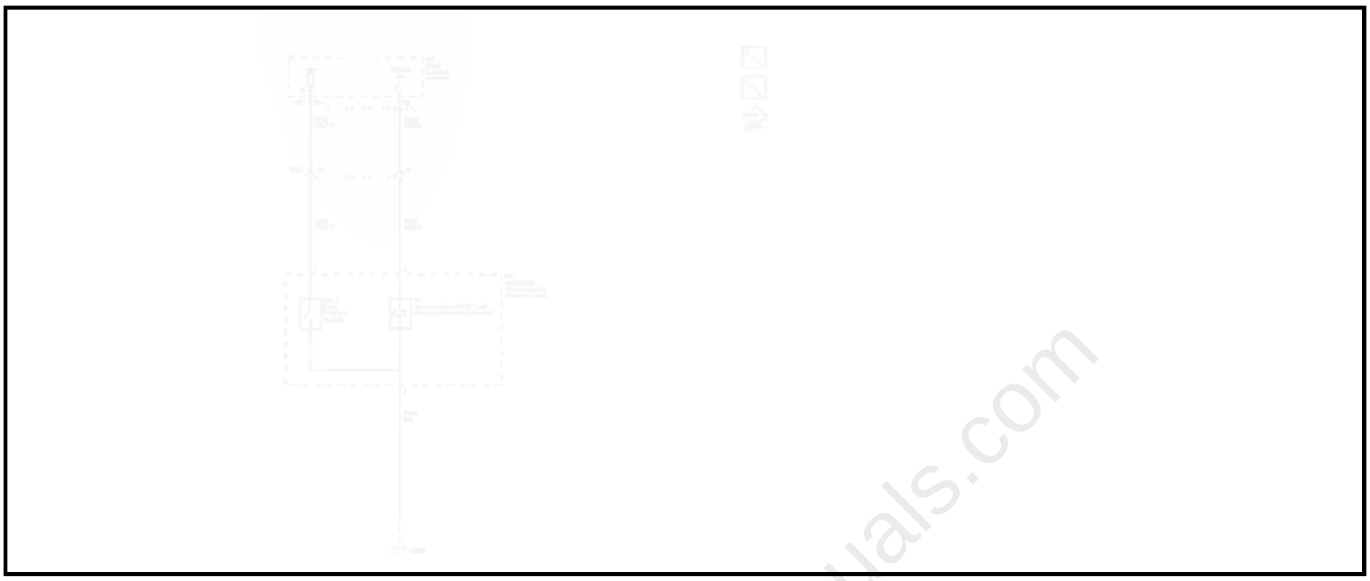
SCHEMATIC WIRING DIAGRAMS

SHIFT LOCK CONTROL WIRING SCHEMATICS

Shift Lock Control



DIAGNOSTIC INFORMATION AND PROCEDURES

DTC C05D7

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 Descriptors

DTC C05D7

Brake Transmission Shift Interlock Solenoid Actuator Circuit

For symptom byte information, refer to **Symptom Byte List** .

Diagnostic Fault Information

Circuit Number	Circuit Function	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
2140	B +	1	1	-	-
7553	Control	C05D7 11, 1	C05D7 13, 1	C05D7 12, 2	-
2851	Ground	-	1	-	-
1. Transmission shift lever will not move from PARK with the brake pedal applied. 2. Transmission shift lever will move from PARK without the brake pedal applied.					

Circuit/System Description

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The body control module controls the transmission shift lock control solenoid actuator by providing a battery positive voltage to the solenoid when the brake pedal is applied. The body control monitors the voltage and current flow of the control circuit.

For an overview of the component/system, refer to: **Automatic Transmission Shift Lock Control Description and Operation**

Conditions for Running the DTC

- Ignition ON/Vehicle in Service Mode.
- Brake pedal is applied.
- Transmission is in the PARK position.

The DTCs run continuously once the above conditions are met.

Conditions for Setting the DTC

C05D7 11

Circuit 7553 is shorted to ground

C05D7 12

Circuit 7553 is shorted to voltage

C05D7 13

Circuit 7553 has an open/high resistance

Action Taken When the DTC Sets

The component is inoperative

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

Conditions for Clearing the DTC

The condition responsible for setting the DTC no longer exists.

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 40 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

- **Body Control System Wiring Schematics**
- **Shift Lock Control Wiring Schematics**

Connector End View Reference

Master Electrical Component List , or **Component Connector End Views - Index**

Electrical Information Reference

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

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- **Wiring Repairs**

Scan Tool Reference

Control Module References

Circuit/System Verification

1. Ignition ON/Vehicle in Service Mode.
2. Verify the scan tool Brake Pedal Applied parameter changes between Active and Inactive while pressing and releasing the brake pedal.
   - **If the parameter does not change**

     Refer to **Stop Lamps Malfunction**

   - **Go to next step: If the parameter changes**
3. Verify the S3 Transmission Shift Lever moves out of the PARK position when the brake pedal is applied.
   - **If the the S3 Transmission Shift Lever does not move out of the PARK position**

     Refer to Circuit/System Testing.

   - **Go to next step: If the S3 Transmission Shift Lever does move out of the PARK position**
4. A fault is not currently present and may be an intermittent condition.

Circuit/System Testing

1. Ignition OFF, disconnect the X1 connector at the K9 Body Control Module.
2. Ignition ON/vehicle in service mode, verify a test lamp illuminates between B+ circuit terminal 25 and ground.
   - **If the test lamp does not illuminate and the circuit fuse is OK**
   1. Test circuit 2140 for an open/high resistance.
      - If an open/high resistance is found, repair the fault on the circuit.
      - If an open/high resistance is not found, verify there is voltage at the fuse.
   - **If the test lamp does not illuminate and the circuit fuse is open**
   1. Test circuit 2140 for a short to ground.
      - If a short to ground is found, repair the fault on the circuit.
      - Go to next step: If a short to ground is not found.
   2. Replace the K9 Body Control Module.
   - **Go to next step: If the test lamp illuminates**
3. Ignition/vehicle OFF, connect the X1 connector at the K9 Body Control Module.
4. Disconnect the connector at the S3 Transmission Shift Lever.
5. Verify a test lamp illuminates between ground circuit terminal 2 and B+.
   - **If the test lamp does not illuminate**
   1. Repair the open/high resistance on circuit or ground connection.
   - **Go to next step: If the test lamp illuminates**
6. Connect a test lamp between control circuit terminal 4 and ground, ignition ON/vehicle in service mode.
7. Verify the test lamp turns ON and OFF while pressing and releasing the brake pedal.
   - **If the test lamp is always OFF**
   1. Test circuit 7553 for a short to ground.
      - If a short to ground is found, repair the fault on the circuit.
      - Go to next step: If a short to ground is not found.

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2. Test circuit 7553 for an open/high resistance.
    - If an open/high resistance is found, repair the fault on the circuit.
    - Go to next step: If an open/high resistance is not found.
3. Replace the K9 Body Control Module.

- **If the test lamp is always ON**

1. Test circuit 7553 for a short to voltage.
    - If a short to voltage is found, repair the fault on the circuit.
    - Go to next step: If a short to voltage is not found.
2. Replace the K9 Body Control Module.

- **Go to next step: If the test lamp turns ON and OFF**

8. Replace the S3 Transmission Shift Lever.

Component Testing

1. Ignition OFF, disconnect the harness connector at the S3 Transmission Shift Lever.
2. Install a 3 A fused jumper wire between the control terminal 4 and 12 V. Momentarily install a jumper wire between the ground terminal 2 and ground.
3. Verify the solenoid turns on and off/clicks, etc.
    - **If the solenoid does not turn on and off/clicks, etc.**

      Replace the S3 Transmission Shift Lever.

    - **Go to next step: If the solenoid does turn on and off/clicks, etc.**
4. All OK

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

- **Transmission Control Replacement**
- **Control Module References** for BCM replacement, programming, and setup

SYMPTOMS - AUTOMATIC TRANSMISSION SHIFT LOCK CONTROL

NOTE: **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.
- 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**

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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 Number	Circuit Function	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
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2851	Ground	-	1	-	-
1. Transmission shift lever will not move from PARK with the brake pedal applied. 2. Transmission shift lever will move from PARK without the brake pedal applied.					

Circuit/System Description

The body control module controls the transmission shift lock control solenoid actuator by providing a battery positive voltage to the solenoid when the brake pedal is applied. The body control monitors the voltage and current flow of the control circuit.

For an overview of the component/system, refer to: **Automatic Transmission Shift Lock Control Description and Operation**

Reference Information

Schematic Reference

- **Body Control System Wiring Schematics**
- **Shift Lock Control Wiring Schematics**

Connector End View Reference

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- **Wiring Repairs**

Scan Tool Reference

Control Module References

Circuit/System Verification

1. Ignition ON/Vehicle in Service Mode.

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2. Verify the scan tool Brake Pedal Applied parameter changes between Active and Inactive while pressing and releasing the brake pedal.
    - **If the parameter does not change**

      Refer to **Stop Lamps Malfunction**

    - **Go to next step: If the parameter changes**
3. Verify the S3 Transmission Shift Lever moves out of the PARK position when the brake pedal is applied.
    - **If the the S3 Transmission Shift Lever does not move out of the PARK position**

      Refer to Circuit/System Testing.

    - **Go to next step: If the S3 Transmission Shift Lever does move out of the PARK position**
4. A fault is not currently present and may be an intermittent condition.

Circuit/System Testing

1. Ignition OFF, disconnect the X1 connector at the K9 Body Control Module.
2. Ignition ON/vehicle in service mode, verify a test lamp illuminates between B+ circuit terminal 25 and ground.
    - **If the test lamp does not illuminate and the circuit fuse is OK**
    1. Test circuit 2140 for an open/high resistance.
        - If an open/high resistance is found, repair the fault on the circuit.
        - If an open/high resistance is not found, verify there is voltage at the fuse.
    - **If the test lamp does not illuminate and the circuit fuse is open**
    1. Test circuit 2140 for a short to ground.
        - If a short to ground is found, repair the fault on the circuit.
        - Go to next step: If a short to ground is not found.
    2. Replace the K9 Body Control Module.
    - **Go to next step: If the test lamp illuminates**
3. Ignition/vehicle OFF, connect the X1 connector at the K9 Body Control Module.
4. Disconnect the connector at the S3 Transmission Shift Lever.
5. Verify a test lamp illuminates between ground circuit terminal 2 and B+.
    - **If the test lamp does not illuminate**
    1. Repair the open/high resistance on circuit or ground connection.
    - **Go to next step: If the test lamp illuminates**
6. Connect a test lamp between control circuit terminal 4 and ground, ignition ON/vehicle in service mode.
7. Verify the test lamp turns ON and OFF while pressing and releasing the brake pedal.
    - **If the test lamp is always OFF**
    1. Test circuit 7553 for a short to ground.
        - If a short to ground is found, repair the fault on the circuit.
        - Go to next step: If a short to ground is not found.
    2. Test circuit 7553 for an open/high resistance.
        - If an open/high resistance is found, repair the fault on the circuit.
        - Go to next step: If an open/high resistance is not found.
    3. Replace the K9 Body Control Module.
    - **If the test lamp is always ON**
    1. Test circuit 7553 for a short to voltage.
        - If a short to voltage is found, repair the fault on the circuit.

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- Go to next step: If a short to voltage is not found.

2. Replace the K9 Body Control Module.
- **Go to next step: If the test lamp turns ON and OFF**

8. Replace the S3 Transmission Shift Lever.

Component Testing

1. Ignition OFF, disconnect the harness connector at the S3 Transmission Shift Lever.
2. Install a 3 A fused jumper wire between the control terminal 4 and 12 V. Momentarily install a jumper wire between the ground terminal 2 and ground.
3. Verify the solenoid turns on and off/clicks, etc.
   - **If the solenoid does not turn on and off/clicks, etc.**

     Replace the S3 Transmission Shift Lever.

   - **Go to next step: If the solenoid does turn on and off/clicks, etc.**
4. All OK

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

- **Transmission Control Replacement**
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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 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 Solenoid (serviced as the Automatic Transmission Shift Lock Actuator)
- The Body Control Module (BCM)
- The Engine Control Module (ECM)

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

- The ignition is in the ON position.
- The ECM sends an input via GMLAN serial data to the BCM when the Transmission Control Module (TCM) indicates the transmission is in the PARK position.
- The BCM receives a brake applied input from the stop lamp switch.

Since the shift lock control solenoid is permanently grounded, the BCM supplies voltage to the automatic transmission shift lock control solenoid, releasing the mechanical lock on the shift lever as the solenoid energizes. The energized solenoid allows the driver to move the shift lever out of the PARK position. 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. When the transmission is in the PARK position, the de-energized shift lock control solenoid will prevent shifting as the lever is mechanically locked in the PARK position.

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

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