

2008 TRANSMISSION

Shift Lock Control - Ascender, Envoy & Trailblazer

SCHEMATIC & ROUTING DIAGRAMS

SHIFT LOCK CONTROL SCHEMATICS

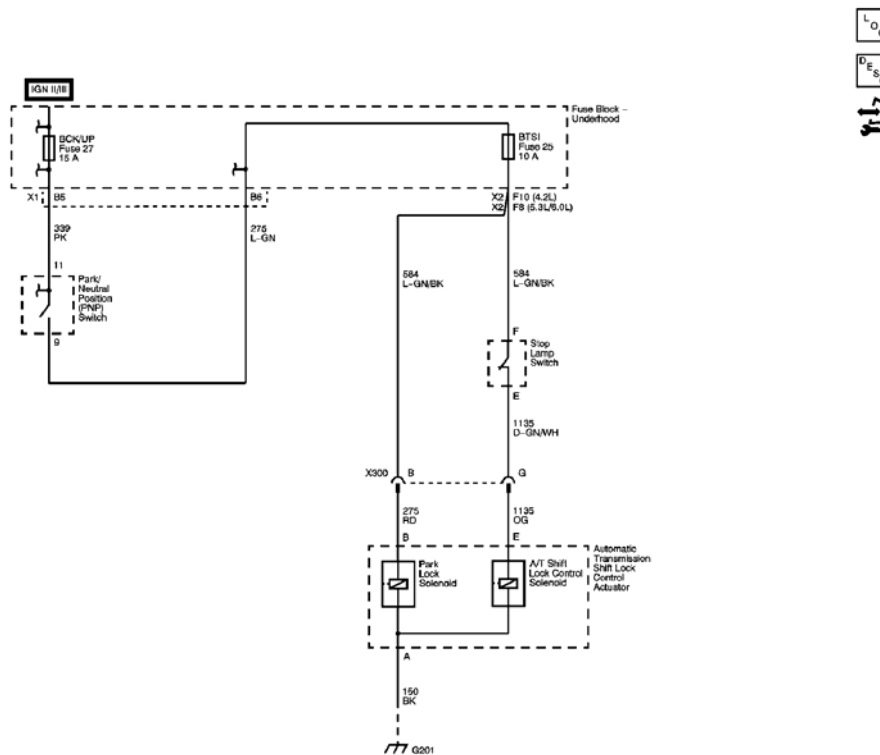


Fig. 1: Shift Lock Control Schematic
 Courtesy of GENERAL MOTORS CORP.

DIAGNOSTIC INFORMATION & PROCEDURES

DIAGNOSTIC STARTING POINT - AUTOMATIC TRANSMISSION SHIFT LOCK CONTROL

Begin the system diagnosis with **Diagnostic System Check - Vehicle**. The Diagnostic System Check - Vehicle 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 DTCs and their status

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

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 **Transmission Control Lever Malfunction** in order to diagnose the symptom.

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.

Circuit/System Description

With the ignition in the OFF or ACCY position, the park lock solenoid is de-energized and locks the shift lever in the park position. With the ignition in the ON position, voltage is supplied to the park lock solenoid. The park lock solenoid energizes through a permanent ground unlocking the shift lever.

With the ignition in the ON position, voltage is supplied to the stop lamp switch. Voltage flows through the normally closed contacts of the switch to the automatic transmission shift lock control solenoid. The automatic

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transmission shift lock control solenoid is permanently grounded. This energizes the automatic transmission shift lock control solenoid causing the transmission shift lever to be physically locked in the PARK position. When the brake pedal is depressed, the contacts in the stop lamp switch open de-energizing the automatic transmission shift lock control solenoid. This allows the shift lever to be move out of the PARK position.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Ignition 1 Voltage	1	1	-	-
Park Lock Solenoid Supply Voltage	1	1	-	-
A/T Shift Lock Control Solenoid Control	1	2	1	-

Gear shift selector will not move from the PARK position with brake applied
Gear shift selector moves from the PARK position w/o brake applied

Diagnostic Aids

If the automatic transmission shift lock control circuit is open, the A/T shift lock solenoid will be inoperative. The vehicle will shift out of PARK without depressing the brake pedal.

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

Circuit/System Verification

Ignition OFF, the gear shift lever should be locked in the PARK position. When the brake pedal is pressed, the gear shift lever can now be moved to any gear selection.

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Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the automatic transmission shift lock actuator.
2. Ignition OFF, test for less than 1.0 ohm between the ground circuit terminal A and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition ON, verify that a test lamp illuminates between the control circuit terminal B and ground.
 - If the test lamp does not illuminate, test the park lock solenoid and A/T shift lock control solenoid control circuits for an open or short to ground. If all circuits test normal, test or replace the automatic transmission shift lock actuator.
4. Ignition ON, verify that a test lamp illuminates between the control circuit terminal E and ground.
 - If the test lamp does not illuminate, test the A/T shift lock control solenoid control circuit for an open. If all circuits test normal, test or replace the stop lamp switch.
5. Ignition ON, verify that a test lamp does not illuminate between the control circuit terminal E and ground when the brake pedal is depressed.
 - If the test lamp illuminates, test the A/T shift lock control solenoid control circuit for a short to voltage. If all circuits test normal, test or replace the stop lamp switch.
6. If all circuits test normal, test or replace the automatic transmission shift lock actuator.

Component Testing

1. Install a 10 A fused jumper wire from 12 volts to the automatic transmission shift lock actuator control circuit terminals B and E. Momentarily connect a jumper wire from ground to terminal A.
2. Listen for the solenoids to turn ON and OFF.
 - If the function does not perform as specified, replace the automatic transmission shift lock actuator.

Repair Procedures

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

- **Automatic Transmission Shift Lock Actuator Replacement**
- **Stop Lamp Switch Replacement**

REPAIR INSTRUCTIONS

AUTOMATIC TRANSMISSION SHIFT LOCK ACTUATOR REPLACEMENT

IMPORTANT: After assembling the shift lock actuator, turn the ignition forward but do not start (auxiliary position) and attempt to pull the lever from PARK with and without the brake pedal depressed to verify there is no gear access without the brake pedal depressed.

IMPORTANT: Ensure the key cannot be removed from the ignition unless both the shifter is in PARK and the shift knob button has been depressed.

Removal Procedure

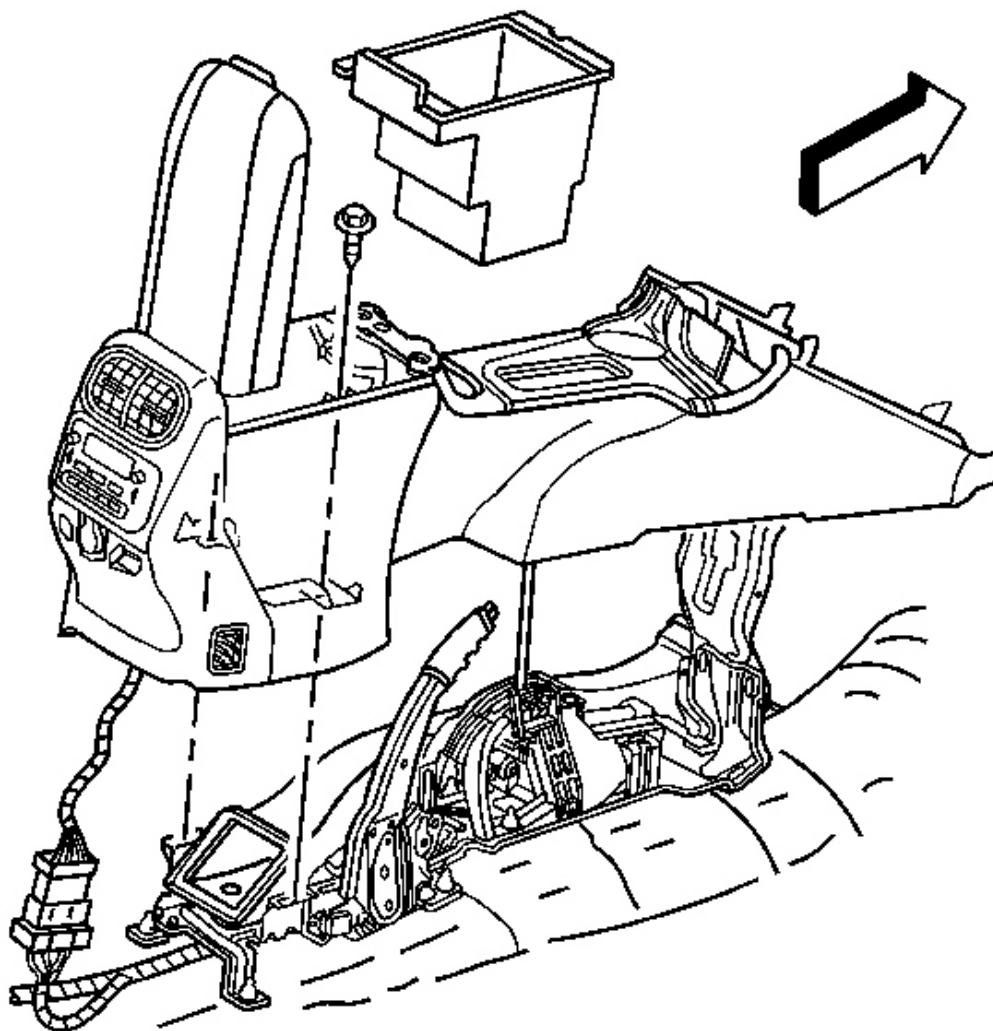


Fig. 2: View Of Center Console Assembly
Courtesy of GENERAL MOTORS CORP.

1. Remove the console. Refer to **Console Replacement** .

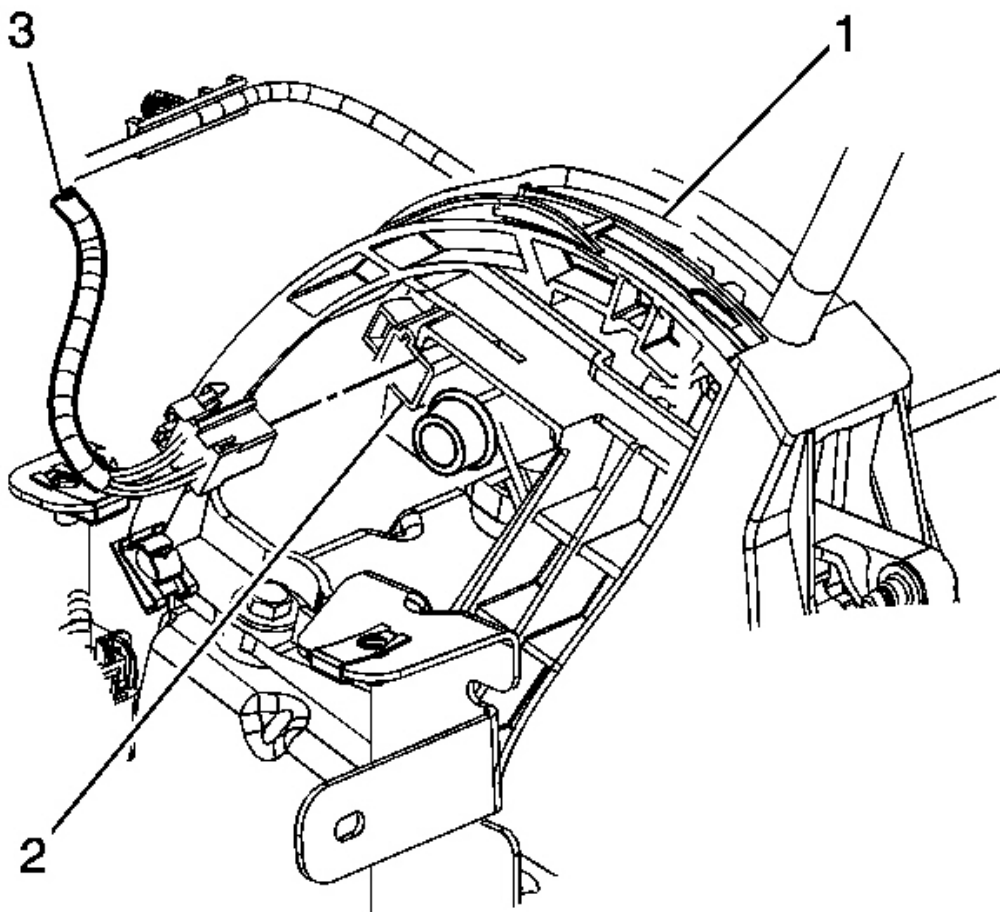


Fig. 3: View Of Shift Lock Actuator Electrical Connector
Courtesy of GENERAL MOTORS CORP.

2. Disconnect the shift lock actuator (3) electrical connector.

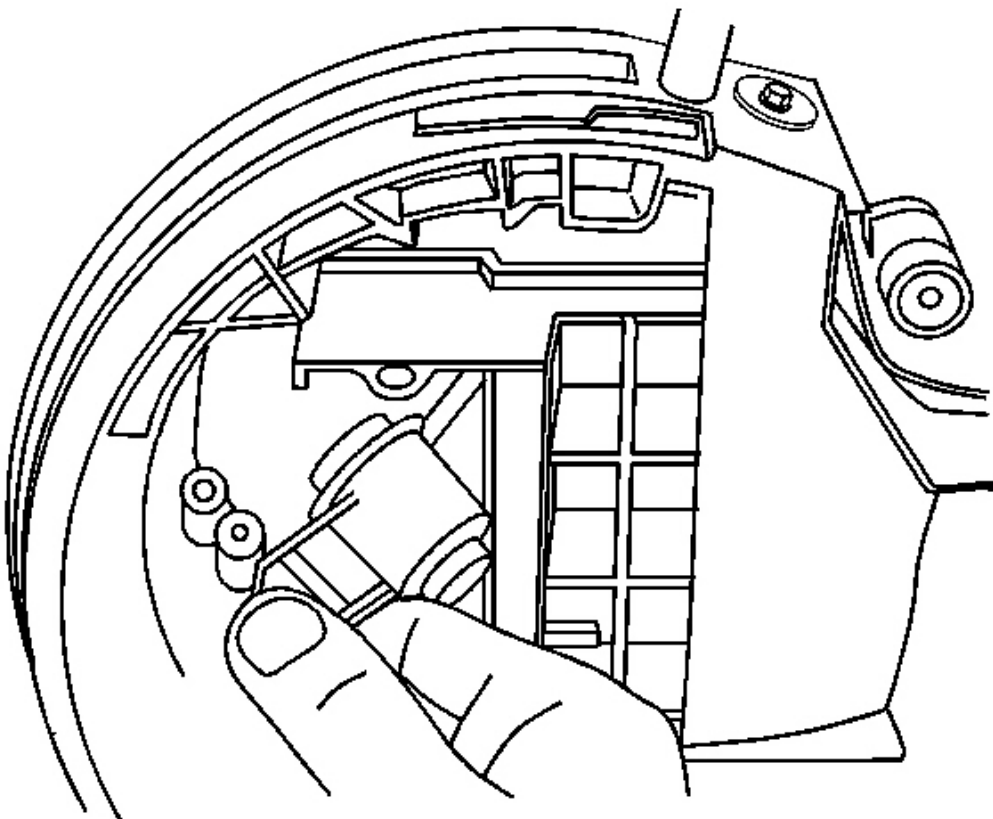


Fig. 4: Removing/Installing Shift Lock Actuator
Courtesy of GENERAL MOTORS CORP.

3. Shift assembly to the LOW position.
4. Loosen and remove the screw at the rear of the shifter assembly.
5. Shift the assembly to the NEUTRAL position.
6. Loosen and remove the top screw of the shift lock actuator through the lever slot.
7. Pull lever to the DRIVE position and remove the shift lock actuator.

Installation Procedure

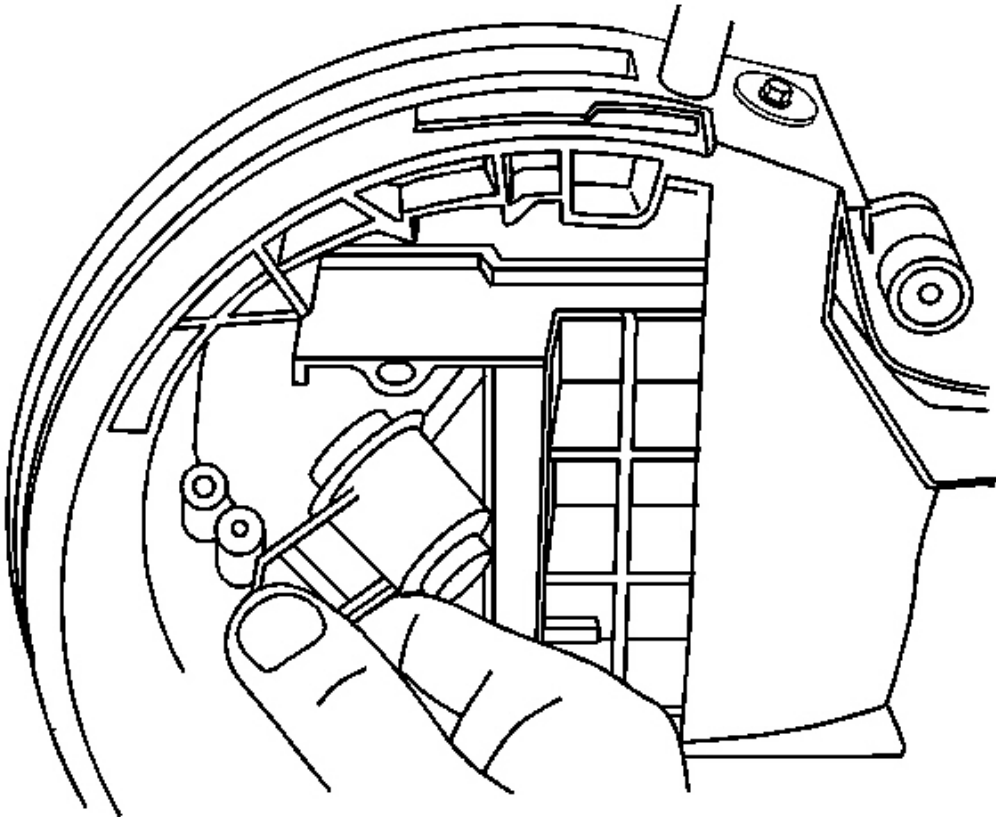


Fig. 5: Removing/Installing Shift Lock Actuator
Courtesy of GENERAL MOTORS CORP.

1. In DRIVE position, depress the shift lock actuator button and realign into the shifter lever.
2. Push lever to NEUTRAL.

NOTE: Refer to Fastener Notice .

3. Install the top screw through the lever slot.

Tighten: Tighten the actuator screw to 1.65 N.m (15 lb in).

4. Shift lever to LOW.
5. Install the screw at the rear of the shifter assembly.

Tighten: Tighten the actuator screw to 1.65 N.m (15 lb in).

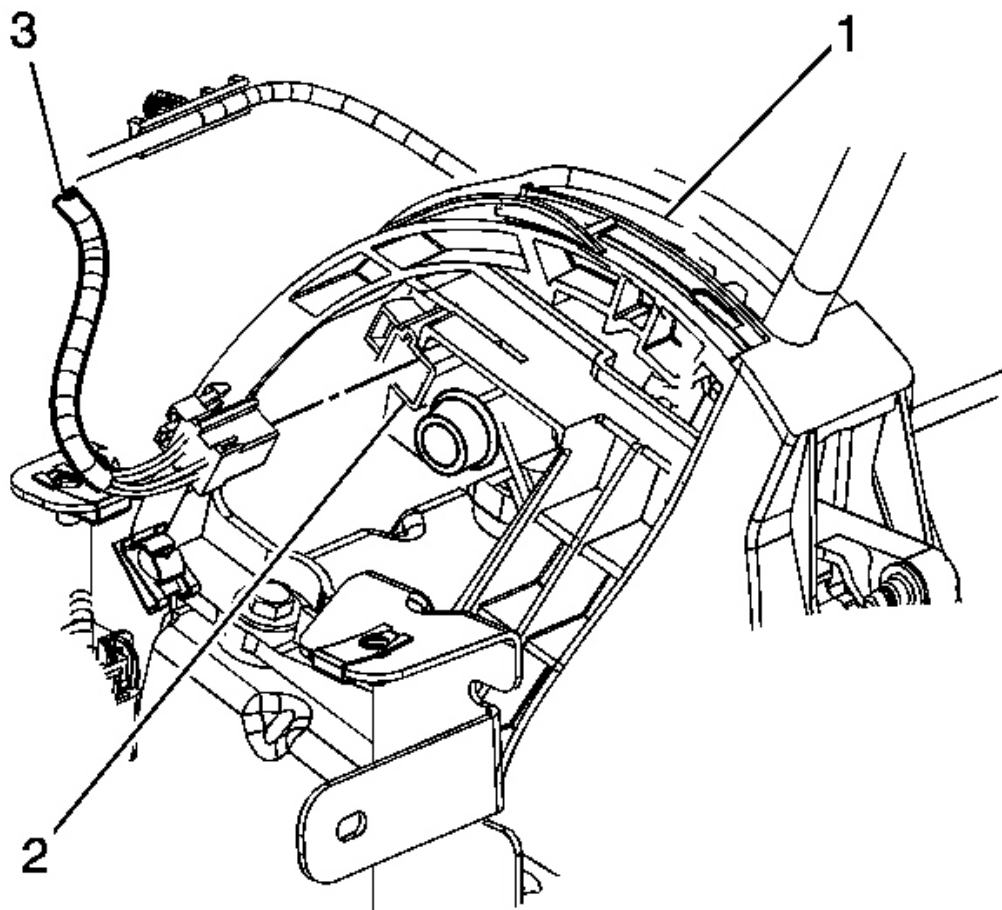


Fig. 6: View Of Shift Lock Actuator Electrical Connector
Courtesy of GENERAL MOTORS CORP.

6. Connect the electrical connector (3).

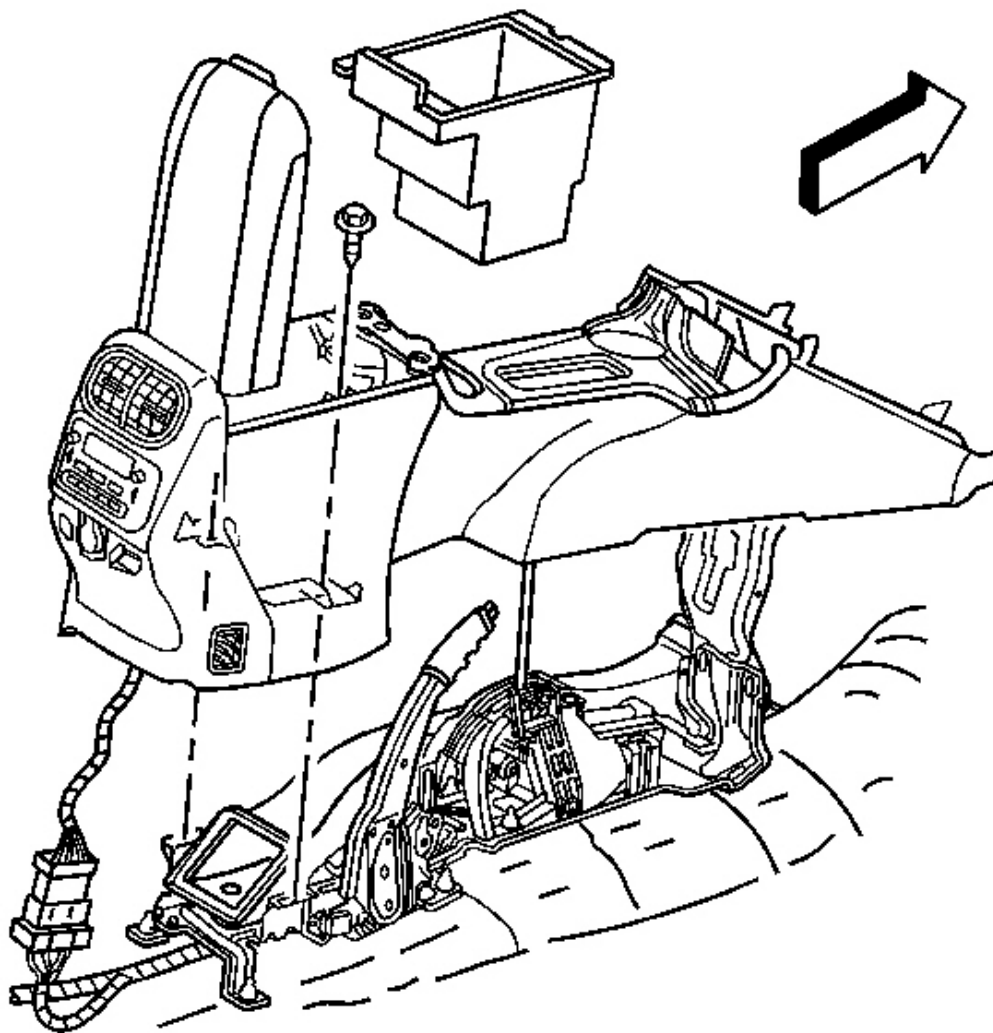


Fig. 7: View Of Center Console Assembly
Courtesy of GENERAL MOTORS CORP.

7. Verify the shift lock actuator functions properly.
8. Install the console. Refer to **Console Replacement** .

DESCRIPTION & OPERATION

AUTOMATIC TRANSMISSION SHIFT LOCK CONTROL DESCRIPTION AND OPERATION

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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 park lock solenoid
- The stop lamp switch

With the ignition in the ON position, voltage is supplied to the stop lamp switch. Voltage flows through the normally closed contacts of the switch to the automatic transmission shift lock control solenoid. The automatic transmission shift lock control solenoid is permanently grounded. This energizes the automatic transmission shift lock control solenoid causing the transmission shift lever to be physically locked in the PARK position. When the brake pedal is pressed the contacts in the stop lamp switch open, de-energizing the automatic transmission shift lock control solenoid. This allows the shift lever to be move out of the PARK position.

Park Lock Solenoid

The park lock solenoid is a safety device that prevents an inadvertent shift out of PARK when the key is in the OFF position. The key must be in the RUN position to release the park lock solenoid.

The system consists of the park lock solenoid.

With the ignition in the ON position, voltage is supplied to the park lock solenoid. The park lock solenoid energizes through a permanent ground unlocking the shift lever. With the ignition in the OFF or ACCY position the park lock solenoid de-energizes and locks the shift lever in the park position.