

2014 TRANSMISSION

Shift Lock Control - Acadia, Enclave And Traverse

SCHEMATIC WIRING DIAGRAMS

SHIFT LOCK CONTROL WIRING SCHEMATICS

Shift Lock Control System

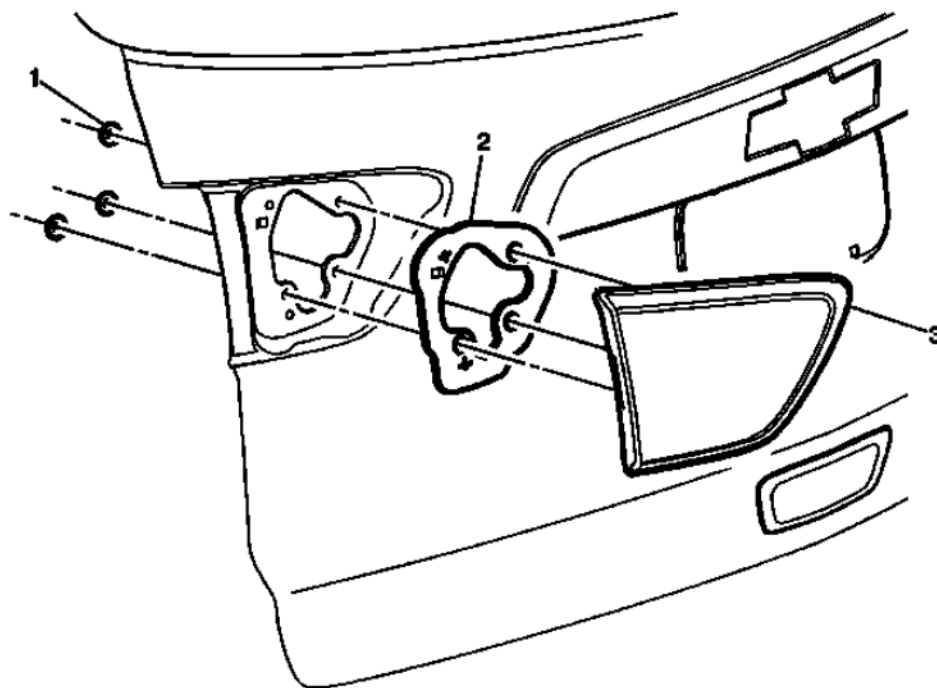


Fig. 1: Shift Lock Wiring Schematic

Courtesy of GENERAL MOTORS COMPANY

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC CODE INDEX

DIAGNOSTIC CODE INDEX

DTC	Description
DTC B2705	DTC B2705 02 Gearshift Unlock Circuit Short to Ground

DTC B2705: GEARSHIFT UNLOCK CIRCUIT SHORT TO GROUND

Diagnostic Instructions

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

DTC Descriptor**DTC B2705 02**

Gearshift Unlock Circuit Short to Ground

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Control	B2705 02	1	2	-
Ground	-	1	-	-
1. Unable to move shift lever with brake level depressed. 2. Shift lever moves without brake pedal depressed.				

Circuit/System Description

The body control module (BCM) controls the automatic transmission shift lock control solenoid by providing a battery positive voltage to the solenoid. The BCM utilizes a smart driver to control the voltage supply circuit to the automatic transmission shift lock control solenoid. The smart driver monitors the voltage and current flow of the control circuit.

Conditions for Running the DTC

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

Conditions for Setting the DTC

The DTC sets if there is a short to ground in the automatic transmission shift lock control solenoid control circuit.

Action Taken When the DTC Sets

The BCM will not attempt to enable the voltage supply circuit of the automatic transmission shift lock control solenoid until the next key cycle.

Conditions for Clearing the DTC

- A current DTC B2705 will clear when the malfunction is no longer present and the ignition switch is

cycled.

- A history DTC will clear after 100 ignition cycles with no current DTC active during the 100 ignition cycles.

Reference Information

Schematic Reference

Shift Lock Control Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Automatic Transmission Shift Lock Control Description and Operation

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition ON, clear the DTC. Observe the scan tool BCM Stop Lamp Relay Command parameter while pressing and releasing the brake pedal. The parameter should change between ON and OFF.
 - If the parameter does not change between the specified values, refer to **Stop Lamps Malfunction**.
2. Press the brake pedal, the vehicle operator should be able to move the shifter out of the PARK position.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the shift lock control solenoid.
2. Ignition OFF, test for less than 5.0 ohm between the ground circuit terminal B and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Install a test lamp between the ground circuit terminal B and the control circuit terminal A.
4. Ignition ON, command the scan tool BCM Shift Lock Solenoid output control ON and OFF. The test lamp should turn ON and OFF as commanded.

- If the test lamp is always ON, test the control circuit for short to voltage. If the circuit tests normal, replace the BCM.
 - If the test lamp is always OFF, test the control circuit for short to ground or an open/high resistance. If the circuit tests normal, replace the BCM.
5. If the circuit tests normal, replace the transmission control.

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

- **Automatic Transmission Shift Lock Control Actuator Replacement (Push-to-Release Style Solenoid)** and **Automatic Transmission Shift Lock Control Actuator Replacement (Pull-to-Release Style Solenoid)**
- **Control Module References** for BCM replacement, setup and programming

SYMPTOMS - AUTOMATIC TRANSMISSION SHIFT LOCK CONTROL

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

1. Perform the **Diagnostic System Check - Vehicle** before using the Symptom Tables in order to verify that all of the following are true:
 - There are no DTCs set.
 - The control modules can communicate via the serial data link.
2. 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. Refer to **Checking Aftermarket Accessories**.
- 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**

Symptom List

Refer to a symptom diagnostic procedure in order to diagnose the symptom:

Transmission Control Lever Malfunction**TRANSMISSION CONTROL LEVER MALFUNCTION**

Diagnostic Instructions

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

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Control	1	1	2	-
Ground	-	1	-	-
1. Unable to move shift lever with brake level depressed. 2. Shift lever moves without brake pedal depressed.				

Circuit/System Description

The body control module (BCM) controls the shift lock solenoid by providing battery voltage to the shift lock control solenoid. The BCM utilizes a smart driver to control the voltage supplied to the shift lock solenoid. The smart driver monitors the voltage and current flow of the control circuit.

Reference Information

Schematic Reference

Shift Lock Control Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Automatic Transmission Shift Lock Control Description and Operation

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition ON, clear the DTC. Observe the scan tool BCM Stop Lamp Relay Command parameter while pressing and releasing the brake pedal. The parameter should change between ON and OFF.
 - o If the parameter does not change between the specified values, refer to **Stop Lamps Malfunction**.
2. Press the brake pedal, the vehicle operator should be able to move the shifter out of the PARK position.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the shift lock control solenoid.
2. Ignition OFF, test for less than 5.0 ohm between the ground circuit terminal B and ground.
 - o If greater than the specified range, test the ground circuit for an open/high resistance.
3. Install a test lamp between the ground circuit terminal B and the control circuit terminal A.
4. Ignition ON, command the scan tool BCM Shift Lock Solenoid output control ON and OFF. The test lamp should turn ON and OFF as commanded.
 - o If the test lamp is always ON, test the control circuit for short to voltage. If the circuit tests normal, replace the BCM.
 - o If the test lamp is always OFF, test the control circuit for short to ground or an open/high resistance. If the circuit tests normal, replace the BCM.
5. If the circuit tests normal, replace the transmission control.

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

- **Automatic Transmission Shift Lock Control Actuator Replacement (Push-to-Release Style Solenoid)** and **Automatic Transmission Shift Lock Control Actuator Replacement (Pull-to-Release Style Solenoid)**
- **Control Module References** for BCM replacement, setup and programming

REPAIR INSTRUCTIONS**AUTOMATIC TRANSMISSION SHIFT LOCK CONTROL ACTUATOR REPLACEMENT (PUSH-TO-RELEASE STYLE SOLENOID)**

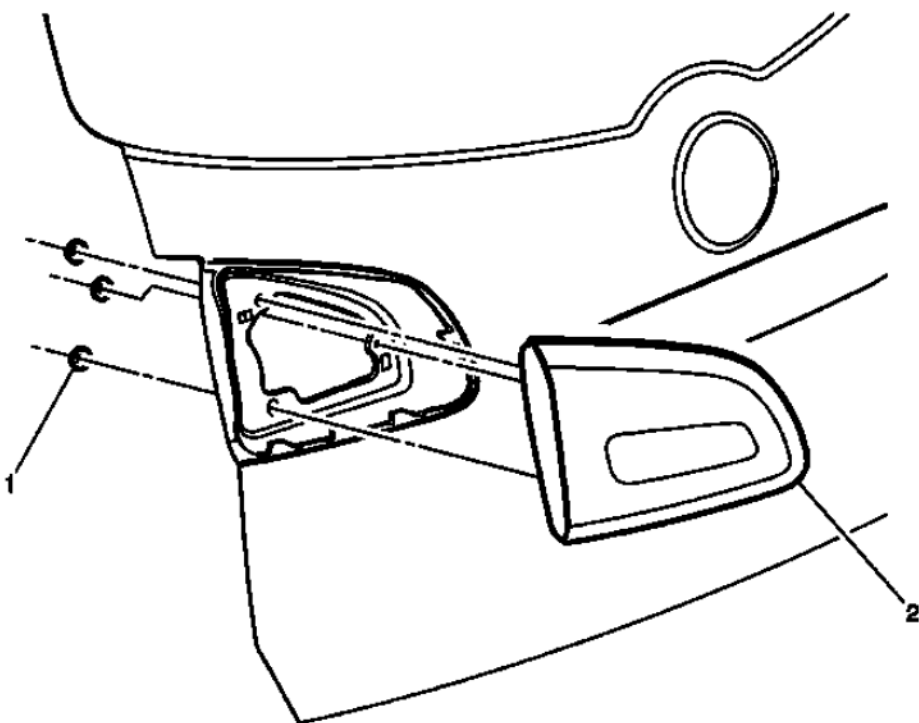


Fig. 2: Automatic Transmission Shift Lock Actuator
 Courtesy of GENERAL MOTORS COMPANY

Automatic Transmission Shift Lock Control Actuator Replacement (Push-to-Release Style Solenoid)

Callout	Component Name
Preliminary Procedures Remove the front floor console extension panels. Refer to Front Floor Console Extension Panel Replacement - Right Side (Acadia) , Front Floor Console Extension Panel Replacement - Right Side (Enclave) , Front Floor Console Extension Panel Replacement - Right Side (Traverse) , Front Floor Console Extension Panel Replacement - Left Side (Acadia) , Front Floor Console Extension Panel Replacement - Left Side (Enclave) and/or Front Floor Console Extension Panel Replacement - Left Side (Traverse) .	
1	Shift Lock Actuator Screw CAUTION: Refer to Fastener Caution Tighten 4 N.m (35 lb in)
2	Shift Lock Actuator Procedure Shift lock actuator wires must be de-pinned from the electrical connector.

AUTOMATIC TRANSMISSION SHIFT LOCK CONTROL ACTUATOR REPLACEMENT (PULL-TO-RELEASE STYLE SOLENOID)

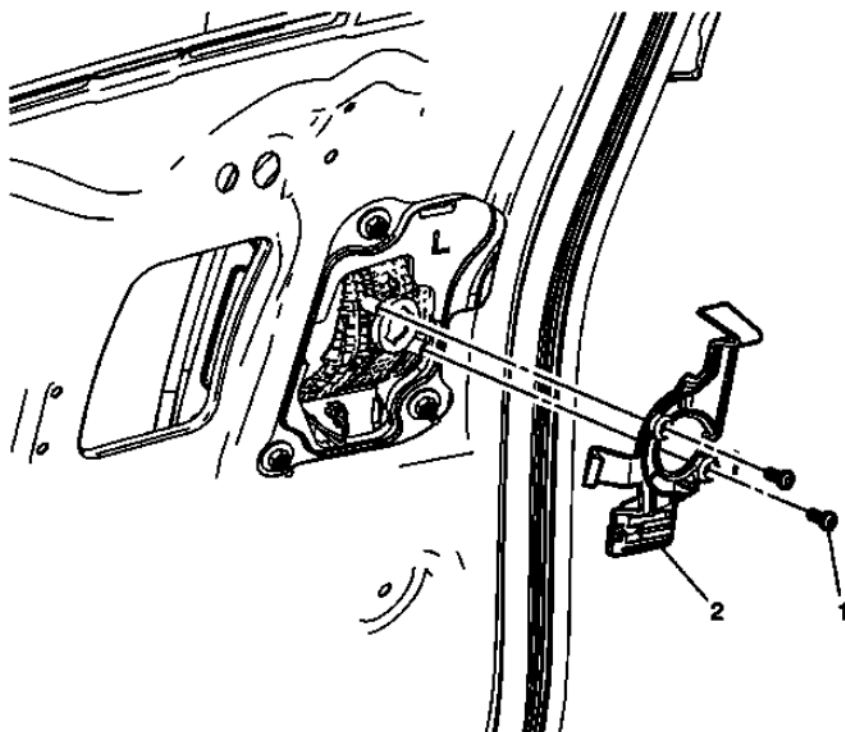


Fig. 3: Automatic Transmission Shift Lock Control Actuator
 Courtesy of GENERAL MOTORS COMPANY

Automatic Transmission Shift Lock Control Actuator Replacement (Pull-to-Release Style Solenoid)

Callout	Component Name
Preliminary Procedure	
Remove the transmission control. Refer to Transmission Control Replacement (Acadia) .	
1	Shift Lock Actuator
	Procedure
	1. Disconnect the electrical connector from the shift lock actuator. Press lock on the solenoid wiring connector and remove by pulling on the connector, not the wire. 2. Depress the shift lock actuator retaining tabs and press the solenoid into the base by pushing on the solenoid housing, NOT the white plunger. 3. Connect the electrical connector from the shift lock actuator, ensuring the connector is fully locked into the solenoid.
	TIP: Ensure the solenoid is fully locked into the base.

DESCRIPTION AND OPERATION

AUTOMATIC TRANSMISSION SHIFT LOCK CONTROL DESCRIPTION AND OPERATION

The automatic transmission shift lock control system is a safety device that prevents an inadvertent shift out of PARK. 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 solenoid (serviced as the automatic transmission shift lock actuator), as well as the body control module (BCM) and the engine control module (ECM). The shift lock solenoid is located within the floor shift control assembly with vehicles equipped with floor shift.
- The BCM controls the voltage supply circuit of the shift lock control solenoid. The following conditions must be before the BCM will supply voltage to the shift lock control solenoid.

The BCM controls the voltage to the shift lock control solenoid through the shift lock control solenoid controlled voltage circuit. The following conditions must be met before the BCM will supply voltage to the shift lock solenoid:

- The ignition is in the ON position.
- The ECM sends an input via GMLAN serial data to the BCM indicating the transmission is in the PARK position.
- The BCM determines the brake pedal is applied according the brake pedal position.

Since the shift lock control solenoid is permanently grounded, the BCM supplies voltage to the automatic transmission shift lock control solenoid, mechanically unlocking the shift lever allowing the driver to move the shift lever out of the PARK position as the solenoid energizes. When the brake pedal is not applied, the BCM turns the control voltage output of the shift lock control solenoid OFF, de-energizing the shift lock control solenoid. The de-energized solenoid mechanically locks the shift lever in the PARK position.

During remote start operation, the BCM will de-energize the shift lock control circuit, locking the shift lever in the PARK position.