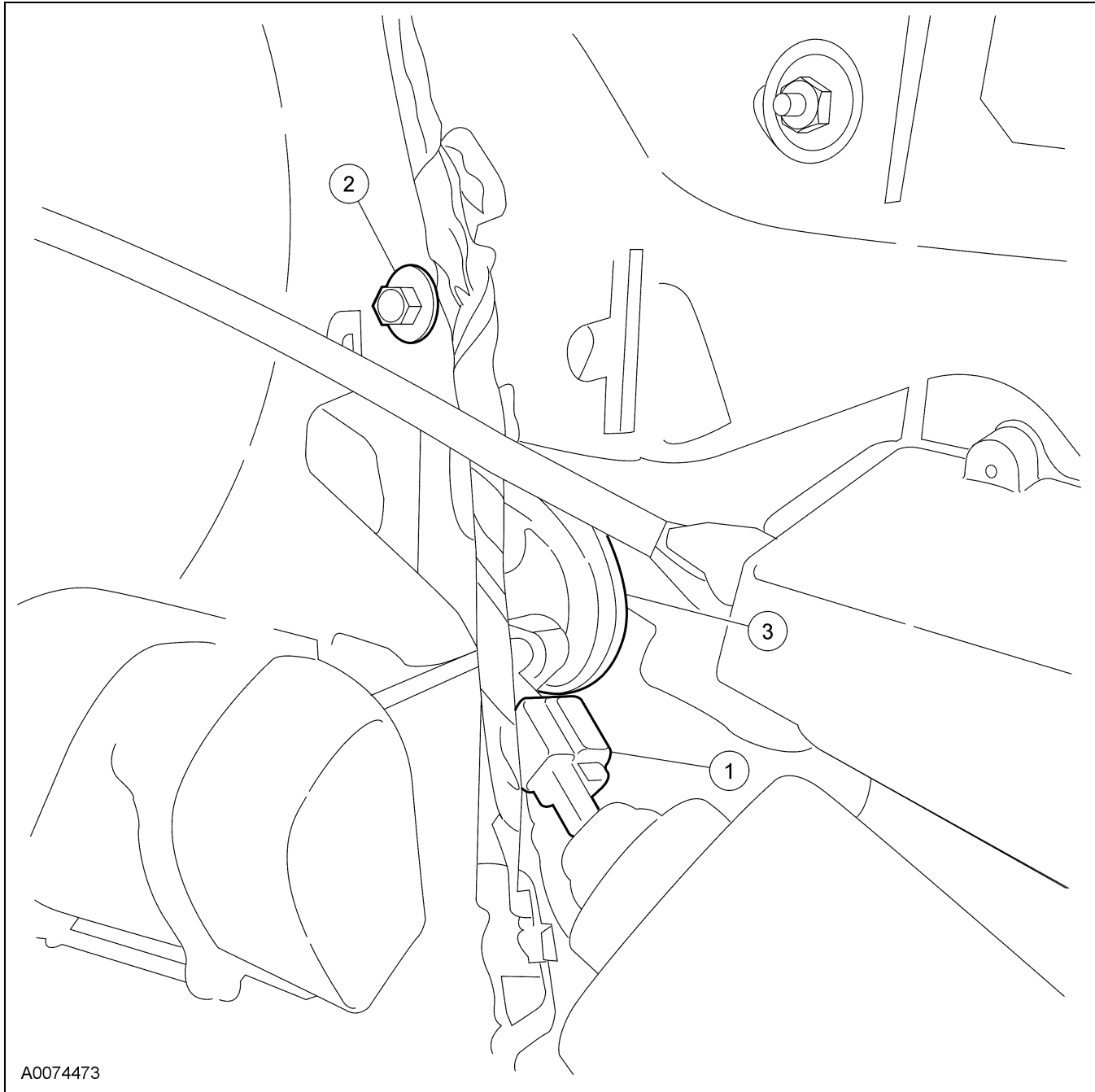
Item	Part Number	Description
1	—	Intrusion and inclination sensor screws (2 required)
2	—	Overhead console jumper harness electrical connector (part of 10503)
3	15K609	Intrusion and inclination sensor
4	76519A58	Intrusion and inclination sensor gaskets (2 required)

#### Removal and Installation

1. Remove the overhead console.
2. Remove the 2 screws and position the intrusion and inclination sensor aside.
3. Disconnect the overhead console jumper harness electrical connector.
4. Remove the intrusion and inclination sensor.
5. Remove the foam gaskets from the old intrusion and inclination sensor and install them on the new sensor.
6. To install, reverse the removal procedure.

## REMOVAL AND INSTALLATION

### Anti-Theft Alarm Horn



A0074473

Item	Part Number	Description
1	—	Anti-theft alarm horn electrical connector (part of 14A464)
2	—	Anti-theft alarm horn screw
3	3A803	Anti-theft alarm horn

#### Removal and Installation

1. Disconnect the battery. For additional information, refer to Section 414-01.
2. Remove the RH rear quarter trim panel. For additional information, refer to Section 501-05.

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**REMOVAL AND INSTALLATION (Continued)**

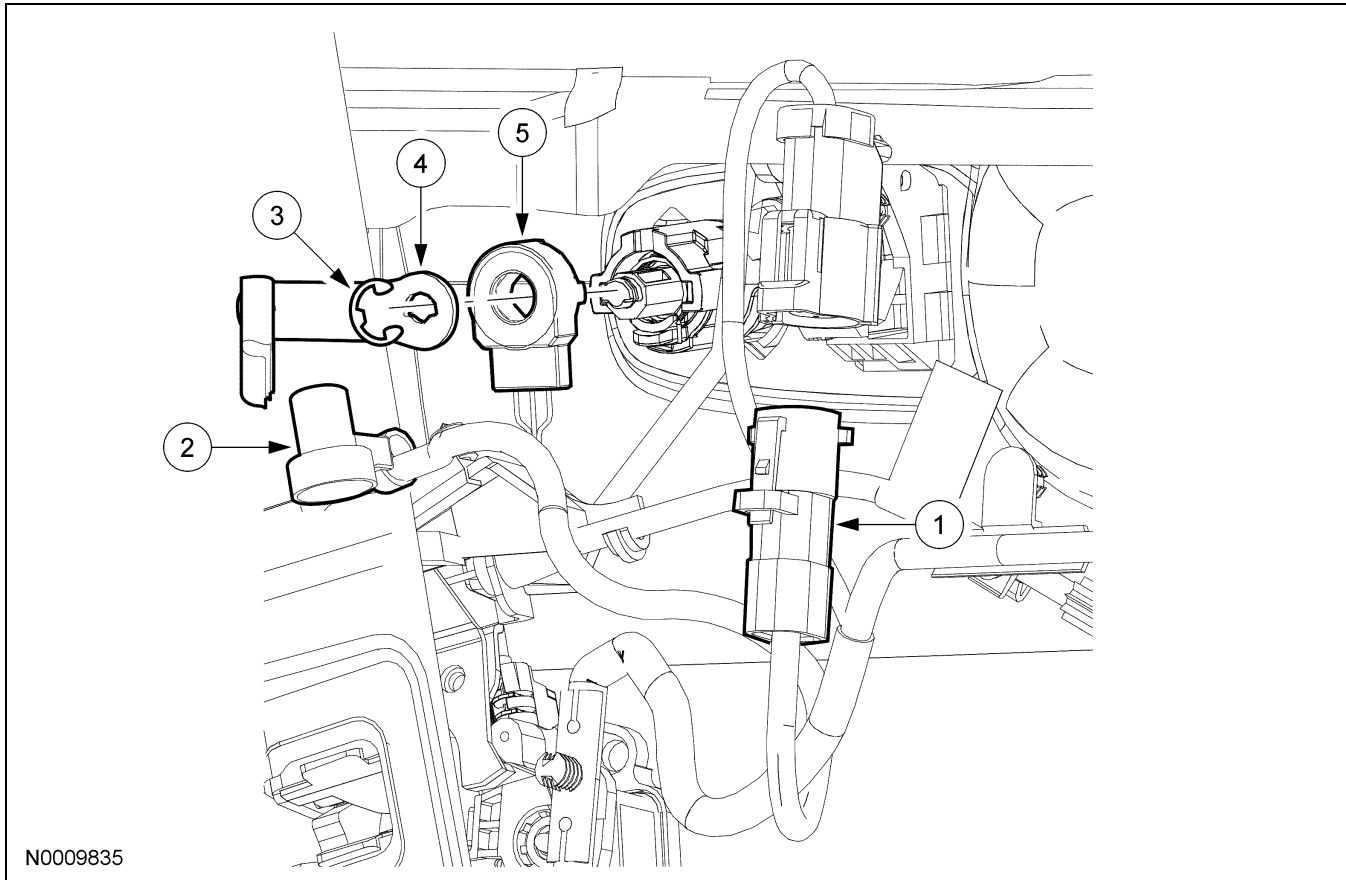
3. Disconnect the anti-theft alarm horn electrical connector.
  4. Remove the screw and the anti-theft alarm horn.
  5. To install, reverse the removal procedure.
-

## REMOVAL AND INSTALLATION

### Door Disarm Switch

#### Material

Item	Specification
Silicone Brake Caliper Grease and Dielectric Compound XG-3-A	ESE-M1C171-A



Item	Part Number	Description
1	—	Door disarm switch electrical connector (part of 220A40)
2	—	Door disarm switch wiring retainer (part of 220A40)
3	—	E-clip
4	21970	Lock cylinder actuator pawl
5	19A434A	Door disarm switch

#### Removal

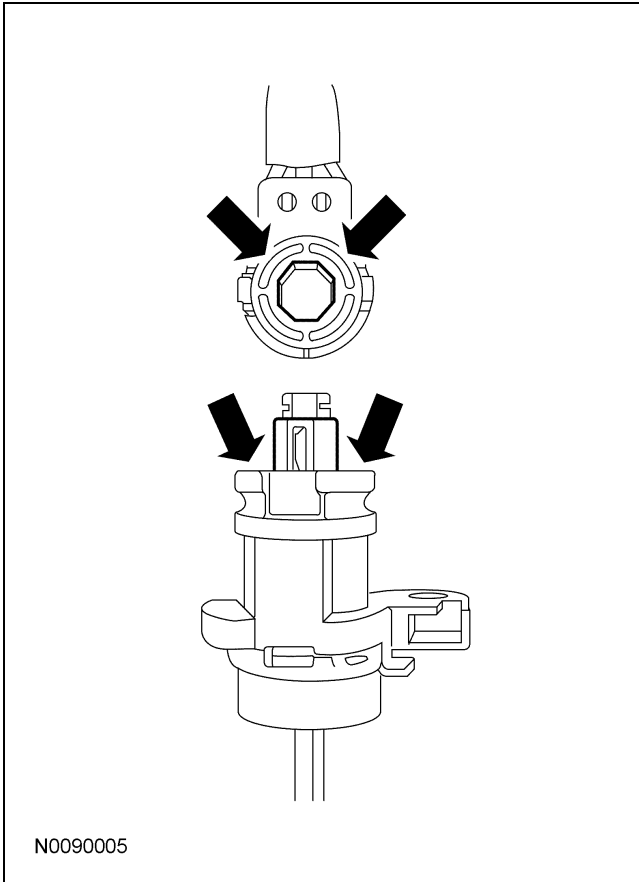
1. Remove the LH front door trim panel. For additional information, refer to Section 501-05.

2. Position the watershield aside.
3. Disconnect the door disarm switch electrical connector.
4. Separate the door disarm switch wiring harness retainer from the post on the LH door latch.
5. Remove the E-clip.
6. Remove the lock cylinder actuator pawl.
7. Remove the door disarm switch.

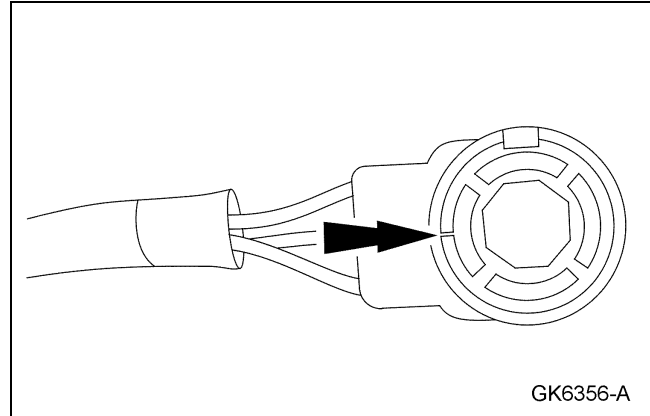
## REMOVAL AND INSTALLATION (Continued)

### Installation

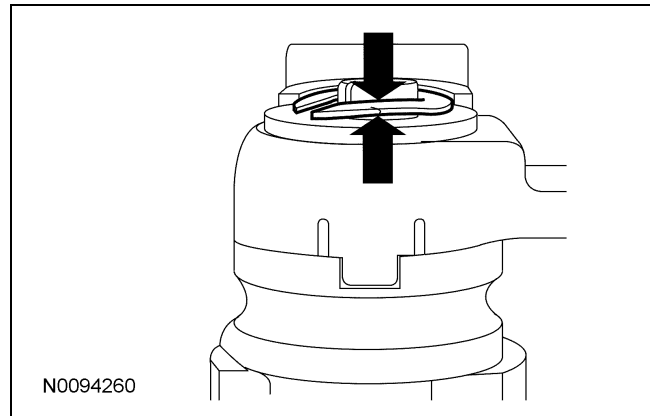
1. Before installing the door disarm switch, pack both the switch and the door lock cylinder with dielectric grease (or equivalent) in the positions shown.



2. Install the door disarm switch.
  - The door disarm switch mark must be positioned toward the harness side of the switch prior to installation.



3. Install the lock cylinder actuator pawl.
4. **NOTE:** The E-clip must be positioned with the concave side pointing toward the door lock cylinder to ensure the proper tension is applied toward the door disarm switch or the switch may not seal properly.  
Install the E-clip.



5. Install the door disarm switch wiring harness retainer on the post on the LH door latch.
6. Connect the door disarm switch electrical connector.
7. Position the watershield.
8. Install the LH front door trim panel. For additional information, refer to Section 501-05.

## DESCRIPTION AND OPERATION

### Anti-Theft

**NOTE:** The smart junction box (SJB) is also known as the generic electronic module (GEM).

The passive anti-theft system (PATS) consists of the following components:

- Anti-theft indicator (located in the instrument cluster [IC])
- Encoded ignition key(s) (the key contains a transponder)
- PATS transceiver
- PCM

PATS uses radio frequency identification technology to deter a drive-away theft. Passive means that it does not require any activity by the user.

### PATS Function

The PATS function is controlled by the PCM. PATS uses the PCM to carry out all of the PATS functions such as receiving the identification code from the PATS key, controlling the starter and fuel injectors enable, and initiates the key interrogation sequence when the ignition key is turned to the ON or START position. All elements of PATS must be functional before the vehicle will start. If any of the components are not working correctly, the vehicle will not start. If the PCM must be replaced for any reason (PATS concerns or driveability concerns), the PATS keys must be programmed into the new PCM. For additional information, refer to Key Programming Using Diagnostic Equipment in this section.

PATS is active only for a few seconds when the vehicle is starting. It is not a PATS concern if the vehicle stalls after it has been running for a minimum of 3 seconds. PATS will not disable a running vehicle.

PATS is not compatible with aftermarket remote start systems, which allow the vehicle to be started from the exterior of the vehicle. These systems may reduce the security of the vehicle, and also may be the cause of no-start concerns. Remote start systems must be removed from the vehicle before any PATS-related no-start concerns are investigated. If the remote start system is a Power Code® system, make certain it is not the cause of the no-start. Removal of the system may be necessary.

A PATS no-start may involve a vehicle no-start due to either the fuel injectors not operating or the starter not operating (starter relay does not close) or both. Always check for PATS DTCs from the PCM when a no-crank or no-start condition exists. A low state of charge (SOC) in the vehicle battery may cause the PATS to allow starter operation, but prevent the fuel injectors from operating. If the PATS theft light does not prove out (it may be either flashing or glowing steadily) and one (or both) of the previous conditions (fuel injectors and/or starter inoperative) are present, it may be due to a PATS issue. If the theft light proves out, and the vehicle does not start, it is probably not a PATS issue. For additional information, refer to the [Powertrain Control/Emissions Diagnosis \(PC/ED\) manual](#). If the theft light does not illuminate at all, it may be an instrument cluster (IC) issue. GO to [Symptom Chart](#) in this section for additional diagnostic direction.

PATS will disable the vehicle from starting if there is:

- a damaged PATS key.
- an unprogrammed PATS key.
- a non-encoded key (a conventional key or one that does not have any electronics).
- damaged wiring.
- a damaged transceiver.
- a damaged PCM.

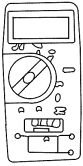
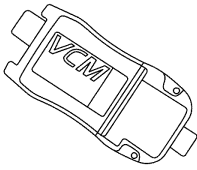
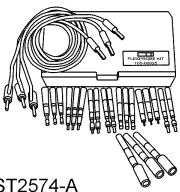
### Unlimited Key Mode

PATS contains a feature called unlimited key mode. This feature allows a customer to program more than 8 vehicle keys, if requested. Each vehicle in unlimited key mode is set up with a special, unlimited transponder security key code. This allows all the customer vehicles (or, one vehicle) to share the same mechanically cut keys (more than 8 keys). For an individual customer, any randomly selected security key is acceptable. For additional information, refer to Spare Key Programming — Unlimited Key Mode in this section.

## DIAGNOSIS AND TESTING

### Anti-Theft

#### Special Tool(s)

 <p>ST1137-A</p>	73III Automotive Meter 105-R0057 or equivalent
 <p>ST2834-A</p>	Vehicle Communication Module (VCM) and Integrated Diagnostic System (IDS) software with appropriate hardware, or equivalent scan tool
 <p>ST2574-A</p>	Flex Probe Kit 105-R025C or equivalent

### Principles of Operation

#### Anti-Theft Indicator

**NOTE:** Replacement of the passive anti-theft system (PATS) transceiver does not require the PATS keys to be programmed into the PCM again.

**NOTE:** A minimum of 2 PATS keys must be programmed into the PCM before the vehicle will start.

**NOTE:** Make sure any aftermarket remote start systems have been removed from the vehicle before any PATS-related no-start concerns are investigated. If the remote start system is a Power Code® system, make certain it is not the cause of the no-start. Removal of the system may be necessary.

**NOTE:** The smart junction box (SJB) is also known as the generic electronic module (GEM).

PATS uses a visual anti-theft indicator located in the instrument cluster (IC). The indicator proves out for 3 seconds when the ignition key is in the ON or START position under normal operation. If there is a PATS concern, this indicator either flashes rapidly or glows steadily when the ignition key is turned to the ON or START position. PATS also flashes the anti-theft indicator every 2 seconds when the ignition key is in the OFF position to act as a visual theft deterrent.

#### Encoded PATS Keys

PATS uses a special ignition key that is larger than a conventional ignition key because it contains a permanently installed electronic device called a transponder. Each transponder contains a unique encrypted identification code which is one of a very large number of combinations. The addition of this transponder to the key makes it an “encoded” key. The PATS key does not require batteries and should last the lifetime of the vehicle. Each PATS key must be programmed into the PCM before it can be used to start the vehicle. There are special general procedures described in this section that must be carried out if a new PATS key is necessary. Refer to Key Programming Using Diagnostic Equipment or Key Programming Using Two Programmed Keys in this section.

#### PATS Transceiver

The PATS transceiver is located under the steering column shroud and communicates with the encoded ignition key. During each vehicle start sequence, the PATS transceiver reads the encoded ignition key identification code and sends data to the PCM. The PCM validates the code, and if it is the correct code, will ground the starter relay solenoid coil and will also allow the fuel injectors to operate. Refer to Passive Anti-Theft System (PATS) Transceiver in this section.

## DIAGNOSIS AND TESTING (Continued)

### PATS Operation

The PATS function is controlled by the PCM. When the ignition key is turned to the ON or START position, the PCM initiates the key interrogation sequence by sending a voltage signal to the PATS transceiver. The transceiver then uses its antenna to communicate with the transponder in the PATS key. This process “reads” the PATS key identification code and sends the key identification code back to the PCM, which interprets it and determines if it matches one of the stored key codes. If it does match one of the stored key codes, the PCM grounds the starter relay solenoid coil and allows fuel injector operation. If it does not match one of the stored key codes, or it is only a partial key read or no key read, the PCM will not ground the starter relay solenoid coil and will not allow fuel injector operation. The anti-theft indicator in the instrument cluster (IC) will flash (or may glow steadily) and the PCM will store one or more DTCs. All elements of PATS must be functional before the vehicle will start. If any of the components are not working correctly, the vehicle will not start. If the PCM must be replaced for any reason (PATS concerns or driveability concerns), the PATS keys must be programmed into the new PCM. Refer to Key Programming Using Diagnostic Equipment in this section.

PATS is active only for a few seconds when the vehicle is starting. It is not a PATS concern if the vehicle stalls after it has been running for a minimum of 3 seconds. PATS will not disable a running vehicle. The PATS may cause a vehicle no start due to either the fuel injectors not operating or the starter not operating (starter relay does not close) or both. Always check for PATS DTCs from the PCM when a no-crank or no-start condition exists. A low state of charge (SOC) in the vehicle battery may cause the PATS to allow starter operation, but prevent the fuel injectors from operating. If the theft light does not prove out (it may be either flashing or glowing steadily) and one (or both) of the previous conditions (fuel injectors and/or starter inoperative) are present, it may be due to a PATS issue. If the theft light proves out, it may not be a PATS issue. If the theft light does not illuminate at all, it may be an instrument cluster (IC) issue. GO to [Symptom Chart](#) in this section for additional diagnostic direction.

The PATS disables the vehicle from starting if there is:

- a damaged PATS key.
- a non-programmed PATS key.
- a non-PATS key (key has no electronics).
- damaged wiring.
- a damaged transceiver.
- a damaged PCM.

### PATS PIDs

Monitoring the PATS PIDs can be very useful in determining which diagnostic steps to follow. Viewing the MASTERKEY (master key) PID (with both keys) will determine if the key is a programmed key and will also prove out the transceiver, circuitry and the PCM. A master key is any key that is programmed into the PCM. Viewing the MIN\_\_KEY (minimum number of keys) PID (this PID does not change) determines the minimum number of keys that must be programmed into the PCM. There must be at least 2 keys programmed into the PCM in this system. Viewing the N\_\_KEYCODE (number of keys programmed) PID will determine if the minimum number of keys have been programmed into the PCM. If the N\_\_KEYCODE PID reads 0 or 1, additional key(s) will need to be programmed into the PCM in order to meet the minimum of 2 keys. If the N\_\_KEYCODE PID reads 0 or 1, and the MASTERKEY PID reads NOTPREST, that particular key must be programmed into the PCM. If the N\_\_KEYCODE PID reads 1, and the MASTERKEY PID reads PRESNT, that particular key is already programmed into the PCM.

The SPAREKEY (spare key) PID is defaulted to ENABLE. With the SPAREKEY PID displaying ENABLE, the PCM will accept more than 2 keys (up to a maximum of 8) being programmed into the PCM. It can be toggled to DISABLE if the customer does not want any more than 2 keys programmed into the PCM using the Key Programming Using Two Programmed Keys procedure. Refer to Key Programming Switch State Control in this section to change the state of the SPAREKEY PID.

**DIAGNOSIS AND TESTING (Continued)**

**Unlimited Key Mode**

This system contains a feature named unlimited key mode (UNL\_\_KEY\_\_ID PID). This feature allows a customer to program more than 8 keys to their vehicle if they request it. Each vehicle in unlimited key mode is set up with a special unlimited transponder security key code. This allows all the customer vehicles to share the same keys, but no other keys from outside can be used to operate the vehicle(s). Any randomly selected security key is acceptable. Refer to Spare Key Programming — Unlimited Key Mode in this section.

**Inspection and Verification**

1. Verify the customer concern.
2. Visually inspect for obvious signs of mechanical or electrical damage.

**Visual Inspection Chart**

Mechanical	Electrical
<ul style="list-style-type: none"> <li>• Large metallic objects or electronic devices on the key ring that can be used to purchase gasoline or similar items</li> <li>• Ignition lock cylinder</li> <li>• Passive anti-theft system (PATS) key</li> <li>• Use of a non-PATS key or incorrect PATS key</li> <li>• More than one PATS key on key ring</li> <li>• Remote start system installed</li> </ul>	<ul style="list-style-type: none"> <li>• Bussed electrical center (BEC) fuse 68 (20A)</li> <li>• Smart junction box (SJB)</li> <li>• Wiring, terminals or connectors</li> <li>• Ignition switch</li> <li>• PATS transceiver</li> <li>• PCM</li> </ul>

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.
4. **NOTE:** Make sure to use the latest scan tool software release.

If the cause is not visually evident, connect the scan tool to the data link connector (DLC).

5. **NOTE:** The vehicle communication module (VCM) LED prove-out confirms power and ground from the DLC are provided to the VCM.

If the scan tool does not communicate with the VCM:

- Check the VCM connection to the vehicle.
  - Check the scan tool connection to the VCM.
  - Refer to Section 418-00, No Power To The Scan Tool, to diagnose no communication with the scan tool.
6. If the scan tool does not communicate with the vehicle:
    - Verify the ignition key is in the ON position.
    - Verify the scan tool operation with a known good vehicle.
    - Refer to Section 418-00 to diagnose no response from the PCM.
  7. Carry out the network test.
    - If the scan tool responds with no communication for one or more modules, refer to Section 418-00.
    - If the network test passes, retrieve and record the continuous memory DTCs.
  8. Clear the continuous DTCs and carry out the self-test diagnostics for the PCM.
  9. If the DTCs retrieved are related to the concern, go to DTC Charts. For all other DTCs, refer to the [Powertrain Control/Emissions Diagnosis \(PC/ED\) manual](#).
  10. If no DTCs related to the concern are retrieved, GO to [Symptom Chart](#).

**DIAGNOSIS AND TESTING (Continued)****DTC Charts****PCM DTC Chart**

<b>DTC</b>	<b>Description</b>	<b>Action</b>
B1213	Anti-Theft Number of Programmed Keys is Below Minimum	If DTCs B1600, B1601, B1602, B1681 or B2103 are present, they must be addressed first. If DTC B1213 is the only DTC present, PROGRAM additional keys. REFER to Key Programming Using Diagnostic Equipment in this section. CLEAR the DTCs. CYCLE the ignition. REPEAT the self-test.
B1342	ECU is Faulted	CLEAR the DTCs. REPEAT the self-test. If DTC B1342 is retrieved again, INSTALL a new PCM. REFER to Section 303-14. CYCLE the ignition. REPEAT the self-test.
B1600	PATS Ignition Key Transponder Signal Is Not Received	No PATS key has been read by the PCM. <a href="#">GO to Pinpoint Test B.</a>
B1601	PATS Received Incorrect Key-Code From Ignition Key Transponder	There is an unprogrammed PATS key. <a href="#">GO to Pinpoint Test C.</a>
B1602	PATS Received Invalid Format of Key-Code From Ignition Key Transponder	Only a partial PATS key was read. <a href="#">GO to Pinpoint Test D.</a>
B1681	PATS Transceiver Module Signal Is Not Received	The PCM did not receive the PATS transceiver signal. <a href="#">GO to Pinpoint Test E.</a>
B2103	Antenna Not Connected	There has been a PATS transceiver antenna failure. <a href="#">GO to Pinpoint Test A.</a>
B2431	Transponder Programming Failed	The ignition key was not programmed. PROGRAM the key. REFER to Spare Key Programming — Using Diagnostic Equipment in this section. CLEAR the DTCs. CYCLE the ignition. REPEAT the self-test.
P1260	Theft Detected, Vehicle Immobilized	If there are any PATS DTCs present, ADDRESS them first. If DTC P1260 is the only DTC present, there may be a power or ground concern with the PCM. REFER to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual.</a>
All other DTCs	—	REFER to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual.</a>

**DIAGNOSIS AND TESTING (Continued)****Symptom Chart****Symptom Chart**

Condition	Possible Sources	Action
<ul style="list-style-type: none"> <li>No communication with the PCM</li> </ul>	<ul style="list-style-type: none"> <li>Fuse</li> <li>Wiring, terminals or connectors</li> <li>PCM</li> </ul>	<ul style="list-style-type: none"> <li>REFER to Section 418-00.</li> </ul>
<ul style="list-style-type: none"> <li>The anti-theft indicator is always/never on</li> </ul>	<ul style="list-style-type: none"> <li>Instrument cluster (IC)</li> <li>PCM</li> </ul>	<ul style="list-style-type: none"> <li>REFER to Section 413-01.</li> </ul>
<ul style="list-style-type: none"> <li>The vehicle does not start</li> </ul>	<ul style="list-style-type: none"> <li>Wiring, terminals or connectors</li> <li>Starter relay</li> <li>PCM</li> </ul>	<ul style="list-style-type: none"> <li>CYCLE the ignition. CARRY OUT the PCM self-test. If PATS DTCs are present, GO to DTC Charts in this section. If no PATS DTCs are present, REFER to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a>.</li> </ul>

**Pinpoint Tests****Pinpoint Test A: DTC B2103 — Antenna Not Connected****Normal Operation**

The passive anti-theft system (PATS) transceiver reads the PATS key when the key is turned to the START or ON position.

DTC B2103 (Antenna Not Connected) — sets when the PCM detects a PATS transceiver antenna failure. The PATS transceiver may need to be replaced.

**This pinpoint test is intended to diagnose the following:**

- PATS transceiver
- PCM

**PINPOINT TEST A: DTC B2103 — ANTENNA NOT CONNECTED**

Test Step		Result / Action to Take
<b>A1</b>	<b>INSPECT THE PATS TRANSCEIVER FOR CORRECT INSTALLATION</b>	
	<p><b>NOTE:</b> Replacement of the PATS transceiver does not require the PATS keys to be programmed into the PCM again.</p> <ul style="list-style-type: none"> <li>Ignition OFF.</li> <li>Verify the PATS transceiver is correctly installed. Refer to Passive Anti-Theft System (PATS) Transceiver in this section.</li> <li>Ignition ON.</li> <li>Clear the PCM DTCs.</li> <li>Ignition OFF.</li> <li>Ignition ON.</li> <li>Retrieve the PCM DTCs.</li> <li><b>Is DTC B2103 retrieved?</b></li> </ul>	<p><b>Yes</b> INSTALL a new PATS transceiver. REFER to Passive Anti-Theft System (PATS) Transceiver in this section. CLEAR the DTCs. CYCLE the ignition. REPEAT the self-test. If the concern is still present, GO to <b>A2</b>.</p> <p><b>No</b> The system is OK.</p>
<b>A2</b>	<b>CHECK FOR CORRECT PCM OPERATION</b>	
	<p><b>NOTE:</b> When a new PCM is installed, the PATS keys must be programmed into the PCM.</p> <ul style="list-style-type: none"> <li>Disconnect all the PCM connectors.</li> <li>Check for: <ul style="list-style-type: none"> <li>corrosion</li> <li>damaged pins</li> <li>pushed-out pins</li> </ul> </li> <li>Connect all the PCM connectors and make sure they seat correctly.</li> <li>Operate the system and verify the concern is still present.</li> <li><b>Is the concern still present?</b></li> </ul>	<p><b>Yes</b> INSTALL a new PCM. REFER to Section 303-14. PROGRAM the PATS keys into the PCM. REFER to Key Programming Using Diagnostic Equipment in this section. REPEAT the self-test.</p> <p><b>No</b> The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR the DTCs. CYCLE the ignition. REPEAT the self-test.</p>

**DIAGNOSIS AND TESTING (Continued)**

**Pinpoint Test B: DTC B1600 — PATS Ignition Key Transponder Signal Is Not Received**

**Normal Operation**

During each vehicle start sequence, the passive anti-theft system (PATS) transceiver reads the PATS key identification code and sends the data to the PCM.

DTC B1600 (PATS Ignition Key Transponder Signal Is Not Received) — sets when no PATS key has been read by the PCM.

This pinpoint test is intended to diagnose the following:

- PATS key
- PATS transceiver
- PCM

**PINPOINT TEST B: DTC B1600 — PATS IGNITION KEY TRANSPONDER SIGNAL IS NOT RECEIVED**

**NOTE:** Large metallic objects, electronic devices on the key ring that can be used to purchase gasoline or similar items, or a second key on the same key ring as the PATS key may cause a vehicle starting concern and record DTCs under certain conditions. If a fault cannot be identified, examine the customer key ring for such objects or devices. If present, inform the customer that they need to keep these objects from touching the PATS key while starting the engine. These objects and devices cannot damage the PATS key, but can cause a momentary concern if they are too close to the key during engine start. If a concern occurs, turn the key off and restart the engine with all other objects on the key ring held away from the ignition key. Check to make sure the PATS key used by the customer is an approved Ford PATS key. (PATS keys from Ford, Rotunda, Strattec, or HUF are approved Ford PATS keys.)

Test Step		Result / Action to Take
<b>B1</b>	<b>RETRIEVE THE DTCs</b>	<p><b>Yes</b> GO to <b>B2</b>.</p> <p><b>No</b> If DTCs other than PATS PCM DTCs are retrieved, REFER to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a>. If no PATS DTCs are retrieved, the system is OK. The concern may have been caused by interference from another object.</p>
	<ul style="list-style-type: none"> <li>• Ignition ON.</li> <li>• Clear the PCM DTCs.</li> <li>• Ignition OFF.</li> <li>• Ignition ON.</li> <li>• Retrieve the PCM DTCs.</li> <li>• <b>Is DTC B1600 retrieved?</b></li> </ul>	
<b>B2</b>	<b>CHECK BOTH PATS KEYS</b>	<p><b>Yes</b> If DTC B1600 was present for both existing keys and the new key, GO to <b>B3</b>. If DTC B1600 was not present with the new key, the original key may be damaged and should be replaced. CUT a new key to replace the damaged key. PROGRAM the new PATS key. REFER to Key Programming Using Diagnostic Equipment in this section. CLEAR the DTCs. REPEAT the self-test.</p> <p><b>No</b> If DTCs other than PATS PCM DTCs are retrieved, REFER to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a>. If no PATS DTCs are retrieved, the system is OK. The concern may have been caused by interference from another object.</p>
	<p><b>NOTE:</b> Check to make sure the new PATS keys are approved Ford encoded PATS keys. Unapproved PATS keys do not always operate correctly over various temperature ranges. (PATS keys from Ford, Rotunda, Strattec, or HUF are approved Ford PATS keys.)</p> <ul style="list-style-type: none"> <li>• Obtain both PATS keys from the customer and follow the procedure using one PATS key, then the other. If the customer only has one PATS key, it will be necessary to cut a new PATS key.</li> <li>• If it is necessary to cut a new PATS key, program the new PATS key. Refer to Key Programming Using Diagnostic Equipment in this section.</li> <li>• Ignition ON.</li> <li>• Clear the PCM DTCs.</li> <li>• Ignition OFF.</li> <li>• Ignition ON.</li> <li>• Retrieve the PCM DTCs.</li> <li>• <b>Using either existing key or the new key, is DTC B1600 present?</b></li> </ul>	

(Continued)

**DIAGNOSIS AND TESTING (Continued)**

**PINPOINT TEST B: DTC B1600 — PATS IGNITION KEY TRANSPONDER SIGNAL IS NOT RECEIVED (Continued)**

Test Step		Result / Action to Take
<b>B3</b>	<b>INSTALL A NEW PATS TRANSCEIVER</b>	
	<p><b>NOTE:</b> Replacement of the PATS transceiver does not require the PATS keys to be programmed into the PCM again.</p> <p><b>NOTE:</b> Do not use the PATS key that may have been programmed in Step B2.</p> <ul style="list-style-type: none"> <li>• Ignition OFF.</li> <li>• Install a new PATS transceiver. Refer to Passive Anti-Theft System (PATS) Transceiver in this section.</li> <li>• Ignition ON.</li> <li>• Clear the PCM DTCs.</li> <li>• Ignition OFF.</li> <li>• Ignition ON.</li> <li>• Retrieve the PCM DTCs.</li> <li>• <b>Is DTC B1600 retrieved?</b></li> </ul>	<p><b>Yes</b> GO to <b>B4</b>.</p> <p><b>No</b> The system is OK.</p>
<b>B4</b>	<b>CHECK FOR CORRECT PCM OPERATION</b>	
	<p><b>NOTE:</b> When a new PCM is installed, the PATS keys must be programmed into the PCM.</p> <ul style="list-style-type: none"> <li>• Disconnect all the PCM connectors.</li> <li>• Check for:                             <ul style="list-style-type: none"> <li>— corrosion</li> <li>— damaged pins</li> <li>— pushed-out pins</li> </ul> </li> <li>• Connect all the PCM connectors and make sure they seat correctly.</li> <li>• Operate the system and verify the concern is still present.</li> <li>• <b>Is the concern still present?</b></li> </ul>	<p><b>Yes</b> INSTALL a new PCM. REFER to Section 303-14. PROGRAM the PATS keys into the PCM. REFER to Key Programming Using Diagnostic Equipment in this section. REPEAT the self-test.</p> <p><b>No</b> The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR the DTCs. CYCLE the ignition. REPEAT the self-test.</p>

**Pinpoint Test C: DTC B1601 — PATS Received Incorrect Key-Code From Ignition Key Transponder**

**Normal Operation**

During each vehicle start sequence, the passive anti-theft system (PATS) transceiver reads the PATS key identification code and sends the data to the PCM.

DTC B1601 (PATS Received Incorrect Key-Code From Ignition Key Transponder) — sets when there is an unprogrammed PATS key. There is no issue with the PATS key itself, but the key must be programmed into the PATS memory (unless the maximum number of keys are already programmed).

**This pinpoint test is intended to diagnose the following:**

- PATS key
- PCM

**DIAGNOSIS AND TESTING (Continued)**

**PINPOINT TEST C: DTC B1601 — PATS RECEIVED INCORRECT KEY-CODE FROM IGNITION KEY TRANSPONDER**

**NOTE:** Large metallic objects, electronic devices on the key ring that can be used to purchase gasoline or similar items, or a second key on the same key ring as the PATS key may cause a vehicle starting concern and record DTCs under certain conditions. If a fault cannot be identified, examine the customer key ring for such objects or devices. If present, inform the customer that they need to keep these objects from touching the PATS key while starting the engine. These objects and devices cannot damage the PATS key, but can cause a momentary concern if they are too close to the key during engine start. If a concern occurs, turn the ignition switch off and restart the engine with all other objects on the key ring held away from the ignition key. Check to make sure the PATS key used by the customer is an approved Ford PATS key. (PATS keys from Ford, Rotunda, Strattec, or HUF are approved Ford PATS keys.)

**NOTE:** Only 8 PATS keys can be programmed into the PCM using the Key Programming Using Diagnostic Equipment procedure unless the unlimited key mode is active. If the N\_\_KEYCODE (number of keys programmed) PID reads more than 2, the concern may be the PATS key being used is an unprogrammed key. Verify this by also viewing the MASTERKEY (master key) PID. It must read PRESENT for the key to be valid.

Test Step		Result / Action to Take
<b>C1</b>	<b>RETRIEVE THE DTCs</b>	<p><b>Yes</b> If DTC B1601 is retrieved for one PATS key, REPLACE that key and PROGRAM all the keys. REFER to Key Programming Using Diagnostic Equipment in this section. CLEAR the DTCs. CYCLE the ignition. REPEAT the self-test. If DTC B1601 is retrieved for both PATS keys, GO to <b>C2</b>.</p> <p><b>No</b> The system is OK. CHECK all the customer PATS keys by attempting to start the vehicle with each key to VERIFY all the other PATS keys are programmed.</p>
	<ul style="list-style-type: none"> <li>• <b>NOTE:</b> Follow this procedure using both PATS keys (using one at a time). If only one key is available, cut a new key and program the keys. Refer to Key Programming Using Diagnostic Equipment in this section.</li> <li>• If both keys are available, program the keys. Refer to Key Programming Using Diagnostic Equipment in this section.</li> <li>• Ignition ON.</li> <li>• Clear the PCM DTCs.</li> <li>• Ignition OFF.</li> <li>• Ignition ON.</li> <li>• Retrieve the PCM DTCs.</li> <li>• <b>Is DTC B1601 retrieved for one or both PATS keys?</b></li> </ul>	
<b>C2</b>	<b>CHECK FOR CORRECT PCM OPERATION</b>	<p><b>Yes</b> INSTALL a new PCM. REFER to Section 303-14. PROGRAM the PATS keys into the PCM. REFER to Key Programming Using Diagnostic Equipment in this section. REPEAT the self-test.</p> <p><b>No</b> The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR the DTCs. CYCLE the ignition. REPEAT the self-test.</p>
	<p><b>NOTE:</b> When a new PCM is installed, the PATS keys must be programmed into the PCM.</p> <ul style="list-style-type: none"> <li>• Disconnect all the PCM connectors.</li> <li>• Check for:                             <ul style="list-style-type: none"> <li>— corrosion</li> <li>— damaged pins</li> <li>— pushed-out pins</li> </ul> </li> <li>• Connect all the PCM connectors and make sure they seat correctly.</li> <li>• Operate the system and verify the concern is still present.</li> <li>• <b>Is the concern still present?</b></li> </ul>	

**Pinpoint Test D: DTC B1602 — PATS Received Invalid Format Of Key-Code From Ignition Key Transponder**

**Normal Operation**

During each vehicle start sequence, the passive anti-theft system (PATS) transceiver reads the PATS key identification code and sends the data to the PCM.

DTC B1602 (PATS Received Invalid Format of Key-Code From Ignition Key Transponder) — sets when only a partial PATS key was read. Remote starter equipment can also cause this DTC.

**This pinpoint test is intended to diagnose the following:**

- PATS key
- PATS transceiver
- PCM

**DIAGNOSIS AND TESTING (Continued)**

**PINPOINT TEST D: DTC B1602 — PATS RECEIVED INVALID FORMAT OF KEY-CODE FROM IGNITION KEY TRANSPONDER**

**NOTE:** Large metallic objects, electronic devices on the key ring that can be used to purchase gasoline or similar items, or a second key on the same key ring as the PATS key may cause a vehicle starting concern and record DTC under certain conditions. If a fault cannot be identified, examine the customer key ring for such objects or devices. If present, inform the customer that they need to keep these objects from touching the PATS key while starting the engine. These objects and devices cannot damage the PATS key, but can cause a momentary concern if they are too close to the key during engine start. If a concern occurs, turn the ignition off and restart the engine with all other objects on the key ring held away from the ignition key. Check to make sure the PATS key used by the customer is an approved Ford PATS key. (PATS keys from Ford, Rotunda, Strattec, or HUF are approved Ford PATS keys.)

**NOTE:** Only 8 PATS keys can be programmed into the PCM using the Key Programming Using Diagnostic Equipment procedure unless the unlimited key mode is active. If the N\_\_KEYCODE (number of keys programmed) PID reads more than 2, the concern may be the PATS key being used is an unprogrammed key. Verify this by also viewing the MASTERKEY (master key) PID. It must read PRESENT for the key to be valid.

Test Step		Result / Action to Take
<b>D1</b>	<b>RETRIEVE THE DTCs</b>	<p><b>Yes</b> If DTC B1602 is retrieved for one key, REPLACE that key and PROGRAM the new key. REFER to Spare Key Programming — Using Diagnostic Equipment in this section. CLEAR the DTCs. CYCLE the ignition. REPEAT the self-test. If DTC B1602 is retrieved for both PATS keys, GO to <b>D2</b>.</p> <p><b>No</b> The system is OK. CHECK all the customer PATS keys by attempting to start the vehicle with each key to VERIFY all the other PATS keys are programmed. The concern may have been caused by interference from another object.</p>
	<ul style="list-style-type: none"> <li>• <b>NOTE:</b> Follow this procedure using both PATS keys (using one at a time). If only one key is available, cut a new key and program the keys. Refer to Key Programming Using Diagnostic Equipment in this section.</li> <li>• Ignition ON.</li> <li>• Clear the PCM DTCs.</li> <li>• Ignition OFF.</li> <li>• Ignition ON.</li> <li>• Retrieve the PCM DTCs.</li> <li>• <b>Is DTC B1602 retrieved for one or both PATS keys?</b></li> </ul>	
<b>D2</b>	<b>INSTALL A NEW PATS TRANSCEIVER</b>	
	<p><b>NOTE:</b> Replacement of the PATS transceiver does not require the PATS keys to be programmed into the PCM again.</p> <ul style="list-style-type: none"> <li>• Ignition OFF.</li> <li>• Install a new PATS transceiver. Refer to Passive Anti-Theft System (PATS) Transceiver in this section.</li> <li>• Ignition ON.</li> <li>• Clear the PCM DTCs.</li> <li>• Ignition OFF.</li> <li>• Ignition ON.</li> <li>• Retrieve the PCM DTCs.</li> <li>• <b>Are any PATS DTCs retrieved?</b></li> </ul>	<p><b>Yes</b> GO to <b>D3</b>.</p> <p><b>No</b> The system is OK. CHECK all the customer PATS keys by attempting to start the vehicle with each key to VERIFY all the other PATS keys are programmed.</p>
<b>D3</b>	<b>CHECK FOR CORRECT PCM OPERATION</b>	<p><b>Yes</b> INSTALL a new PCM. REFER to Section 303-14. PROGRAM the PATS keys into the PCM. REFER to Key Programming Using Diagnostic Equipment in this section. REPEAT the self-test.</p> <p><b>No</b> The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR the DTCs. CYCLE the ignition. REPEAT the self-test.</p>
	<p><b>NOTE:</b> When a new PCM is installed, the PATS keys must be programmed into the PCM.</p> <ul style="list-style-type: none"> <li>• Disconnect all the PCM connectors.</li> <li>• Check for:                             <ul style="list-style-type: none"> <li>— corrosion</li> <li>— damaged pins</li> <li>— pushed-out pins</li> </ul> </li> <li>• Connect all the PCM connectors and make sure they seat correctly.</li> <li>• Operate the system and verify the concern is still present.</li> <li>• <b>Is the concern still present?</b></li> </ul>	

**DIAGNOSIS AND TESTING (Continued)**

**Pinpoint Test E: DTC B1681 — PATS Transceiver Module Signal Is Not Received**

Refer to Wiring Diagrams Cell 112, Passive Anti-Theft System for schematic and connector information.

**Normal Operation**

The passive anti-theft system (PATS) transceiver receives voltage from the smart junction box (SJB) fuse 19 (5A) on circuit 1266 (RD/YE) and is grounded on circuit 1205 (BK). The PATS transceiver and the PCM communicate on circuits 1215 (WH/LG) and 1216 (GY/OG). The PCM compares the key code stored in memory and enables the starter if the key code is correct.

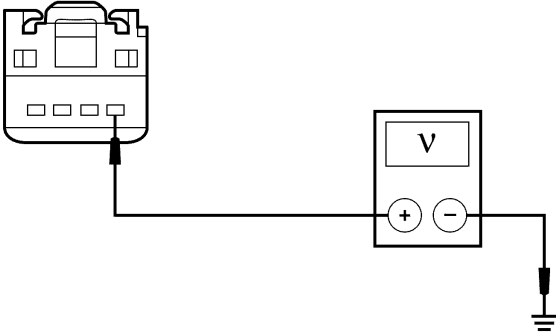
DTC B1681 (PATS Transceiver Module Signal Is Not Received) — sets when the PATS transceiver signal is not received by the PCM. This DTC can be caused by circuits to the PATS transceiver, circuits between the PATS transceiver and the PCM, the PATS transceiver or the PCM. This can also be caused by using the incorrect PATS transceiver part number.

**This pinpoint test is intended to diagnose the following:**

- Fuse
- Wiring, terminals or connectors
- PATS transceiver
- PCM

**PINPOINT TEST E: DTC B1681— PATS TRANSCEIVER MODULE SIGNAL IS NOT RECEIVED**

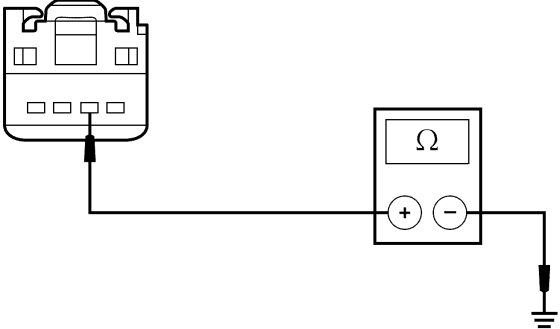
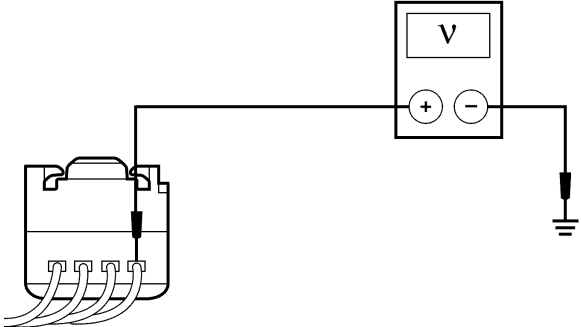
**NOTICE:** Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.

Test Step		Result / Action to Take
<b>E1</b>	<p><b>CHECK THE PATS TRANSCEIVER POWER CIRCUIT 1266 (RD/YE) FOR VOLTAGE</b></p> <ul style="list-style-type: none"> <li>• Ignition OFF.</li> <li>• Disconnect: PATS Transceiver C2007.</li> <li>• Ignition ON.</li> <li>• Measure the voltage between the PATS transceiver C2007-1, circuit 1266 (RD/YE), harness side and ground.</li> </ul>  <p style="text-align: center;">N0002393</p> <ul style="list-style-type: none"> <li>• <b>Is the voltage greater than 10 volts?</b></li> </ul>	<p><b>Yes</b> GO to <b>E2</b>.</p> <p><b>No</b> VERIFY the SJB fuse 19 (5A) is OK. If OK, REPAIR the circuit. CLEAR the DTCs. CYCLE the ignition. REPEAT the self-test.</p>
<b>E2</b>	<p><b>CHECK THE PATS TRANSCEIVER GROUND CIRCUIT 1205 (BK) FOR AN OPEN</b></p> <ul style="list-style-type: none"> <li>• Ignition OFF.</li> </ul>	

(Continued)

**DIAGNOSIS AND TESTING (Continued)**

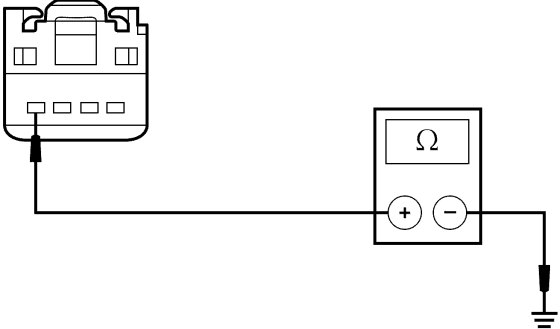
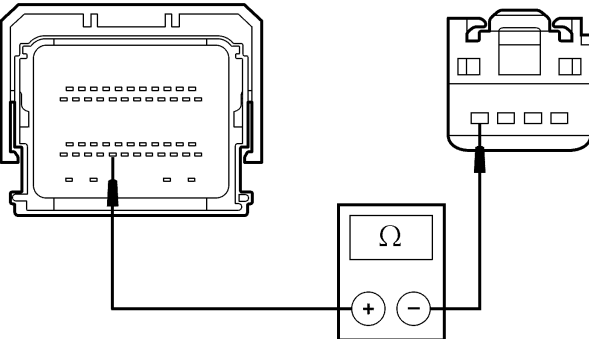
**PINPOINT TEST E: DTC B1681— PATS TRANSCIEVER MODULE SIGNAL IS NOT RECEIVED (Continued)**

Test Step	Result / Action to Take
<p><b>E2</b> CHECK THE PATS TRANSCIEVER GROUND CIRCUIT 1205 (BK) FOR AN OPEN (Continued)</p> <ul style="list-style-type: none"> <li>Measure the resistance between the PATS transceiver C2007-2, circuit 1205 (BK), harness side and ground.</li> </ul>  <p>N0002394</p> <ul style="list-style-type: none"> <li>Is the resistance less than 5 ohms?</li> </ul>	<p><b>Yes</b> GO to E3.</p> <p><b>No</b> REPAIR the circuit. CLEAR the DTCs. CYCLE the ignition. REPEAT the self-test.</p>
<p><b>E3</b> CHECK THE PATS TRANSCIEVER RECEIVE CIRCUIT 1216 (GY/OG) FOR VOLTAGE</p> <ul style="list-style-type: none"> <li>Connect: PATS Transceiver C2007.</li> <li>Ignition ON.</li> <li>Measure the voltage by backprobing between the PATS transceiver C2007-4, circuit 1216 (GY/OG), harness side and ground.</li> </ul>  <p>N0002398</p> <ul style="list-style-type: none"> <li>Is the voltage greater than 8 volts?</li> </ul>	<p><b>Yes</b> GO to E6.</p> <p><b>No</b> GO to E4.</p>
<p><b>E4</b> CHECK THE PATS TRANSCIEVER RECEIVE CIRCUIT 1216 (GY/OG) FOR A SHORT TO GROUND</p> <ul style="list-style-type: none"> <li>Ignition OFF.</li> <li>Disconnect: PCM C175B.</li> <li>Disconnect: PATS Transceiver C2007.</li> </ul>	

(Continued)

**DIAGNOSIS AND TESTING (Continued)**

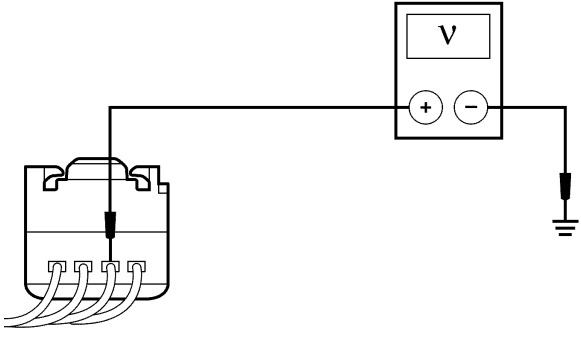
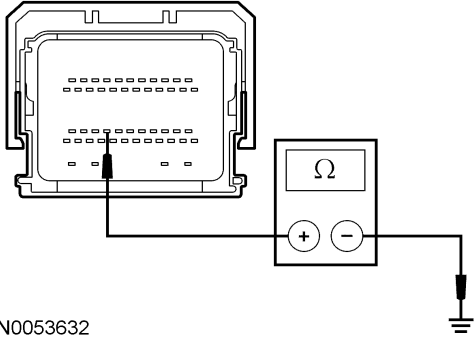
**PINPOINT TEST E: DTC B1681— PATS TRANSCIEVER MODULE SIGNAL IS NOT RECEIVED (Continued)**

Test Step		Result / Action to Take
<b>E4</b>	<b>CHECK THE PATS TRANSCIEVER RECEIVE CIRCUIT 1216 (GY/OG) FOR A SHORT TO GROUND (Continued)</b>	
	<ul style="list-style-type: none"> <li>Measure the resistance between the PATS transceiver C2007-4, circuit 1216 (GY/OG), harness side and ground.</li> </ul>  <p>N0002400</p> <ul style="list-style-type: none"> <li><b>Is the resistance greater than 10,000 ohms?</b></li> </ul>	<p><b>Yes</b> GO to <b>E5</b>.</p> <p><b>No</b> REPAIR the circuit. CLEAR the DTCs. CYCLE the ignition. REPEAT the self-test. If DTC B1681 is retrieved again, GO to <b>E12</b>.</p>
<b>E5</b>	<b>CHECK THE PATS TRANSCIEVER RECEIVE CIRCUIT 1216 (GY/OG) FOR AN OPEN</b>	
	<ul style="list-style-type: none"> <li>Measure the resistance between the PCM C175B-42, circuit 1216 (GY/OG), harness side, and the PATS transceiver C2007-4, circuit 1216 (GY/OG), harness side.</li> </ul>  <p>N0009251</p> <ul style="list-style-type: none"> <li><b>Is the resistance less than 5 ohms?</b></li> </ul>	<p><b>Yes</b> GO to <b>E12</b>.</p> <p><b>No</b> REPAIR the circuit. CLEAR the DTCs. CYCLE the ignition. REPEAT the self-test.</p>
<b>E6</b>	<b>CHECK THE PATS TRANSCIEVER TRANSMIT CIRCUIT 1215 (WH/LG) FOR VOLTAGE</b>	
	<p><b>NOTE:</b> Replacement of the PATS transceiver does not require the PATS keys to be programmed into the PCM again.</p>	

(Continued)

**DIAGNOSIS AND TESTING (Continued)**

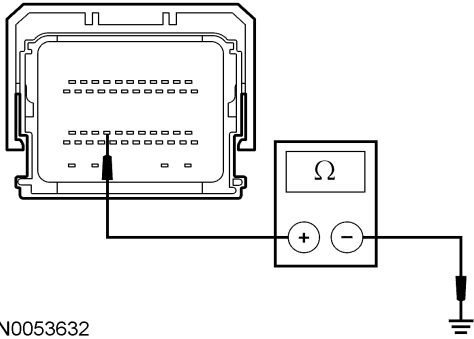
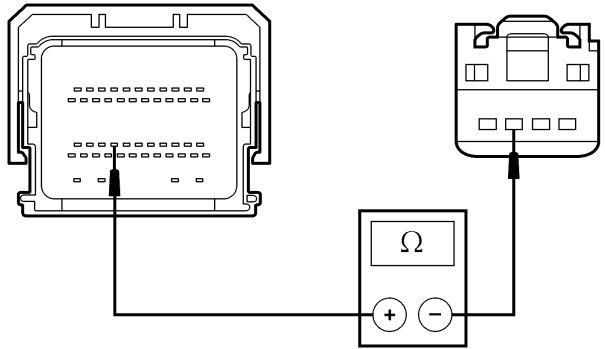
**PINPOINT TEST E: DTC B1681— PATS TRANSCIEVER MODULE SIGNAL IS NOT RECEIVED (Continued)**

Test Step		Result / Action to Take
<b>E6</b>	<b>CHECK THE PATS TRANSCIEVER TRANSMIT CIRCUIT 1215 (WH/LG) FOR VOLTAGE (Continued)</b>	
<ul style="list-style-type: none"> <li>Measure the voltage by backprobing between the PATS transceiver <b>C2007-3</b>, circuit 1215 (WH/LG), harness side and ground.</li> </ul>  <p>N0002395</p> <ul style="list-style-type: none"> <li>Is the voltage greater than 8 volts?</li> </ul>		<p><b>Yes</b>                      INSTALL a new PATS transceiver. REFER to Passive Anti-Theft System (PATS) Transceiver in this section. CLEAR the DTCs. CYCLE the ignition. REPEAT the self-test.                      If DTC B1681 is retrieved again, GO to <b>E12</b>.</p> <p><b>No</b>                      GO to <b>E7</b>.</p>
<b>E7</b>	<b>CHECK THE PATS TRANSCIEVER TRANSMIT CIRCUIT 1215 (WH/LG) FOR A SHORT TO GROUND WITH THE PATS TRANSCIEVER CONNECTED</b>	
<ul style="list-style-type: none"> <li>Ignition OFF.</li> <li>Disconnect: PCM <b>C175B</b>.</li> <li>Measure the resistance between the PCM <b>C175B-31</b>, circuit 1215 (WH/LG), harness side and ground.</li> </ul>  <p>N0053632</p> <ul style="list-style-type: none"> <li>Is the resistance greater than 10,000 ohms?</li> </ul>		<p><b>Yes</b>                      GO to <b>E9</b>.</p> <p><b>No</b>                      GO to <b>E8</b>.</p>
<b>E8</b>	<b>CHECK THE PATS TRANSCIEVER TRANSMIT CIRCUIT 1215 (WH/LG) FOR A SHORT TO GROUND WITH THE PATS TRANSCIEVER DISCONNECTED</b>	
<p><b>NOTE:</b> Replacement of the PATS transceiver does not require the PATS keys to be programmed into the PCM again.</p> <ul style="list-style-type: none"> <li>Disconnect: PATS Transceiver <b>C2007</b>.</li> </ul>		

(Continued)

**DIAGNOSIS AND TESTING (Continued)**

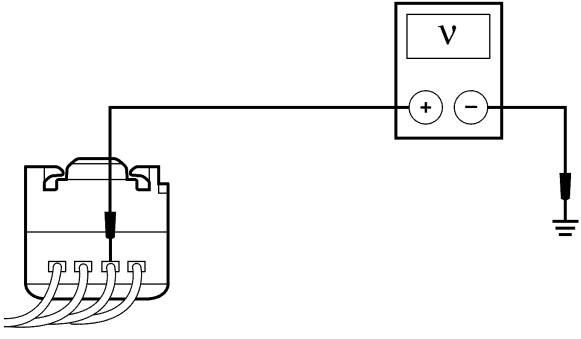
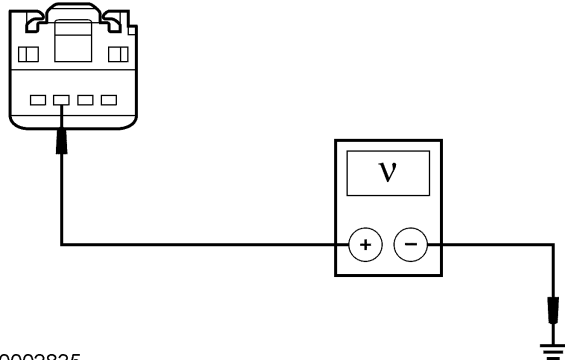
**PINPOINT TEST E: DTC B1681— PATS TRANSCIVER MODULE SIGNAL IS NOT RECEIVED (Continued)**

Test Step	Result / Action to Take
<p><b>E8</b> CHECK THE PATS TRANSCIVER TRANSMIT CIRCUIT 1215 (WH/LG) FOR A SHORT TO GROUND WITH THE PATS TRANSCIVER DISCONNECTED (Continued)</p> <ul style="list-style-type: none"> <li>Measure the resistance between the PCM C175B-31, circuit 1215 (WH/LG), harness side and ground.</li> </ul>  <p>N0053632</p> <ul style="list-style-type: none"> <li>Is the resistance greater than 10,000 ohms?</li> </ul>	<p><b>Yes</b> INSTALL a new PATS transceiver. REFER to Passive Anti-Theft System (PATS) Transceiver in this section. CLEAR the DTCs. CYCLE the ignition. REPEAT the self-test.</p> <p><b>No</b> REPAIR the circuit. CLEAR the DTCs. CYCLE the ignition. REPEAT the self-test.</p>
<p><b>E9</b> CHECK THE PATS TRANSCIVER TRANSMIT CIRCUIT 1215 (WH/LG) FOR AN OPEN</p> <ul style="list-style-type: none"> <li>Disconnect: PATS Transceiver C2007.</li> <li>Measure the resistance between the PCM C175B-31, circuit 1215 (WH/LG), harness side and the PATS transceiver C2007-3, circuit 1215 (WH/LG), harness side.</li> </ul>  <p>N0002397</p> <ul style="list-style-type: none"> <li>Is the resistance less than 5 ohms?</li> </ul>	<p><b>Yes</b> GO to E10.</p> <p><b>No</b> REPAIR the circuit. CLEAR the DTCs. CYCLE the ignition. REPEAT the self-test.</p>
<p><b>E10</b> CHECK THE PATS TRANSCIVER TRANSMIT CIRCUIT 1215 (WH/LG) FOR VOLTAGE</p> <p><b>NOTE:</b> Replacement of the PATS transceiver does not require the PATS keys to be programmed into the PCM again.</p> <ul style="list-style-type: none"> <li>Connect: PATS Transceiver C2007.</li> <li>Connect: PCM C175B.</li> <li>Ignition ON.</li> <li>Enter the following diagnostic mode on the scan tool: PCM DataLogger.</li> <li>Trigger the active command TRANSMIT to ON.</li> </ul>	

(Continued)

**DIAGNOSIS AND TESTING (Continued)**

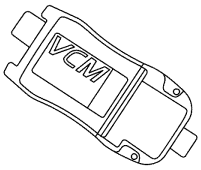
**PINPOINT TEST E: DTC B1681— PATS TRANSCIEVER MODULE SIGNAL IS NOT RECEIVED (Continued)**

Test Step		Result / Action to Take
<b>E10</b>	<b>CHECK THE PATS TRANSCIEVER TRANSMIT CIRCUIT 1215 (WH/LG) FOR VOLTAGE (Continued)</b>	
	<ul style="list-style-type: none"> <li>Measure the voltage by backprobing between the PATS transceiver C2007-3, circuit 1215 (WH/LG), harness side and ground.</li> </ul>  <p>N0002395</p> <ul style="list-style-type: none"> <li>Is the voltage less than 5 volts?</li> </ul>	<p><b>Yes</b> INSTALL a new PATS transceiver module. REFER to Passive Anti-Theft System (PATS) Transceiver in this section. CLEAR the DTCs. CYCLE the ignition. REPEAT the self-test.</p> <p><b>No</b> GO to E11.</p>
<b>E11</b>	<b>CHECK THE PATS TRANSCIEVER TRANSMIT CIRCUIT 1215 (WH/LG) FOR A SHORT TO VOLTAGE</b>	
	<ul style="list-style-type: none"> <li>Ignition OFF.</li> <li>Disconnect: PCM C175B.</li> <li>Disconnect: PATS Transceiver C2007.</li> <li>Ignition ON.</li> <li>Measure the voltage between the PATS transceiver C2007-3, circuit 1215 (WH/LG), harness side and ground.</li> </ul>  <p>N0002835</p> <ul style="list-style-type: none"> <li>Is any voltage indicated?</li> </ul>	<p><b>Yes</b> REPAIR the circuit. CLEAR the DTCs. CYCLE the ignition. REPEAT the self-test.</p> <p><b>No</b> GO to E12.</p>
<b>E12</b>	<b>CHECK FOR CORRECT PCM OPERATION</b>	
	<p><b>NOTE:</b> When a new PCM is installed, the PATS keys must be programmed into the PCM.</p> <ul style="list-style-type: none"> <li>Disconnect all the PCM connectors.</li> <li>Check for:                             <ul style="list-style-type: none"> <li>corrosion</li> <li>damaged pins</li> <li>pushed-out pins</li> </ul> </li> <li>Connect all the PCM connectors and make sure they seat correctly.</li> <li>Operate the system and verify the concern is still present.</li> <li>Is the concern still present?</li> </ul>	<p><b>Yes</b> INSTALL a new PCM. REFER to Section 303-14. PROGRAM the PATS keys into the PCM. REFER to Key Programming Using Diagnostic Equipment in this section. REPEAT the self-test.</p> <p><b>No</b> The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR the DTCs. CYCLE the ignition. REPEAT the self-test.</p>

## GENERAL PROCEDURES

### Key Programming Using Diagnostic Equipment

#### Special Tool(s)

 <p>ST2834-A</p>	<p>Vehicle Communication Module (VCM) and Integrated Diagnostic System (IDS) software with appropriate hardware, or equivalent scan tool</p>
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**NOTE:** This procedure is used when a customer needs keys programmed into the system and does not have 2 programmed ignition keys available. This procedure is also useful when a programmed ignition key(s) is lost or the ignition lock cylinder is replaced, and it is desired to erase key code(s) from the Passive Anti-Theft System (PATS) memory.

**NOTE:** This procedure erases all programmed ignition keys from the vehicle memory. The vehicle will not start until a minimum of 2 keys are programmed into the PCM.

**NOTE:** A minimum of 2 PATS keys must be programmed into the PCM before the vehicle will start.

**NOTE:** Two PATS encoded (contains a transponder) keys with the correct mechanical cut must be available to carry out this procedure. One or both of them may be the customer's original keys.

**NOTE:** If additional keys are to be programmed, refer to Key Programming Using Two Programmed Keys in this section. If the remaining keys are with the customer and are not available with the vehicle, instruct the customer to refer to the Owner's Literature for instructions on programming the remaining keys. In either case, the SPAREKEY PID must be enabled.

**NOTE:** This procedure is not necessary if only the PATS transceiver was replaced. Replacement of the transceiver does not erase the PATS key codes in the PCM.

1. Turn the key from the OFF position to the ON position.
2. From the scan tool, enter TOOLBOX. Select BODY-SECURITY-PATS Functions and follow the on-screen instructions to ENTER SECURITY ACCESS. For additional information, refer to Anti-Theft Security Access in this section.
3. From the scan tool menu select "Ignition Key Code Erase" and press the tick mark.
4. Turn the key to the OFF position and disconnect the scan tool.
5. Insert the 1st PATS key into the ignition lock cylinder and turn the key to the ON position for 3 seconds.
6. Turn the 1st PATS key to the OFF position and remove the key from the ignition lock cylinder.
7. Insert the next PATS key into the ignition lock cylinder and turn the key to the ON position for 3 seconds.
8. The vehicle should now start with both PATS ignition keys.
9. If it is desired to program additional key(s) (only up to 8 keys total can be programmed into the PCM), refer to Key Programming Using Two Programmed Keys in this section.

## GENERAL PROCEDURES

### Key Programming Using Two Programmed Keys

**NOTE:** This procedure works only if 2 or more programmed ignition keys are available. If 2 programmed keys are not available, refer to Key Programming Using Diagnostic Equipment in this section.

**NOTE:** The SPAREKEY PID must be enabled for this procedure to operate. If this PID is not enabled, refer to Key Programming Switch State Control in this section, then select SPAREKEY programming switch ENABLED. The SPAREKEY PID is set to ENABLE when the vehicle is built.

**NOTE:** If the programming procedure is successful, the new key(s) will start the vehicle and the anti-theft indicator will prove-out for approximately 3 seconds. If the programming procedure is not successful and the new key(s) does not start the engine, leave the key in the ON position for at least 3 seconds, then turn the key off. Repeat the key programming procedure from Step 1. If the failure repeats, refer to Anti-Theft in the Diagnosis and Testing portion of this section to review the DTCs and carry out the appropriate pinpoint tests.

**NOTE:** A maximum of 8 Passive Anti-Theft System (PATS) keys can be programmed into the PCM during this programming procedure, but only if the SPAREKEY PID is ENABLED.

**NOTE:** A minimum of 2 PATS keys must be programmed into the PCM before the vehicle will start.

**NOTE:** If the vehicle is in unlimited key mode, this spare key programming procedure still functions. Any 2 keys that can start the vehicle can be used to program an additional unlimited key.

**NOTE:** If additional keys are to be programmed, and the remaining keys are with the customer, or are not available, instruct the customer to refer to the Owner's Literature for instructions on programming the remaining keys. In either case, the SPAREKEY PID must be enabled.

**NOTE:** If the steps are not carried out as outlined, the programming procedure will end.

**NOTE:** Ignition keys must have a correct mechanical key cut for the vehicle and must be PATS encoded keys (contain a transponder).

**NOTE:** This procedure is not necessary if only the PATS transceiver was replaced. Replacement of the transceiver does not erase the PATS key codes in the PCM.

1. Insert the 1st programmed key into the ignition lock cylinder and turn the key from the OFF position to the ON position (maintain the key in the ON position for a minimum of 3 seconds and less than 10 seconds).
2. Turn the key to the OFF position and remove the 1st key from the ignition lock cylinder.
3. Within 5 seconds of turning the key to the OFF position, insert the 2nd programmed key into the ignition lock cylinder and turn the key from the OFF position to the ON position (maintain the key in the ON position for a minimum of 3 seconds and less than 10 seconds).
4. Turn the 2nd key to the OFF position and remove the key from the ignition lock cylinder.
5. Within 10 seconds of turning the key to the OFF position, insert the unprogrammed key (the new key) into the ignition lock cylinder and turn the key from the OFF position to the ON position (maintain the key in the ON position for a minimum of 3 seconds and less than 10 seconds).

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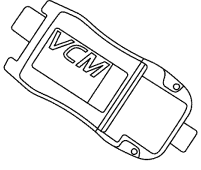
**GENERAL PROCEDURES (Continued)**

6. If it is desired to program additional key(s) (only up to 8 keys total can be programmed into the PCM), repeat Steps 1 - 5 for each additional key that needs to be programmed.
  7. Start the vehicle with the new key(s).
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## GENERAL PROCEDURES

### Anti-Theft Security Access

#### Special Tool(s)

 <p>ST2834-A</p>	<p>Vehicle Communication Module (VCM) and Integrated Diagnostic System (IDS) software with appropriate hardware, or equivalent scan tool</p>
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**NOTE:** The anti-theft security access procedure is used to obtain Passive Anti-Theft System (PATS) security access. PATS security access must be granted to erase ignition key codes, program ignition key codes, enable/disable unlimited key mode, set unlimited transponder key ID and enable/disable the spare key programming switch (SPAREKEY PID). The anti-theft security access procedure invokes a 10-minute time delay prior to granting security access during which the scan tool must remain connected to the vehicle. Once security access is granted, a security access command menu is displayed, which offers various command options.

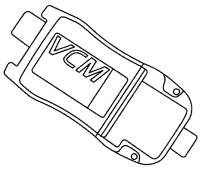
**NOTE:** Once security access has been granted, multiple security access commands should be executed (if necessary) prior to exiting the command menu. This avoids an additional security access procedure and the associated 10 minute time delay.

1. Turn the PATS key from the OFF position to the ON position.
2. From the scan tool, enter TOOLBOX. Select BODY-SECURITY-PATS Functions, and follow the on-screen instructions to ENTER SECURITY ACCESS. This procedure takes approximately 10 minutes to carry out, during which time the ignition switch must be in the ON position and the scan tool must be connected to the vehicle.
3. After the 10-minute security access procedure is completed, click on the tick mark and a new menu is displayed with command options. Select only those functions required before exiting out of this menu. Do not select more functions than the procedure calls for. Once exited out of this menu, the security access procedure must be repeated again to carry out additional commands.

## GENERAL PROCEDURES

### Key Programming Switch State Control

#### Special Tool(s)

 <p>ST2834-A</p>	<p>Vehicle Communication Module (VCM) and Integrated Diagnostic System (IDS) software with appropriate hardware, or equivalent scan tool</p>
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**NOTE:** The spare key programming switch is a programmable switch which provides the capability to enable/disable the normal customer spare key programming procedure detailed in the Owner's Literature. It must read ENABLED if more than 2 keys need to be programmed into the PCM. For additional information, refer to Key Programming Using Two Programmed Keys in this section. This programmable switch is provided as a convenience for rental company fleets or other fleet purchasers who may not want the Spare Key Programming procedure available to the vehicle driver.

**NOTE:** The spare key programming switch state can be viewed with the PCM SPAREKEY PID.

**NOTE:** If the SPAREKEY PID reads ENABLED, up to 8 keys total can be programmed into the PCM. For additional information, refer to Key Programming Using Two Programmed Keys in this section. If the SPAREKEY PID reads DISABLED, the Key Programming Using Two Programmed Keys procedure will not function. This switch is set to ENABLED when the vehicle is built. This PID does not affect the Key Programming Using Diagnostic Equipment procedure or the Spare Key Programming — Unlimited Key Mode procedure or the Spare Key Programming — Using Diagnostic Equipment procedure.

1. Insert a programmed Passive Anti-Theft System (PATS) key into the ignition lock cylinder and turn the key from the OFF position to the ON position.
2. From the scan tool, enter TOOLBOX. Select BODY-SECURITY-PATS Functions and follow the on-screen instructions to ENTER SECURITY ACCESS. For additional information, refer to Anti-Theft Security Access in this section.
3. **NOTE:** The default setting on delivery of all new vehicles is ENABLED.

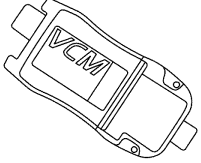
From the scan tool menu select: "Customer Spare Key Programming Enable" (or "Customer Spare Key Programming Disable") and press the tick mark.

- "Customer Spare Key Programming Enable" — spare key programming procedure is accessible.
- "Customer Spare Key Programming Disable" — spare key programming procedure is not accessible.

## GENERAL PROCEDURES

### Spare Key Programming — Using Diagnostic Equipment

#### Special Tool(s)

 <p>ST2834-A</p>	<p>Vehicle Communication Module (VCM) and Integrated Diagnostic System (IDS) software with appropriate hardware, or equivalent scan tool</p>
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**NOTE:** This procedure is used when a customer needs to have an additional key programmed into the vehicle without erasing stored key codes, but does not have 2 programmed keys available. This procedure is also useful when attempting to determine if an ignition key is defective, as a new key can be installed without erasing keys or without having 2 programmed keys available.

**NOTE:** Before programming, the new key must have the correct mechanical cut for the ignition lock cylinder.

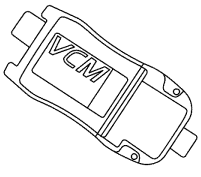
**NOTE:** If 8 keys are already programmed, this procedure does not allow any more ignition keys to be programmed. The number of keys that are programmed into the Passive Anti-Theft System (PATS) can be determined by viewing the PCM N\_KEYCODE PID.

1. Turn the unprogrammed PATS key from the OFF position to the ON position.
2. From the scan tool, enter TOOLBOX. Select BODY-SECURITY-PATS Functions and follow the on-screen instructions to ENTER SECURITY ACCESS. For additional information, refer to Anti-Theft Security Access in this section.
3. **NOTE:** Make sure the selection made is “PROGRAM” (Program additional ignition key). If the “ERASE” (Ignition Key Code Erase) selection is made, all of the keys will be erased from the system.  
From the scan tool menu select “Program additional ignition key” and press the tick mark.
4. Turn the key to the OFF position and disconnect the scan tool.
5. Start the vehicle with the new PATS key. The vehicle will now start with the new PATS key and also with the original PATS keys.

## GENERAL PROCEDURES

### Spare Key Programming — Unlimited Key Mode

#### Special Tool(s)

 <p>ST2834-A</p>	<p>Vehicle Communication Module (VCM) and Integrated Diagnostic System (IDS) software with appropriate hardware, or equivalent scan tool</p>
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#### Enabling Unlimited Key Mode

**NOTE:** Unlimited key mode is intended for use by those customers who need more than 8 keys for their vehicle.

**NOTE:** Before programming, the new key(s) must have the correct mechanical cut for the ignition lock cylinder.

**NOTE:** The unlimited key mode is set up by creating a special, unique unlimited transponder security key code and programming this key code into all of the vehicle keys so they contain the same key code.

- The customer must choose an 8-digit number (except for 00000000 or 00000001) to be programmed into all of their vehicles keys (or, to all of the keys they want programmed to one vehicle). All customer vehicles keys (or all keys for one vehicle) need to use the same number. Valid digits are 0-9 and the letters A-F.
- NOTE:** If the PID UNL\_\_KEY\_\_ID is not available, unlimited key mode is turned on, and must be turned off before viewing the stored code. At this time, unlimited keys may be programmed to the vehicle. To view/change the stored code, follow the procedure for disabling the unlimited key mode below.  
  
Monitor the PID UNL\_\_KEY\_\_ID and compare its value against the code chosen in Step 1. It should not be the same key code.
- From the scan tool, enter TOOLBOX. Select BODY-SECURITY-PATS Functions and follow the on-screen instructions to ENTER SECURITY ACCESS. For additional information, refer to Anti-Theft Security Access in this section.
- Once in security access, select “program unlimited key code” and press the tick mark. Enter the 8-digit code chosen by the customer in Step 1 of this procedure and press the tick mark.
- Select “unlimited key mode ON” and press the tick mark.
- Select “Ignition Key Code Erase” and press the tick mark.
- Disconnect the scan tool and turn the ignition switch to OFF.
- Insert the first PATS key into the ignition lock cylinder and turn the key to the ON position for 3 seconds.
- Turn the first PATS key to the OFF position and remove the key from the ignition lock cylinder.
- Insert the next PATS key into the ignition lock cylinder and turn the key to the ON position for 3 seconds.
- If it is desired to program an additional key(s), refer to Key Programming Using Two Programmed Keys in this section for each additional key that needs to be programmed.

#### Disabling Unlimited Key Mode

**NOTE:** By disabling the unlimited key mode, the previous access code no longer operates the vehicle.

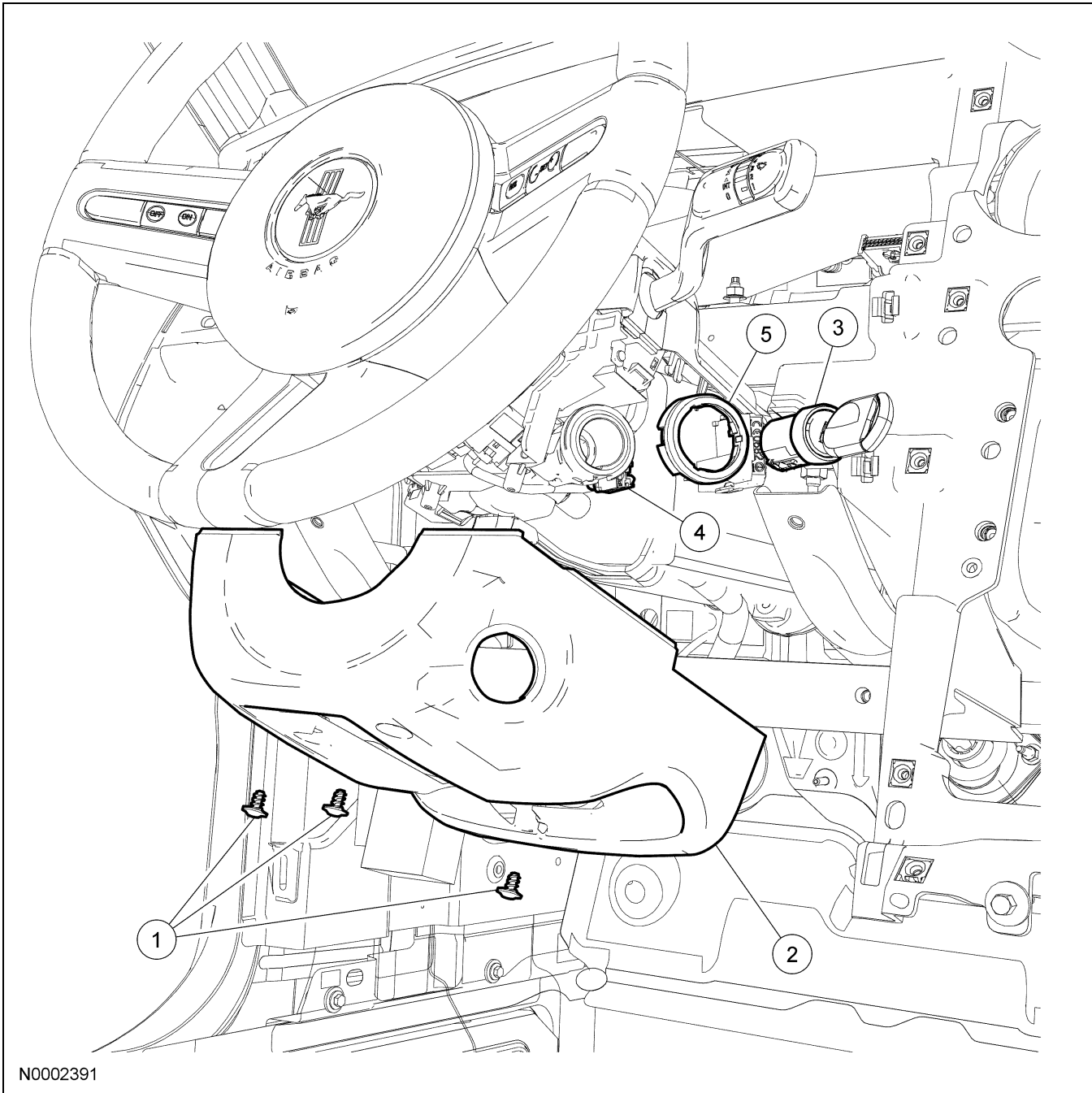
- From the scan tool, enter TOOLBOX. Select BODY-SECURITY-PATS Functions and follow the on-screen instructions to ENTER SECURITY ACCESS. For additional information, refer to Anti-Theft Security Access in this section.

**GENERAL PROCEDURES (Continued)**

2. Select “unlimited key mode OFF” and press the tick mark.
  3. Select “Ignition Key Code Erase” and press the tick mark.
  4. Disconnect the scan tool and turn the ignition switch to OFF.
  5. Insert the first PATS key into the ignition lock cylinder and turn the key to the ON position for 3 seconds.
  6. Turn the first PATS key to the OFF position and remove the key from the ignition lock cylinder.
  7. Insert the next PATS key into the ignition lock cylinder and turn the key to the ON position for 3 seconds.
  8. **NOTE:** With the unlimited key mode turned off, a maximum of 8 keys can be programmed into the PCM using the Key Programming Using Two Programmed Keys procedure in this section. The PID SPAREKEY must be enabled. If it is desired to program an additional key(s), refer to Key Programming Using Two Programmed Keys in this section for each additional key that needs to be programmed. The SPAREKEY PID must be enabled.
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## REMOVAL AND INSTALLATION

### Passive Anti-Theft System (PATS) Transceiver



N0002391

Item	Part Number	Description
1	55929	Steering column shroud screws (3 required)
2	3K512	Lower steering column shroud
3	1153	Ignition lock cylinder

(Continued)

Item	Part Number	Description
4	—	Passive anti-theft system (PATS) transceiver electrical connector (part of 14401)
5	15607	PATS transceiver

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**REMOVAL AND INSTALLATION (Continued)****Removal and Installation**

1. Remove the ignition lock cylinder. For additional information, refer to Section 501-14.
  2. Disconnect the PATS transceiver electrical connector.
  3. Release the clips and remove the PATS transceiver.
  4. **NOTE:** Replacement of the PATS transceiver does not require the PATS keys to be programmed into the PCM again.  
To install, reverse the removal procedure.
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## SPECIFICATIONS

### Torque Specifications

Description	Nm	lb-in
Smart junction box (SJB)	6	53

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## DESCRIPTION AND OPERATION

### Module Controlled Functions

#### Smart Junction Box (SJB)

**NOTE:** The smart junction box (SJB) is also known as the generic electronic module (GEM).

The SJB is a combination of a multifunction electronic module and an interior fuse panel. The SJB functions control multiple vehicle systems which include:

- Battery saver
- Convertible top (if equipped)
- Convertible top drop window function (if equipped)
- Exterior lighting
- Heated rear window
- Interior lighting
- Perimeter anti-theft (if equipped)
- Power locks
- Remote keyless entry (RKE)

- Tire pressure monitoring system (TPMS)
- Interfacing with the instrument cluster (IC) for the TPMS warning lamp and other warning chimes

The SJB is located behind the RH A-pillar lower trim panel.

Refer to Smart Junction Box (SJB) in the removal and installation portion of this section.

For the perimeter anti-theft, refer to Section 419-01A.

For the battery saver, heated rear window, and power windows, refer to Section 501-11.

For the convertible top, refer to Section 501-18.

For the exterior lighting, refer to Section 417-01.

For the interior lamps and illuminated entry, refer to Section 417-02.

For the power door locks, and the RKE system, refer to Section 501-14.

For the TPMS, refer to Section 204-04.

For the warning chimes, refer to Section 413-01.

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## DIAGNOSIS AND TESTING

### Diagnostic Trouble Code (DTC) Chart

**NOTE:** Most powertrain (P-code) DTCs are diagnosed in the Powertrain Control/Emissions Diagnosis (PC/ED) manual. If the P-code retrieved is not listed below, refer to the [Powertrain Control/Emissions Diagnosis \(PC/ED\) manual](#) to continue diagnostics.

**NOTE:** The smart junction box (SJB) is also known as the generic electronic module (GEM).

DTC	Description	Source	Action
B1031	SDARS Satellite Antenna Open	Satellite Digital Audio Receiver System (SDARS) Module	REFER to Section 415-00.
B1032	SDARS Satellite Antenna Short	SDARS Module	REFER to Section 415-00.
B106A	TPMS Sensor Pressure Range Bit Incorrect State	SJB	REFER to Section 204-04.
B106B	Tire Pressure Sensor Low Battery	SJB	REFER to Section 204-04.
B1084	Trunk Lamp Circuit Failure	SJB	REFER to Section 417-02.
B1117	Audio Steering Wheel Button Stuck	Audio Control Module (ACM)	DISREGARD the DTC. The vehicle does not have steering wheel audio control buttons. CLEAR the DTCs. REPEAT the self-test.
B1119	Audio Disc DVD Player Thermal Shutdown	ACM	REFER to Section 415-00.
B1136	Audio Steering Wheel Switch #2 Circuit Failure	ACM	DISREGARD the DTC. The vehicle does not have steering wheel audio control buttons. CLEAR the DTCs. REPEAT the self-test.
B1140	Map Disk Invalid	ACM	REFER to Section 415-00.
B1141	Convertible Top Full Down Position Switch Circuit Failure	SJB	If the self-test was run with the convertible top in the full up position, DTCs B1141 or B1142 may be set. OPERATE the convertible top to the full-down position. CLEAR the DTCs. REPEAT the self-test. If DTC B1141 or B1142 is retrieved again, REFER to Section 501-18.
B1142	Convertible Top Full Up Position Switch Circuit Failure	SJB	If the self-test was run with the convertible top in the full up position, DTCs B1141 or B1142 may be set. OPERATE the convertible top to the full-down position. CLEAR the DTCs. REPEAT the self-test. If DTC B1141 or B1142 is retrieved again, REFER to Section 501-18.
B1201	Fuel Sender Circuit Failure	SJB	REFER to Section 413-01.

**DIAGNOSIS AND TESTING (Continued)**

<b>DTC</b>	<b>Description</b>	<b>Source</b>	<b>Action</b>
B1202	Fuel Sender Circuit Open	Instrument Cluster (IC)	REFER to Section 413-01.
B1202	Fuel Sender Circuit Open	SJB	REFER to Section 413-01.
B1204	Fuel Sender Circuit Short to Ground	IC	REFER to Section 413-01.
B1205	EIC Switch-1 Assembly Circuit Failure	IC	REFER to Section 413-01.
B1213	Anti-Theft Number of Programmed Keys is Below Minimum	PCM	REFER to Section 419-01B.
B1217	Horn Relay Coil Circuit Failure	SJB	REFER to Section 413-06.
B1231	Event Threshold Exceeded	Restraints Control Module (RCM)	REFER to Section 501-20B.
B1247	Panel Dim Switch Circuit Open	SJB	REFER to Section 413-00.
B1300	Power Door Lock Circuit Failure	SJB	REFER to Section 501-14.
B1301	Power Door Lock Circuit Open	SJB	REFER to Section 501-14.
B1309	Power Door Lock Circuit Short to Ground	SJB	REFER to Section 501-14.
B1310	Power Door Unlock Circuit Failure	SJB	REFER to Section 501-14.
B1317	Battery Voltage High	ABS Module	REFER to Section 206-09.
B1317	Battery Voltage High	IC	REFER to Section 413-01.
B1317	Battery Voltage High	RCM	REFER to Section 501-20B.
B1318	Battery Voltage Low	ABS Module	REFER to Section 206-09.
B1318	Battery Voltage Low	ACM	REFER to Section 414-00.
B1318	Battery Voltage Low	IC	REFER to Section 413-01.
B1318	Battery Voltage Low	RCM	REFER to Section 414-00.
B1318	Battery Voltage Low	SDARS Module	REFER to Section 415-00.
B1319	Driver Door Ajar Circuit Failure	SJB	If the self-test was run with the driver door open, DTC B1319 may be set. CLOSE the door. CLEAR the DTCs. REPEAT the self-test. If DTC B1319 is retrieved again, REFER to Section 417-02.
B1327	Passenger Door Ajar Circuit Failure	SJB	If the self-test was run with the passenger door open, DTC B1327 may be set. CLOSE the door. CLEAR the DTCs. REPEAT the self-test. If DTC B1327 is retrieved again, REFER to Section 417-02.
B1341	Power Door Unlock Circuit Short To Ground	SJB	REFER to Section 501-14.
B1342	ECU is Faulted	ABS Module	CLEAR the DTCs. RETRIEVE the DTCs. If DTC B1342 is retrieved again, INSTALL a new ABS module. REFER to Section 206-09. CLEAR the DTCs. REPEAT the self-test.

**DIAGNOSIS AND TESTING (Continued)**

<b>DTC</b>	<b>Description</b>	<b>Source</b>	<b>Action</b>
B1342	ECU is Faulted	ACM	CLEAR the DTCs. RETRIEVE the DTCs. If DTC B1342 is retrieved again, INSTALL a new ACM. REFER to Section 415-00. CLEAR the DTCs. REPEAT the self-test.
B1342	ECU is Faulted	IC	CLEAR the DTCs. RETRIEVE the DTCs. If DTC B1342 is retrieved again, INSTALL a new IC. REFER to Section 413-01. CLEAR the DTCs. REPEAT the self-test.
B1342	ECU is Faulted	PCM	CLEAR the DTCs. RETRIEVE the DTCs. If DTC B1342 is retrieved again, INSTALL a new PCM. REFER to Section 303-14. CLEAR the DTCs. REPEAT the self-test.
B1342	ECU is Faulted	RCM	CLEAR the DTCs. RETRIEVE the DTCs. If DTC B1342 is retrieved again, INSTALL a new RCM. REFER to Section 501-20B. CLEAR the DTCs. REPEAT the self-test.
B1342	ECU is Faulted	SDARS Module	CLEAR the DTCs. RETRIEVE the DTCs. If DTC B1342 is retrieved again, INSTALL a new SDARS module. REFER to Section 415-00. CLEAR the DTCs. REPEAT the self-test.
B1342	ECU is Faulted	SJB	CLEAR the DTCs. RETRIEVE the DTCs. If DTC B1342 is retrieved again, INSTALL a new SJB. REFER to Smart Junction Box (SJB) in this section. CLEAR the DTCs. REPEAT the self-test.
B1345	Heated Backlite Input Circuit Short To Ground	SJB	REFER to Section 501-11.
B1348	Heated Backlite Relay Circuit Open	SJB	REFER to Section 501-11.
B1349	Heated Backlite Relay Short To Battery	SJB	REFER to Section 501-11.
B1353	Ignition Key-In Circuit Open	IC	REFER to Section 413-01.
B1356	Ignition Run Circuit Open	SJB	REFER to Section 211-05.
B1360	Ignition Run/Acc Circuit Open	SJB	REFER to Section 211-05.
B1365	Ignition Start Circuit Short To Battery	SJB	REFER to Section 211-05.
B1402	Driver Power Window Down Switch Circuit Failure	SJB	REFER to Section 501-18.
B1470	Lamp Headlamp Input Circuit Failure	SJB	REFER to Section 417-01.
B1475	Accessory Delay Relay Short To Battery	SJB	REFER to Section 501-11.
B1485	Brake Pedal Input Short to Battery	SJB	REFER to Section 417-01.
B1499	Lamp Turn Signal Left Circuit Failure	SJB	REFER to Section 417-01.
B1502	Lamp Turn Signal Left Circuit Short To Ground	SJB	REFER to Section 417-01.
B1503	Lamp Turn Signal Right Circuit Failure	SJB	REFER to Section 417-01.
B1506	Lamp Turn Signal Right Circuit Short To Ground	SJB	REFER to Section 417-01.

**DIAGNOSIS AND TESTING (Continued)**

<b>DTC</b>	<b>Description</b>	<b>Source</b>	<b>Action</b>
B1519	Hood Switch Circuit Failure	SJB	REFER to Section 419-01A.
B1551	Latch/Deck Lid Release Circuit Failure	SJB	REFER to Section 501-14.
B1556	Ignition Run/Start Circuit Open	IC	REFER to Section 413-01.
B1557	Ignition Run/Start Circuit Short To Battery	IC	REFER to Section 413-01.
B1600	PATS Ignition Key Transponder Signal Is Not Received	PCM	REFER to Section 419-01B.
B1601	PATS Received Incorrect Key-Code From Ignition Key Transponder	PCM	REFER to Section 419-01B.
B1602	PATS Received Invalid Format Of Key-Code From Ignition Key Transponder	PCM	REFER to Section 419-01B.
B1676	Battery Pack Voltage Out Of Range	SJB	REFER to Section 414-00.
B1681	PATS Transceiver Module Signal Is Not Received	PCM	REFER to Section 419-01B.
B1833	Door Unlock Disarm Switch Circuit Short To Ground	SJB	REFER to Section 419-01A.
B1869	Lamp Air Bag Warning Indicator Circuit Open	RCM	REFER to Section 501-20B.
B1870	Lamp Air Bag Warning Indicator Circuit Short To Battery	RCM	REFER to Section 501-20B.
B1884	PAD Warning Lamp Circuit Failure	RCM	REFER to Section 501-20B.
B1890	PAD Warning Lamp Circuit Short to Battery	RCM	REFER to Section 501-20B.
B1891	Air Bag Tone Warning Indicator Circuit Short to Battery	RCM	REFER to Section 501-20B.
B1892	Air Bag Tone Warning Indicator Circuit Failure	RCM	REFER to Section 501-20B.
B1897	Horn Switch Circuit Failure	SJB	REFER to Section 413-06.
B1921	Air Bag Diagnostic Monitor Ground Circuit Open	RCM	REFER to Section 501-20B.
B1982	Driver's Door Unlock Relay Circuit Failure	SJB	REFER to Section 501-14.
B200A	VSM Inclination Failure	SJB	REFER to Section 419-01A.
B200B	VSM Ultrasonic Failure	SJB	REFER to Section 419-01A.
B200C	VSM Module Failure	SJB	REFER to Section 419-01A.
B2021	Dome Lamp Output Return Circuit Failure	SJB	REFER to Section 417-02.
B2027	LED Backlighting Output Circuit Failure	SJB	REFER to Section 413-00.
B2030	Front Fog Lamp Relay Ckt Failure	SJB	REFER to Section 417-01.
B2035	LF Side Repeater Lamp Output Ckt Failure	SJB	REFER to Section 417-01.
B2044	Left Rear Stop Lamp Circuit Short to Ground	SJB	REFER to Section 417-01.
B2046	Right Rear Stop Lamp Circuit Short to Ground	SJB	REFER to Section 417-01.

**DIAGNOSIS AND TESTING (Continued)**

<b>DTC</b>	<b>Description</b>	<b>Source</b>	<b>Action</b>
B2048	Left Rear Turn Lamp Circuit Short to Ground	SJB	REFER to Section 417-01.
B2049	Left Rear Turn Lamp Circuit Open	SJB	REFER to Section 417-01.
B2050	Right Rear Turn Lamp Circuit Short to Ground	SJB	REFER to Section 417-01.
B2051	Right Rear Turn Lamp Circuit Open	SJB	REFER to Section 417-01.
B2052	Accessory Delay Relay Output Failure	SJB	REFER to Section 501-11.
B2060	Heated Backlite Indicator Circuit Failure	SJB	REFER to Section 501-11.
B2061	Heated Backlite Indicator Circuit Shorted to Ground	SJB	REFER to Section 501-11.
B2068	Convertible Top Up Output Circuit Failure	SJB	REFER to Section 501-18.
B2069	Convertible Top Down Output Circuit Failure	SJB	REFER to Section 501-18.
B2071	Hazard Switch Signal Short to Ground	SJB	REFER to Section 417-01.
B2103	Antenna Not Connected	ACM	REFER to Section 415-00.
B2103	Antenna Not Connected	PCM	REFER to Section 419-01B.
B2132	Dimmer Switch Circuit Short to Gnd	SJB	REFER to Section 413-00.
B2143	NVM Memory Failure	IC	REFER to Section 413-01.
B2175	A/C Request Signal Circuit Short to Ground	SJB	REFER to Section 412-00.
B2204	GPS Antenna Connection Open or Short	ACM	REFER to Section 415-00.
B2254	Front Fog Lamp Switch Failure	SJB	REFER to Section 417-01.
B2274	Phone Transceiver Active Circuit Failure	ACM	DISREGARD the DTC. The vehicle does not have a cellular phone. CLEAR the DTCs. REPEAT the self-test.
B2276	Less Than 2 Transmitters Programmed	SJB	REFER to Section 501-14.
B2281	Right Turn Switch Short to Ground	SJB	REFER to Section 417-01.
B2282	Left Turn Switch Short to Ground	SJB	REFER to Section 417-01.
B2290	Occupant Classification System Fault	RCM	REFER to Section 501-20B.
B2291	Occupant Position System Fault	RCM	REFER to Section 501-20B.
B2292	Restraint System - Seatbelt Pretensioner Fault	RCM	REFER to Section 501-20B.
B2293	Restraint System - Airbag Fault	RCM	REFER to Section 501-20B.
B2295	Restraint System - Side Airbag Fault	RCM	REFER to Section 501-20B.
B2296	Restraint System - Impact Sensor Fault	RCM	REFER to Section 501-20B.
B2360	Window Motor Control Output Circuit Failure	SJB	REFER to Section 501-11.
B236A	Chime Output Circuit Open	IC	REFER to Section 413-01.
B2384	Audio Reverse Aid Mute Input Ckt. Failure	ACM	DISREGARD the DTC. The vehicle does not have parking aid. CLEAR the DTCs. REPEAT the self-test.

**DIAGNOSIS AND TESTING (Continued)**

<b>DTC</b>	<b>Description</b>	<b>Source</b>	<b>Action</b>
B2404	Audio Steering Wheel Switch Circuit Fault	ACM	DISREGARD the DTC. The vehicle does not have steering wheel audio control buttons. CLEAR the DTCs. REPEAT the self-test.
B2405	Audio Disc CD Player Thermal Shutdown Fault	ACM	REFER to Section 415-00.
B2406	Audio Disc CD Player Internal Fault	ACM	REFER to Section 415-00.
B2425	Remote Keyless Entry Out of Synchronization	SJB	REFER to Section 501-14.
B2431	Transponder Programming Failed	PCM	REFER to Section 419-01B.
B2434	Drivers Seat Belt Buckle Switch Circuit Short to Ground	RCM	REFER to Section 501-20B.
B2435	Drivers Seat Belt Buckle Switch Resistance Out of Range	RCM	REFER to Section 501-20B.
B2438	Passengers Seat Belt Buckle Switch Circuit Short to Ground	RCM	REFER to Section 501-20B.
B2439	Passengers Seat Belt Buckle Switch Resistance out of Range	RCM	REFER to Section 501-20B.
B2474	Passenger Door Lock Switch Ckt Short to Ground	SJB	REFER to Section 501-14.
B2475	Passenger Door Unlock Switch Circuit Short to Ground	SJB	REFER to Section 501-14.
B2477	Module Configuration Failure	ACM	REFER to Section 418-01.
B2477	Module Configuration Failure	IC	REFER to Section 418-01.
B2477	Module Configuration Failure	RCM	REFER to Section 418-01.
B2477	Module Configuration Failure	SDARS Module	REFER to Section 418-01.
B2477	Module Configuration Failure	SJB	REFER to Section 418-01.
B2479	Park Brake Switch Circuit Short to Ground	SJB	REFER to Section 413-01.
B2481	Convertible Top Up/Down Switch Fault	SJB	REFER to Section 501-18.
B2491	RF Park Lamp Output Circuit Short to Battery	SJB	REFER to Section 417-01.
B2493	LF Park Lamp Output Circuit Short to Battery	SJB	REFER to Section 417-01.
B2501	LF Lamp Low Beam Circuit Failure	SJB	REFER to Section 417-01.
B2503	RF Lamp Low Beam Circuit Failure	SJB	REFER to Section 417-01.
B2519	High Mount Stop Lamp Circuit Failure	SJB	REFER to Section 417-01.
B2523	License Lamp Circuit Failure	SJB	REFER to Section 417-01.
B2525	Left Rear Backup Lamp Circuit Failure	SJB	REFER to Section 417-01.
B2527	Left Rear Stop Lamp Circuit Failure	SJB	REFER to Section 417-01.
B2528	Left Rear Stop Lamp Circuit Short to Battery	SJB	REFER to Section 417-01.
B2529	Left Rear Turn Lamp Circuit Failure	SJB	REFER to Section 417-01.
B2532	Right Rear Backup Lamp Circuit Short to Battery	SJB	REFER to Section 417-01.

**DIAGNOSIS AND TESTING (Continued)**

<b>DTC</b>	<b>Description</b>	<b>Source</b>	<b>Action</b>
B2533	Right Rear Stop Lamp Circuit Failure	SJB	REFER to Section 417-01.
B2534	Right Rear Stop Lamp Circuit Short to Battery	SJB	REFER to Section 417-01.
B2550	Dome Lamp Output Circuit Short to Ground	SJB	REFER to Section 417-02.
B2554	Dome Lamp Output Circuit Failure	SJB	REFER to Section 417-02.
B2567	Reverse Mirror Output Circuit Failure	SJB	REFER to Section 501-09.
B2568	Reverse Mirror Output Circuit Short to Ground	SJB	REFER to Section 501-09.
B2569	Liftgate Disarm Switch Circuit Short to Ground	SJB	REFER to Section 419-01A.
B2572	Brake Shift Interlock Output Circuit Failure	SJB	REFER to Section 307-05.
B2578	Passenger Power Window Down Switch Circuit Failure	SJB	REFER to Section 501-18.
B2586	Headlamp Mode Select Circuit Failure	SJB	REFER to Section 417-01.
B2598	Headlamp Relay Circuit Failure	SJB	REFER to Section 417-01.
B2627	Fuel Sender Circuit Open #2	IC	REFER to Section 413-01.
B2627	Fuel Sender Circuit Open #2	SJB	REFER to Section 413-01.
B2628	Fuel Sender Circuit Short to Ground #2	IC	REFER to Section 413-01.
B2628	Fuel Sender Circuit Short to Ground #2	SJB	REFER to Section 413-01.
B2633	Driver-Front Microphone Circuit Failure	ACM	DISREGARD the DTC. The vehicle does not have voice-activated navigation. CLEAR the DTCs. REPEAT the self-test.
B2656	DVD (Digital Versatile Disk) Error	ACM	REFER to Section 415-00.
B2691	Seat Belt Buckle Switch Circuit Fault, Front Driver's Side	RCM	REFER to Section 501-20B.
B2692	Front Passenger's Seat Belt Buckle Switch Circuit Fault	RCM	REFER to Section 501-20B.
B2868	Left Front Tire Pressure Sensor Fault	SJB	This DTC is only present when a new SJB is installed, or the SJB is configured. REFER to Section 204-04 to carry out the tire pressure monitoring system (TPMS) sensor training in order to clear this DTC.
B2869	Right Front Tire Pressure Sensor Fault	SJB	This DTC is only present when a new SJB is installed, or the SJB is configured. REFER to Section 204-04 to carry out the TPMS sensor training in order to clear this DTC.
B2870	Right Rear Tire Pressure Sensor Fault	SJB	This DTC is only present when a new SJB is installed, or the SJB is configured. REFER to Section 204-04 to carry out the TPMS sensor training in order to clear this DTC.

**DIAGNOSIS AND TESTING (Continued)**

<b>DTC</b>	<b>Description</b>	<b>Source</b>	<b>Action</b>
B2871	Left Rear Tire Pressure Sensor Fault	SJB	This DTC is only present when a new SJB is installed, or the SJB is configured. REFER to Section 204-04 to carry out the TPMS sensor training in order to clear this DTC.
B2872	Tire Pressure Sensor Fault	SJB	REFER to Section 204-04.
B2879	Fuel Tank Jet Pump Fault	IC	REFER to Section 413-01.
B287A	Tire Pressure System Fault	SJB	REFER to Section 204-04.
B2885	Spare Tire Pressure Sensor Fault	SJB	DISREGARD the DTC. The vehicle does not have a spare tire pressure sensor. CLEAR the DTCs. REPEAT the self-test.
B2903	Chime Output Circuit Short to Battery	IC	REFER to Section 413-01.
B2909	Belt Tension Sensor Fault	RCM	REFER to Section 501-20B.
B2924	Audio Button Stuck	ACM	REFER to Section 415-00.
B2940	Chime Output Circuit Short to Ground	IC	REFER to Section 413-01.
B2965	Audio System Speaker Circuit Fault	ACM	REFER to Section 415-00.
C1093	Traction Control Disable Switch Circuit Failure	IC	REFER to Section 206-09.
C1095	ABS Hydraulic Pump Motor Circuit Failure	ABS Module	REFER to Section 206-09.
C1096	ABS Hydraulic Pump Motor Circuit Open	ABS Module	REFER to Section 206-09.
C1115	ABS Power Relay Output Short Circuit To Battery	ABS Module	REFER to Section 206-09.
C1145	Speed Wheel Sensor RF Input Circuit Failure	ABS Module	REFER to Section 206-09.
C1155	Speed Wheel Sensor LF Input Circuit Failure	ABS Module	REFER to Section 206-09.
C1165	Speed Wheel Sensor RR Input Circuit Failure	ABS Module	REFER to Section 206-09.
C1175	Speed Wheel Sensor LR Input Circuit Failure	ABS Module	REFER to Section 206-09.
C1185	ABS Power Relay Output Circuit Failure	ABS Module	REFER to Section 206-09.
C1189	Brake Fluid Level Sensor Input Short Circuit To Ground	SJB	REFER to Section 413-01.
C1194	ABS Outlet Valve Coil LF Circuit Failure	ABS Module	REFER to Section 206-09.
C1198	ABS Inlet Valve Coil LF Circuit Failure	ABS Module	REFER to Section 206-09.
C1210	ABS Outlet Valve Coil RF Circuit Failure	ABS Module	REFER to Section 206-09.
C1214	ABS Inlet Valve Coil RF Circuit Failure	ABS Module	REFER to Section 206-09.
C1222	Speed Wheel Mismatch	ABS Module	REFER to Section 206-09.
C1233	Speed Wheel LF Input Signal Missing	ABS Module	REFER to Section 206-09.
C1234	Speed Wheel RF Input Signal Missing	ABS Module	REFER to Section 206-09.
C1235	Speed Wheel RR Input Signal Missing	ABS Module	REFER to Section 206-09.

**DIAGNOSIS AND TESTING (Continued)**

<b>DTC</b>	<b>Description</b>	<b>Source</b>	<b>Action</b>
C1236	Speed Wheel LR Input Signal Missing	ABS Module	REFER to Section 206-09.
C1242	ABS Outlet Valve Coil LR Circuit Failure	ABS Module	REFER to Section 206-09.
C1246	ABS Outlet Valve Coil RR Circuit Failure	ABS Module	REFER to Section 206-09.
C1250	ABS Inlet Valve Coil LR Circuit Failure	ABS Module	REFER to Section 206-09.
C1254	ABS Inlet Valve Coil RR Circuit Failure	ABS Module	REFER to Section 206-09.
C1329	ABS Outlet Valve Coil RF Circuit Excessive Temperature	ABS Module	REFER to Section 206-09.
C1330	ABS Outlet Valve Coil LR Circuit Excessive Temperature	ABS Module	REFER to Section 206-09.
C1331	ABS Outlet Valve Coil RR Circuit Excessive Temperature	ABS Module	REFER to Section 206-09.
C1332	ABS Outlet Valve Coil LF Circuit Excessive Temperature	ABS Module	REFER to Section 206-09.
C1333	ABS Inlet Valve Coil LR Circuit Excessive Temperature	ABS Module	REFER to Section 206-09.
C1334	ABS Inlet Valve Coil LF Circuit Excessive Temperature	ABS Module	REFER to Section 206-09.
C1335	ABS Inlet Valve Coil RF Circuit Excessive Temperature	ABS Module	REFER to Section 206-09.
C1336	ABS Inlet Valve Coil RR Circuit Excessive Temperature	ABS Module	REFER to Section 206-09.
C1404	Traction Control Valve Rear Circuit Failure	ABS Module	REFER to Section 206-09.
C1414	Incorrect Module Design Level	RCM	REFER to Section 501-20B.
C1446	Brake Switch Circuit Failure	ABS Module	REFER to Section 206-09.
C1527	Traction Control Rear Valve Circuit Excessive Temperature	ABS Module	REFER to Section 206-09.
C1531	Dynamic Stability Control LF Valve Circuit Excessive Temperature	ABS Module	REFER to Section 206-09.
C1730	Reference Voltage Out of Range (+5 v)	ABS Module	REFER to Section 206-09.
C1947	Front Driver's Seat Track Position Switch Circuit Short to Ground	RCM	REFER to Section 501-20B.
C1948	Front Driver's Seat Track Position Switch Circuit Resistance Out of Range	RCM	REFER to Section 501-20B.
C1958	Dynamic Stability Control Valve LF Circuit Failure	ABS	REFER to Section 206-09.
C1981	Front Driver's Seat Track Position Switch Circuit Fault	RCM	REFER to Section 501-20B.
C1992	Vehicle Speed Circuit Failure	ACM	REFER to Section 418-01.

**DIAGNOSIS AND TESTING (Continued)**

<b>DTC</b>	<b>Description</b>	<b>Source</b>	<b>Action</b>
C2780	ECU in Manufacturer Sub-State	SJB	<b>NOTE:</b> If DTC B2477 is also present, REFER to the Action for DTC B2477 in this DTC Chart.  This DTC is only present when a new SJB is installed, or the SJB is configured. REFER to Section 204-04 to carry out the TPMS sensor training, then CARRY OUT the SJB self-test in order to clear this DTC.
P0622	Generator Field Terminal Circuit	PCM	REFER to Section 414-00.
P0812	Reverse Input Circuit	ACM	REFER to Section 418-01.
P1260	Theft Detected, Vehicle Immobilized	PCM	REFER to Section 419-01B.
PXXXX	All other DTCs	PCM	REFER to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> .
U0073	Control Module Communication Bus A Off	ABS Module	REFER to Section 418-00.
U0073	Control Module Communication Bus A Off	IC	REFER to Section 418-00.
U0073	Control Module Communication Bus A Off	SJB	REFER to Section 418-00.
U0140	Lost Communication With Body Control Module (GEM)	ACM	REFER to Section 415-00.
U0155	Lost Communication With Instrument Panel Cluster (IC) Control Module	ACM	REFER to Section 415-00.
U0159	Lost Communication With Parking Assist Control Module (PAM)	ACM	DISREGARD the DTC. The vehicle does not have parking aid. CLEAR the DTCs. REPEAT the self-test.
U0184	Lost Communication With Radio (ACM)	SDARS Module	REFER to Section 415-00.
U0193	Lost Communication With Digital Audio Control Module (SDARS)	ACM	REFER to Section 415-00.
U0196	Lost Communication With Entertainment Control Module - Rear (AUX)	ACM	DISREGARD the DTC. The vehicle does not have rear entertainment controls. CLEAR the DTCs. REPEAT the self-test.
U0196	Lost Communication With Entertainment Control Module - Rear (AUX)	SDARS Module	DISREGARD the DTC. The vehicle does not have rear entertainment controls. CLEAR the DTCs. REPEAT the self-test.
U0197	Lost Communication With Telephone Control Module	ACM	DISREGARD the DTC. The vehicle does not have a cellular telephone. CLEAR the DTCs. REPEAT the self-test.
U0197	Lost Communication With Telephone Control Module	SDARS Module	DISREGARD the DTC. The vehicle does not have a cellular telephone. CLEAR the DTCs. REPEAT the self-test.
U0238	Lost Communication With Digital Audio Control Module "D" (DSP)	ACM	DISREGARD the DTC. The vehicle does not have a digital signal processing (DSP) module. CLEAR the DTCs. REPEAT the self-test.

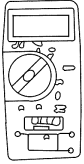
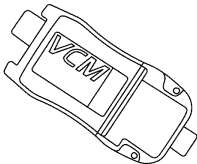
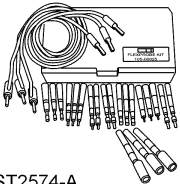
**DIAGNOSIS AND TESTING (Continued)**

<b>DTC</b>	<b>Description</b>	<b>Source</b>	<b>Action</b>
U0249	Lost Communication With Entertainment Control Module - Rear "B" (RCU)	ACM	DISREGARD the DTC. The vehicle does not have rear entertainment controls. CLEAR the DTCs. REPEAT the self-test.
U0249	Lost Communication With Entertainment Control Module - Rear "B" (RCU)	SDARS Module	DISREGARD the DTC. The vehicle does not have rear entertainment controls. CLEAR the DTCs. REPEAT the self-test.
U0255	Lost Communication With Front Controls Interface Module	SDARS Module	DISREGARD the DTC. The vehicle does not have a front controls interface module. CLEAR the DTCs. REPEAT the self-test.
U0256	Lost Communication With Front Display Interface Module	SDARS Module	DISREGARD the DTC. The vehicle does not have a front display interface module. CLEAR the DTCs. REPEAT the self-test.
U1900	CAN Communication Bus Fault - Receive Error	ABS Module	REFER to Section 418-00.
U1900	CAN Communication Bus Fault - Receive Error	IC	REFER to Section 418-00.
U1900	CAN Communication Bus Fault - Receive Error	SJB	REFER to Section 418-00.
U2011	Module Transmitted Invalid Data (Non SCP)	ABS	REFER to Section 418-01.
U2023	Fault Received From External Node	IC	DISREGARD the DTC. CHECK for other DTCs and FOLLOW diagnostics for other modules. CLEAR the DTCs. REPEAT the self-test.
U2033	VSM Communication Link Failure	SJB	REFER to Section 419-01A.
U2050	No Application Present	ABS Module	REFER to Section 418-01.
U2050	No Application Present	ACM	REFER to Section 415-00.
U2050	No Application Present	IC	REFER to Section 418-01.
U2050	No Application Present	SDARS Module	REFER to Section 415-00.
U2050	No Application Present	SJB	REFER to Section 418-01.
U2051	One or More Calibration Files Missing / Corrupt	ABS Module	REFER to Section 418-01.
U2051	One or More Calibration Files Missing / Corrupt	ACM	REFER to Section 415-00.
U2473	Unexpected Vehicle Speed (VSS)	ACM	REFER to Section 415-00.

## DIAGNOSIS AND TESTING

### Smart Junction Box (SJB)

#### Special Tool(s)

 <p>ST1137-A</p>	73III Automotive Meter 105-R0057
 <p>ST2834-A</p>	Vehicle Communication Module (VCM) and Integrated Diagnostic System (IDS) software with appropriate hardware, or equivalent scan tool
 <p>ST2574-A</p>	Flex Probe Kit 105-R025C or equivalent

#### Principles of Operation

**NOTE:** The smart junction box (SJB) is also known as the generic electronic module (GEM).

The SJB is a combination of a multifunction control module and an interior fuse panel. The SJB functions control multiple vehicle systems which include:

- Battery saver
- Convertible top (if equipped)
- Convertible top drop window function (if equipped)
- Exterior lighting
- Heated rear window
- Interior lighting
- Perimeter anti-theft (if equipped)
- Power locks
- Remote keyless entry (RKE)
- Tire pressure monitoring system (TPMS)
- Interfacing with the instrument cluster (IC) TPMS warning lamp and other warning chimes

The SJB is connected to the medium speed controller area network (MS-CAN) communication network. The SJB controls both interior and exterior lighting, body functions, active anti-theft functions (perimeter alarm), RKE functions, and the TPMS. The SJB receives wireless signals from both the RKE transmitters and the TPMS sensors via a TPMS/RKE antenna that is fixed to the exterior of the SJB plastic casing.

Refer to Section 418-01 for programmable parameters in the SJB.

#### Inspection and Verification

1. Verify the customer concern.
2. Visually inspect for obvious signs of electrical damage.

#### Visual Inspection Chart

Electrical
<ul style="list-style-type: none"> <li>• Bussed electrical center (BEC) fuse(s):               <ul style="list-style-type: none"> <li>— 59 (30A)</li> <li>— 63 (30A)</li> <li>— 67 (30A)</li> <li>— 68 (20A)</li> </ul> </li> <li>• Wiring, terminals or connectors</li> <li>• Smart junction box (SJB)</li> </ul>

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.
4. **NOTE:** Make sure to use the latest scan tool software release.

If the cause is not visually evident, connect the scan tool to the data link connector (DLC).

5. **NOTE:** The vehicle communication module (VCM) LED prove-out confirms power and ground from the DLC are provided to the VCM.

If the scan tool does not communicate with the VCM:

- Check the VCM connection to the vehicle.
- Check the scan tool connection to the VCM.
- Refer to Section 418-00, No Power To The Scan Tool, to diagnose no communication with the scan tool.

**DIAGNOSIS AND TESTING (Continued)**

6. If the scan tool does not communicate with the vehicle:
  - Verify the ignition key is in the ON position.
  - Verify the scan tool operation with a known good vehicle.
  - Refer to Section 418-00 to diagnose no response from the PCM.
7. Carry out the network test.
  - If the scan tool responds with no communication for one or more modules, refer to Section 418-00.
  - If the network test passes, retrieve and record the continuous memory DTCs.
8. Clear the continuous DTCs and carry out the self-test diagnostics for the SJB.

9. **NOTE:** In order to properly run the self-test, the convertible top (if equipped) must be in the full-down position and the doors must be closed. If these conditions are not met, DTCs B1141, B1142, B1319 and/or B1327 may be set. In this case, they would be product characteristic and diagnostics should not be followed for these DTCs at this time. Clear the DTCs. Repeat the self-test with the convertible top (if equipped) in the full-down position and both doors closed.

If the DTCs retrieved are related to the concern, go to Diagnostic Trouble Code (DTC) Chart in this section.

10. If no DTCs related to the concern are retrieved, GO to [Symptom Chart](#).

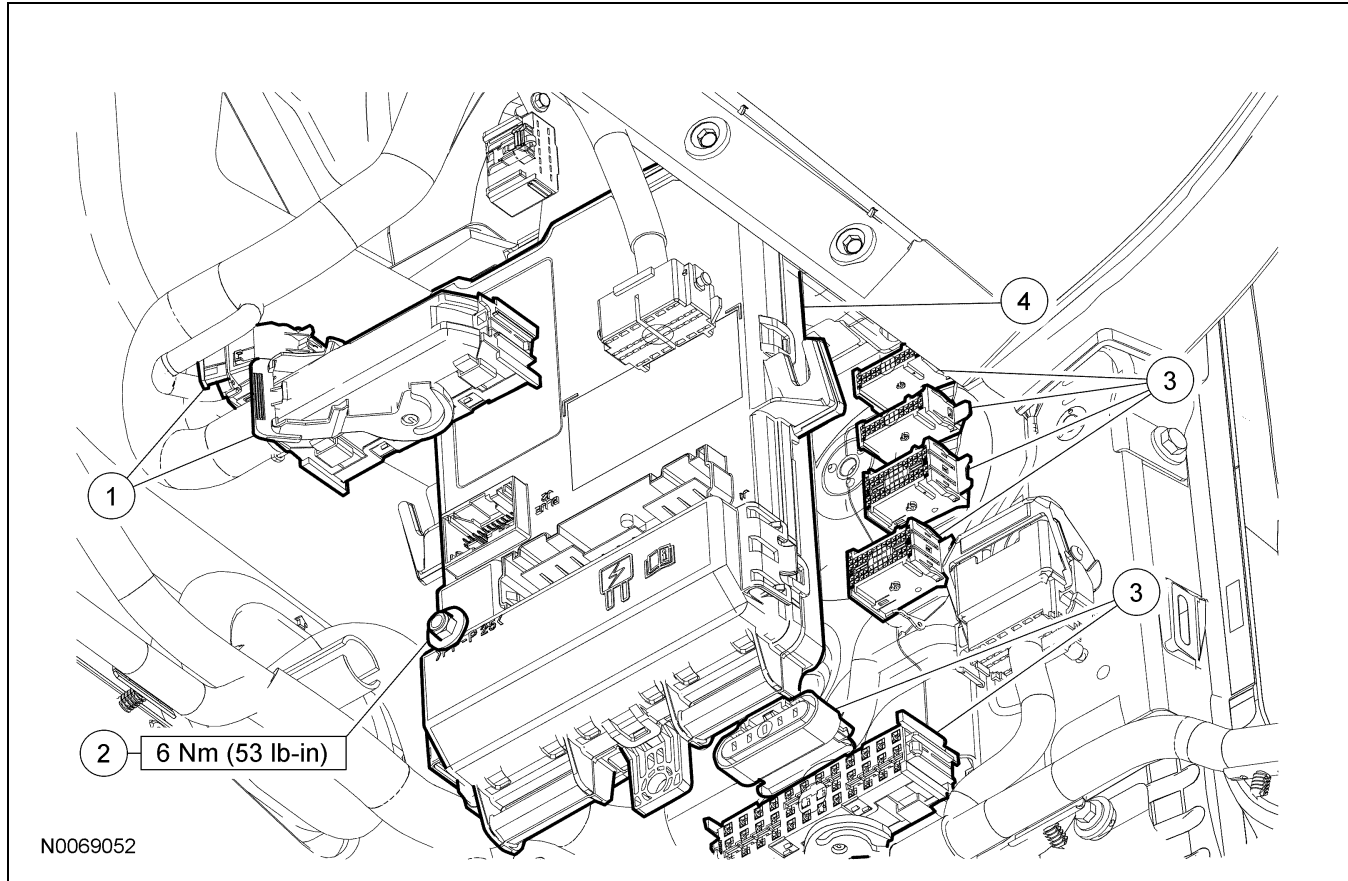
**Symptom Chart**

**Symptom Chart**

Condition	Possible Sources	Action
<ul style="list-style-type: none"> <li>• No communication with the smart junction box (SJB)</li> </ul>	<ul style="list-style-type: none"> <li>• Fuse(s)</li> <li>• Wiring, terminals or connectors</li> <li>• SJB</li> </ul>	<ul style="list-style-type: none"> <li>• REFER to Section 418-00.</li> </ul>

## REMOVAL AND INSTALLATION

### Smart Junction Box (SJB)



Item	Part Number	Description
1	—	Front smart junction box (SJB) electrical connectors (2 required) (part of 14401)
2	W702751	SJB nut
3	—	Rear SJB electrical connectors (6 required) (part of 14A005)
4	14B476	SJB

#### Removal

**⚠ CAUTION:** Electronic modules are sensitive to static electrical charges. If exposed to these charges, damage may result.

**NOTE:** Prior to the removal of the module, it is necessary to upload the module configuration information to a scan tool. This information must be downloaded into the new smart junction box (SJB) after installation. For additional information, refer to Section 418-01.

**NOTE:** The tire pressure monitoring system (TPMS) functionality is integral to the SJB.

**NOTE:** A new SJB is delivered in a manufacturing mode with 6 pre-set DTCs. These DTCs require that successful configuration of the SJB occurs, then successful TPMS sensor training occurs, then a successful self-test occurs, including clearing of DTCs. These steps are required in order to clear the 6 pre-set manufacturing mode DTCs. The 6 pre-set manufacturing mode DTCs are as follows:

- B2477 (Module Configuration Failure)
- B2868 (Left Front Tire Pressure Sensor Fault)
- B2869 (Right Front Tire Pressure Sensor Fault)
- B2870 (Right Rear Tire Pressure Sensor Fault)
- B2871 (Left Rear Tire Pressure Sensor Fault)
- C2780 (ECU in Manufacturer Sub-State)

**REMOVAL AND INSTALLATION (Continued)**


1. **NOTE:** If the SJB is being replaced, follow this step. If the SJB is not being replaced, go to Step 2.

Upload the module configuration information from the SJB into the scan tool. For additional information, refer to Section 418-01.

2. Remove the RH A-pillar lower trim panel. For additional information, refer to Section 501-05.
3. **NOTE:** The SJB electrical connector levers must click into a fully released position before they can be removed.  
Disconnect the 2 front SJB electrical connectors.
4. Remove the SJB nut.
5. Slide the SJB downward and position the SJB forward to access the rear electrical connectors.
6. **NOTE:** The SJB electrical connector levers must click into a fully released position before they can be removed.  
Disconnect the 6 rear SJB electrical connectors and remove the SJB.

**Installation**

**NOTE:** When a new SJB is installed, all customer remote keyless entry (RKE) transmitters may be required to be present in order to program the RKE transmitters to the new SJB.

1.  **CAUTION: Make sure the wiring harnesses are correctly routed. Pinching the wiring harnesses between the SJB and the mounting surface may cause damage to the wiring harness.**

**NOTE:** Do not remove the watershield from the new SJB.

**NOTE:** The SJB electrical connector levers must click into a fully closed (connected) position when installing.

Connect the 6 rear SJB electrical connectors and install the SJB.

2. Install the SJB nut.
  - Tighten to 6 Nm (53 lb-in).
3. **NOTE:** The SJB electrical connector levers must click into a fully closed (connected) position when installing.  
Connect the 2 front SJB electrical connectors by fully engaging the levers until an audible click is heard.
4. **NOTE:** If the SJB was not replaced, the procedure is completed after this step. If the SJB was replaced, follow steps 4-7.  
Install the RH A-pillar lower trim panel. For additional information, refer to Section 501-05.

5. **NOTE:** When successful, this step provides the calibration necessary for the SJB operation and clears the DTC B2477. The clearing of this DTC indicates the calibration data has been successfully downloaded to the new SJB.

**NOTE:** When successful, this step also programs the RKE transmitters into the new SJB. In the event the RKE transmitters do not program to the new SJB, all of the RKE transmitters will need to be present and refer to Section 501-14, Remote Keyless Entry Transmitter Programming. This action will program the RKE transmitters into the new SJB.

Download the SJB configuration information from the scan tool into the new SJB. For additional information, refer to Section 418-01.

6. **NOTE:** When successful, this step clears DTCs B2868, B2869, B2870, and B2871. The clearing of these DTCs indicates the SJB has recognized the tire pressure sensors during the tire pressure sensor training procedure.  
Train the tire pressure sensors. For additional information, refer to Section 204-04.

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**REMOVAL AND INSTALLATION (Continued)**

7. **NOTE:** This step is required to clear DTC C2780, allow the SJB to exit the manufacturing mode, and to be sure there are no other concerns with the newly programmed SJB.

**NOTE:** DTC C2780 will not clear if any of the other 5 manufacturing mode DTCs are present in the SJB.

Carry out the SJB on-demand self-test. Clear the DTCs and then retrieve the DTCs to confirm all DTCs have been cleared.

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## DESCRIPTION AND OPERATION

### Electronic Compass

The compass display and module are an integral part of the interior rear view mirror. A 1 or 2 character display located in the upper right hand side of the mirror indicates the current direction of the vehicle (N, NE, E, SE, S, SW, W, NW). The compass continuously recalibrates due to changes in the magnetic field and remains accurate during most driving conditions. The compass display can be turned off and on by pressing the switch on the mirror.

### Compass Accuracy

Driving near power lines, or driving in the area of large iron or steel structures can temporarily change the compass heading. If the compass remains inaccurate after driving near such objects, calibrate the compass. Refer to Compass Calibration in this section.

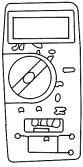
Most geographic areas (zones) have a magnetic north compass point that varies slightly from the northerly direction on maps. This variation is 4 degrees between the adjacent zones and becomes noticeable as the vehicle crosses multiple zones. A correct zone setting eliminates the error. Refer to Compass Zone Adjustment in this section.

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## DIAGNOSIS AND TESTING

### Electronic Compass

#### Special Tool(s)

 <p>ST1137-A</p>	<p>73III Automotive Meter 105-R0057 or equivalent</p>
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#### Principles of Operation

**NOTE:** The smart junction box (SJB) is also known as the generic electronic module (GEM).

The compass is capable of self-calibrating. This decreases the need to manually set the compass. If the compass is displaying a heading (and not displaying the C or CAL indicator), the compass is in auto-calibration mode. In this mode, the compass automatically calibrates for changes in vehicle magnetics over the life of the vehicle. This auto-calibration mode assures the compass heading is always accurate.

If the compass displays the C or CAL indicator for an extended period of time (longer than 5 seconds), this indicates the compass has been placed in the manual calibration mode and therefore, requires manual calibration. The compass may temporarily display the C or CAL indicator if the vehicle characteristics have changed (car wash, collision or other factors), with the C or CAL indicator turning off after the vehicle characteristics have returned to normal. If the C or CAL indicator does not turn off after the vehicle characteristics have returned to normal, manual calibration will be necessary. After calibration, the normal compass display will return.

#### Symptom Chart

##### Symptom Chart

Condition	Possible Sources	Action
<ul style="list-style-type: none"> <li>The compass is inoperative</li> </ul>	<ul style="list-style-type: none"> <li>Fuse</li> <li>Wiring, terminals or connectors</li> <li>Interior rear view mirror</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">GO to Pinpoint Test A.</a></li> </ul>
<ul style="list-style-type: none"> <li>The compass is inaccurate</li> </ul>	<ul style="list-style-type: none"> <li>Incorrect compass zone setting</li> <li>Compass calibration</li> <li>Interior rear view mirror</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">GO to Pinpoint Test B.</a></li> </ul>

Compass calibration/zone adjustment is controlled by the MODE button on the mirror, which provides access to the calibration and zone adjustment procedures. This is the same switch that is used to turn the compass display on and off.

Excessive magnetism in or near the vehicle may cause the compass to illuminate all segments on the display. In order to distinguish between vehicle magnetics and surrounding magnetics, drive the vehicle to an area that is free from large metal objects, such as bridges, steel buildings, etc. Cycling the key ON and OFF resets the compass. If all segments are illuminated within 20 seconds, the mirror should be replaced due to excessive vehicle magnetism. Refer to Section 501-09.

#### Inspection and Verification

1. Verify the customer concern.
2. Visually inspect for obvious signs of mechanical or electrical damage.

#### Visual Inspection Chart

Mechanical	Electrical
<ul style="list-style-type: none"> <li>Interior rear view mirror</li> </ul>	<ul style="list-style-type: none"> <li>Smart junction box (SJB) fuse 7 (10A)</li> <li>Wiring, terminals or connectors</li> <li>Compass sensor (integral to the interior rear view mirror)</li> </ul>

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.
4. If the cause is not visually evident, verify the symptom. [GO to Symptom Chart.](#)

**DIAGNOSIS AND TESTING (Continued)**

**Symptom Chart (Continued)**

Condition	Possible Sources	Action
<ul style="list-style-type: none"> <li>The display is locked in one position — all segments on</li> </ul>	<ul style="list-style-type: none"> <li>Interior rear view mirror</li> </ul>	<ul style="list-style-type: none"> <li>INSTALL a new interior rear view mirror. REFER to Section 501-09. TEST the system for normal operation.</li> </ul>
<ul style="list-style-type: none"> <li>The display is locked in one position — display of “C” or “CAL”</li> </ul>	<ul style="list-style-type: none"> <li>Compass has lost calibration</li> <li>Interior rear view mirror</li> </ul>	<ul style="list-style-type: none"> <li>CYCLE the ignition and DRIVE slowly in circles until the “C” or “CAL” disappears and the compass returns to a normal display. If this does not occur within 5 complete circles, INSTALL a new interior rear view mirror. REFER to Section 501-09. TEST the system for normal operation.</li> </ul>

**Pinpoint Tests**

**Pinpoint Test A: The Compass Is Inoperative**

Refer to Wiring Diagrams Cell 124, Power Mirrors for schematic and connector information.

**Normal Operation**

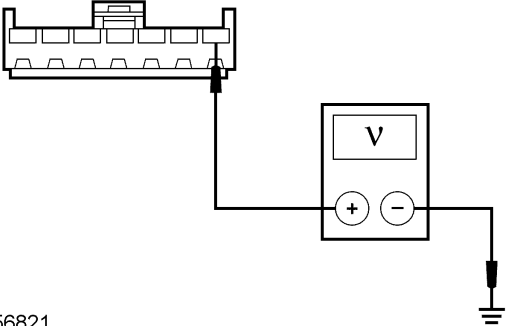
The compass display and module are integrated into the interior rear view mirror. The interior rear view mirror receives switched battery voltage through circuit 46 (VT). Circuit 1205 (BK) provides the mirror ground.

**This pinpoint test is intended to diagnose the following:**

- Fuse
- Wiring, terminals or connectors
- Interior rear view mirror

**PINPOINT TEST A: THE COMPASS IS INOPERATIVE**

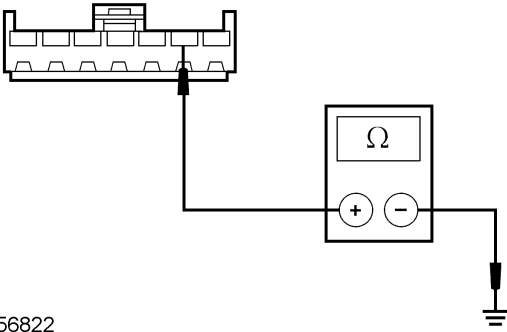
**NOTE:** Make sure the compass is turned on by pressing the MODE button before carrying out this pinpoint test.

Test Step	Result / Action to Take
<p><b>A1 CHECK CIRCUIT 46 (VT) FOR VOLTAGE</b></p> <ul style="list-style-type: none"> <li>• Key in OFF position.</li> <li>• Disconnect: Interior Rear View Mirror C911.</li> <li>• Key in ON position.</li> <li>• Measure the voltage between the interior rear view mirror C911-1, circuit 46 (VT), harness side and ground.</li> </ul>  <p>A0056821</p> <ul style="list-style-type: none"> <li>• Is the voltage greater than 10 volts?</li> </ul>	<p><b>Yes</b> GO to A2.</p> <p><b>No</b> VERIFY the SJB fuse 7 (10A) is OK. If OK, REPAIR the circuit. TEST the system for normal operation.</p>

(Continued)

**DIAGNOSIS AND TESTING (Continued)**

**PINPOINT TEST A: THE COMPASS IS INOPERATIVE (Continued)**

Test Step		Result / Action to Take
<b>A2</b>	<p><b>CHECK CIRCUIT 1205 (BK) FOR AN OPEN</b></p> <ul style="list-style-type: none"> <li>Key in OFF position.</li> <li>Measure the resistance between the interior rear view mirror C911-2, circuit 1205 (BK), harness side and ground.</li> </ul>  <p>A0056822</p> <ul style="list-style-type: none"> <li>Is the resistance less than 5 ohms?</li> </ul>	<p><b>Yes</b> INSTALL a new interior rear view mirror. REFER to Section 501-09. TEST the system for normal operation.</p> <p><b>No</b> REPAIR the circuit. TEST the system for normal operation.</p>

**Pinpoint Test B: The Compass Is Inaccurate**

**Normal Operation**

The compass display and module are integrated into the interior rear view mirror. The compass adjustment and zone variation are controlled by the MODE button on the mirror.

**This pinpoint test is intended to diagnose the following:**

- Incorrect compass zone setting
- Compass calibration
- Interior rear view mirror

**PINPOINT TEST B: THE COMPASS IS INACCURATE**

Test Step		Result / Action to Take
<b>B1</b>	<p><b>CHECK THE COMPASS ZONE ADJUSTMENT</b></p> <ul style="list-style-type: none"> <li>Carry out the compass zone adjustment procedure. Refer to Compass Zone Adjustment in this section.</li> <li><b>Does the compass zone set correctly?</b></li> </ul>	<p><b>Yes</b> GO to <b>B2</b>.</p> <p><b>No</b> INSTALL a new interior rear view mirror. REFER to Section 501-09. TEST the system for normal operation.</p>
<b>B2</b>	<p><b>CALIBRATE THE COMPASS</b></p> <ul style="list-style-type: none"> <li>Carry out the compass calibration adjustment procedure. Refer to Compass Calibration in this section.</li> <li><b>Does the compass calibrate correctly?</b></li> </ul>	<p><b>Yes</b> GO to <b>B3</b>.</p> <p><b>No</b> INSTALL a new interior rear view mirror. REFER to Section 501-09. TEST the system for normal operation.</p>
<b>B3</b>	<p><b>CHECK THE VEHICLE ACCURACY</b></p> <ul style="list-style-type: none"> <li>Position the vehicle and observe the compass display as follows:</li> </ul>	

(Continued)

**DIAGNOSIS AND TESTING (Continued)**

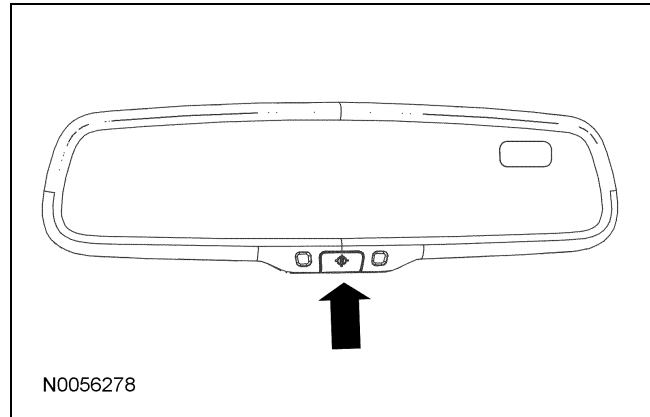
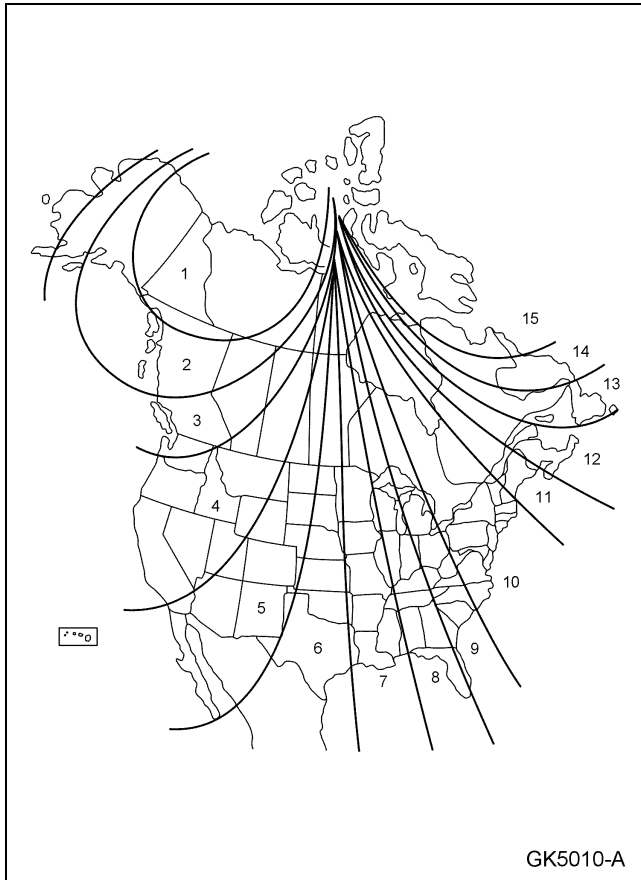
**PINPOINT TEST B: THE COMPASS IS INACCURATE (Continued)**

Test Step		Result / Action to Take
<b>B3</b>	<b>CHECK THE VEHICLE ACCURACY (Continued)</b>	<p><b>Yes</b> The compass is operating correctly.</p> <p><b>No</b> INSTALL a new interior rear view mirror. REFER to Section 501-09. TEST the system for normal operation.</p>
<b>Direction</b>	<b>Compass Display</b>	
North	N	
Northeast	NE	
East	E	
Southeast	SE	
South	S	
Southwest	SW	
West	W	
Northwest	NW	
<ul style="list-style-type: none"> <li>• Does the compass calibrate correctly?</li> </ul>		

## GENERAL PROCEDURES

### Compass Zone Adjustment

1. Refer to the compass calibration zone map to select the correct compass zone setting for the geographic location of the vehicle.



3. Momentarily press and release the MODE button to increase the zone increment by one. Set the zone display number to match the vehicle location that is shown on the compass calibration zone map.
  4. Release the MODE button for 10 seconds to exit the zone setting mode.
2. **NOTE:** The compass display can be turned on and off using the MODE button (shown). The key must be in the ON position.  
With the compass display turned on, press and hold the MODE button (for 3 seconds) until the compass display shows the current zone setting.

## GENERAL PROCEDURES

### Compass Calibration

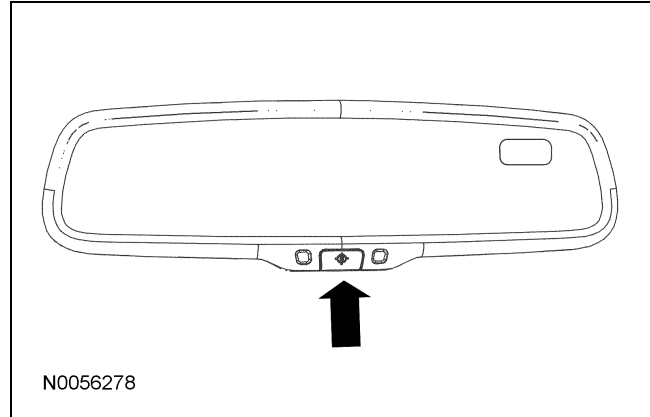
1. **NOTE:** For optimum calibration, drive to an open, level location away from large metallic objects or structures such as bridges, steel buildings, etc. Switch off all non-essential electrical accessories (heated rear window, heater fan, A/C, map lamps, and wipers) and make sure all doors are closed.

Start the vehicle.

2. **NOTE:** The vehicle will remain in CAL mode until the compass has been successfully calibrated.

**NOTE:** While holding the MODE button down, the compass display will first enter the ZONE setting mode (after 3 seconds) and then after another 3 seconds (6 seconds total), the compass display will enter the CAL mode.

Press and hold (for approximately 6 seconds) the MODE button until the C or CAL indicator appears in the display, then release the MODE button.



3. **NOTE:** If the CAL indicator does not turn off after the vehicle is driven in a circle at least 5 times, repeat the procedure.  
Drive the vehicle slowly at less than 5 km/h (3 mph) in a continuous circle until the C or CAL indicator disappears from the display and the compass heading is displayed.
4. If the C or CAL indicator does not turn off after driving in a circle at least 5 times (and the procedure has been repeated at least once), install a new interior rear view mirror with electronic compass. For additional information, refer to Section 501-09.