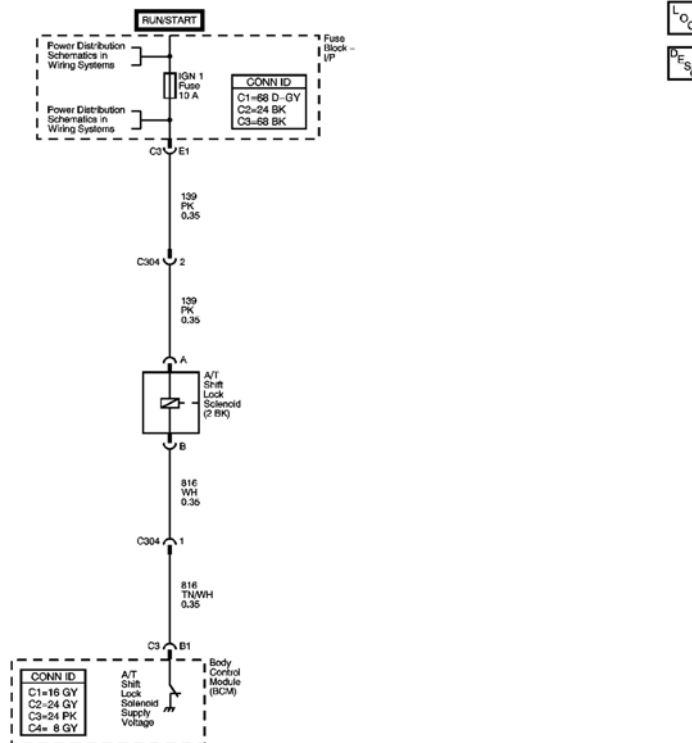


# 2004 TRANSMISSION

## Shift Lock Control - Vue

### SCHEMATIC AND ROUTING DIAGRAMS

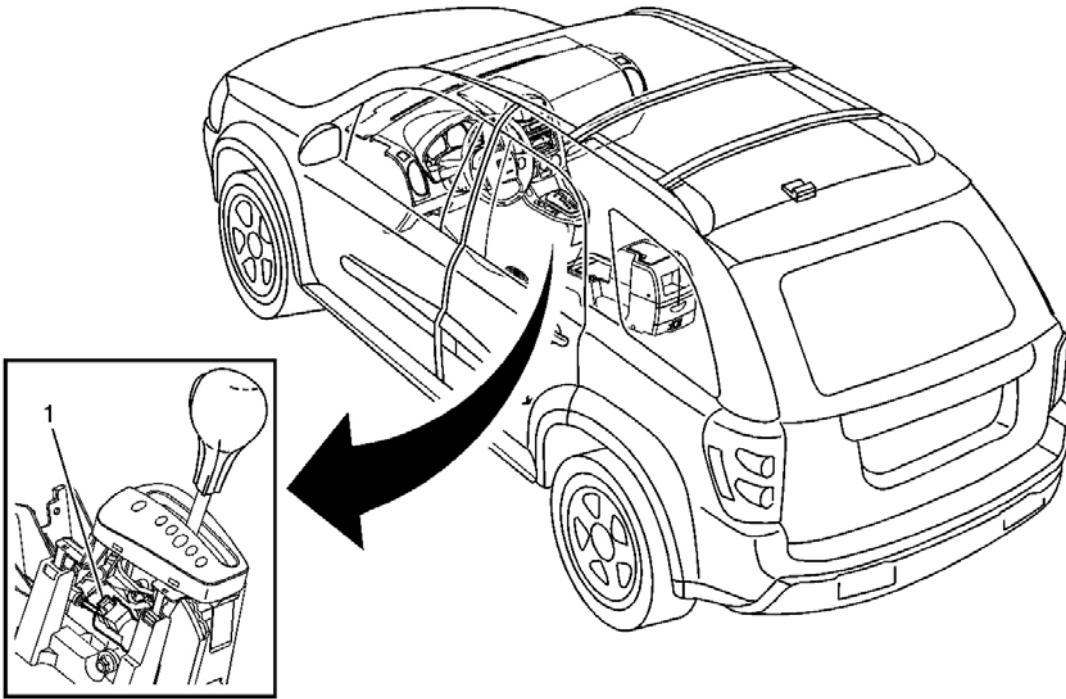
#### AUTOMATIC TRANSMISSION SHIFT LOCK CONTROL SCHEMATICS



**Fig. 1: Automatic Transmission Shift Lock Control Schematics**  
Courtesy of GENERAL MOTORS CORP.

### COMPONENT LOCATOR

#### AUTOMATIC TRANSMISSION SHIFT LOCK CONTROL COMPONENT VIEWS



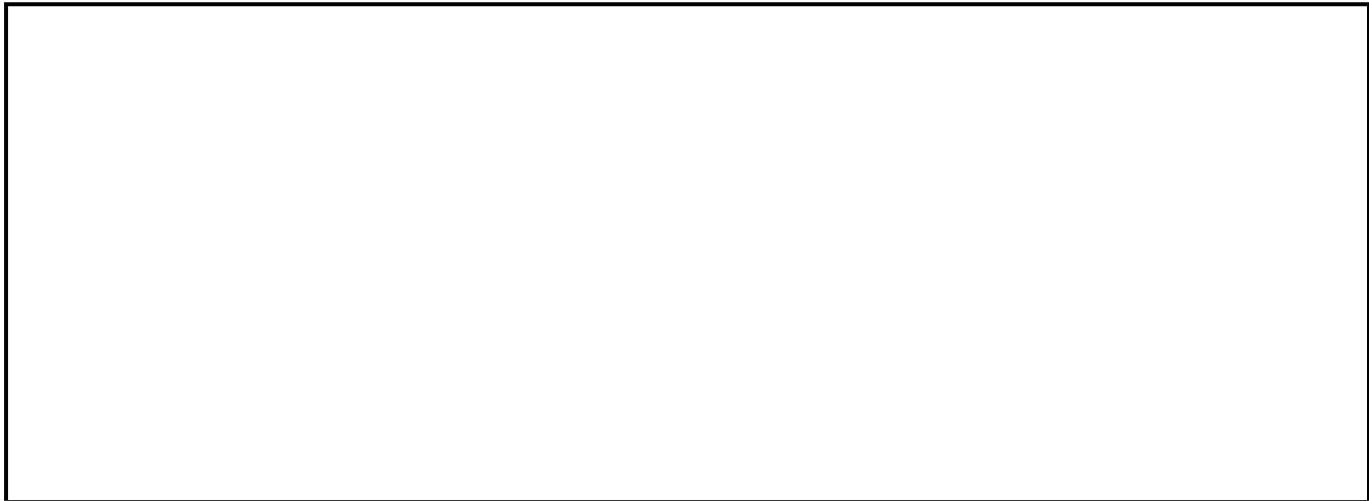
**Fig. 2: A/T Shift Lock Controls Component View**  
 Courtesy of GENERAL MOTORS CORP.

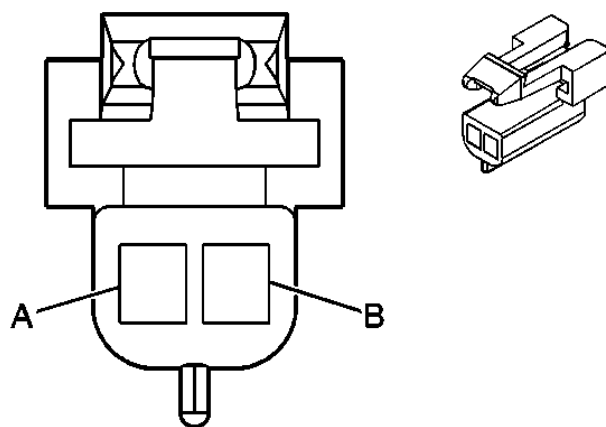
**Callouts For Fig. 2**

Callout	Component Name
1	A/T Shift Lock Solenoid (2 BK)

**AUTOMATIC TRANSMISSION SHIFT LOCK CONTROL CONNECTOR END VIEWS**

**A/T Shift Lock Solenoid Terminal Identification**





<b>Connector Part Information</b>		<ul style="list-style-type: none"> <li>• OEM: 12052832</li> <li>• Service: 12101825</li> <li>• 2-Way F Metri-Pack 150 Series (BK)</li> </ul>	
Pin	Wire Color	Circuit No.	Function
A	PK	139	Ignition 1 Voltage
B	WH	816	A/T Shift Lock Solenoid Supply Voltage

## DIAGNOSTIC INFORMATION AND PROCEDURES

### DIAGNOSTIC STARTING POINT - AUTOMATIC TRANSMISSION SHIFT LOCK CONTROL

Begin the system diagnosis with the **Diagnostic System Check - Automatic Transmission Shift Lock Control**. The Diagnostic System Check will provide the following information:

- The identification of the control modules which command the system
- The ability of the control modules to communicate through the serial data circuit
- The identification of any stored diagnostic trouble codes (DTCs) and their status

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

### DIAGNOSTIC SYSTEM CHECK - AUTOMATIC TRANSMISSION SHIFT LOCK CONTROL

#### Test Description

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

**2:** Lack of communication may be due to a partial malfunction of the class 2 serial data circuit or due to a

total malfunction of the class 2 serial data circuit. The specified procedure will determine the particular condition.

**3:** Checks for Diagnostic Trouble Codes (DTCs) in the BCM and the PCM.

**4:** The presence of DTCs which begin with "U" indicate some other module is not communicating. The specified procedure will compile all the available information before tests are performed.

### Diagnostic System Check - Automatic Transmission Shift Lock Control

Step	Action	Yes	No
1	Install a scan tool. Does the scan tool power up?	Go to <b>Step 2</b>	Go to <b><u>Scan Tool Does Not Power Up</u></b> in Data Link Communications
2	1. Turn ON the ignition, with the engine OFF. 2. Attempt to establish communication with the body control module (BCM) and the powertrain control module (PCM).  Does the scan tool communicate with the BCM and PCM?	Go to <b>Step 3</b>	Go to <b><u>Scan Tool Does Not Communicate with Class 2 Device</u></b> in Data Link Communications
3	Select the BCM and PCM display DTCs function on the scan tool. Does the scan tool display any DTCs?	Go to <b>Step 4</b>	Go to <b><u>Symptoms - Automatic Transmission Shift Lock Control</u></b>
4	Does the scan tool display any DTCs which begin with a "U"?	Go to <b><u>Diagnostic Trouble Code (DTC) List</u></b> in Data Link Communications	Go to <b>Step 5</b>
5	Does the scan tool display DTC B1000?	Go to <b><u>Diagnostic Trouble Code (DTC) List</u></b> in Body Control System	Go to <b>Step 6</b>
6	Does the scan tool display DTC P0713, P0719 or P0724?	Go to <b><u>Diagnostic Trouble Code (DTC) List/Type</u></b> in Automatic Transmissions	Go to <b>Step 7</b>
7	Does the scan tool display DTC B2707 or B2708?	Go to <b><u>Diagnostic Trouble Code (DTC) List</u></b>	Go to <b><u>Symptoms - Automatic Transmission Shift Lock Control</u></b>

### SCAN TOOL OUTPUT CONTROLS

#### Scan Tool Output Controls

Scan Tool Output Control	Additional Menu Selection(s)	Description
Shifter	Special	Command turns ON and OFF the controlled ground to the shift lock

Unlock Cmd.	Functions-Output Control	control solenoid. When ON a ground is supplied to the control circuit of the automatic transmission shift lock control solenoid.
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## SCAN TOOL DATA LIST

### Body Control Module (BCM)

Scan Tool Parameter	Data List	Units Displayed	Typical Data Value
<b>Operating Conditions: Ignition ON, with the engine OFF. Transmission shift lever in the PARK position.</b>			
Battery 1	Ignition	Volts	0-25 V
Power Mode	Ignition	OFF/ACCY/RUN/CRANK	RUN
Shifter Lock Fbbk	Chassis Data	High/Low	High

### Engine Control Module (ECM)

Scan Tool Parameter	Data List	Units Displayed	Typical Data Value
<b>Operating Conditions: Ignition ON, with the engine OFF. Transmission shift lever in the PARK position.</b>			
Battery 1	TCM	Volts	0-25 V
Shifter Inhibit	TCM	Loe TFT/Normal	Normal

## SCAN TOOL DATA DEFINITIONS

### Body Control Module (BCM)

#### Battery 1

Displays 0.0-25.5 V. This parameter is the system voltage measured by the BCM at the BCM battery input.

#### Power Model

Displays OFF/ACCY/RUN/CRANK. This parameter displays the ignition switch position.

#### Shifter Unlock Fdbk

Displays High/Low. This parameter indicates Low when the mechanical lock is engaged preventing an inadvertent shift out of the PARK position. The Display indicates High when BCM opens the controlled ground circuit of the shift lock control solenoid.

### Engine Control Module (ECM)

#### Battery 1

Displays 0.0-25.5 V. This parameter is the system voltage measured by the BCM at the BCM battery input.

## Shifter Inhibit

Displays Low TFT/Normal. On vehicles with the CVT transmission, this parameter indicates the ECM operational status of the transmission. Low TFT indicates the transmission fluid temperature is too low to allow the shift lever out of the PARK position. Normal indicates transmission fluid temperature is warm enough to allow normal shift lever operation.

## DIAGNOSTIC TROUBLE CODE (DTC) LIST

### Diagnostic Trouble Code (DTC) List

DTC	Diagnostic Procedure	Module(s)
B2707	<u>DTC B2707</u>	Body Control Module (BCM)
B2708	<u>DTC B2708</u>	Body Control Module (BCM)

### DTC B2707

#### Circuit Description

The body control module (BCM) controls the automatic transmission shift lock control solenoid by providing a controlled ground to the automatic transmission shift lock control solenoid. The BCM utilizes a smart driver to monitor the voltage and current flow of the automatic transmission shift lock control solenoid control circuit. DTC B2707 will set when the body control module (BCM) detects a short to ground when the solenoid is in the OFF state.

#### Conditions for Running the DTC

- The ignition switch is in the ON position.
- The brake pedal is released.
- The transmission the PARK position.

#### Conditions for Setting the DTC

The BCM detects the shift lock control solenoid control circuit is grounded for a minimum of 1 second.

#### Action Taken When the DTC Sets

The BCM disables shift lock control solenoid operation until the next key cycle.

#### Conditions for Clearing the DTC

- A current DTC B2707 will clear when the malfunction is no longer present and the ignition switch is cycled.
- All BCM history codes will clear after 100 ignition cycles with no current codes active during the 100 ignition cycles.

#### Diagnostic Aids

- If the A/T shift lock control circuit is shorted to ground, the automatic transmission shift lock control solenoid will be energized. The shift lever will not shift out of PARK position with the brake pedal depressed.
- Perform the tests while wiggling the wires and connectors. This may often cause an intermittent malfunction to appear. Refer to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems.

### Test Description

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

**2:** Listen for an audible click when the automatic transmission shift lock control solenoid operates. Command both the ON and OFF states. Repeat the commands as necessary.

**4:** Tests for ground at the control circuit of the automatic transmission shift lock control solenoid.

### DTC B2707

Step	Action	Yes	No
<b>Schematic Reference: Automatic Transmission Shift Lock Control Schematics</b> <b>Connector End View Reference: Body Control System Connector End Views</b>			
1	Did you perform A Diagnostic System Check - Automatic Transmission Shift Lock Control?	Go to <b>Step 2</b>	Go to <b><u>Diagnostic System Check - Automatic Transmission Shift Lock Control</u></b>
2	<ol style="list-style-type: none"> <li>1. Install a scan tool.</li> <li>2. Turn ON the ignition, with the engine OFF.</li> <li>3. With a scan tool, command the shifter unlock solenoid output control parameter ON and OFF.</li> </ol> <p>Does the automatic transmission shift lock control solenoid turn ON and OFF with each command?</p>	Go to <b><u>Testing for Intermittent Conditions and Poor Connections</u></b> in Wiring Systems	Go to <b>Step 3</b>
3	<ol style="list-style-type: none"> <li>1. Turn OFF the ignition.</li> <li>2. Connect a test lamp between the automatic transmission shift lock control solenoid voltage supply circuit at the connector of the automatic transmission shift lock control solenoid connector and a good ground.</li> <li>3. Turn ON the ignition, with the engine OFF.</li> </ol>		

	Does the test lamp illuminate?	Go to <b>Step 4</b>	Go to <b>Step 8</b>
<b>4</b>	<ol style="list-style-type: none"> <li>1. Turn OFF the ignition.</li> <li>2. Disconnect the automatic transmission shift lock control solenoid.</li> <li>3. Connect a test lamp between the shift lock solenoid control circuit at the connector of the automatic transmission shift lock solenoid and battery positive voltage.</li> <li>4. Turn ON the ignition, with the engine OFF.</li> <li>5. With a scan tool, command the shifter unlock solenoid output control ON and OFF several times.</li> </ol> <p>Does the test lamp illuminate ON and OFF with each command?</p>	Go to <b>Step 6</b>	Go to <b>Step 5</b>
<b>5</b>	<p>Test the control circuit of the automatic transmission shift lock control solenoid for an open. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to <b>Step 11</b>	Go to <b>Step 7</b>
<b>6</b>	<p>Inspect for poor connections at the harness connector of the automatic transmission shift lock control solenoid. Refer to <b>Testing for Intermittent Conditions and Poor Connections</b> and <b>Connector Repairs</b> in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to <b>Step 11</b>	Go to <b>Step 9</b>
<b>7</b>	<p>Inspect for poor connections at the harness connector of the body control module. Refer to <b>Testing for Intermittent Conditions and Poor Connections</b> and <b>Connector Repairs</b> in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to <b>Step 11</b>	Go to <b>Step 10</b>
<b>8</b>	<p>Repair the open or short to ground in the automatic transmission shift lock control solenoid voltage supply circuit. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems.</p> <p>Did you complete the repair?</p>	Go to <b>Step 11</b>	-
<b>9</b>	<p>Replace the automatic transmission shift lock control solenoid. Refer to <b>Automatic Transmission Shift Lock Actuator Replacement</b>.</p> <p>Did you complete the replacement?</p>	Go to <b>Step 11</b>	-
	Replace the body control module (BCM). Refer		



10	to <b>Body Control Module Replacement</b> in Body Control System. Did you complete the replacement?	Go to <b>Step 11</b>	-
11	1. Use the scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text.  Does the DTC reset?	Go to <b>Step 2</b>	System OK

## DTC B2708

### Circuit Description

The body control module (BCM) controls the automatic transmission shift lock control solenoid by providing a controlled ground to the automatic transmission shift lock control solenoid. The BCM utilizes a smart driver to monitor the voltage and current flow of the automatic transmission shift lock control solenoid control circuit. DTC B2708 will set when the body control module (BCM) detects a short to voltage when the automatic transmission shift lock control solenoid is active.

### Conditions for Running the DTC

- The ignition switch is in the ON position.
- The brake pedal is depressed.
- The transmission the PARK position.

### Conditions for Setting the DTC

The BCM detects a short to voltage at the control circuit driver of the automatic transmission shift lock control solenoid for a minimum of 1 second.

### Action Taken When the DTC Sets

1. The BCM disables shift lock control solenoid operation until the next key cycle.
2. The security light, service light and MIL lamp are always ON with the ignition OFF.

### Conditions for Clearing the DTC

- A current DTC B2708 will clear when the malfunction is no longer present and the ignition switch is cycled.
- All BCM history codes will clear after 100 ignition cycles with no current codes active during the 100 ignition cycles.

### Diagnostic Aids

- If the A/T shift lock control circuit is shorted to battery positive voltage, the automatic transmission shift lock control solenoid will be unlocked. The vehicle will shift out of PARK without depressing the brake pedal.
- Perform the tests while wiggling the wires and connectors. This may often cause an intermittent malfunction to appear. Refer to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems.

### Test Description

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

**2:** Listen for an audible click when the automatic transmission shift lock control solenoid operates. Command both the ON and OFF states. Repeat the commands as necessary.

**3:** Tests the control circuit of the automatic transmission shift lock control solenoid.

### DTC B2708

Step	Action	Yes	No
<b>Schematic Reference: Automatic Transmission Shift Lock Control Schematics</b> <b>Connector End View Reference: Body Control System Connector End Views</b>			
1	Did you perform A Diagnostic System Check - Automatic Transmission Shift Lock Control?	Go to <b>Step 2</b>	Go to <b><u>Diagnostic System Check - Automatic Transmission Shift Lock Control</u></b>
2	<ol style="list-style-type: none"> <li>1. Install a scan tool.</li> <li>2. Turn ON the ignition, with the engine OFF.</li> <li>3. With a scan tool, command the shifter unlock parameter output control ON and OFF.</li> </ol> <p>Does the automatic transmission shift lock control solenoid turn ON and OFF with each command?</p>	Go to <b><u>Testing for Intermittent Conditions and Poor Connections</u></b> in Wiring Systems	Go to <b>Step 3</b>
3	<ol style="list-style-type: none"> <li>1. Turn OFF the ignition.</li> <li>2. Disconnect the automatic transmission shift lock control solenoid.</li> <li>3. Connect a test lamp between the shift lock solenoid control circuit at the connector of the automatic transmission shift lock solenoid and battery voltage.</li> <li>4. Turn ON the ignition, with the engine OFF.</li> </ol>		

	<p>5. With a scan tool, command the shifter unlock parameter output control ON and OFF several times.</p> <p>Does the test lamp illuminate ON and OFF with each command?</p>	Go to <b>Step 5</b>	Go to <b>Step 4</b>
4	<p>Test the control circuit of the automatic transmission shift lock control solenoid for a short to battery voltage. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to <b>Step 9</b>	Go to <b>Step 6</b>
5	<p>Inspect for poor connections at the harness connector of the automatic transmission shift lock control solenoid. Refer to <b>Testing for Intermittent Conditions and Poor Connections</b> and <b>Connector Repairs</b> in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to <b>Step 9</b>	Go to <b>Step 7</b>
6	<p>Inspect for poor connections at the harness connector of the body control module. Refer to <b>Testing for Intermittent Conditions and Poor Connections</b> and <b>Connector Repairs</b> in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to <b>Step 9</b>	Go to <b>Step 8</b>
7	<p>Replace the automatic transmission shift lock control solenoid. Refer to <b>Automatic Transmission Shift Lock Actuator Replacement</b> .</p> <p>Did you complete the replacement?</p>	Go to <b>Step 9</b>	-
8	<p>Replace the body control module (BCM). Refer to <b>Body Control Module Replacement</b> in Body Control System.</p> <p>Did you complete the replacement?</p>	Go to <b>Step 9</b>	-
9	<p>1. Use the scan tool in order to clear the DTCs.</p> <p>2. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text.</p> <p>Does the DTC reset?</p>	Go to <b>Step 2</b>	System OK

## SYMPTOMS - AUTOMATIC TRANSMISSION SHIFT LOCK CONTROL

**IMPORTANT:** Review the system operation in order to familiarize yourself with the system functions. Refer to **Automatic Transmission Shift Lock Control Description** and

## Operation .

### Visual/Physical Inspection

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

### Intermittent

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

### Symptom List

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

- **Shift Lever Does Not Move with Brake Pedal Depressed**
- **Shift Lever Can Be Moved without Brake Pedal Depressed**

### **SHIFT LEVER DOES NOT MOVE WITH BRAKE PEDAL DEPRESSED**

#### **Shift Lever Does Not Move with Brake Pedal Depressed**

Step	Action	Yes	No
<b>Schematic Reference: <u>Automatic Transmission Shift Lock Control Schematics</u></b> <b>Connector End View Reference: <u>Body Control System Connector End Views in Body Control System</u></b> DEFINITION: Transmission shift lever will not moved out of the PARK position with the Ignition on and the brake pedal pressed.			
1	Did you perform the Diagnostic System Check - Automatic Transmission Shift Lock Control?	Go to <b>Step 2</b>	Go to <b><u>Diagnostic System Check - Automatic Transmission Shift Lock Control</u></b>
2	1. Turn ON the ignition, with the engine OFF. 2. Press and hold the brake pedal. 3. Attempt to move the shift lever out of the PARK position.  Does the shift lever move out of the PARK position?	Go to <b><u>Testing for Intermittent Conditions and Poor Connections</u></b> in Wiring Systems	Go to <b>Step 3</b>
	1. Turn OFF the ignition.		

3	<ol style="list-style-type: none"> <li>2. Install a scan tool.</li> <li>3. Turn ON the ignition, with the engine OFF.</li> <li>4. Press and hold the brake pedal.</li> <li>5. With the scan tool, turn the shifter unlock output control ON in the body control module (BCM) output control data list.</li> <li>6. Attempt to move the shift lever out of the PARK position.</li> </ol> <p>Does the shift lever move out of the PARK position?</p>	Go to <b>Step 4</b>	Go to <b>Step 6</b>
4	<ol style="list-style-type: none"> <li>1. With the scan tool, observe the brake switch input in the body control module (BCM) data display list.</li> <li>2. Press and release the brake pedal several times while observing the scan tool.</li> </ol> <p>Does the brake input display ON and OFF with the brake pedal operation?</p>	Go to <b>Step 5</b>	Go to <b>Diagnostic Starting Point - Lighting Systems</b> in Lighting Systems
5	<p>With the scan tool observe the gear position parameter in the powertrain control module (PCM) data list.</p> <p>Does the scan tool indicate PARK position?</p>	inspect BCM	Go to <b>Diagnostic System Check - Engine Controls</b> in Engine Controls - 2.2L (L61)
6	<ol style="list-style-type: none"> <li>1. Turn OFF the ignition.</li> <li>2. Disconnect the harness connector of the automatic transmission shift lock control solenoid.</li> <li>3. Turn ON the ignition, with the engine OFF.</li> <li>4. Press and hold the brake pedal.</li> <li>5. Attempt to move the shift lever out of the PARK position.</li> </ol> <p>Does the shift lever move out of the PARK position?</p>	Go to <b>Step 7</b>	Go to <b>Step 8</b>
7	<p>Test the controlled ground circuit of the automatic transmission shift lock control solenoid for a short to ground. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to <b>Step 12</b>	Go to <b>Step 9</b>
	Inspect for poor connections as the harness connector of the automatic transmission shift		

8	lock control solenoid. Refer to <b><u>Testing for Intermittent Conditions and Poor Connections</u></b> and <b><u>Connector Repairs</u></b> in Wiring Systems. Did you find and correct the condition?	Go to <b>Step 12</b>	Go to <b>Step 10</b>
9	Inspect for poor connections as the harness connector of the body control module (BCM). Refer to <b><u>Testing for Intermittent Conditions and Poor Connections</u></b> and <b><u>Connector Repairs</u></b> in Wiring Systems. Did you find and correct the condition?	Go to <b>Step 12</b>	Go to <b>Step 11</b>
10	Replace the automatic transmission shift lock control solenoid. Refer to <b><u>Automatic Transmission Shift Lock Actuator Replacement</u></b> . Did you complete the replacement?	Go to <b>Step 12</b>	-
11	Replace the body control module (BCM). Refer to <b><u>Body Control Module Replacement</u></b> in Body Control System. Did you complete the replacement?	Go to <b>Step 12</b>	-
12	Operate the system in order to verify the repair. Did you find and correct the condition?	System OK	Go to <b>Step 3</b>

## SHIFT LEVER CAN BE MOVED WITHOUT BRAKE PEDAL DEPRESSED

### Shift Lever Can Be Moved without Brake Pedal Depressed

Step	Action	Yes	No
<b>Schematic Reference: <u>Automatic Transmission Shift Lock Control Schematics</u></b> <b>Connector End View Reference: <u>Body Control System Connector End Views</u> in Body Control System.</b> DEFINITION: Transmission shift lever does not lock in the PARK position with the ignition ON and the brake pedal not depressed.			
1	Did you perform the Diagnostic System Check - Automatic Transmission Shift Lock Control?	Go to <b>Step 2</b>	Go to <b><u>Diagnostic System Check - Automatic Transmission Shift Lock Control</u></b>
2	1. Apply the parking brake and block the wheels. 2. Turn ON the ignition, with the engine OFF. 3. Attempt to move the shift lever out of the PARK position without pressing the brake pedal.  Does the shift lever move out of the PARK position?	Go to <b>Step 3</b>	Go to <b><u>Testing for Intermittent Conditions and Poor Connections</u></b> in Wiring Systems
	1. Turn OFF the ignition. 2. Install a scan tool.		

3	<ol style="list-style-type: none"> <li>3. Turn ON the ignition, with the engine OFF.</li> <li>4. Ensure the brake pedal is not depressed.</li> <li>5. With a scan tool observe the Shifter Unlock fdbk. parameter in the body control module (BCM) data list.</li> </ol> <p>Does the scan tool display a LOW status for the brake to shift parameter?</p>	Go to <b>Step 5</b>	Go to <b>Step 4</b>
4	<p>With a scan tool observe the brake switch input in the body control module (BCM) data list.</p> <p>Does the scan tool display an OFF status for the brake switch input parameter?</p>	Go to <b>Step 9</b>	Refer to <b>Diagnostic System Check - Lighting Systems</b> in Lighting Systems
5	<ol style="list-style-type: none"> <li>1. Turn OFF the ignition.</li> <li>2. Connect a test lamp between the automatic transmission shift lock control solenoid voltage supply circuit at the connector of the automatic transmission shift lock control solenoid and a good ground.</li> <li>3. Turn ON the ignition, with the engine OFF.</li> </ol> <p>Does the test lamp illuminate?</p>	Go to <b>Step 6</b>	Go to <b>Step 10</b>
6	<ol style="list-style-type: none"> <li>1. Turn OFF the ignition.</li> <li>2. Connect a test lamp between the automatic transmission shift lock control solenoid voltage supply circuit and the control circuit of the automatic transmission shift lock control solenoid at the connector of the automatic transmission shift lock control solenoid.</li> <li>3. Turn ON the ignition, with the engine OFF.</li> <li>4. With a scan tool, command the shifter unlock parameter ON and OFF in the body control module (BCM) output controls data list.</li> </ol> <p>Does the test lamp turn ON and OFF with each command?</p>	Go to <b>Step 8</b>	Go to <b>Step 7</b>
7	<p>Test the controlled ground circuit of the automatic transmission shift lock control solenoid for an open or short to voltage. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to <b>Step 13</b>	Go to <b>Step 9</b>
8	<p>Inspect for poor connections at the harness connector of the automatic transmission shift lock control solenoid. Refer to <b>Testing for Intermittent Conditions and Poor Connections</b> and <b>Connector Repairs</b> in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	Go to <b>Step 13</b>	Go to <b>Step 11</b>
	<p>Inspect for poor connections at the harness connector of the body control module (BCM). Refer to <b>Testing for</b></p>		

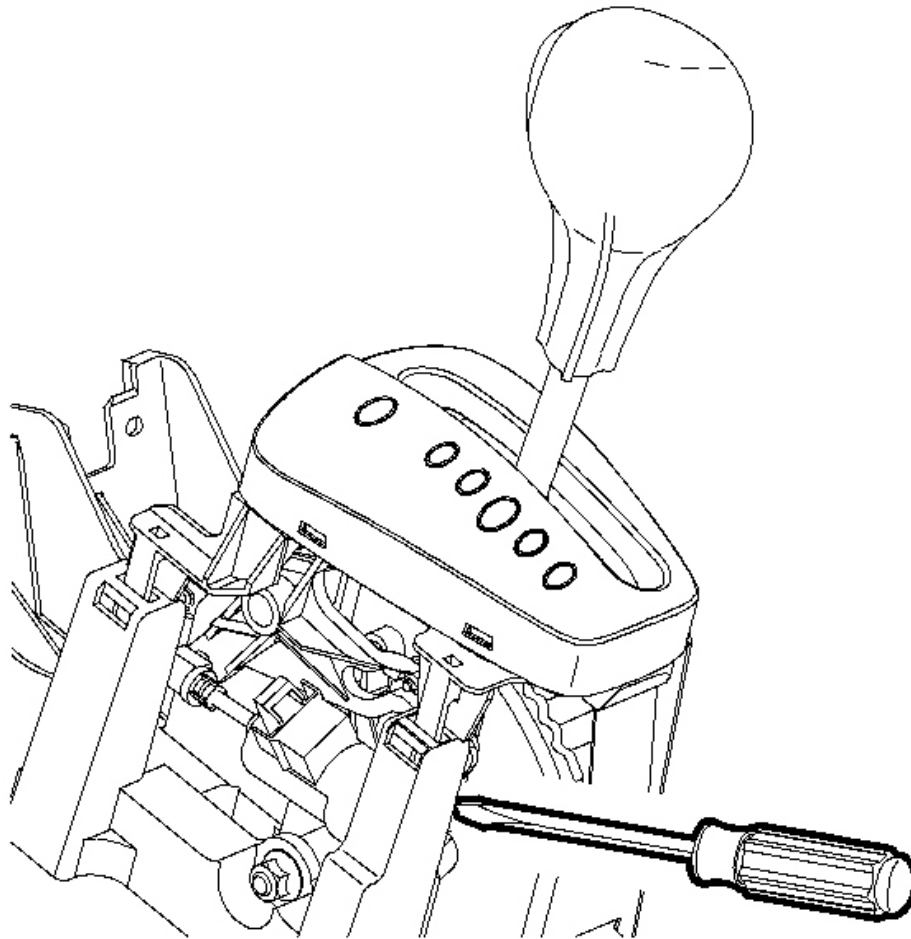
9	<b><u>Intermittent Conditions and Poor Connections</u></b> and <b><u>Connector Repairs</u></b> in Wiring Systems. Did you find and correct the condition?	Go to <b>Step 13</b>	Go to <b>Step 12</b>
10	Repair the open or short to ground in the automatic transmission shift lock control solenoid voltage supply circuit. Refer to <b><u>Circuit Testing</u></b> and <b><u>Wiring Repairs</u></b> in Wiring Systems. Did you complete the repair?	Go to <b>Step 13</b>	-
11	Replace the automatic transmission shift lock control solenoid. Refer to <b><u>Automatic Transmission Shift Lock Actuator Replacement</u></b> . Did you complete the repair?	Go to <b>Step 13</b>	-
12	Replace the body control module (BCM). Refer to <b><u>Body Control Module Replacement</u></b> in Body Control System. Did you complete the repair?	Go to <b>Step 13</b>	-
13	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to <b>Step 2</b>

## REPAIR INSTRUCTIONS

### AUTOMATIC TRANSMISSION SHIFT LOCK ACTUATOR REPLACEMENT

#### Removal Procedure

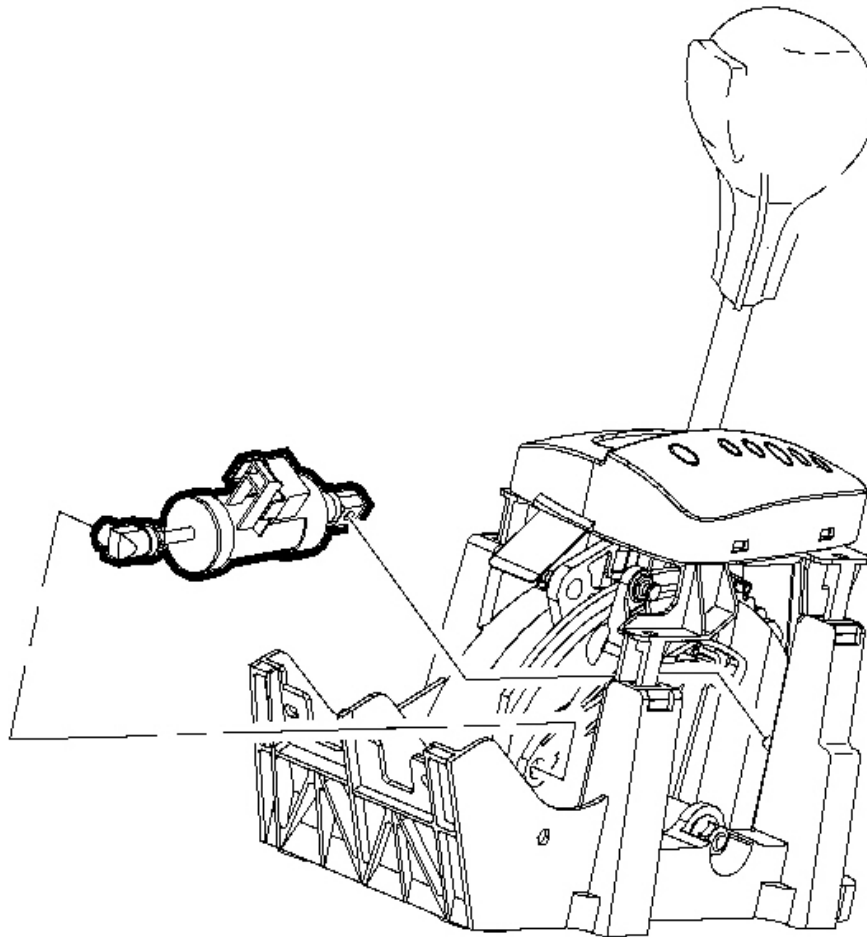




**Fig. 3: Disconnecting The Plastic Retainers At Solenoid Base And Park Brake Lever Using A Screwdriver**

Courtesy of GENERAL MOTORS CORP.

1. Disable the SIR system. Refer to **SIR Disabling and Enabling Zone 3** and **SIR Disabling and Enabling Zone 5** in Restraints - SIR.
2. Remove the instrument panel (I/P) storage compartment. Refer to **Storage Compartment Replacement - Instrument Panel (I/P)** in Instrument Panel, Gages, and Console.
3. Disconnect the brake transaxle shift interlock (BTSI) solenoid harness connector.
4. Using a screwdriver, disconnect the plastic retainers at solenoid base and at the park brake lever.
5. Remove the solenoid from the shifter assembly.



**Fig. 4: Brake Transaxle Shift Interlock Solenoid**  
Courtesy of GENERAL MOTORS CORP.

1. Install the solenoid onto the shifter assembly. Connect the plastic retainers at the solenoid base and at the park brake lever.
2. Connect the BTSI solenoid harness connector.
3. Verify proper operation.
4. Remove the I/P storage compartment. Refer to **Storage Compartment Replacement - Instrument Panel (I/P)** in Instrument Panel, Gages, and Console.
5. Enable the SIR system. Refer to **SIR Disabling and Enabling Zone 3** and **SIR Disabling and Enabling**

## **DESCRIPTION AND OPERATION**

### **AUTOMATIC TRANSMISSION SHIFT LOCK CONTROL DESCRIPTION AND OPERATION**

#### **Automatic Transmission Shift Lock Control System**

The automatic transmission shift lock control system is a safety device that prevents an inadvertent shift out of PARK when the engine is running. The driver must press the brake pedal before moving the shift lever out of the PARK position. The system consists of the following components:

- The automatic transmission shift lock control solenoid
- The body control module (BCM)
- The powertrain control module (PCM)

The body control module (BCM) controls the ground circuit of the shift lock control solenoid. The following conditions must be met before the BCM will supply a ground to the shift lock control solenoid:

- The ignition is in the ON position.
- The powertrain control module (PCM) sends a class 2 message to the BCM indicating the transmission is in the PARK position.
- The PCM receives a brake applied input from the brake light switch and sends a class 2 message to the BCM indicating the brake pedal is depressed.

With the ignition in the ON position the shift lock control solenoid is supplied battery voltage from the IGN 1 fuse. When BCM supplies a ground to the control circuit of the automatic transmission shift lock control solenoid, the solenoid energizes, releasing the mechanical lock. This allows the driver to move the shift lever out of the PARK position.

Vehicles equipped with VTi variable transmission in cold weather temperatures below -25° C (-13° F) the PCM will send a class 2 message to the BCM preventing the operation of the shift lock control solenoid and the temperature gage light will flash. Once the transmission has warmed above -25° C (-13° F) the temperature gage light will stop flashing and normal shift lock control operation will resume.