Component Procedures: Shift Interlock

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Automatic Transmission Shift Lock Control (Article 14232)

The automatic transmission park 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 park lever out of the PARK position. The system consists of the following components:
- The automatic transmission shift lock control solenoid , is located within the automatic transmission shift lever.
- The body control module , which controls the voltage supply circuit of the park lock control solenoid.
- The engine control module.
The body control module controls the voltage to the automatic transmission shift lock control solenoid. The following conditions must be met before the body control module will supply voltage to the automatic transmission shift lock control solenoid.
- The ignition is in the ON position.
- The engine control module sends an input via serial data to the body control module indicating the transmission is in the PARK position.
- The body control module determines the brake pedal is applied according the brake pedal position.
Since the automatic transmission shift lock control solenoid is permanently grounded, the body control module supplies voltage to the automatic transmission shift lock control solenoid, unlocking the park lever allowing the driver to move the park lever out of the PARK position as the solenoid energizes. When the brake pedal is not applied, the body control module turns the control voltage output of the park lock control solenoid OFF, de-energizing the park lock control solenoid. The de-energized solenoid mechanically locks the park lever in the PARK position.

Shift Lock Control Schematics (Article 14242)

Figure 1: MYB, MYC or MYD

Symptoms - Automatic Transmission Shift Lock Control (Article 14236)

- 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 module s can communicate via the serial data link.
- 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

Symptom List

Refer to a symptom diagnostic procedure in order to diagnose the symptom:
Transmission Control Lever Malfunction

Transmission Control Lever Malfunction (Article 14239)

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 B270A 02 B270A 04 B270A 01 —
Ground — B270A 04 — —

Circuit/System Description

The body control module (BCM) controls the transmission shift lock control solenoid actuator by providing a battery positive voltage to the solenoid when the brake pedal is applied. The BCM 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
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
- Ignition ON.
- Verify the scan tool Brake Transmission Shift Interlock Solenoid Actuator Command parameter changes from Inactive to Active when the brake pedal is applied.
- If the parameter does not change Refer to Stop Lamps Malfunction
- If the parameter changes
- Verify the S3 Transmission Shift Lever moves out of the PARK position when the brake pedal is applied.
- If the S3 Transmission Shift Lever does not move out of the PARK position Refer to Circuit/System Testing.
- If the S3 Transmission Shift Lever does move out of the PARK position All OK.
Circuit/System Testing
- Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the S3 Transmission Shift Lever. It may take up to 2 min for all vehicle systems to power down.
- Test for less than 10 Ω between the ground circuit terminal 7 and ground.
- If 10 Ω or greater
- Ignition OFF.
- Test for less than 2 Ω in the ground circuit end to end.
- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω, repair the open/high resistance in the ground connection.
- If less than 10 Ω
- Ignition ON, connect a test lamp between the control circuit terminal 1 and the ground circuit terminal 7.
- Verify the test lamp turns ON and OFF when commanding the Brake Transmission Shift Interlock Solenoid Actuator ON and OFF with a scan tool.
- If the test lamp is always OFF
- Ignition OFF, disconnect the harness connector at the K9 Body Control Module.
- Test for infinite resistance between the control circuit and ground.
- If less than infinite resistance, repair the short to ground on the circuit.
- If infinite resistance
- Test for less than 2 Ω in the control circuit end to end.
- If less than 2 Ω
- Verify a test lamp illuminates between each B+ and ignition circuit terminal at the control module harness connector.
- If the test lamp does not illuminate, repair the circuit or fuse as necessary.
- If the test lamp illuminates at each B+ and ignition circuit, replace the K9 Body Control Module.
- If the test lamp is always ON
- Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.
- Test for less than 1 V between the control circuit and ground.
- If 1 V or greater, repair the short to voltage on the circuit.
- If less than 1 V, replace the K9 Body Control Module.
- If the test lamp turns ON and OFF
- Test or replace the S3 Transmission Shift Lever.
Component Testing
Dynamic Test
- Install a 10 A fused jumper wire between the control terminal 1 and 12 V. Momentarily install a jumper wire between the ground terminal 7 and ground.
- Verify the M7 Transmission Shift Lock Control Solenoid Actuator turns on & off/clicks, etc .
- If the M7 Transmission Shift Lock Control Solenoid Actuator does not turn on & off/clicks, etc. Replace the

S3 Transmission Shift Lever.
- If the M7 Transmission Shift Lock Control Solenoid Actuator does turn on & off/clicks, etc.
- 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