SPECIFICATIONS

FASTENER SPECIFICATIONS

Reusable Threaded Fastener Tightening Specifications

NOTE:

All fasteners listed in this table can be reused after removal.

Application	Specification
	Metric (English)
Endgate Handle Bolt	9 N.m (80 lb in)
Endgate Lock Actuator Bolt	9 N.m (80 lb in)
Front Side Door Latch Bolt	11 N.m (97 lb in)
Front Side Door Lock Striker Screw	25 N.m (18 lb ft)
Front Side Door Outside Handle Bracket Screw	3.5 N.m (31 lb in)
Front Side Door Outside Handle Lock Cylinder Screw	3.5 N.m (31 lb in)
Rear Side Door Latch Bolt	11 N.m (97 lb in)
Rear Side Door Lock Cylinder Screw	3.5 N.m (31 lb in)
Rear Side Door Lock Striker Bolt	25 N.m (18 lb ft)
Rear Side Door Outside Handle Bracket Screw	3.5 N.m (31 lb in)

SCHEMATIC WIRING DIAGRAMS

DOOR LOCK/INDICATOR WIRING SCHEMATICS

Switches and Indicators (without A31)

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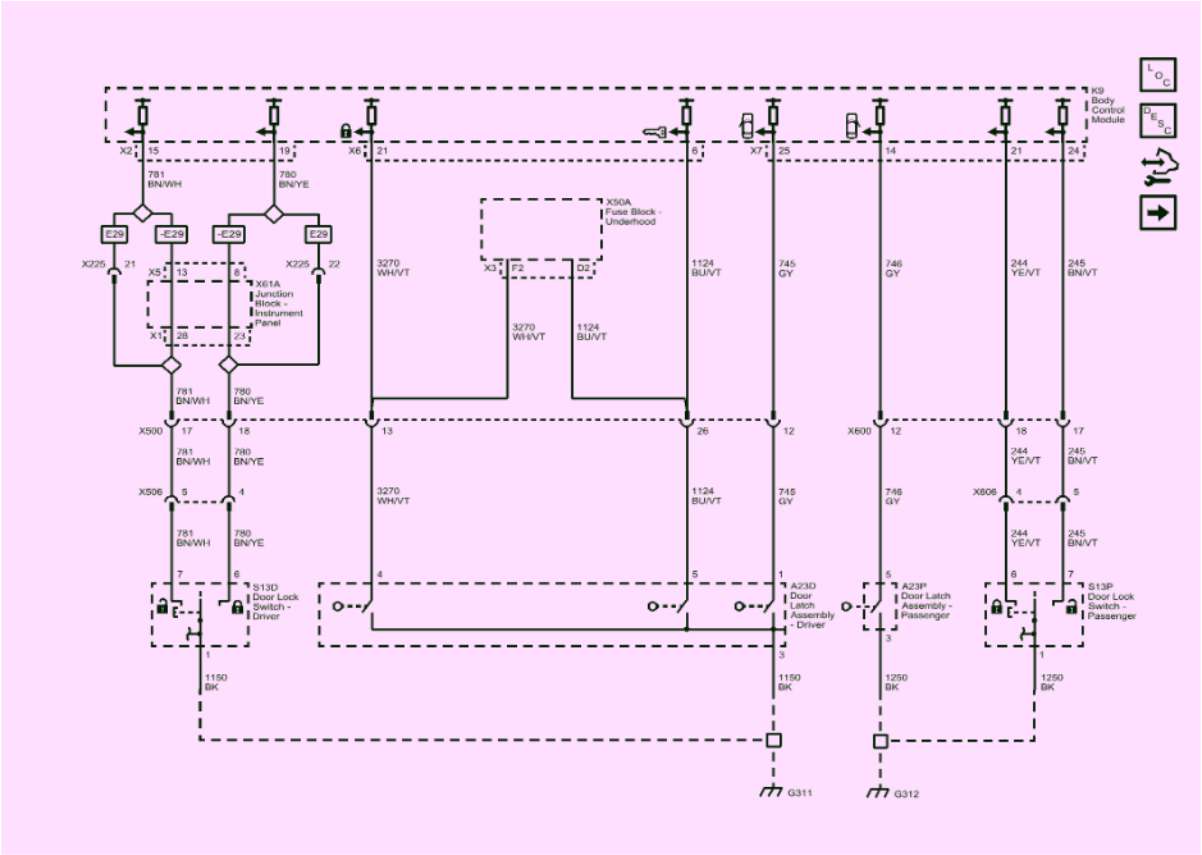


Fig. 1: Switches and Indicators (without A31)
Courtesy of GENERAL MOTORS COMPANY

Switches and Child Lock Status (A31)

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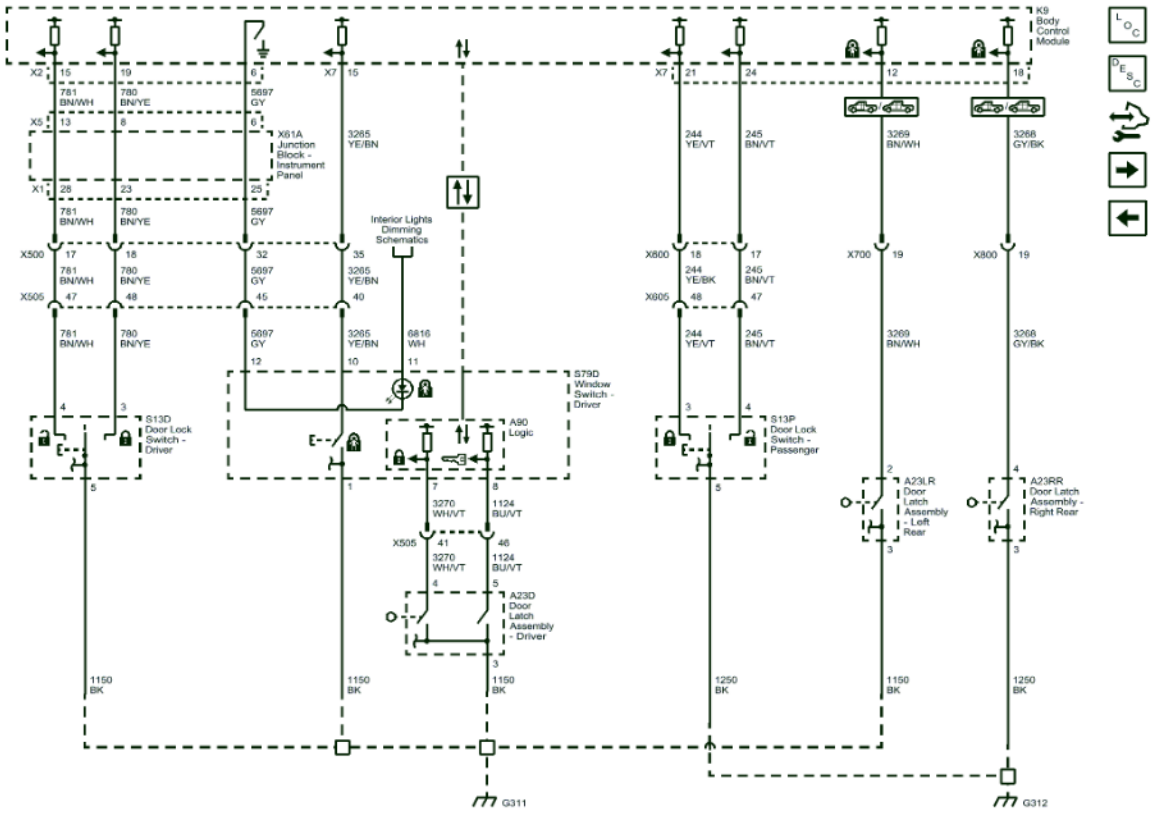


Fig. 2: Switches and Child Lock Status (A31)
Courtesy of GENERAL MOTORS COMPANY

Indicators (A31)

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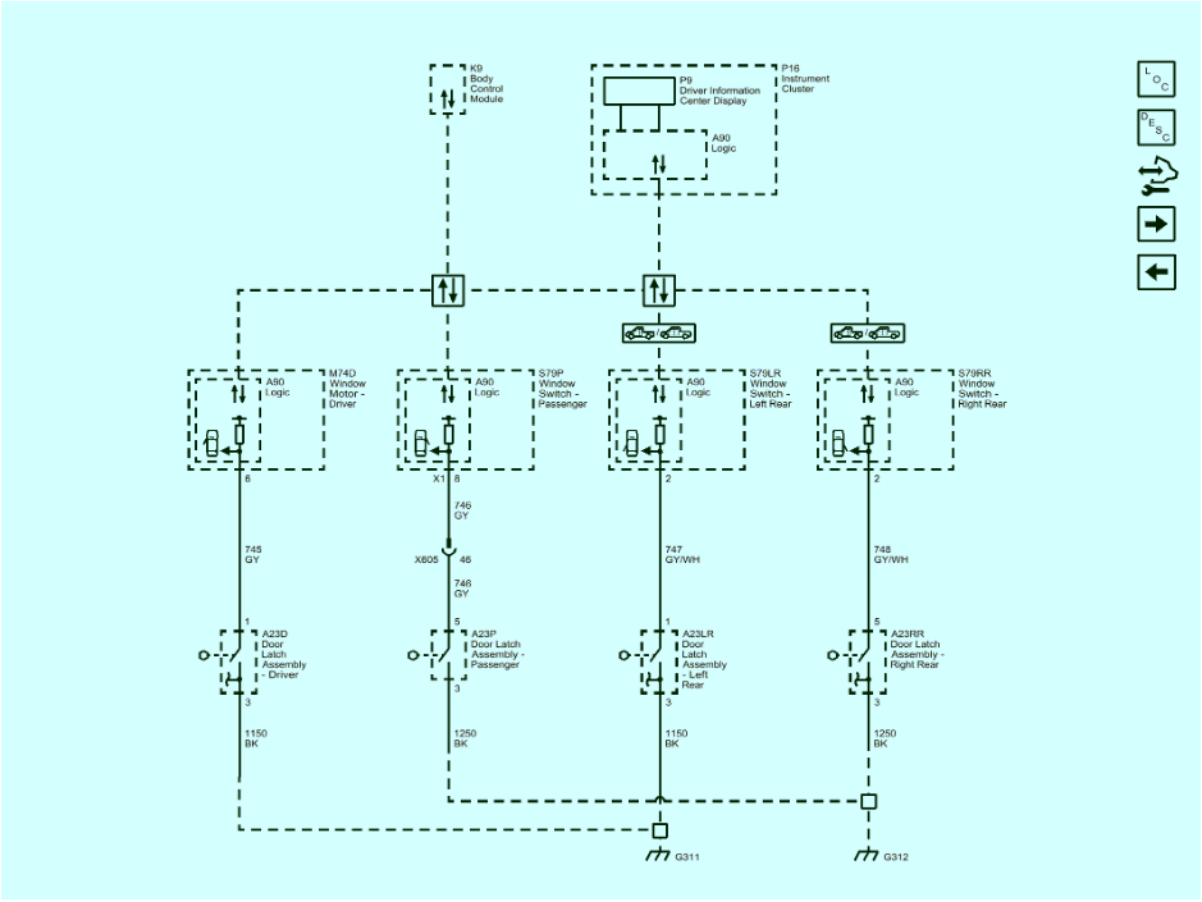


Fig. 3: Indicators (A31)
Courtesy of GENERAL MOTORS COMPANY

Actuators (2 Door)

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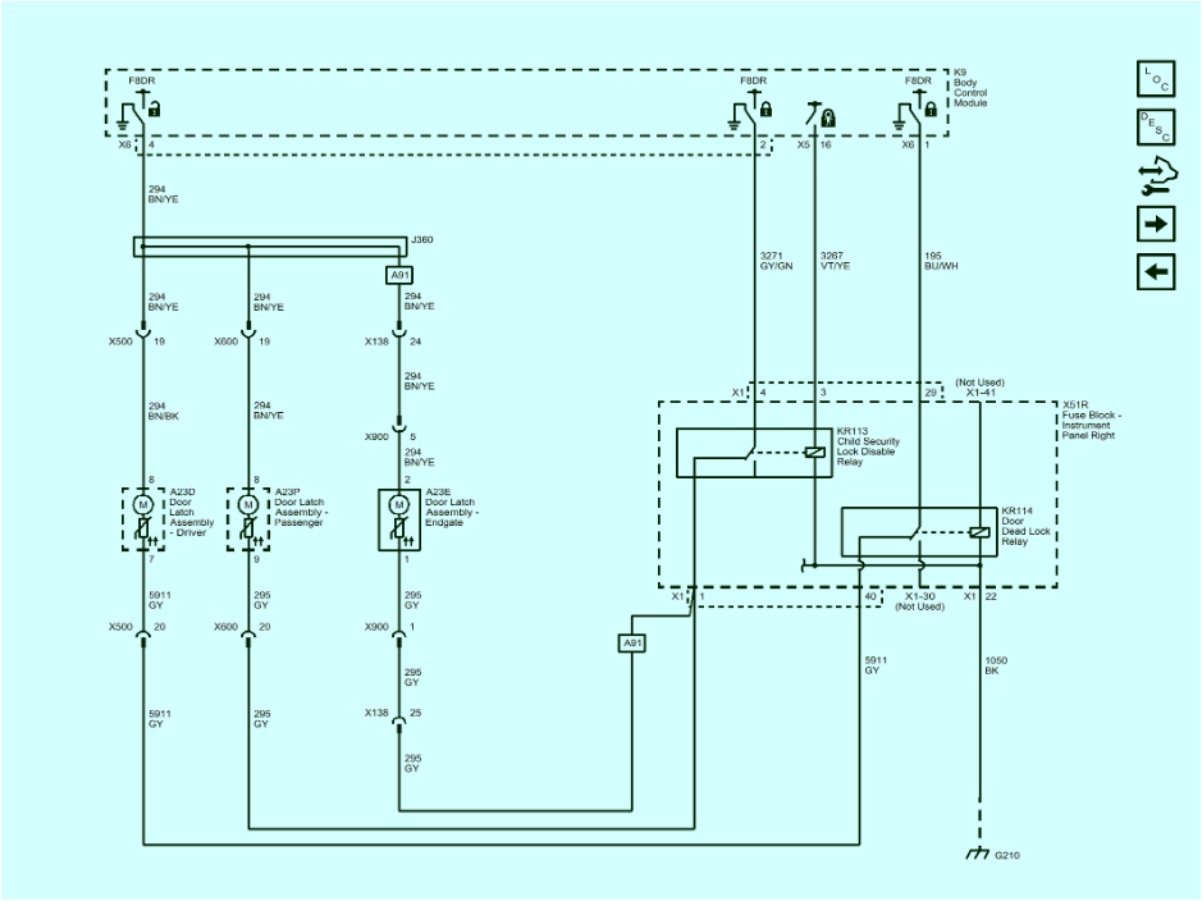


Fig. 4: Actuators (2 Door)
Courtesy of GENERAL MOTORS COMPANY

Actuators (4 Door)

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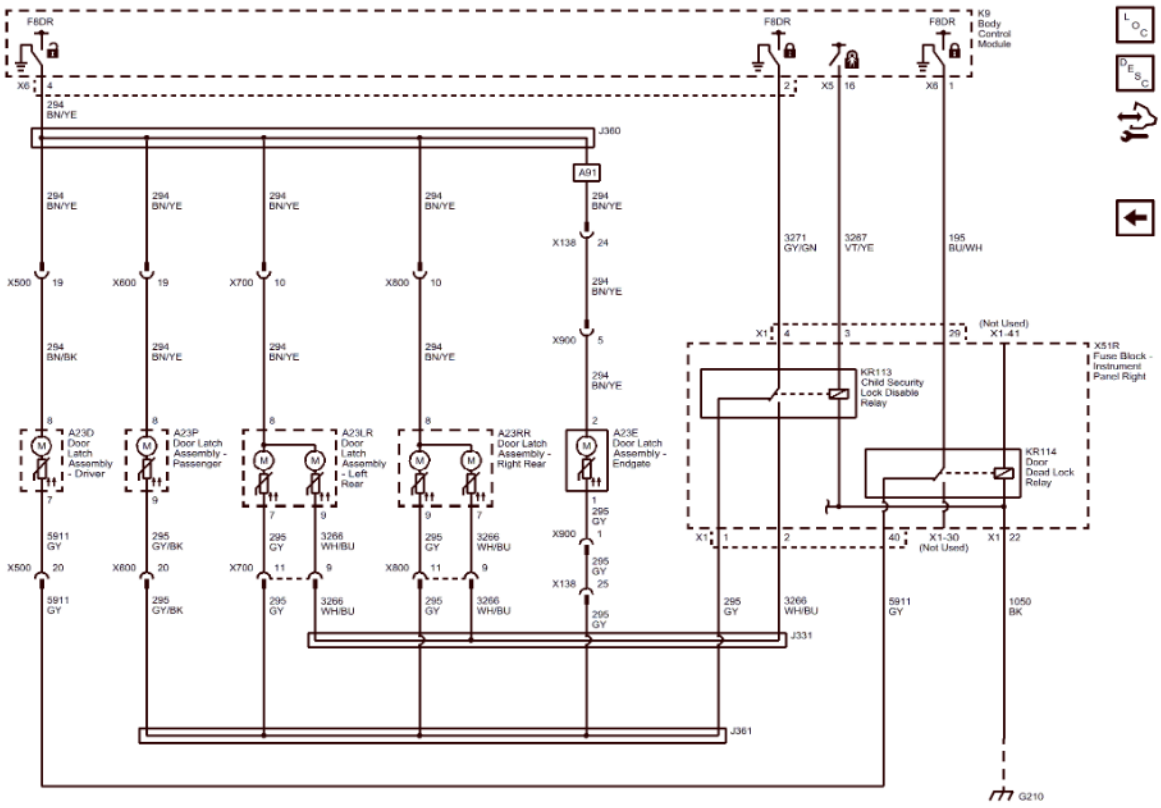


Fig. 5: Actuators (4 Door)
Courtesy of GENERAL MOTORS COMPANY

DIAGNOSTIC INFORMATION AND PROCEDURES

DTC B2500: DRIVER EXTERIOR UNLOCK SWITCH

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 B2500 00

Driver Exterior Unlock Switch Circuit

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal	B2500 00	1	1	-
Ground	-	1	-	-
1. Key Cylinder Switch Inoperative				

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Circuit/System Description

The driver window switch monitors the voltage level of the key switch unlock signal circuit. When the key is inserted into the driver door key cylinder and turned to the Unlock position, a switch within the driver door latch closes causing the voltage to drop within the key switch unlock signal circuit. The driver window switch will detect the drop in voltage and will send a serial data message to the BCM commanding all the doors to unlock.

Conditions for Running the DTC

- The ignition is ON.
- The system voltage is 9-16 V.

Conditions for Setting the DTC

The BCM detects a short to ground on the driver door key switch signal circuit.

Action Taken When the DTC Sets

The BCM will ignore the unlock command from the key cylinder switch.

Conditions for Clearing the DTC

- This DTC will be current for as long as the fault is present
- When the fault is no longer present, the DTC will be a history DTC
- A history DTC will clear after 50 ignition cycles

Reference Information

Schematic Reference

Door Lock/Indicator Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Power Door Locks Description and Operation

Electrical Information Reference

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

Circuit/System Verification

1. Ignition ON
2. Verify the driver door UNLOCK function when inserting the key into the door lock key cylinder and turning the key to the unlock position.

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- **If the driver door does not UNLOCK**

  Refer to Circuit/System Testing.

- **If the driver door UNLOCKS**

3. All OK.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the A23D Door Latch Assembly-Driver. It may take up to 2 minutes for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 8 and ground.
   - **If 10 Ω or greater**
   1. Ignition OFF.
   2. 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**
3. Ignition ON.
4. Test for greater than 10 V between the signal circuit terminal 5 and ground.
   - **If 10 V or less**
   1. Ignition OFF, disconnect the harness connector at the S79D Window Switch-Driver.
   2. Test for infinite resistance between the signal circuit and ground.
      - If less than infinite resistance, repair the short to ground on the circuit.
      - If infinite resistance
   3. Test for less than 2 Ω in the control circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance on the circuit.
      - If less than 2 Ω, replace the S79D Window Switch-Driver.
   - **If greater than 10 V**
5. Test or replace the A23D Door Latch Assembly-Driver.

Component Testing

1. Ignition OFF, disconnect the harness connector at the A23D Door Latch Assembly-Driver.
2. Test for infinite resistance between the signal terminal 5 and the ground terminal 8 with the switch in the open position.
   - **If less than infinite resistance**

     Replace the A23D Door Latch Assembly-Driver.

   - **If infinite resistance**
3. Test for less than 2 Ω between the signal terminal 5 and the ground terminal 8 with the switch in the closed position.
   - **If 2 Ω or greater**

     Replace the A23D Door Latch Assembly-Driver.

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- **If less than 2 Ω**

4. All OK

Repair Instructions

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

- **Front Side Door Window Control Switch Replacement**
- **Front Side Door Latch Replacement**

DTC B252C: CHILD SECURITY LOCK SWITCH

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 B252C 00

Child Security Lock Switch Circuit

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal	B252C 00	1	1	-
Ground	-	1	-	-
1. Child Security Lockout Malfunction				

Circuit/System Description

The body control module (BCM) monitors the voltage level in the child security door lockout switch signal circuit, when the switch is in the open position the voltage in the signal circuit will be equal to the B+ voltage level. When the child security door lockout switch is pressed, voltage within the signal circuit drops and the BCM will detect the voltage drop and will energize the door lock relay to disable the interior rear door handles.

Conditions for Running the DTC

The system voltage is 9-16 V.

Conditions for Setting the DTC

The BCM has detected a short to ground on the child security lockout switch signal circuit for greater than 60 seconds.

Action Taken When the DTC Sets

- The interior rear door handles will always be disabled or will not lockout depending upon the latch states when the fault occurred
- The BCM will ignore the input from the lockout switch.

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Conditions for Clearing the DTC

- The DTC will be current for as long as the fault is present.
- When the fault is no longer present, the DTC will be a history DTC.
- A history DTC will clear after 50 ignition cycles.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Power Door Locks 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.
2. Verify the scan tool Left Rear Child Security Lock Switch and Right Rear Child Security Lock Switch parameters change between Inactive and Active when pressing and depressing the child security lockout switch.
    - **If the parameter does not change**

      Refer to Circuit/System Testing.

    - **If the parameter changes**
3. All OK.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the S79D Window Switch-Driver. Ignition ON
2. Test for greater than 10 V between the signal circuit terminal 10 and ground.
    - **If 10 V or less**
    1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.
    2. Test for infinite resistance between the signal circuit and ground.

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- If less than infinite resistance, repair the short to ground on the circuit.

3. Test for less than 2 Ω in the signal circuit end to end.
   - If 2 Ω or greater, repair the open/high resistance in the circuit.
   - If less than 2 Ω, replace the K9 Body Control Module.

- **If greater than 10 V**

3. Test or replace the S79D Window Switch-Driver.

Repair Instructions

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

- **Front Side Door Window Control Switch Replacement**
- **Control Module References** for the BCM replacement, programming and setup

DTC B252E: CHILD SECURITY LOCK SWITCH INDICATOR

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 B252E

Child Security Lock Switch Indicator Circuit

For symptom byte information refer to: **Symptom Byte List**

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Control	B252E 02	B252E 04	B252E 01	-

Circuit/System Description

The body control module (BCM) will provide a ground for the child door lock indicator control circuit when the BCM receives a child door lockout command. The indicator will illuminate to indicate that the interior rear door handles have been disabled.

Conditions for Running the DTC

The system voltage is 9-16 V.

Conditions for Setting the DTC

B252E 01

The BCM has detected a short to voltage on the child security lockout indicator control circuit for greater than 60 seconds

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B252E 02

The BCM has detected a short to ground on the child security lockout indicator control circuit for greater than 60 seconds

B252E 04

The BCM has detected an open/high resistance on the child security lockout indicator control circuit for greater than 60 seconds

Action Taken When the DTC Sets

B252E 01

The child lockout system will function normally but the child security lockout indicator will be continuously illuminated

B252E 02

The child lockout system will function normally but the child security lockout indicator will be inoperative

B252E 04

The child lockout system will function normally but the child security lockout indicator will be inoperative

Conditions for Clearing the DTC

- The DTC will be current for as long as the fault is present.
- When the fault is no longer present, the DTC will be a history DTC.
- A history DTC will clear after 50 ignition cycles

Reference Information

Schematic Reference

Interior Lights Dimming Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Power Door Locks Description and Operation

Electrical Information Reference

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

Scan Tool Reference

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Control Module References for scan tool information

Circuit/System Verification

1. Ignition ON.
2. Verify the child lockout indicator turns ON and OFF when commanding the Child Security Lock Indicator Command Active and Inactive with a scan tool.
    - **If the child lockout indicator is always ON or always OFF**

      Refer to Circuit/System Testing.

    - **If the child lockout indicator flashes ON and OFF**

      Refer to **Power Door Child Lock Malfunction**

    - **If the child lockout indicator turns ON and turns OFF**
3. All OK.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the S79D Window Switch-Driver. Ignition ON
2. Connect a test lamp between the control circuit terminal 12 and B+.
3. Verify the test lamp turns ON and OFF when Child Security Lock Indicator Command Active and Inactive with a scan tool.
    - **If the test lamp is always OFF**
    1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module, ignition ON.
    2. 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
    3. Ignition OFF.
    4. Test for less than 2 Ω in the control circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, replace the K9 Body Control Module.
    - **If the test lamp is always ON**
    1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module.
    2. 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, replace the K9 Body Control Module.
    - **If the test lamp turns ON and OFF**
4. Test or replace the S79D Window Switch-Driver.

Repair Instructions

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

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- **Front Side Door Window Control Switch Replacement**
- **Control Module References** for the BCM replacement, programming and setup

DTC B3125, B3130, OR B3135: DOOR LOCK/UNLOCK (STANDARD CAB)

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 B3125

Driver Door Only Unlock Circuit

DTC B3130

All Doors Unlock Circuit

DTC B3135

All Doors Lock Circuit

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

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
BCM B+	B3125 02, B3130 02, B3135 02	B3125 02, B3130 02, B3135 02	-	-
Door Latch Control	B3125 02, B3130 02, B3135 02	B3125 04, B3130 04, B3135 04	B3125 01, B3130 01, B3135 01	-
Driver Door Lock Motor Lock Control	B3125 02, B3130 02, B3135 02	B3125 04, B3130 04, B3135 04	B3125 01, B3130 01, B3135 01	-
Door Lock Actuator Unlock Control	B3125 02, B3130 02, B3135 02	B3125 04, B3130 04, B3135 04	B3125 01, B3130 01, B3135 01	-

Circuit/System Description

The body control module (BCM) powers the reversible door latch assemblies by providing battery positive voltage and ground to the appropriate lock and unlock control circuits of the door latch assemblies. The lock control circuits of the driver and passenger door latch assemblies are all connected together. When the door latch assemblies are not active, all actuator lock and unlock control circuits are supplied a floating voltage used by the BCM to perform diagnostic functions on the circuits. Transitioning of the lock actuators to the lock or unlocked position depends upon which control circuits receive voltage and which control circuits receive

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ground.

Conditions for Running the DTC

When the output is actively being requested by the BCM.

Conditions for Setting the DTC

B3125 01, B3130 01, B3135 01

The BCM detects a short to battery on a door latch control circuit

B3125 02, B3130 02 and B3135 02

- A short to ground or an open/high resistance in the BCM B+ circuit.
- The BCM detects a short to ground on a door latch control circuit.

B3125 04, B3130 04, B3135 04

The BCM detects an open/high resistance on a door latch control circuit

Action Taken When the DTC Sets

All the power door locks will be inoperative.

Conditions for Clearing the DTC

- This DTC will be current for as long as the fault is present.
- When the fault is no longer present, the DTC will be a history DTC.
- A history DTC will clear after 50 ignition cycles.

Reference Information

Schematic Reference

- **Door Lock/Indicator Schematics**
- **Body Control System Schematics**

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Power Door Locks Description and Operation

Electrical Information Reference

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

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Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition ON.
2. Verify both vehicle doors LOCK and UNLOCK when commanding the All Doors Lock/Unlock with a scan tool.
    - **If only the driver door LOCK or UNLOCK functions do not work**

      Refer to Circuit/System Testing - Driver Door Lock Malfunction.

    - **If the passenger door LOCK or UNLOCK functions do not work**

      Refer to Circuit/System Testing - Passenger Door Lock Malfunction.

    - **If both door LOCK and UNLOCK functions do not work**

      Refer to Circuit/System Testing - Both Door Lock Inoperative.

    - **If the LOCK and UNLOCK function for both doors works**
3. All OK.

Circuit/System Testing

Driver Door Lock Malfunction

1. Ignition OFF, disconnect the X6 harness connector at the K9 Body Control Module, ignition ON.
2. Test for less than 1 V between the control circuit terminal 1 and ground.
    - **If 1 V or greater**
    1. Ignition OFF, disconnect the harness connector at the A23D Door Latch Assembly - Driver, ignition ON.
    2. 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**
3. Ignition OFF, connect the X6 harness connector at the K9 Body Control Module. Disconnect the harness connector at the A23D Door Latch Assembly-Driver, ignition ON.

NOTE: **Leaving the DMM connected between a control circuit and ground for greater than 20 s may cause the K9 Body Control Module to interpret the test as a system fault and will cause the voltage on the control circuit to drop to 0 V. If the voltage drops to 0 V, operate the door locks using the door lock switch to restore the voltage for testing.**

4. Test for greater than 3 V between the control circuit terminals listed below and ground:
    - Control circuit terminal 7
    - Control circuit terminal 8
    - **If 3 V or less**

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1. Ignition OFF, disconnect the X6 harness connector at the K9 Body Control Module.
2. 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.
3. Test for less than 2 Ω in the control circuit end to end.
    - If 2 Ω or greater, repair the open/high resistance on the circuit.
    - If less than 2 Ω, replace the K9 Body Control Module.

- **If greater than 3 V**

NOTE: **When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 00.00 V.**

5. Install a DMM between the control circuit terminal 7 and control circuit terminal 8 Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 00.00 V.
6. Lock and unlock the vehicle doors using the S13D Door Lock Switch-Driver.
7. Verify the MAX voltage captured by the DMM is greater than 10 V.
    - **If 10 V or less**

      Replace the K9 Body Control Module.

    - **If greater than 10 V**
8. Test or replace the A23D Door Latch Assembly-Driver.

Passenger Door Lock Malfunction

1. Ignition OFF, disconnect the X6 harness connector at the K9 Body Control Module, ignition ON.
2. Test for less than 1 V between the control circuit terminal 2 and ground.
    - **If 1 V or greater**
    1. Ignition OFF, disconnect the harness connector at the A23P Door Latch Assembly - Passenger, ignition ON.
    2. 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**
3. Ignition OFF, connect the X6 harness connector at the K9 Body Control Module. Disconnect the harness connector at the A23P Door Latch Assembly - Passenger.

NOTE: **Leaving the DMM connected between a control circuit and ground for greater than 20 s may cause the K9 Body Control Module to interpret the test as a system fault and will cause the voltage on the control circuit to drop to 0 V. If the voltage drops to 0 V, operate the door locks using the door lock switch to restore the voltage for testing.**

4. Test for greater than 3 V between the control circuit terminal listed below and ground:
    - Control circuit terminal 8

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- Control circuit terminal 9
- **If 3 V or less**

1. Ignition OFF, disconnect the X6 harness connector at the K9 Body Control Module.
2. 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.
3. Test for less than 2 Ω in the control circuit end to end.
    - If 2 Ω or greater, repair the open/high resistance on the circuit.
    - If less than 2 Ω, replace the K9 Body Control Module.

- **If greater than 3 V**

NOTE: **When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 00.00 V.**

5. Install a DMM between the control circuit terminal 8 and control circuit terminal 9. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 00.00 V.
6. Lock and unlock the vehicle doors using the door lock switch.
7. Verify the MAX voltage captured by the DMM is greater than 10 V.
    - **If 10 V or less**

      Replace the K9 Body Control Module.

    - **If greater than 10 V**
8. Test or replace the A23P Door Latch Assembly - Passenger.

Both Door Locks Inoperative

1. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module, ignition ON.
2. Verify a test lamp illuminates between the B+ circuit terminal 4 and ground.
    - **If the test lamp does not illuminate and the circuit fuse is good**
    1. Ignition OFF.
    2. Test for less than 2 Ω in the B+ circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, verify the fuse is not open and there is voltage at the fuse.
    - **If the test lamp does not illuminate and the circuit fuse is open**
    1. Ignition OFF.
    2. Test for infinite resistance between the B+ circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance
    3. Disconnect the harness connector at the A23D Door Latch Assembly-Driver, A23P Door Latch Assembly - Passenger and A23E Door Latch Assembly - Endgate
    4. Test for infinite resistance between each control circuit and ground.

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- If less than infinite resistance, repair the short to ground on the circuit.
- If infinite resistance, replace the appropriate A23 Door Latch Assembly.

- **If the test lamp illuminates**

3. Ignition OFF, connect the X2 harness connector at the K9 Body Control Module. Disconnect the harness connector at the A23D Door Latch Assembly-Driver, ignition ON.

NOTE: **Leaving the DMM connected between a control circuit and ground for greater than 20 seconds will cause the K9 Body Control Module to interpret the test as a system fault and will cause the voltage on the control circuit to drop to 0 V. If the voltage drops to 0 V, operate the door locks using the central door lock switch to restore the voltage for testing.**

4. Test for greater than 7 V between the control circuit terminal 8 and ground.
   - **If 7 V or less**
   1. Ignition OFF, disconnect the X6 harness connector at the K9 Body Control Module.
   2. Test for infinite resistance between the control circuit terminal listed below and ground:
      - Control circuit terminal 1 X6
      - Control circuit terminal 2 X6
      - Control circuit terminal 4 X6
      - If less than infinite resistance, repair the short to ground on the circuit.
      - If infinite resistance, replace the K9 Body Control Module.
   - **If greater than 7 V**
5. Replace the K9 Body Control Module.

Component Testing

1. Ignition OFF, disconnect the harness connector at the appropriate A23 Door Latch Assembly.
2. Install a 25 A fused jumper wire between one of the control terminals and 12 V. Momentarily install a jumper wire between the other control terminal and ground. Reverse the jumper wires at least two times, the A23 Door Latch Assembly should perform the LOCK and UNLOCK function.
   - **If the actuator does not perform the LOCK and UNLOCK function**

     Replace the A23 Door Latch Assembly.

   - **If the actuator performs the LOCK and UNLOCK function**
3. All OK

Repair Instructions

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

- **Front Side Door Latch Replacement**
- **Control Module References** for BCM replacement, programming and setup

DTC B3125, B3130, OR B3135: DOOR UNLOCK/LOCK (EXTENDED CAB AND CREW CAB)

Diagnostic Instructions

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- 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 B3125

Driver Door Only Unlock Circuit

DTC B3130

All Doors Unlock Circuit

DTC B3135

All Doors Lock Circuit

For symptom byte information refer to: **Symptom Byte List**

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
BCM B+	B3125 02, B3130 02, B3135 02	B3125 02, B3130 02, B3135 02	-	-
Door Lock/Unlock Control	B3125 02, B3130 02, B3135 02	2, 3, 4	B3125 01, B3130 01, B3135 01	-
Door Lock Control	B3125 02, B3130 02, B3135 02	1	B3125 01, B3130 01, B3135 01	-
Driver Door Latch Unlock Control	B3125 02, B3130 02, B3135 02	1	B3125 01, B3130 01, B3135 01	-
Left Rear Door Latch Lock Control	B3125 02, B3130 02, B3135 02	3	B3125 01, B3130 01, B3135 01	-
Left Rear Door Latch Unlock Control	B3125 02, B3130 02, B3135 02	3	B3125 01, B3130 01, B3135 01	-
Passenger Door Latch Lock Control	B3125 02, B3130 02, B3135 02	2	B3125 01, B3130 01, B3135 01	-
Passenger Door Latch Unlock Control	B3125 02, B3130 02, B3135 02	2	B3125 01, B3130 01, B3135 01	-
Right Rear Door Latch Lock Control	B3125 02, B3130 02,	4	B3125 01, B3130 01,	-

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Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
	B3135 02		B3135 01	
Right Rear Door Latch Unlock Control	B3125 02, B3130 02, B3135 02	4	B3125 01, B3130 01, B3135 01	-
1. Driver Door Lock Malfunction 2. Passenger Door Lock Malfunction 3. Left Rear Door Lock Malfunction 4. Right Rear Door Lock Malfunction				

Circuit/System Description

The body control module (BCM) powers the reversible door latch assemblies by providing battery positive voltage and ground to the appropriate lock and unlock control circuits of the door latch assemblies. The lock and unlock control circuits of the rear doors and passenger door latch assemblies are all connected together. When the door latch assemblies are not active, all actuator lock and unlock control circuits are supplied a floating voltage used by the BCM to perform diagnostic functions on the circuits. Transitioning of the lock actuators to the lock or unlocked position depends upon which control circuits receive voltage and which control circuits receive ground.

The instrument panel right fuse block contains a PCB relay which controls the functions of the electronic child locks which is part of the rear door latch assemblies. When the relay is in it's inactive state and the BCM commands the latches to LOCK and UNLOCK, voltage will pass through the relay contacts for normal LOCK and UNLOCK functions of the passenger, left rear and right rear door latch assemblies

Conditions for Running the DTC

When the ignition is ON.

Conditions for Setting the DTC

B3125 01, B3130 01, B3135 01

The BCM detects a short to battery on a door latch control circuit

B3125 02, B3130 02 and B3135 02

- A short to ground or an open/high resistance in the BCM B+ circuit.
- The BCM detects a short to ground on a door latch control circuit.

Action Taken When the DTC Sets

The BCM will not command the door lock system.

Conditions for Clearing the DTC

- This DTC will be current for as long as the fault is present.
- When the fault is no longer present, the DTC will be a history DTC.
- A history DTC will clear after 50 ignition cycles.

Reference Information

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Schematic Reference

- **Door Lock/Indicator Schematics**
- **Body Control System Schematics**

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Power Door Locks Description and Operation

Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition ON.
2. Verify all vehicle doors LOCK and UNLOCK when commanding the All Doors Lock/Unlock to Lock and Unlock with a scan tool.
    - **If only the driver door LOCK or UNLOCK functions do not work**

      Refer to Circuit/System Testing - Driver Door Lock Malfunction.

    - **If one or more, but not all, passenger door LOCK or UNLOCK functions do not work**

      Refer to Circuit/System Testing - Passenger Door Lock Malfunction.

    - **If all door LOCK and UNLOCK functions do not work**

      Refer to Circuit/System Testing - All Door Lock Inoperative.

    - **If the LOCK and UNLOCK function for all doors works**
3. All OK.

Circuit/System Testing

Driver Door Lock Malfunction

1. Ignition OFF, disconnect the X6 harness connector at the K9 Body Control Module, ignition ON.
2. Test for less than 1 V between the control circuit terminal 1 and ground.
    - **If 1 V or greater**

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1. Ignition OFF, disconnect the harness connector at the A23D Door Latch Assembly - Driver, ignition ON.
2. 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**

3. Ignition OFF, connect the X6 harness connector at the K9 Body Control Module. Disconnect the harness connector at the A23D Door Latch Assembly-Driver, ignition ON.

NOTE: **Leaving the DMM connected between a control circuit and ground for greater than 20 s may cause the K9 Body Control Module to interpret the test as a system fault and will cause the voltage on the control circuit to drop to 0 V. If the voltage drops to 0 V, operate the door locks using the door lock switch to restore the voltage for testing.**

4. Test for greater than 3 V between the control circuit terminals listed below and ground:
    - Control circuit terminal 7
    - Control circuit terminal 8
    - **If 3 V or less**
    1. Ignition OFF, disconnect the X6 harness connector at the K9 Body Control Module.
    2. 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.
    3. Test for less than 2 Ω in the control circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance on the circuit.
        - If less than 2 Ω, replace the K9 Body Control Module.
    - **If greater than 3 V**

NOTE: **When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 00.00 V.**

5. Install a DMM between the control circuit terminal 7 and control circuit terminal 8. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 00.00 V.
6. Lock and unlock the vehicle doors using the S13D Door Lock Switch-Driver.
7. Verify the MAX voltage captured by the DMM is greater than 10 V.
    - **If 10 V or less**

      Replace the K9 Body Control Module.

    - **If greater than 10 V**
8. Test or replace the A23D Door Latch Assembly-Driver.

Passenger Door Lock Malfunction

1. Ignition OFF, disconnect the X6 harness connector at the K9 Body Control Module, ignition ON.

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2. Test for less than 1 V between the control circuit terminal 4 and ground.
    - **If 1 V or greater**
    1. Ignition OFF, disconnect the harness connector at the A23P Door Latch Assembly - Passenger, A23LR Door Latch Assembly - Left Rear, and A23RR Door Latch Assembly - Right Rear, ignition ON.
    2. 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**
3. Ignition OFF, connect the X6 harness connector at the K9 Body Control Module. Disconnect the harness connector at the appropriate passenger or rear A23 Door Latch Assembly.

NOTE: **Leaving the DMM connected between a control circuit and ground for greater than 20 s may cause the K9 Body Control Module to interpret the test as a system fault and will cause the voltage on the control circuit to drop to 0 V. If the voltage drops to 0 V, operate the door locks using the door lock switch to restore the voltage for testing.**

4. Test for greater than 3 V between the control circuit terminal listed below and ground:
    - A23P Door Latch Assembly-Passenger - control circuit terminal 8
    - A23P Door Latch Assembly-Passenger - control circuit terminal 9
    - A23RR Door Latch Assembly-Right Rear - control circuit terminal 8
    - A23RR Door Latch Assembly-Right Rear - control circuit terminal 9
    - A23LR Door Latch Assembly-Left Rear - control circuit terminal 7
    - A23LR Door Latch Assembly-Left Rear - control circuit terminal 8
    - **If 3 V or less**
    1. Ignition OFF, disconnect the X6 harness connector at the K9 Body Control Module.
    2. 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
    3. Test for less than 2 Ω in the control circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance on the circuit.
        - If less than 2 Ω, replace the K9 Body Control Module.
    - **If greater than 3 V**

NOTE: **When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 00.00 V.**

5. Install a DMM between the control circuits listed below. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 00.00 V.
    - A23P Door Latch Assembly-Passenger - control circuit terminal 8 and control circuit terminal 9
    - A23RR Door Latch Assembly-Right Rear - control circuit terminal 8 and control circuit terminal 9
    - A23LR Door Latch Assembly-Left Rear - control circuit terminal 7 and control circuit terminal 8
6. Lock and unlock the vehicle doors using the S13D Door Lock Switch-Driver.

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7. Verify the MAX voltage captured by the DMM is greater than 10 V.
    - **If 10 V or less**

      Replace the K9 Body Control Module.

    - **If greater than 10 V**
8. Test or replace the A23 Door Latch Assembly.

All Door Locks Inoperative

1. Ignition OFF and all vehicle systems OFF, disconnect the X6 harness connector at the K9 Body Control Module. It may take up to 2 minutes for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 3 and ground.
    - **If 10 Ω or greater**
    1. Ignition OFF.
    2. 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**
3. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module, ignition ON.
4. Verify a test lamp illuminates between the B+ circuit terminal 4 and ground.
    - **If the test lamp does not illuminate and the circuit fuse is good**
    1. Ignition OFF.
    2. Test for less than 2 Ω in the B+ circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, verify the fuse is not open and there is voltage at the fuse.
    - **If the test lamp does not illuminate and the circuit fuse is open**
    1. Ignition OFF.
    2. Test for infinite resistance between the B+ circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance
    3. Disconnect the harness connector at each of the A23 Door Latch Assemblies.
    4. Test for infinite resistance between each control circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the appropriate A23 Door Latch Assembly.
    - **If the test lamp illuminates**
5. Ignition OFF, connect the X2 harness connector and disconnect the X6 harness connector at the K9 Body Control Module. Disconnect the X1 harness connector at the X51R Fuse Block - Instrument Panel Right, ignition ON.
6. Test for less than 1 V between the control circuit terminals listed below and ground:
    - K9 Body Control Module control circuit terminal 1 X6
    - K9 Body Control Module control circuit terminal 2 X6
    - K9 Body Control Module control circuit terminal 4 X6

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- X51R Fuse Block - Instrument Panel Right control circuit terminal 1 X1
- X51R Fuse Block - Instrument Panel Right control circuit terminal 2 X1
- X51R Fuse Block - Instrument Panel Right control circuit terminal 40 X1
- **If 1 V or greater**

1. Ignition OFF, disconnect the harness connector at the A23D Door Latch Assembly - Driver, A23P Door Latch Assembly - Passenger, A23LR Door Latch Assembly - Left Rear, A23RR Door Latch Assembly - Right Rear and A23E Door Latch Assembly - Endgate, ignition ON.
2. 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**

7. Test for infinite resistance between the control circuit terminals listed below and ground:
    - K9 Body Control Module control circuit terminal 1 X6
    - K9 Body Control Module control circuit terminal 2 X6
    - K9 Body Control Module control circuit terminal 4 X6
    - X51R Fuse Block - Instrument Panel Right control circuit terminal 1 X1
    - X51R Fuse Block - Instrument Panel Right control circuit terminal 2 X1
    - X51R Fuse Block - Instrument Panel Right control circuit terminal 40 X1
    - **If less than infinite resistance**

    1. Ignition OFF, disconnect the harness connector at the A23D Door Latch Assembly - Driver, A23P Door Latch Assembly - Passenger, A23LR Door Latch Assembly - Left Rear, A23RR Door Latch Assembly - Right Rear and A23E Door Latch Assembly - Endgate
    2. 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**

8. Ignition OFF, connect the X1 harness connector at the X51R Fuse Block - Instrument Panel Right, ignition ON.
9. Test for less than 1 V between the K9 Body Control Module control circuit terminals listed below and ground:
    - K9 Body Control Module control circuit terminal 1 X6
    - K9 Body Control Module control circuit terminal 2 X6
    - **If 1 V or greater**

    1. Ignition OFF, disconnect the X2 harness connector at the X51R Fuse Block - Instrument Panel Right, ignition ON.
    2. 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 the circuit tests normal, test or replace the X51R Fuse Block - Instrument Panel Right.

    - **If less than 1 V**

10. Test for infinite resistance between the control circuit terminals listed below and ground:
    - K9 Body Control Module control circuit terminal 1 X6
    - K9 Body Control Module control circuit terminal 2 X6
    - **If less than infinite resistance**

    1. Ignition OFF, disconnect the X2 harness connector at the X51R Fuse Block - Instrument Panel

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Right.

2. Test for infinite resistance between the control circuit and ground.
    - If less than infinite resistance, repair the short to ground on the circuit. If the circuit tests normal, test or replace the X51R Fuse Block - Instrument Panel Right.
- **If infinite resistance**

11. Test or replace the K9 Body Control Module.

Component Testing

1. Ignition OFF, disconnect the harness connector at the appropriate A23 Door Latch Assembly.
2. Install a 25 A fused jumper wire between one of the control terminals and 12 V. Momentarily install a jumper wire between the other control terminal and ground. Reverse the jumper wires at least two times, the A23 Door Latch Assembly should perform the LOCK and UNLOCK function.
    - **If the actuator does not perform the LOCK and UNLOCK function**

      Replace the A23 Door Latch Assembly.

    - **If the actuator performs the LOCK and UNLOCK function**
3. All OK

Repair Instructions

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

- **Front Side Door Latch Replacement**
- **Rear Side Door Latch Replacement**
- **Control Module References** for BCM replacement, programming and setup

DTC B3140, B3145, B3150, OR B3155: DOOR UNLOCK/LOCK SWITCH

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 B3140 00

Driver Door Unlock Switch Circuit

DTC B3145 00

Passenger Door Unlock Switch Circuit

DTC B3150 00

Driver Front Door Lock Switch Circuit

DTC B3155 00

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Passenger Front Door Lock Switch Circuit

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Driver Door Lock Switch Lock Signal	B3150 00	3	3	-
Driver Door Lock Switch Unlock Signal	B3140 00	2	2	-
Driver Door Lock Switch Ground	-	1	-	-
Passenger Door Lock Switch Lock Signal	B3155 00	4	4	-
Passenger Door Lock Switch Unlock Signal	B3145 00	5	5	-
Passenger Door Lock Switch Ground	-	6	-	-
1. Driver Door Lock Switch Inoperative 2. Driver Door Lock Switch Lock Inoperative 3. Driver Door Lock Switch Unlock Inoperative 4. Passenger Door Lock Switch Lock Inoperative 5. Passenger Door Lock Switch Unlock Inoperative 6. Passenger Door Lock Switch Inoperative				

Circuit/System Description

The body control module (BCM) supplies a 12 V signal to each of the door lock and door unlock signal circuits. When the door lock switches are in the open position, the voltage level in the signal circuit will be near 12 V. When any door lock switch is pressed to the lock or unlock position, the voltage level in the appropriate signal circuit will drop to 0 V and the BCM will detect the voltage drop and command the door latches to perform the requested lock or unlock command.

Conditions for Running the DTC

The system voltage is 9-16 V.

Conditions for Setting the DTC

B3140 00

The BCM detects short to ground in the driver unlock signal circuit for greater than 60 seconds.

B3145 00

The BCM detects short to ground in the passenger unlock signal circuit for greater than 60 seconds.

B3150 00

The BCM detects a short to ground in the driver lock signal circuit for greater than 60 seconds.

B3155 00

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The BCM detects a short to ground in the passenger lock signal circuit for greater than 60 seconds.

Action Taken When the DTC Sets

B3140 00

The BCM will ignore the unlock signal and the doors will not unlock when using the driver door unlock switch.

B3145 00

The BCM will ignore the unlock signal and the doors will not unlock when using the passenger door unlock switch.

B3150 00

The BCM will ignore the lock signal and the doors will not lock when using the driver door lock switch.

B3155 00

The BCM will ignore the lock signal and the doors will not lock when using the passenger door lock switch.

Conditions for Clearing the DTC

- The DTC will be current for as long as the fault is present.
- When the fault is no longer present, the DTC will be a history DTC.
- A history DTC will clear after 50 ignition cycles.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Power Door Locks 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

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1. Ignition ON.
2. Verify the scan tool Driver Door Lock Switch parameter changes from Inactive to Lock and Unlock when pushing the appropriate switch on the S13D Door Lock Switch-Driver.
    - **If the parameter does not change**

      Refer to Circuit/System Testing - Door Lock Switch Malfunction.

    - **If the parameter changes**
3. Verify the scan tool Passenger Door Lock Switch parameter changes from Inactive to Lock and Unlock when pushing the appropriate switch on the S13P Door Lock Switch-Passenger.
    - **If the parameter does not change**

      Refer to Circuit/System Testing - Door Lock Switch Malfunction.

    - **If the parameter changes**
4. All OK.

Circuit/System Testing

Door Lock Switch Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the appropriate S13 Door Lock Switch. It may take up to 2 minutes for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal listed below and ground:
    - Ground circuit terminal 5 (With A31)
    - Ground circuit terminal 1 (Without A31)
    - **If 10 Ω or greater**
    1. Ignition OFF.
    2. 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**
3. Ignition ON.
4. Verify the scan tool Door Lock Switch parameter is Inactive.
    - **If not Inactive**
    1. Ignition OFF, disconnect the harness connector at the K9 body control module.
    2. Test for infinite resistance between the signal circuit terminals listed below and ground.
        - Signal circuit terminal 3 (With A31)
        - Signal circuit terminal 4 (With A31)
        - Signal circuit terminal 6 (Without A31)
        - Signal circuit terminal 7 (Without A31)
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the K9 Body Control Module.
    - **If Inactive**
5. Install a 3 A fused jumper wire between the signal circuit terminal listed below and ground.

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- Signal circuit terminal 4 (With A31)
- Signal circuit terminal 7 (Without A31)

6. Verify the scan tool Door Lock Switch parameter is Unlock.
   - **If not Unlock**
   1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.
   2. Test for less than 1 V between the signal circuit and ground.
      - If 1 V or greater, repair the short to voltage on the circuit.
      - If less than 1 V
   3. Test for less than 2 Ω in the signal circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance in the circuit.
      - If less than 2 Ω, replace the K9 Body Control Module.
   - **If Unlock**
7. Install a 3 A fused jumper wire between the signal circuit terminal listed below and ground.
   - Signal circuit terminal 3 (With A31)
   - Signal circuit terminal 6 (Without A31)
8. Verify the scan tool Door Lock Switch parameter is Lock.
   - **If not Lock**
   1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.
   2. Test for less than 1 V between the signal circuit and ground.
      - If 1 V or greater, repair the short to voltage on the circuit.
      - If less than 1 V
   3. Test for less than 2 Ω in the signal circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance in the circuit.
      - If less than 2 Ω, replace the K9 Body Control Module.
   - **If Lock**
9. Test or replace the S13 Door Lock Switch.

Component Testing

Door Lock Switch

1. Ignition OFF, disconnect the harness connector at the appropriate S13 Door Lock Switch.
2. Test for infinite resistance between the signal terminal and the ground terminal listed below with the switch in the inactive position.
   - Signal terminal 3 and ground terminal 5 (With A31)
   - Signal terminal 4 and ground terminal 5 (With A31)
   - Signal terminal 6 and ground terminal 1 (Without A31)
   - Signal terminal 7 and ground terminal 1 (Without A31)
   - **If less than infinite resistance**

     Replace the S13 Door Lock Switch.

   - **If infinite resistance**

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3. Test for less than 2 Ω between the signal terminal and the ground terminal listed below with the switch in the Lock position.
    - Signal terminal 3 and ground terminal 5 (With A31)
    - Signal terminal 6 and ground terminal 1 (Without A31)
    - **If 2 Ω or greater**

      Replace the S13 Door Lock Switch.

    - **If less than 2 Ω**
4. Test for less than 2 Ω between the signal terminal and the ground terminal listed below with the switch in the Unlock position.
    - Signal terminal 4 and ground terminal 5 (With A31)
    - Signal terminal 7 and ground terminal 1 (Without A31)
    - **If 2 Ω or greater**

      Replace the S13 Door Lock Switch

    - **If less than 2 Ω**
5. All OK

Repair Instructions

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

- **Door Lock Switch Replacement - Driver Side (With A31)Door Lock Switch Replacement - Driver Side (Without A31)**
- **Door Lock Switch Replacement - Passenger Front (With A31)Door Lock Switch Replacement - Passenger Front (Without A31)**
- **Control Module References** for BCM replacement, programming and setup

DTC B3930: CHILD SECURITY LOCK MOTORS

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: **Diagnostic System Check - Vehicle**
- Review the description of Strategy Based Diagnosis: **Strategy Based Diagnosis**
- An overview of each diagnostic category can be found here: **Diagnostic Procedure Instructions**

DTC Descriptor

DTC B3930

Child Security Lock Motors Circuit

Symptom Byte Information: Symptom Byte List

Diagnostic Fault Information

Circuit	Short to	Open/High	Short to	Signal

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	Ground	Resistance	Voltage	Performance
Control - Relay Coil	B3930 02	B3930 04	B3930 01	-
Ground - Relay Coil	-	B3930 04	-	-

Circuit/System Description

For an overview of the component/system, refer to:**Power Door Locks Description and Operation**

Circuit	Description
Control - Relay Coil	The output circuit is switched to 12 V to activate the component.

Component	Description
X51R Fuse Block - Instrument Panel Right	The fuse block houses various fuses and relays.
K9 Body Control Module	The module controls various vehicle functions like lighting, central door locking, power windows, etc.

Conditions for Running the DTC

KR113 Child Security Lock Disable Relay - The component is commanded On.

Conditions for Setting the DTC

B3930 01

Child Security Lock Relay Control =Short to Battery

B3930 02

Child Security Lock Relay Control =Short to Ground

B3930 04

Child Security Lock Relay Control =Open/High Resistance

Actions Taken When the DTC Sets

- Child Security Lock Indicator - LED flashes.
- Child Security Lock/Window Lockout - Disabled

Conditions for Clearing the DTC

- A current DTC will clear when the diagnostic runs and passes.
- A history DTC will clear after 50 consecutive malfunction-free ignition cycles.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics

Connector End View Reference

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COMPONENT CONNECTOR END VIEWS - INDEX

Component View Reference

Electrical Center Identification Views **Electrical Center Identification Views**

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**
- **Relay Replacement (Attached to Wire Harness)** **Relay Replacement (Within an Electrical Center)**

Scan Tool Reference

Control Module References

Circuit/System Verification

1. Ignition - On / Vehicle - In Service Mode
2. Perform the scan tool control function:Child Security Lock Motors - On

   Verify the correct operation:

   - Interior Door Handle @Left Rear Door - Disabled
   - Interior Door Handle @Right Rear Door - Disabled
   - **If none of the components work properly**

     Refer to: Circuit/System Testing

   - **If the component works as specified**
3. Perform the scan tool control function:Child Security Lock Motors - Off

   Verify the correct operation:

   - Interior Door Handle @Left Rear Door - Enabled
   - Interior Door Handle @Right Rear Door - Enabled
   - **If none of the components work properly**

     Refer to: Circuit/System Testing

   - **If the component works as specified**
4. All OK.

Circuit/System Testing

NOTE: **It may take up to 2 min for all vehicle systems to power down before an accurate ground or low reference circuit continuity test can be performed.**

1. Ignition/Vehicle & All vehicle systems - Off

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2. Disconnect the electrical connector:X1 @X51R Fuse Block - Instrument Panel Right
3. Test for less than 10 ohms between the test points:Ground circuit terminal 22 X1 & Ground
    - **If 10 ohms or greater**
    1. Ground Connection - Disconnect
    2. Test for less than 2 ohms between the test points:Ground circuit terminal 22 X1 & Ground Connection
        - If 2 ohms or greater - Repair the open/high resistance in the circuit.
        - If less than 2 ohms - Repair the open/high resistance in the ground connection.
    - **If less than 10 ohms**
4. Connect the electrical connector: X1 @X51R Fuse Block - Instrument Panel Right
5. Disconnect the electrical connector: X5 K9 Body Control Module
6. Ignition - On / Vehicle - In Service Mode
7. Momentarily connect a 3 A fused jumper wire between the test points:Control circuit terminal 16 X5 & B+

   Verify the component produces a clicking sound:KR113 Child Security Lock Disable Relay

    - **If the component does not produce a sound**
    1. Ignition/Vehicle - Off & Remove - Jumper wire(s)
    2. Disconnect the electrical connector: X1 @X51R Fuse Block - Instrument Panel Right
    3. Ignition - On / Vehicle - In Service Mode
    4. Test for less than 1 V between the test points:Control circuit terminal 16 X5 @Control module harness & Ground
        - If 1 V or greater - Repair the short to voltage on the circuit.
        - If less than 1 V
    5. Ignition/Vehicle - Off
    6. Test for infinite resistance between the test points:Control circuit terminal 16 X5 @Control module harness & Ground
        - If less than infinite resistance - Repair the short to ground on the circuit.
        - If infinite resistance
    7. Test for less than 2 ohms between the test points:Control circuit terminal 16 X5 @Control module harness & Control circuit terminal 3 X1 @Fuse Block Harness
        - If 2 ohms or greater - Repair the open/high resistance in the circuit.
        - If less than 2 ohms - Test or replace the component:X51R Fuse Block - Instrument Panel Right
    - **If the component turns On and Off**
8. Replace the component:K9 Body Control Module

Repair Instructions

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

- **Instrument Panel Wiring Harness Junction Block Replacement**
- For control module replacement, programming, and setup refer to: **Control Module References**

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SYMPTOMS - VEHICLE ACCESS

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 the following system descriptions:
   - **Door Ajar Indicator Description and Operation**
   - **Power Door Locks Description and Operation**

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the door systems. 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 from the following list in order to diagnose the symptom:

- **Door Ajar Indicator Malfunction**
- **Power Door Child Lock Malfunction**
- **Power Door Locks Malfunction (Extended or Crew Cab)Power Door Locks Malfunction (Standard Cab)**

ENDGATE LOCK 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
Endgate Lock Control	B3125 02. B3130 02, B3135 02	1	B3125 01. B3130 01, B3135 01	-

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Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Endgate Unlock Control	B3125 02. B3130 02, B3135 02	1	B3125 01. B3130 01, B3135 01	-
1. Endgate Lock and Unlock Functions Inoperative				

Circuit/System Description

The locking and unlocking of the endgate is a function of the power door lock system. The endgate unlatch actuator shares the circuit with the door latch unlock control circuit. The body control module (BCM), upon receipt of a lock switch lock or unlock signal, will switch the appropriate door latch, as well as a endgate unlatch actuator control circuits to B+ voltage. The opposing side of the door latch and endgate unlatch actuator is pulled low by the BCM through the other the door latch control circuits, along with the endgate unlatch actuator, will lock or unlock as commanded.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Power Door Locks 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.
2. Verify all vehicle doors will LOCK and UNLOCK when commanding the All Doors Lock/Unlock with a scan tool.
   - **If one or more doors do not LOCK and UNLOCK**

     Refer to **Power Door Locks Malfunction (Extended or Crew Cab)Power Door Locks Malfunction (Standard Cab)**

   - **If all doors LOCK and UNLOCK**

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3. Verify the A23E Door Latch Assembly - Endgate will LOCK and UNLOCK when commanding the All Doors Lock/Unlock with a scan tool.
    - **If the A23E Door Latch Assembly - Endgate does not LOCK or UNLOCK**

      Refer to Circuit/System Testing.

    - **If the A23E Door Latch Assembly - Endgate does LOCK and UNLOCK**
4. All OK.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the A23E Door Latch Assembly - Endgate.
2. Connect a test lamp between the control circuit terminal 1 and control circuit terminal 2, ignition ON.
3. Verify the test lamp turns ON and OFF when commanding the All Doors Lock/Unlock with a scan tool.
    - **If the test lamp remains OFF during either of the commands**
    1. Ignition OFF, remove the test lamp, disconnect the X6 harness connector at the K9 Body Control Module.
    2. Test for infinite resistance between each control circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, refer to **Power Door Locks Malfunction (Extended or Crew Cab)Power Door Locks Malfunction (Standard Cab)**
    3. Test for less than 2 Ω in each control circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, refer to **Power Door Locks Malfunction (Extended or Crew Cab)Power Door Locks Malfunction (Standard Cab)**.
    - **If the test lamp is always ON**
    1. Ignition OFF, remove the test lamp, disconnect the X6 harness connector at the K9 Body Control Module, ignition ON.
    2. Test for less than 1 V between each control circuit and ground.
        - If 1 V or greater, repair the short to voltage on the circuit.
        - If less than 1 V, refer to **Power Door Locks Malfunction (Extended or Crew Cab)Power Door Locks Malfunction (Standard Cab)**.
    - **If the test lamp turns ON and OFF**
4. Test or replace the A23E Door Latch Assembly - Endgate.

Component Testing

1. Ignition OFF, disconnect the harness connector at the A23E Door Latch Assembly - Endgate.
2. Install a 25 A fused jumper wire between one of the control terminals and 12 V. Momentarily install a jumper wire between the other control terminal and ground. Reverse the jumper wires at least two times, the A23E Door Latch Assembly - Endgate should perform the LOCK and UNLOCK function.
    - **If the actuator does not perform the LOCK and UNLOCK function**

      Replace the A23E Door Latch Assembly - Endgate.

    - **If the actuator performs the LOCK and UNLOCK function**

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3. All OK

Repair Instructions

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

Endgate Lock Actuator Replacement

DOOR AJAR INDICATOR 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
Driver Door Ajar Switch Signal	1	2	2	-
Left Rear Door Ajar Switch Signal	1	4	4	-
Passenger Door Ajar Switch Signal	1	3	3	-
Right Rear Door Ajar Switch Signal	1	5	5	-
Driver Door Latch Ground	-	2	-	-
Passenger Door Latch Ground	-	3	-	-
Left Rear Door Latch Ground	-	4	-	-
Right Rear Door Latch Ground	-	5	-	-
1. Ajar Indicator Always Illuminated 2. Ajar Indicator Inoperative When Driver Door Is Open 3. Ajar Indicator Inoperative When Passenger Door Is Open 4. Ajar Indicator Inoperative When Left Rear Door Is Open 5. Ajar Indicator Inoperative When Right Rear Door Is Open				

Circuit/System Description

If the vehicle is equipped with power windows, the driver window motor and passenger/rear window switches will monitor the status of the door ajar signal circuits, if the vehicle has manual crank windows, the body control module will directly monitor the status of the door ajar signal circuits.

For vehicles with manual crank windows, the body control module provides a 12V signal to each door ajar switch within the door latch to indicate the status of the door. When the door is open, the contract within the ajar switch closes providing a ground part for the signal circuit. The body control module will detect the voltage drop in the ajar signal circuit and will send a message to the instrument cluster which will illuminate the door ajar icon

For vehicles with power windows, the driver window motor, passenger window switch and rear window switches provide a 12V signal to the respective door ajar switch within the door latch to indicate the status of

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the door. When the door is open, the contract within the ajar switch closes providing a ground part for the signal circuit. The driver window motor or the passenger/rear window switch will detect the voltage drop in the ajar signal circuit and will send a serial data message to the body control module. The body control module will then send a message to the instrument cluster which will illuminate the door ajar icon

Reference Information

Schematic Reference

Door Lock/Indicator Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Door Ajar Indicator 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.
2. Verify the appropriate scan tool Door Ajar Switch parameter changes between Inactive and Active when opening and closing the driver door, the passenger door, the left rear door and right rear door.
    - **If any parameter does not change**

      Refer to Circuit/System Testing

    - **If all the parameters change**
3. All OK.

Circuit/System Testing

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the appropriate A23 Door Latch Assembly. It may take up to 2 minutes for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal listed below and ground:
    - A23D Door Latch Assembly-Driver - ground circuit terminal 3
    - A23P Door Latch Assembly-Passenger - ground circuit terminal 3
    - A23LR Door Latch Assembly-Left Rear - ground circuit terminal 3
    - A23RR Door Latch Assembly-Right Rear - ground circuit terminal 3

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- **If 10 Ω or greater**

1. Ignition OFF.
2. 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**

3. Ignition ON.
4. Verify the appropriate scan tool Door Ajar Switch parameter is Inactive.
    - **If not Inactive**

    1. Ignition OFF, disconnect the harness connector at the appropriate component listed below:
        - M74D Window Motor-Driver (With A31)
        - S79P Window Switch-Passenger (With A31)
        - S79LR Window Switch-Left Rear (With A31)
        - S79RR Window Switch-Right Rear (With A31)
        - K9 Body Control Module (Without A31)
    2. Test for infinite resistance between the signal circuit terminal listed below and ground.
        - A23D Door Latch Assembly-Driver - signal circuit terminal 1
        - A23P Door Latch Assembly-Passenger - signal circuit terminal 5
        - A23LR Door Latch Assembly-Left Rear - signal circuit terminal 1
        - A23RR Door Latch Assembly-Right Rear - signal circuit terminal 5
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the appropriate component.

    - **If Inactive**

5. Install a 3 A fused jumper wire between the signal circuit terminal listed below and ground.
    - A23D Door Latch Assembly-Driver - signal circuit terminal 1
    - A23P Door Latch Assembly-Passenger - signal circuit terminal 5
    - A23LR Door Latch Assembly-Left Rear - signal circuit terminal 1
    - A23RR Door Latch Assembly-Right Rear - signal circuit terminal 5
6. Verify the scan tool Door Ajar Switch parameter is Active.
    - **If not Active**

    1. Ignition OFF, disconnect the harness connector at the appropriate component listed below, ignition ON.
        - M74D Window Motor-Driver (With A31)
        - S79P Window Switch-Passenger (With A31)
        - S79LR Window Switch-Left Rear (With A31)
        - S79RR Window Switch-Right Rear (With A31)
        - K9 Body Control Module (Without A31)
    2. Test for less than 1 V between the signal circuit and ground.
        - If 1 V or greater, repair the short to voltage on the circuit.
        - If less than 1 V

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3. Test for less than 2 Ω in the signal circuit end to end.
    - If 2 Ω or greater, repair the open/high resistance in the circuit.
    - If less than 2 Ω, replace the appropriate component.
- **If Active**

7. Test or replace the A23 Door Latch Assembly.

Component Testing

Static Test

1. Ignition OFF, disconnect the harness connector at the appropriate A23 Door Latch Assembly.
2. With the door in the closed position, test for infinite resistance between the signal and the ground terminals listed below:
    - A23D Door Latch Assembly-Driver - signal terminal 1 and ground terminal 3
    - A23LR Door Latch Assembly-Left Rear - signal terminal 1 and ground terminal 3
    - A23RR Door Latch Assembly-Right Rear - signal terminal 5 and ground terminal 3
    - A23P Door Latch Assembly-Passenger - signal terminal 5 and ground terminal 3
    - If not the specified value, replace the A23 Door Latch Assembly.
3. With the door in the open position, test for less than 5 Ω between the signal and the ground terminals listed below:
    - A23D Door Latch Assembly-Driver - signal terminal 1 and ground terminal 3
    - A23LR Door Latch Assembly-Left Rear - signal terminal 1 and ground terminal 3
    - A23RR Door Latch Assembly-Right Rear - signal terminal 5 and ground terminal 3
    - A23P Door Latch Assembly-Passenger - signal terminal 5 and ground terminal 3
    - If greater than the specified range, replace the A23 Door Latch Assembly.

Repair Instructions

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

- **Front Side Door Latch Replacement**
- **Rear Side Door Latch Replacement**
- **Rear Side Door Window Switch Replacement**
- **Front Side Door Window Regulator Replacement (Power)** **Front Side Door Window Regulator Replacement (Manual)**
- **Front Side Door Window Switch Replacement - Right Side**
- **Control Module References** for BCM replacement, setup and programming

POWER DOOR CHILD LOCK 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

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Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
BCM B+	1	1	-	-
Child Security Door Lock Signal	B252C 00	2	2	-
Child Lockout Indicator Dimming Control	3	3	3	-
Child Lockout Indicator Control	3	3	3	-
Left Rear Door Latch Lock Signal	1	1	1	-
Right Rear Door Latch Lock Signal	1	1	1	-
Child Security Lock Relay Control	B3930 02	B3930 04	B3930 01	-
Left Rear Child Lock Control	B3125 02, B3130 02, B3135 02	1	B3125 01, B3130 01, B3135 01	-
Right Rear Child Lock Control	B3125 02, B3130 02, B3135 02	1	B3125 01, B3130 01, B3135 01	-
Right Instrument Panel Fuse Block Ground	-	B3930 04	-	-
1. Child Door Lock Malfunction 2. Child Door Lock Switch Malfunction 3. Child Door Lock Indicator Malfunction				

Circuit/System Description

The child door lockout switch on the driver door lock/window switch controls the child locks on the rear doors. The lockout switch is an input to the body control module and the body control module controls the child security relay. When the body control module receives a command from the child door lockout switch, it will apply voltage to the child security relay coil, this will energize the relay and the contact within the relay will then direct the voltage to lock the left rear and right rear child locks and then isolate them from the normal door lock system to prevent the rear doors from being opened by using the interior rear door handles.

The body control module will provide a ground for the child door lock indicator control circuit when the body control module receives a child door lockout command. The indicator will illuminate to indicate that the interior rear door handles have been disabled or the body control module will command the child lockout indicator to flash ON and OFF to indicate a fault in the child door lockout system.

Diagnostic Aids

The body control module will command the child lockout indicator to flash ON and OFF for the following reasons:

- An open/high resistance in either child security motor status signal circuit
- The body control module detects that one or both rear door latches have not been locked out
- The body control module detects a short to ground or an open/high resistance in the child security lock disable relay control circuit
- A malfunctioning child security lock disable relay

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- An open/high resistance in the child security lock motor control circuit

Reference Information

Schematic Reference

- **Door Lock/Indicator Schematics**
- **Body Control System Schematics**
- **Interior Lights Dimming Schematics**

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Power Door Locks Description and Operation

Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition ON.
2. Verify the scan tool Left Rear Child Security Lock Switch and Right Rear Child Security Lock Switch parameters changes between Active and Inactive when pressing the child door lockout switch.
    - **If both the parameters Left Rear Child Security Lock Switch and Right Rear Child Security Lock Switch do not change**

      Refer to Circuit/System Testing - Lockout Switch Inoperative.

    - **If only the Left Rear Child Security Lock Switch or the Right Rear Child Security Lock Switch parameter only does not change**

      Refer to Circuit/System Testing - Security Lockout Status Malfunction.

    - **If the parameter changes**
3. Verify the child lockout indicator turns ON and OFF when commanding the Child Security Lock Indicator Command Active and Inactive with a scan tool.
    - **If the child lockout indicator is always ON or always OFF**

      Refer to Circuit/System Testing - Child Lockout Indicator Malfunction.

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- **If the child lockout indicator flashes ON and OFF**

  Refer to Circuit/System Testing - Security Lockout Malfunction.

- **If the child lockout indicator turns ON and turns OFF**

4. Verify both interior rear door handles do not open the rear doors when commanding the Child Security Lock Motors ON with a scan tool.
   - **If the interior rear door handles open the rear doors**

     Refer to Circuit/System Testing - Security Lockout Malfunction.

   - **If both interior rear door handles do not open the rear doors**
5. Verify both interior rear door handles will open the rear doors when commanding the Child Security Lock Motors OFF with a scan tool.
   - **If the interior rear door handles do not open the rear doors**

     Refer to Circuit/System Testing - Security Lockout Malfunction.

   - **If both interior rear door handles open the rear doors**
6. All OK.

Circuit/System Testing

Lockout Switch Inoperative

1. Ignition OFF, disconnect the harness connector at the S79D Window Switch-Driver. Ignition ON
2. Test for greater than 10 V between the signal circuit terminal 10 and ground.
   - **If 10 V or less**
   1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.
   2. Test for infinite resistance between the signal circuit and ground.
      - If less than infinite resistance, repair the short to ground on the circuit.
   3. Test for less than 2 Ω in the signal circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance in the circuit.
      - If less than 2 Ω, replace the K9 Body Control Module.
   - **If greater than 10 V**
3. Test or replace the S79D Window Switch-Driver.

Lockout Indicator Malfunction

1. Ignition OFF, disconnect the harness connector at the S79D Window Switch-Driver. Ignition ON.
2. Test for greater than 1.5 V and less than 6 V between the control circuit terminal 11 and ground while operating the dimmer switch from the minimum to the maximum positions
   - **If 1.5 V or less**
   1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.
   2. Test for infinite resistance between the control circuit and ground.
      - If less than infinite resistance, repair the short to ground on the circuit.
   3. Test for less than 2 Ω in the signal circuit end to end.

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- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω, replace the K9 Body Control Module.

- **If 6 V or greater**

1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.
2. 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 greater than 1.5 V and less than 6 V**

3. Connect a test lamp between the control circuit terminal 12 and B+. Ignition ON
4. Verify the test lamp turns ON and OFF when commanding the Child Security Lock Indicator Command Active and Inactive with a scan tool.

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

1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.
2. 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
3. Ignition OFF.
4. Test for less than 2 Ω in the control circuit end to end.
   - If 2 Ω or greater, repair the open/high resistance in the circuit.
   - If less than 2 Ω, replace the K9 Body Control Module.

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

1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.
2. 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, replace the K9 Body Control Module.

- **If the test lamp turns ON and OFF**

5. Test or replace the S79D Window Switch-Driver.

Security Lockout Status Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the appropriate A23 Door Latch Assembly-Rear. It may take up to 2 minutes for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 3 and ground.

- **If 10 Ω or greater**

1. Ignition OFF.
2. 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**

3. Ignition ON.
4. Verify the scan tool Rear Child Security Lock Switch parameter is Inactive.

- **If not Inactive**

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1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.
2. Test for infinite resistance between the signal circuit terminal listed below and ground.
    - A23LR Door Latch Assembly-Left Rear - signal circuit terminal 2
    - A23RR Door Latch Assembly-Right Rear - signal circuit terminal 4
    - If less than infinite resistance, repair the short to ground on the circuit.
    - If infinite resistance, replace the K9 Body Control Module.

- **If Inactive**

5. Install a 3 A fused jumper wire between the signal and the ground circuit terminals listed below:
    - A23LR Door Latch Assembly-Left Rear - signal circuit terminal 2 and ground circuit terminal 3
    - A23RR Door Latch Assembly-Right Rear - signal circuit terminal 4 and ground circuit terminal 3
6. Verify the scan tool Rear Child Security Lock Switch parameter is Active.

- **If not Active**

1. Ignition OFF, remove the fused jumper wire, disconnect the harness connector at the K9 Body Control Module, ignition ON.
2. Test for less than 1 V between the signal circuit and ground.
    - If 1 V or greater, repair the short to voltage on the circuit.
    - If less than 1 V
3. Test for less than 2 Ω in the signal circuit end to end.
    - If 2 Ω or greater, repair the open/high resistance in the circuit.
    - If less than 2 Ω, replace the K9 Body Control Module.

- **If Active**

7. Test or replace the A23 Door Latch Assembly-Rear.

Security Lockout Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the X1 harness connector at the X51R Fuse Block-Instrument Panel Right. It may take up to 2 minutes for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 22 and ground.

- **If 10 Ω or greater**

1. Ignition OFF.
2. 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**

3. Ignition OFF, connect the X1 harness connector at the X51R Fuse Block-Instrument Panel Right. Disconnect the X5 harness connector at the K9 Body Control Module, ignition ON.
4. Test for less than 1 V between the control circuit terminal 16 and ground.

- **If 1 V or greater**

1. Ignition OFF, disconnect the X1 harness connector at the X51R Fuse Block-Instrument Panel Right.
2. Test for less than 1 V between the K9 Body Control Module control circuit terminal 16 X5 and ground.

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- If 1 V or greater, repair the short to voltage on the circuit.
- If less than 1 V, replace the X51R Fuse Block-Instrument Panel Right.

- **If less than 1 V**

5. Connect a 3 A fused jumper wire between the control circuit terminal 16 and B+.
6. Verify the KR113 Child Security Lock Disable Relay activates. Listen as the KR113 Child Security Lock Disable Relay clicks within the X51R Fuse Block-Instrument Panel Right.
   - **If the KR113 Child Security Lock Disable Relay does not activate**
   1. Ignition OFF, remove the jumper wire, disconnect the X1 harness connector at the X51R Fuse Block-Instrument Panel Right.
   2. Test for infinite resistance between the K9 Body Control Module control circuit terminal 16 X5 and ground.
      - If less than Infinite resistance, repair the short to ground on the circuit.
      - If infinite resistance
   3. Test for less than 2 Ω in the control circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance in the circuit.
      - If less than 2 Ω, replace the X51R Fuse Block-Instrument Panel Right.
   - **If the KR113 Child Security Lock Disable Relay activates**
7. Connect the X5 harness connector at the K9 Body Control Module and disconnect the harness connector at the appropriate A23 Door Latch Assembly-Rear.

NOTE: **Leaving the DMM connected between a control circuit and ground for greater than 20 s may cause the K9 Body Control Module to interpret the test as a system fault and will cause the voltage on the control circuit to drop to 0 V. If the voltage drops to 0 V, operate the door locks using the door lock switch to restore the voltage for testing.**

8. Test for greater than 3 V between the control circuit terminal 8 and ground.
   - **If 3 V or less**
   1. Ignition OFF, disconnect the X6 harness connector at the K9 Body Control Module.
   2. Test for less than 2 Ω between the control circuit terminals listed below:
      - K9 Body Control Module control circuit terminal 4 X6 and A23LR Door Latch Assembly-Left Rear - control circuit terminal 8
      - K9 Body Control Module control circuit terminal 4 X6 and A23RR Door Latch Assembly-Right Rear - control circuit terminal 8
      - If 2 Ω or greater, repair the open/high resistance on the circuit.
   - **If greater than 3 V**

NOTE: **When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 00.00 V.**

9. Install a DMM between the control circuit terminals listed below and ground. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 00.00 V.
   - A23LR Door Latch Assembly-Left Rear - control circuit terminal 9

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- A23RR Door Latch Assembly-Right Rear - control circuit terminal 7

10. Command the Child Security Lock Motors On and Off with a scan tool.
11. Verify the MAX voltage captured by the DMM is greater than 10 V.
    - **If 10 V or less**
    1. Ignition OFF, disconnect the X2 harness connector at the X51R Fuse Block-Instrument Panel Right.
    2. Test for less than 2 Ω between the control circuit terminals listed below:
        - X51R Fuse Block-Instrument Panel Right control circuit terminal 2 X1 and A23LR Door Latch Assembly-Left Rear - control circuit terminal 9
        - X51R Fuse Block-Instrument Panel Right control circuit terminal 2 X1 and A23RR Door Latch Assembly-Right Rear - control circuit terminal 7
        - If 2 Ω or greater, repair the open/high resistance on the circuit.
    - **If greater than 10 V**
12. Test or replace the A23 Door Latch Assembly-Rear.

Component Testing

Door Latch Test

1. Ignition OFF, disconnect the harness connector at the appropriate A23 Door Latch Assembly-Rear.
2. Install a 30 A fused jumper wire between one of the control terminals and 12 V. Momentarily install a jumper wire between the other control terminal and ground. Reverse the jumper wires at least two times, the A23 Door Latch Assembly-Rear should perform the LOCK and UNLOCK functions.
    - **If the function does not perform the LOCK and UNLOCK function**

      Replace the A23 Door Latch Assembly-Rear.

    - **If the function performs the LOCK and UNLOCK function**
3. All OK

Repair Instructions

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

- **Rear Side Door Latch Replacement**
- **Front Side Door Window Control Switch Replacement**
- **Control Module References** for the BCM replacement, programming and setup

POWER DOOR LOCKS MALFUNCTION (EXTENDED OR CREW CAB)

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	Open/High	Short to	Signal

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	Ground	Resistance	Voltage	Performance
BCM B+	B3125 02, B3130 02, B3135 02	B3125 02, B3130 02, B3135 02	-	-
BCM Ground	-	7	-	-
Driver Door Lock Switch Lock Signal	B3150 00	3	3	-
Driver Door Lock Switch Unlock Signal	B3140 00	2	2	-
Driver Door Lock Switch Ground	-	1	-	-
Passenger Door Lock Switch Lock Signal	B3155 00	4	4	-
Passenger Door Lock Switch Unlock Signal	B3145 00	5	5	-
Passenger Door Lock Switch Ground	-	6	-	-
Driver Door Unlock Control	B3125 02, B3130 02, B3135 02	B3125 04, B3130 04, B3135 04	B3125 01, B3130 01, B3135 01	-
Doors Lock Control	B3125 02, B3130 02, B3135 02	B3125 04, B3130 04, B3135 04	B3125 01, B3130 01, B3135 01	-
Passenger Doors Unlock Control	B3125 02, B3130 02, B3135 02	B3125 04, B3130 04, B3135 04	B3125 01, B3130 01, B3135 01	-

1. Driver Door Lock Switch Inoperative
2. Driver Door Lock Switch Lock Inoperative
3. Driver Door Lock Switch Unlock Inoperative
4. Passenger Door Lock Switch Lock Inoperative
5. Passenger Door Lock Switch Unlock Inoperative
6. Passenger Door Lock Switch Inoperative
7. All Door Latches Inoperative

Circuit/System Description

The body control module powers the reversible door latch assemblies by providing battery positive voltage and ground to the appropriate lock and unlock control circuits of the door latch assemblies. The lock and unlock control circuits of the rear doors and passenger door latch assemblies are all connected together. When the door latch assemblies are not active, all actuator lock and unlock control circuits are supplied a floating voltage door driver by the body control module. Transitioning of the lock actuators to the lock or unlocked position depends upon which control circuits receive voltage and which control circuits receive ground.

The body control module supplies a 12 V signal to each of the door lock and door unlock signal circuits. When the door lock switches are in the open position, the voltage level in the signal circuit will be near 12 V. When any door lock switch is pressed to the lock or unlock position, the voltage level in the appropriate signal circuit will drop to 0 V and the body control module will detect the voltage drop and command the door latches to perform the requested lock or unlock command.

Diagnostic Aids

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Verify the smooth and consistent mechanical operation of each part of the door latch system prior to performing extensive electrical diagnostics

Any door that does not function smoothly or consistently, refer to **Door Will Not Open/Close, Door Binding, or Locks, Handles, or Cylinders Do Not Function**.

Reference Information

Schematic Reference

- **Door Lock/Indicator Schematics**
- **Body Control System Schematics**

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Power Door Locks 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.
2. Verify the scan tool Driver Door Lock Switch parameter changes from Inactive to Lock and Unlock when pushing the appropriate switch on the S13D Door Lock Switch-Driver.
    - **If the parameter does not change**

      Refer to Circuit/System Testing - Door Lock Switch Malfunction.

    - **If the parameter changes**
3. Verify the scan tool Passenger Door Lock Switch parameter changes from Inactive to Lock and Unlock when pushing the appropriate switch on the S13P Door Lock Switch-Passenger.
    - **If the parameter does not change**

      Refer to Circuit/System Testing - Door Lock Switch Malfunction.

    - **If the parameter changes**
4. Verify all vehicle doors LOCK and UNLOCK when commanding the All Doors Lock/Unlock to Lock and Unlock with a scan tool.

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- **If only the driver door LOCK or UNLOCK functions do not work**

  Refer to Circuit/System Testing - Driver Door Lock Malfunction.

- **If one or more, but not all, passenger door LOCK or UNLOCK functions do not work**

  Refer to Circuit/System Testing - Passenger Door Lock Malfunction.

- **If all door LOCK and UNLOCK functions do not work**

  Refer to Circuit/System Testing - All Door Lock Inoperative.

- **If the LOCK and UNLOCK function for all doors works**

5. All OK.

Circuit/System Testing

Door Lock Switch Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the appropriate S13 Door Lock Switch. It may take up to 2 minutes for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal listed below and ground:
   - Ground circuit terminal 5 (With A31)
   - Ground circuit terminal 1 (Without A31)
   - **If 10 Ω or greater**
   1. Ignition OFF.
   2. 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**
3. Ignition ON.
4. Verify the scan tool Door Lock Switch parameter is Inactive.
   - **If not Inactive**
   1. Ignition OFF, disconnect the harness connector at the K9 body control module.
   2. Test for infinite resistance between the signal circuit terminals listed below and ground.
      - Signal circuit terminal 3 (With A31)
      - Signal circuit terminal 4 (With A31)
      - Signal circuit terminal 6 (Without A31)
      - Signal circuit terminal 7 (Without A31)
      - If less than infinite resistance, repair the short to ground on the circuit.
      - If infinite resistance, replace the K9 Body Control Module.
   - **If Inactive**
5. Install a 3 A fused jumper wire between the signal circuit terminal listed below and ground.
   - Signal circuit terminal 4 (With A31)
   - Signal circuit terminal 7 (Without A31)

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6. Verify the scan tool Door Lock Switch parameter is Unlock.
    - **If not Unlock**
    1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.
    2. Test for less than 1 V between the signal circuit and ground.
        - If 1 V or greater, repair the short to voltage on the circuit.
        - If less than 1 V
    3. Test for less than 2 Ω in the signal circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, replace the K9 Body Control Module.
    - **If Unlock**
7. Install a 3 A fused jumper wire between the signal circuit terminal listed below and ground.
    - Signal circuit terminal 3 (With A31)
    - Signal circuit terminal 6 (Without A31)
8. Verify the scan tool Door Lock Switch parameter is Lock.
    - **If not Lock**
    1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.
    2. Test for less than 1 V between the signal circuit and ground.
        - If 1 V or greater, repair the short to voltage on the circuit.
        - If less than 1 V
    3. Test for less than 2 Ω in the signal circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, replace the K9 Body Control Module.
    - **If Lock**
9. Test or replace the S13 Door Lock Switch.

Driver Door Lock Malfunction

1. Ignition OFF, disconnect the X6 harness connector at the K9 Body Control Module, ignition ON.
2. Test for less than 1 V between the control circuit terminal 1 and ground.
    - **If 1 V or greater**
    1. Ignition OFF, disconnect the harness connector at the A23D Door Latch Assembly - Driver, ignition ON.
    2. 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**
3. Ignition OFF, connect the X6 harness connector at the K9 Body Control Module. Disconnect the harness connector at the A23D Door Latch Assembly-Driver, ignition ON.

NOTE: **Leaving the DMM connected between a control circuit and ground for greater than 20 s may cause the K9 Body Control Module to interpret the test as a system fault and will cause the voltage on the control circuit to drop to 0 V. If the voltage drops to 0 V, operate the door locks using the door lock switch to restore the voltage for testing.**

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4. Test for greater than 3 V between the control circuit terminals listed below and ground:
    - Control circuit terminal 7
    - Control circuit terminal 8
    - **If 3 V or less**
    1. Ignition OFF, disconnect the X6 harness connector at the K9 Body Control Module.
    2. 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.
    3. Test for less than 2 Ω in the control circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance on the circuit.
        - If less than 2 Ω, replace the K9 Body Control Module.
    - **If greater than 3 V**

NOTE: **When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 00.00 V.**

5. Install a DMM between the control circuit terminal 7 and control circuit terminal 8. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 00.00 V.
6. Lock and unlock the vehicle doors using the S13D Door Lock Switch-Driver.
7. Verify the MAX voltage captured by the DMM is greater than 10 V.
    - **If 10 V or less**

      Replace the K9 Body Control Module.

    - **If greater than 10 V**
8. Test or replace the A23D Door Latch Assembly-Driver.

Passenger Door Lock Malfunction

1. Ignition OFF, disconnect the X6 harness connector at the K9 Body Control Module, ignition ON.
2. Test for less than 1 V between the control circuit terminal 4 and ground.
    - **If 1 V or greater**
    1. Ignition OFF, disconnect the harness connector at the A23P Door Latch Assembly - Passenger, A23LR Door Latch Assembly - Left Rear, and A23RR Door Latch Assembly - Right Rear, ignition ON.
    2. 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**
3. Ignition OFF, connect the X6 harness connector at the K9 Body Control Module. Disconnect the harness connector at the appropriate passenger or rear A23 Door Latch Assembly.

NOTE: **Leaving the DMM connected between a control circuit and ground for greater than 20 s may cause the K9 Body Control Module to interpret the**

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test as a system fault and will cause the voltage on the control circuit to drop to 0 V. If the voltage drops to 0 V, operate the door locks using the door lock switch to restore the voltage for testing.

4. Test for greater than 3 V between the control circuit terminal listed below and ground:
   - A23P Door Latch Assembly-Passenger - control circuit terminal 8
   - A23P Door Latch Assembly-Passenger - control circuit terminal 9
   - A23RR Door Latch Assembly-Right Rear - control circuit terminal 8
   - A23RR Door Latch Assembly-Right Rear - control circuit terminal 9
   - A23LR Door Latch Assembly-Left Rear - control circuit terminal 7
   - A23LR Door Latch Assembly-Left Rear - control circuit terminal 8
   - **If 3 V or less**
   1. Ignition OFF, disconnect the X6 harness connector at the K9 Body Control Module.
   2. 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
   3. Test for less than 2 Ω in the control circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance on the circuit.
      - If less than 2 Ω, replace the K9 Body Control Module.
   - **If greater than 3 V**

NOTE: **When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 00.00 V.**

5. Install a DMM between the control circuits listed below. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 00.00 V.
   - A23P Door Latch Assembly-Passenger - control circuit terminal 8 and control circuit terminal 9
   - A23RR Door Latch Assembly-Right Rear - control circuit terminal 8 and control circuit terminal 9
   - A23LR Door Latch Assembly-Left Rear - control circuit terminal 7 and control circuit terminal 8
6. Lock and unlock the vehicle doors using the S13D Door Lock Switch-Driver.
7. Verify the MAX voltage captured by the DMM is greater than 10 V.
   - **If 10 V or less**

     Replace the K9 Body Control Module.

   - **If greater than 10 V**
8. Test or replace the A23 Door Latch Assembly.

All Door Locks Inoperative

1. Ignition OFF and all vehicle systems OFF, disconnect the X2 harness connector and X6 harness connector at the K9 Body Control Module. It may take up to 2 minutes for all vehicle systems to power down
2. Test for less than 10 Ω between the ground circuit terminal 3 X6 and ground

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- **If 10 Ω or greater**

1. Ignition OFF.
2. 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**

3. Ignition ON.
4. Verify a test lamp illuminates between the B+ circuit terminal 4 and ground.
    - **If the test lamp does not illuminate and the circuit fuse is good**

    1. Ignition OFF.
    2. Test for less than 2 Ω in the B+ circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, verify the fuse is not open and there is voltage at the fuse.

    - **If the test lamp does not illuminate and the circuit fuse is open**

    1. Ignition OFF.
    2. Test for infinite resistance between the B+ circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance
    3. Disconnect the harness connector at each of the A23 Door Latch Assemblies.
    4. Test for infinite resistance between each control circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the appropriate A23 Door Latch Assembly.

    - **If the test lamp illuminates**

5. Ignition OFF, connect the X2 harness connector at the K9 Body Control Module. Disconnect the X1 harness connector at the X51R Fuse Block - Instrument Panel Right, ignition ON.
6. Test for less than 1 V between the control circuit terminals listed below and ground:
    - K9 Body Control Module control circuit terminal 1 X6
    - K9 Body Control Module control circuit terminal 2 X6
    - K9 Body Control Module control circuit terminal 4 X6
    - X51R Fuse Block - Instrument Panel Right control circuit terminal 1 X1
    - X51R Fuse Block - Instrument Panel Right control circuit terminal 2 X1
    - X51R Fuse Block - Instrument Panel Right control circuit terminal 40 X1
    - **If 1 V or greater**

    1. Ignition OFF, disconnect the harness connector at the A23D Door Latch Assembly - Driver, A23P Door Latch Assembly - Passenger, A23LR Door Latch Assembly - Left Rear, and A23RR Door Latch Assembly - Right Rear, ignition ON.
    2. 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**

7. Test for infinite resistance between the control circuit terminals listed below and ground:
    - K9 Body Control Module control circuit terminal 1 X6

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- K9 Body Control Module control circuit terminal 2 X6
- K9 Body Control Module control circuit terminal 4 X6
- X51R Fuse Block - Instrument Panel Right control circuit terminal 1 X1
- X51R Fuse Block - Instrument Panel Right control circuit terminal 2 X1
- X51R Fuse Block - Instrument Panel Right control circuit terminal 40 X1
- **If less than infinite resistance**

1. Ignition OFF, disconnect the harness connector at the A23D Door Latch Assembly - Driver, A23P Door Latch Assembly - Passenger, A23LR Door Latch Assembly - Left Rear, and A23RR Door Latch Assembly - Right Rear.
2. 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**

8. Ignition OFF, connect the X1 harness connector at the X51R Fuse Block - Instrument Panel Right, ignition ON.
9. Test for less than 1 V between the K9 Body Control Module control circuit terminals listed below and ground:
    - K9 Body Control Module control circuit terminal 1 X6
    - K9 Body Control Module control circuit terminal 2 X6
    - **If 1 V or greater**

    1. Ignition OFF, disconnect the X2 harness connector at the X51R Fuse Block - Instrument Panel Right, ignition ON.
    2. 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 the circuit tests normal, test or replace the X51R Fuse Block - Instrument Panel Right.

    - **If less than 1 V**

10. Test for infinite resistance between the control circuit terminals listed below and ground:
    - K9 Body Control Module control circuit terminal 1 X6
    - K9 Body Control Module control circuit terminal 2 X6
    - **If less than infinite resistance**

    1. Ignition OFF, disconnect the X2 harness connector at the X51R Fuse Block - Instrument Panel Right.
    2. Test for infinite resistance between the control circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit. If the circuit tests normal, test or replace the X51R Fuse Block - Instrument Panel Right.

    - **If infinite resistance**

11. Test or replace the K9 Body Control Module.

Component Testing

Door Lock Switch

1. Ignition OFF, disconnect the harness connector at the appropriate S13 Door Lock Switch.
2. Test for infinite resistance between the signal terminal and the ground terminal listed below with the switch in the inactive position.

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- Signal terminal 3 and ground terminal 5 (With A31)
- Signal terminal 4 and ground terminal 5 (With A31)
- Signal terminal 6 and ground terminal 1 (Without A31)
- Signal terminal 7 and ground terminal 1 (Without A31)
- **If less than infinite resistance**

  Replace the S13 Door Lock Switch.

- **If infinite resistance**

3. Test for less than 2 Ω between the signal terminal and the ground terminal listed below with the switch in the Lock position.
   - Signal terminal 3 and ground terminal 5 (With A31)
   - Signal terminal 6 and ground terminal 1 (Without A31)
   - **If 2 Ω or greater**

     Replace the S13 Door Lock Switch.

   - **If less than 2 Ω**
4. Test for less than 2 Ω between the signal terminal and the ground terminal listed below with the switch in the Unlock position.
   - Signal terminal 4 and ground terminal 5 (With A31)
   - Signal terminal 7 and ground terminal 1 (Without A31)
   - **If 2 Ω or greater**

     Replace the S13 Door Lock Switch

   - **If less than 2 Ω**
5. All OK

Door Latch Test

1. Ignition OFF, disconnect the harness connector at the appropriate A23 Door Latch Assembly.
2. Install a 25 A fused jumper wire between one of the control terminals and 12 V. Momentarily install a jumper wire between the other control terminal and ground. Reverse the jumper wires at least two times, the A23 Door Latch Assembly should perform the LOCK and UNLOCK function.
   - **If the actuator does not perform the LOCK and UNLOCK function**

     Replace the A23 Door Latch Assembly.

   - **If the actuator performs the LOCK and UNLOCK function**
3. All OK

Repair Instructions

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

- **Door Lock Switch Replacement - Driver Side (With A31)Door Lock Switch Replacement - Driver Side (Without A31)**

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- **Door Lock Switch Replacement - Passenger Front (With A31)Door Lock Switch Replacement - Passenger Front (Without A31)**
- **Front Side Door Latch Replacement**
- **Rear Side Door Latch Replacement**
- **Control Module References** for BCM replacement, programming and setup

POWER DOOR LOCKS MALFUNCTION (STANDARD CAB)

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
BCM B+	B3125 02, B3130 02, B3135 02	B3125 02, B3130 02, B3135 02	-	-
BCM Ground	-	7	-	-
Driver Door Lock Switch Lock Signal	B3150 00	3	3	-
Driver Door Lock Switch Unlock Signal	B3140 00	2	2	-
Driver Door Lock Switch Ground	-	1	-	-
Passenger Door Lock Switch Lock Signal	B3155 00	4	4	-
Passenger Door Lock Switch Unlock Signal	B3145 00	5	5	-
Passenger Door Lock Switch Ground	-	6	-	-
Driver Door Unlock Control	B3125 02, B3130 02, B3135 02	B3125 04, B3130 04, B3135 04	B3125 01, B3130 01, B3135 01	-
Doors Lock Control	B3125 02, B3130 02, B3135 02	B3125 04, B3130 04, B3135 04	B3125 01, B3130 01, B3135 01	-
Passenger Doors Unlock Control	B3125 02, B3130 02, B3135 02	B3125 04, B3130 04, B3135 04	B3125 01, B3130 01, B3135 01	-

1. Driver Door Lock Switch Inoperative
2. Driver Door Lock Switch Lock Inoperative
3. Driver Door Lock Switch Unlock Inoperative
4. Passenger Door Lock Switch Lock Inoperative
5. Passenger Door Lock Switch Unlock Inoperative
6. Passenger Door Lock Switch Inoperative

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Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
7. All Door Latches Inoperative				

Circuit/System Description

The body control module (BCM) powers the reversible door latch assemblies by providing battery positive voltage and ground to the appropriate lock and unlock control circuits of the door latch assemblies. The lock control circuits of the driver and passenger door latch assemblies are all connected together. When the door latch assemblies are not active, all actuator lock and unlock control circuits are supplied a floating voltage door driver by the BCM. Transitioning of the lock actuators to the lock or unlocked position depends upon which control circuits receive voltage and which control circuits receive ground.

The body control module supplies a 12 V signal to each of the door lock and door unlock signal circuits. When the door lock switches are in the open position, the voltage level in the signal circuit will be near 12 V. When any door lock switch is pressed to the lock or unlock position, the voltage level in the appropriate signal circuit will drop to 0 V and the body control module will detect the voltage drop and command the door latches to perform the requested lock or unlock command.

Diagnostic Aids

Verify the smooth and consistent mechanical operation of each part of the door latch system prior to performing extensive electrical diagnostics

Any door that does not function smoothly or consistently, refer to **Door Will Not Open/Close, Door Binding, or Locks, Handles, or Cylinders Do Not Function**.

Reference Information

Schematic Reference

- **Door Lock/Indicator Schematics**
- **Body Control System Schematics**

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Power Door Locks 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

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Circuit/System Verification

1. Ignition ON.
2. Verify the scan tool Driver Door Lock Switch parameter changes from Inactive to Lock and Unlock when pushing the appropriate switch on the S13D Door Lock Switch-Driver.
   - **If the parameter does not change**

     Refer to Circuit/System Testing - Door Lock Switch Malfunction.

   - **If the parameter changes**
3. Verify the scan tool Passenger Door Lock Switch parameter changes from Inactive to Lock and Unlock when pushing the appropriate switch on the S13P Door Lock Switch-Passenger.
   - **If the parameter does not change**

     Refer to Circuit/System Testing - Door Lock Switch Malfunction.

   - **If the parameter changes**
4. Verify both vehicle doors LOCK and UNLOCK when commanding the All Doors Lock/Unlock with a scan tool.
   - **If only the driver door LOCK or UNLOCK functions do not work**

     Refer to Circuit/System Testing - Driver Door Lock Malfunction.

   - **If the passenger door LOCK or UNLOCK functions do not work**

     Refer to Circuit/System Testing - Passenger Door Lock Malfunction.

   - **If both door LOCK and UNLOCK functions do not work**

     Refer to Circuit/System Testing - Both Door Locks Inoperative.

   - **If the LOCK and UNLOCK function for both doors works**
5. All OK.

Circuit/System Testing

Door Lock Switch Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the appropriate S13 Door Lock Switch. It may take up to 2 minutes for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal listed below and ground:
   - Ground circuit terminal 5 (With A31)
   - Ground circuit terminal 1 (Without A31)
   - **If 10 Ω or greater**
   1. Ignition OFF.
   2. 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**

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3. Ignition ON.
4. Verify the scan tool Door Lock Switch parameter is Inactive.
    - **If not Inactive**
    1. Ignition OFF, disconnect the harness connector at the K9 body control module.
    2. Test for infinite resistance between the signal circuit terminals listed below and ground.
        - Signal circuit terminal 3 (With A31)
        - Signal circuit terminal 4 (With A31)
        - Signal circuit terminal 6 (Without A31)
        - Signal circuit terminal 7 (Without A31)
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the K9 Body Control Module.
    - **If Inactive**
5. Install a 3 A fused jumper wire between the signal circuit terminal listed below and ground.
    - Signal circuit terminal 4 (With A31)
    - Signal circuit terminal 7 (Without A31)
6. Verify the scan tool Door Lock Switch parameter is Unlock.
    - **If not Unlock**
    1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.
    2. Test for less than 1 V between the signal circuit and ground.
        - If 1 V or greater, repair the short to voltage on the circuit.
        - If less than 1 V
    3. Test for less than 2 Ω in the signal circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, replace the K9 Body Control Module.
    - **If Unlock**
7. Install a 3 A fused jumper wire between the signal circuit terminal listed below and ground.
    - Signal circuit terminal 3 (With A31)
    - Signal circuit terminal 6 (Without A31)
8. Verify the scan tool Door Lock Switch parameter is Lock.
    - **If not Lock**
    1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.
    2. Test for less than 1 V between the signal circuit and ground.
        - If 1 V or greater, repair the short to voltage on the circuit.
        - If less than 1 V
    3. Test for less than 2 Ω in the signal circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, replace the K9 Body Control Module.
    - **If Lock**
9. Test or replace the S13 Door Lock Switch.

Driver Door Lock Malfunction

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1. Ignition OFF, disconnect the X6 harness connector at the K9 Body Control Module, ignition ON.
2. Test for less than 1 V between the control circuit terminal 1 and ground.
    - **If 1 V or greater**
    1. Ignition OFF, disconnect the harness connector at the A23D Door Latch Assembly - Driver, ignition ON.
    2. 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**
3. Ignition OFF, connect the X6 harness connector at the K9 Body Control Module. Disconnect the harness connector at the A23D Door Latch Assembly-Driver, ignition ON.

NOTE: **Leaving the DMM connected between a control circuit and ground for greater than 20 s may cause the K9 Body Control Module to interpret the test as a system fault and will cause the voltage on the control circuit to drop to 0 V. If the voltage drops to 0 V, operate the door locks using the door lock switch to restore the voltage for testing.**

4. Test for greater than 3 V between the control circuit terminals listed below and ground:
    - Control circuit terminal 7
    - Control circuit terminal 8
    - **If 3 V or less**
    1. Ignition OFF, disconnect the X6 harness connector at the K9 Body Control Module.
    2. 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.
    3. Test for less than 2 Ω in the control circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance on the circuit.
        - If less than 2 Ω, replace the K9 Body Control Module.
    - **If greater than 3 V**

NOTE: **When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 00.00 V.**

5. Install a DMM between the control circuit terminal 7 and control circuit terminal 8. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 00.00 V.
6. Lock and unlock the vehicle doors using the S13D Door Lock Switch-Driver.
7. Verify the MAX voltage captured by the DMM is greater than 10 V.
    - **If 10 V or less**

      Replace the K9 Body Control Module.

    - **If greater than 10 V**
8. Test or replace the A23D Door Latch Assembly-Driver.

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Passenger Door Lock Malfunction

1. Ignition OFF, disconnect the harness connector at the A23P Door Latch Assembly-Passenger. Ignition ON.

NOTE: **Leaving the DMM connected between a control circuit and ground for greater than 20 seconds will cause the K9 Body Control Module to interpret the test as a system fault and will cause the voltage on the control circuit to drop to 0 V. If the voltage drops to 0 V, operate the door locks using the door lock switch to restore the voltage for testing.**

2. Test for greater than 5 V between the control circuit terminal listed below and ground:
   - A23P Door Latch Assembly-Passenger - control circuit terminal 9
   - A23P Door Latch Assembly-Passenger - control circuit terminal 8
   - **If 5 V or less**
   1. Ignition OFF, disconnect the X6 harness connector at the K9 Body Control Module.
   2. 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
   3. Test for less than 2 Ω in the control circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance on the circuit.
      - If less than 2 Ω, replace the K9 Body Control Module.
   - **If greater than 5 V**
3. Test or replace the A23P Door Latch Assembly-Passenger.

Both Door Locks Inoperative

1. Ignition OFF and all vehicle systems OFF, disconnect the X2 harness connector and X6 harness connector at the K9 Body Control Module. It may take up to 2 minutes for all vehicle systems to power down
2. Test for less than 10 Ω between the ground circuit terminal 3 X6 and ground
   - **If 10 Ω or greater**
   1. Ignition OFF.
   2. 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**
3. Ignition ON.
4. Verify a test lamp illuminates between the B+ circuit terminal 4 and ground.
   - **If the test lamp does not illuminate and the circuit fuse is good**
   1. Ignition OFF.
   2. Test for less than 2 Ω in the B+ circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance in the circuit.
      - If less than 2 Ω, verify the fuse is not open and there is voltage at the fuse.

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- **If the test lamp does not illuminate and the circuit fuse is open**

1. Ignition OFF.
2. Test for infinite resistance between the B+ circuit and ground.
    - If less than infinite resistance, repair the short to ground on the circuit.
    - If infinite resistance
3. Disconnect the harness connector at each of the A23 Door Latch Assemblies.
4. Test for infinite resistance between each control circuit and ground.
    - If less than infinite resistance, repair the short to ground on the circuit.
    - If infinite resistance, replace the appropriate A23 Door Latch Assembly.

- **If the test lamp illuminates**

5. Ignition OFF, connect the X2 harness connector at the K9 Body Control Module. Disconnect the X1 harness connector at the X51R Fuse Block - Instrument Panel Right, ignition ON.
6. Test for less than 1 V between the control circuit terminals listed below and ground:
    - K9 Body Control Module control circuit terminal 1 X6
    - K9 Body Control Module control circuit terminal 2 X6
    - K9 Body Control Module control circuit terminal 4 X6
    - X51R Fuse Block - Instrument Panel Right control circuit terminal 1 X1
    - X51R Fuse Block - Instrument Panel Right control circuit terminal 40 X1
    - **If 1 V or greater**

    1. Ignition OFF, disconnect the harness connector at the A23D Door Latch Assembly - Driver and the A23P Door Latch Assembly - Passenger, ignition ON.
    2. 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**

7. Test for infinite resistance between the control circuit terminals listed below and ground:
    - K9 Body Control Module control circuit terminal 1 X6
    - K9 Body Control Module control circuit terminal 2 X6
    - K9 Body Control Module control circuit terminal 4 X6
    - X51R Fuse Block - Instrument Panel Right control circuit terminal 1 X1
    - X51R Fuse Block - Instrument Panel Right control circuit terminal 40 X1
    - **If less than infinite resistance**

    1. Ignition OFF, disconnect the harness connector at the A23D Door Latch Assembly - Driver and the A23P Door Latch Assembly - Passenger.
    2. 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**

8. Ignition OFF, connect the X1 harness connector at the X51R Fuse Block - Instrument Panel Right, ignition ON.
9. Test for less than 1 V between the K9 Body Control Module control circuit terminals listed below and ground:
    - K9 Body Control Module control circuit terminal 1 X6

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- K9 Body Control Module control circuit terminal 2 X6
- **If 1 V or greater**

1. Ignition OFF, disconnect the X2 harness connector at the X51R Fuse Block - Instrument Panel Right, ignition ON.
2. 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 the circuit tests normal, test or replace the X51R Fuse Block - Instrument Panel Right.

- **If less than 1 V**

10. Test for infinite resistance between the control circuit terminals listed below and ground:
    - K9 Body Control Module control circuit terminal 1 X6
    - K9 Body Control Module control circuit terminal 2 X6
    - **If less than infinite resistance**

    1. Ignition OFF, disconnect the X2 harness connector at the X51R Fuse Block - Instrument Panel Right.
    2. Test for infinite resistance between the control circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit. If the circuit tests normal, test or replace the X51R Fuse Block - Instrument Panel Right.

    - **If infinite resistance**

11. Test or replace the K9 Body Control Module.

Component Testing

Door Lock Switch

1. Ignition OFF, disconnect the harness connector at the appropriate S13 Door Lock Switch.
2. Test for infinite resistance between the signal terminal and the ground terminal listed below with the switch in the inactive position.
    - Signal terminal 3 and ground terminal 5 (With A31)
    - Signal terminal 4 and ground terminal 5 (With A31)
    - Signal terminal 6 and ground terminal 1 (Without A31)
    - Signal terminal 7 and ground terminal 1 (Without A31)
    - **If less than infinite resistance**

      Replace the S13 Door Lock Switch.

    - **If infinite resistance**
3. Test for less than 2 Ω between the signal terminal and the ground terminal listed below with the switch in the Lock position.
    - Signal terminal 3 and ground terminal 5 (With A31)
    - Signal terminal 6 and ground terminal 1 (Without A31)
    - **If 2 Ω or greater**

      Replace the S13 Door Lock Switch.

    - **If less than 2 Ω**

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4. Test for less than 2 Ω between the signal terminal and the ground terminal listed below with the switch in the Unlock position.
    - Signal terminal 4 and ground terminal 5 (With A31)
    - Signal terminal 7 and ground terminal 1 (Without A31)
    - **If 2 Ω or greater**

      Replace the S13 Door Lock Switch

    - **If less than 2 Ω**
5. All OK

Door Latch Test

1. Ignition OFF, disconnect the harness connector at the appropriate A23 Door Latch Assembly.
2. Install a 25 A fused jumper wire between one of the control terminals and 12 V. Momentarily install a jumper wire between the other control terminal and ground. Reverse the jumper wires at least two times, the A23 Door Latch Assembly should perform the LOCK and UNLOCK function.
    - **If the actuator does not perform the LOCK and UNLOCK function**

      Replace the A23 Door Latch Assembly.

    - **If the actuator performs the LOCK and UNLOCK function**
3. All OK

Repair Instructions

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

- **Door Lock Switch Replacement - Driver Side (With A31)Door Lock Switch Replacement - Driver Side (Without A31)**
- **Door Lock Switch Replacement - Passenger Front (With A31)Door Lock Switch Replacement - Passenger Front (Without A31)**
- **Front Side Door Latch Replacement**
- **Control Module References** for BCM replacement, programming and setup

DOOR WILL NOT OPEN/CLOSE, DOOR BINDING, OR LOCKS, HANDLES, OR CYLINDERS DO NOT FUNCTION

Step	Action	Yes	No
DEFINITION: This diagnostic table is designed to address the mechanical diagnosis of the door latching system, which could include the inside and outside handles, latch rods/cables, latches, or latch cylinders.			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to **Step 2**	Go to **Diagnostic System Check - Vehicle**
2	Were you sent here from a Vehicle Access Symptom Table?	Go to **Step 3**	Go to **Symptoms - Vehicle Access**
3	Does the door open with the outside handle?	Go to **Step 4**	Go to **Step 10**
4	Does the door open with the inside handle?	Go to **Step 5**	Go to **Step 11**

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Step	Action	Yes	No
5	Does the manual latch knob latch and unlatch the latch smoothly without binding?	Go to **Step 6**	Go to **Step 12**
6	Does the door latch switch and/or the keyless entry transmitter latch and unlatch the door latch or door latches?	Go to **Step 7**	Go to **Step 14**
7	Is the outside key cylinder loose or does it rattle or fall out? (if equipped)	Go to **Step 15**	Go to **Step 8**
8	Does the outside key cylinder latch and unlatch the latch and function smoothly without binding? (if equipped)	Go to **Step 9**	Go to **Step 16**
9	Does the door bind, does it take excessive effort to open, or is it misaligned?	Go to **Step 17**	Go to **Step 18**
10	If the door will not open with the outside handle, or the handle is obstructed or loose, check the following: • For cold weather freezing, thaw as necessary. • Check the handle for foreign material. Remove material as necessary. • Check the handle grab bar for looseness or damage. Repair as necessary. • Check the handle for full travel. If the issue is not resolved, remove the trim panel as necessary to gain access to door hardware and check the following: • Check the handle chassis for loose fasteners, broken chassis inserts, loose or missing spring, or a loose, missing or bent rod lever. • Check for bent rod to the outside handle. • Check that the handle grab bar engages the rod lever properly. • Check for interference of rod and handle to other components in the door. • Check that handle rod is securely attached at both latch and handle. • Check if rod is positioned properly in the clip on the latch. At rest position, the handle should be fully against the down stop and the latch lever should be at the bottom of its travel. Correct by opening clip, repositioning rod in clip and closing clip till it snaps, as necessary. Did you find and correct the condition?	Go to **Step 18**	Go to **Step 11**

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Step	Action	Yes	No
11	Door will not open with the inside handle: • Check the inside handle for foreign material. Remove material as necessary. • Check that the handle is secure. Correct as necessary. • If rear door, verify child security is not engaged. • Remove the trim panel as necessary to and check the inside handle rod/cable attachments at both the latch and handle. If the cable is kinked or pinched, correct as necessary. Did you find and correct the condition?	Go to **Step 18**	Go to **Step 12**
12	The door will not or is difficult to unlatch with the inside manual latch knob: • For cold weather freezing, thaw as necessary • Check the latch knob for a loose condition. Repair or replace as necessary. Check the latch knob for binding or dragging using the following procedure: 1. Remove the latch knob. 2. If condition goes away, check for drag/interference of the latch knob against the inner belt seal, or the trim panel. Correct as required. If further action is required, remove the trim panel and check the latch rod and latch knob for interference with the following: • Water deflector/paper • Side impact foam • Rod grommet in sheet metal • Glass run channel • Other rods or cables • Trim panel Did you find and correct the condition?	Go to **Step 18**	Go to **Step 13**
13	With a manual lock, if the latch will not function properly do the following: 1. Function the lock/unlatch lever on the latch to	Go to **Step 18**	Go to **Step 14**

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Step	Action	Yes	No
	unlatch the latch. Check for high internal resistance. 2. With the door open, manually close the latch with a screwdriver. 3. Check the latch for internal binding by actuating the latch with the inside door handle lever. 4. Manually close the latch with a screwdriver again. 5. Check the latch for internal binding by actuating the latch with the outside door handle lever. Did you find and correct the condition?		

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Step	Action	Yes	No
14	If power locks are included in vehicle options and do not function with either the keyless entry transmitter or switch: 1. For cold weather freezing, thaw as necessary. 2. Remove trim pad as required and check the following: • Verify door harness has appropriate power connectors for switches and latch. • Check harness connector pins for corrosion. • Assure wire harness connectors are seated and locked properly at latch and switch. Remove and re-seat if required. • Check door harness for cuts/chafing /corrosion. Correct/replace as required. • Check for 12V at latch and door switch. Correct/proceed accordingly. • Check BCM for trouble codes. Correct/proceed accordingly. 3. If power locks still do not function do the following: 1. Remove latch from door cavity. 2. Connect latch to electrical connector outside the door. 3. Function power lock/unlatch switch in both latch and unlatch directions. Watch for lock/unlatch lever on latch to move completely from one position to the other. 4. If lever does not move, remove connector from old latch and attach to new latch outside of door cavity. 5. Verify new latch is functional, if so, attach rods and install new latch in door. Did you find and correct the condition?	Go to **Step 18**	Go to **Step 15**
15	If the key cylinder is loose do the following: • Remove the trim if necessary. • Check that the retaining clip is properly seated. (if equipped) • Check that the fastener is properly torqued. (if equipped) Did you find and correct the condition?	Go to **Step 18**	Go to **Step 16**

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Step	Action	Yes	No
16	The outside key cylinder will not latch and unlatch the latch and function smoothly without binding: 1. For cold weather freezing, thaw as necessary 2. Remove trim if required. 3. Check that the key cylinder rod is securely attached both to the key cylinder pawl and the latch. 4. Check that key cylinder lever, rod and latch lever are free of interferences. Remove interferences as required. 5. Check that latch cylinder rod is routed properly. Re-route as required. 6. Remove rod from latch cylinder and actuate cylinder. Check for internal resistance. Lubricate latch cylinder as required 7. Verify Cylinder rotates with vehicle key. If not, code and replace cylinder to match vehicle key. See latch cylinder coding and replacing. Did you find and correct the condition?	Go to **Step 18**	Go to **Step 17**
17	The door is difficult to open: • Check for interference with the fender, adjacent door, body opening or door striker and adjust as necessary. • Check for binding door hinges. Lubricate or align/adjust as necessary. • Check the door check link for binding. Lubricate as necessary. • Adjust the door as necessary. Did you find and correct the condition?	Go to **Step 18**	Go to **Front Side Door Adjustment** or Go to **Rear Side Door Adjustment**
18	Verify proper operation of the door closing system. • Outside handle • Inside handle • Manual lock/unlatch • Outside key cylinder • Inside latch knob • Double pull handle • Power lock/unlatch • Key fob	Go to **Step 1**	System OK

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Step	Action	Yes	No
	• Door switches • Door opening/closing effort Is the condition still present?		

REPAIR INSTRUCTIONS

ENDGATE LOCK ACTUATOR REPLACEMENT

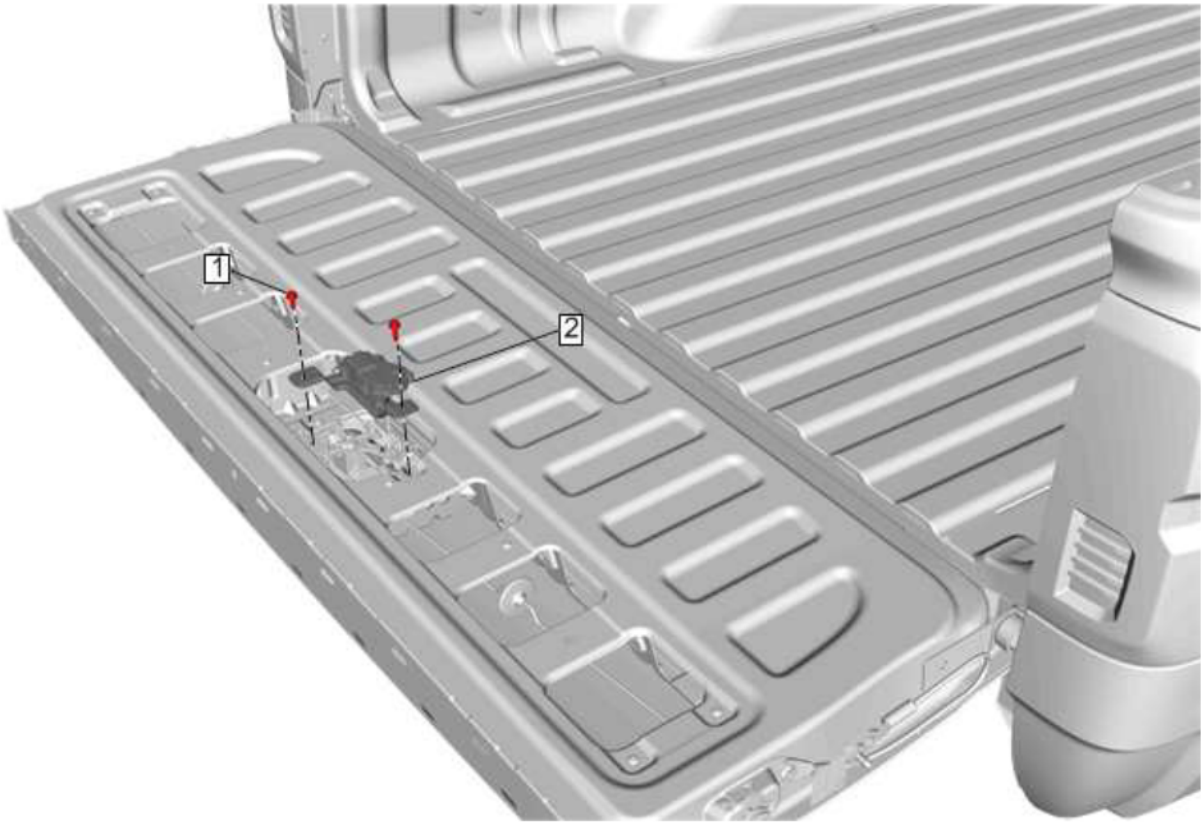


Fig. 6: Endgate Lock Actuator
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Pickup Box Endgate Access Hole Cover Panel Replacement	
1	Endgate Lock Actuator Bolt **CAUTION:** **Refer to** **Fastener Caution** . **Tighten** 9 (80 lb in)

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Callout	Component Name
2	Endgate Lock Actuator **Procedure** Disconnect the electrical connector.

FRONT SIDE DOOR INSIDE HANDLE CABLE REPLACEMENT

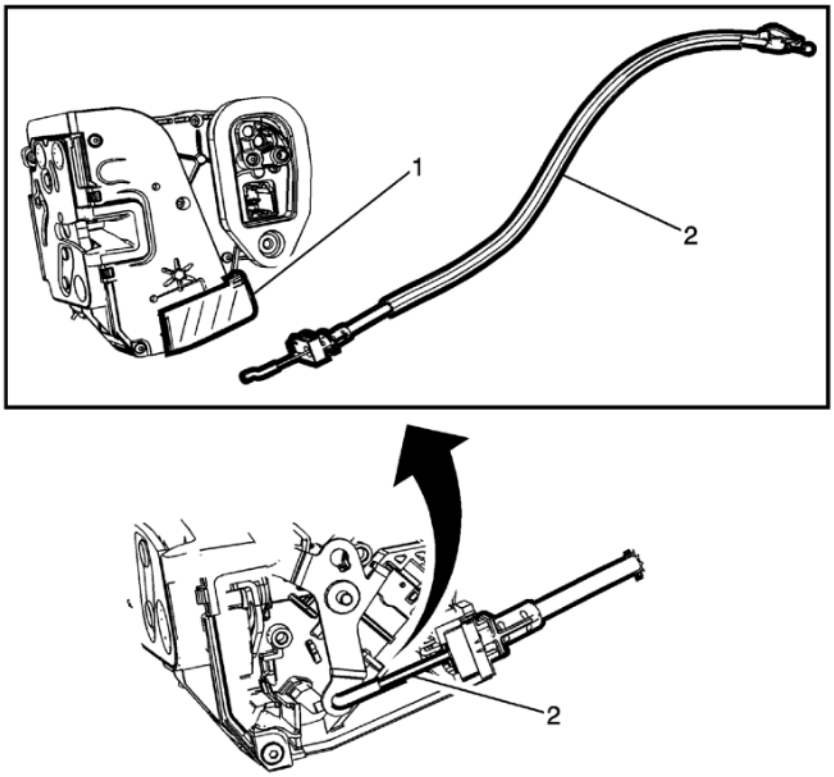


Fig. 7: Side Door Inside Handle Cable & Access Cover
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front side door latch and handle bracket assembly from the door. Refer to **Front Side Door Latch Replacement**.	
1	Front Side Door Inside Handle Cable Access Cover **Procedure** 1. Use a suitable tool, open the access cover to view the cable end. 2. Release the cable end from the latch assembly.
2	Front Side Door Inside Handle Cable **NOTE:** **Ensure that the door lock system**

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Callout	Component Name
	operates properly before installing the trim.

REAR SIDE DOOR INSIDE HANDLE CABLE REPLACEMENT

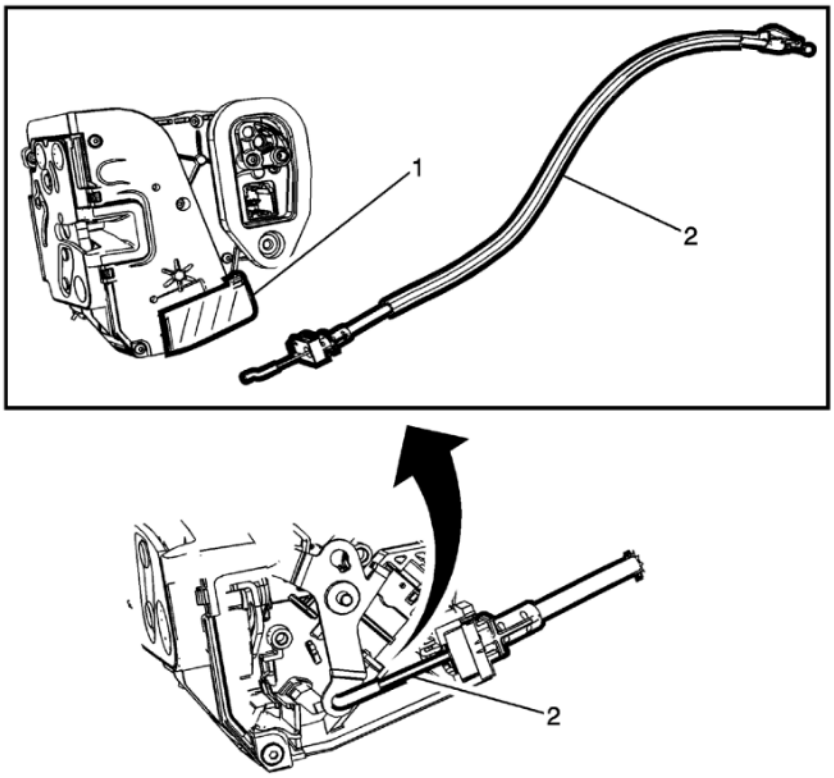


Fig. 8: Side Door Inside Handle Cable & Access Cover
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the rear side door latch and handle bracket assembly from the door. Refer to **Rear Side Door Latch Replacement**.	
1	Rear Side Door Inside Handle Cable Cover **Procedure** 1. Use a suitable tool, open the access cover to view the cable end. 2. Release the cable end from the latch assembly.
2	Rear Side Door Inside Handle Cable **NOTE:**

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Callout	Component Name
	Ensure that the door lock system operates properly before installing the trim.

ENDGATE LOCK CYLINDER REPLACEMENT

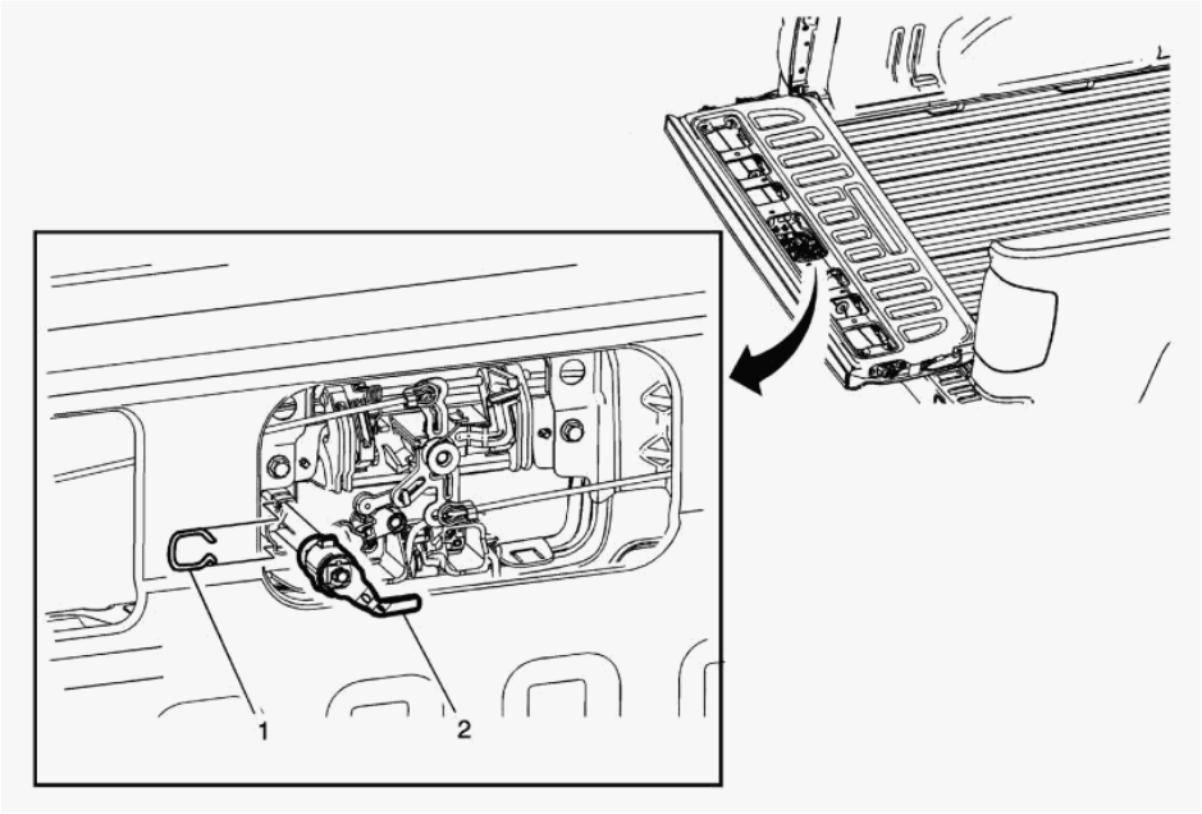


Fig. 9: Endgate Lock Cylinder
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the pickup box endgate access hole cover panel. Refer to **Pickup Box Endgate Access Hole Cover Panel Replacement**	
1	Endgate Lock Cylinder Case Spring Retainer
2	Endgate Lock Cylinder **NOTE:** **Code new cylinder as needed.**

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FRONT SIDE DOOR LOCK CYLINDER REPLACEMENT

Removal Procedure

NOTE: **When performing this procedure the latch and handle bracket assembly Must be removed from the vehicle to replace the door lock cylinder assembly.**

1. Remove the front side door latch and door outside handle bracket assembly as one from the door. Refer to **Front Side Door Latch Replacement**.

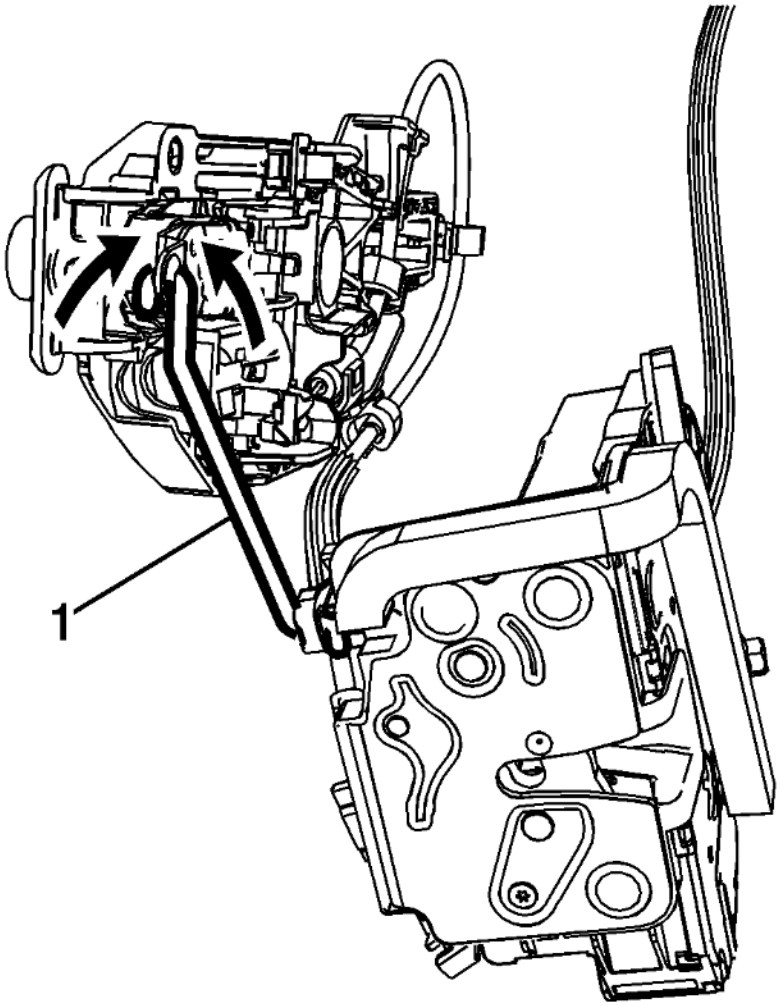


Fig. 10: Front Side Door Lock Cylinder Rod
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Its not necessary to disconnect the inside or outside handle cables to replace the door lock cylinder.**

2. Disconnect the front side door lock cylinder rod (1) from the lock cylinder.

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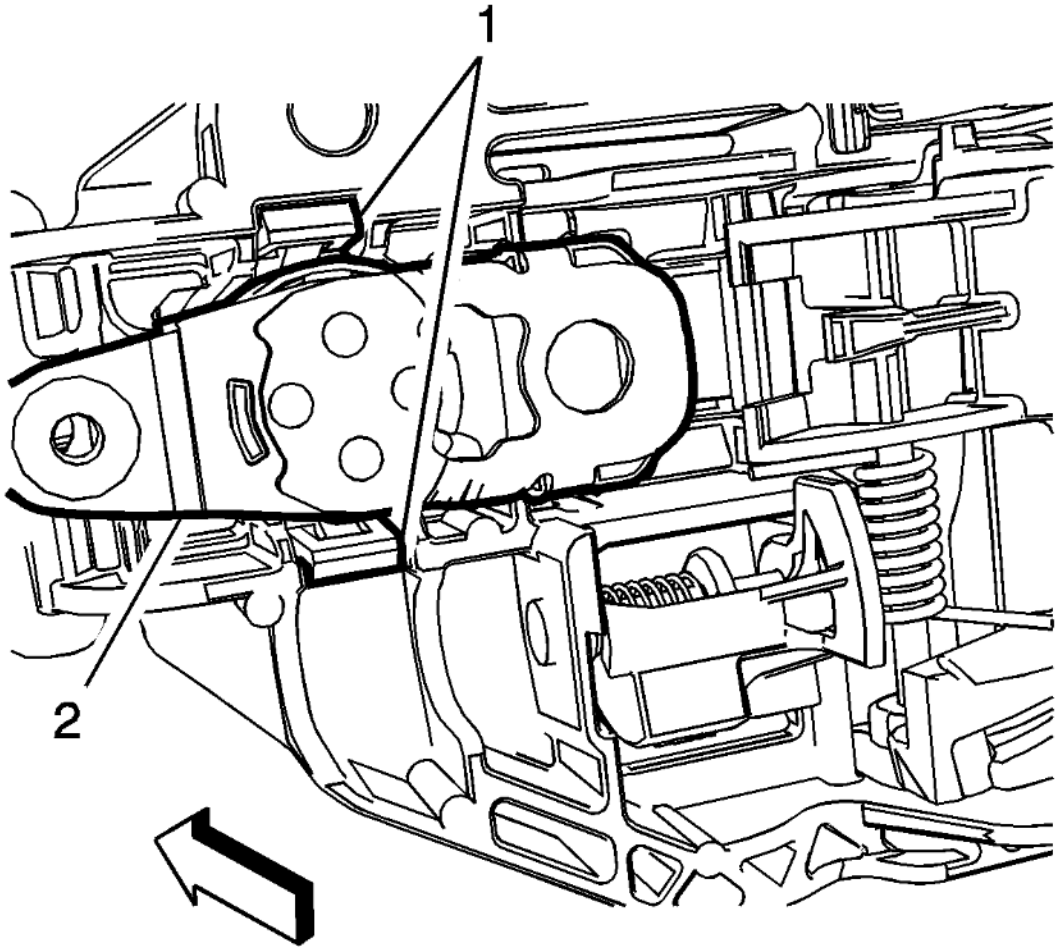


Fig. 11: Lock Cylinder Retainers
Courtesy of GENERAL MOTORS COMPANY

3. From the back side of the outside handle bracket, use a suitable tool, push up and down on the lock cylinder retainers (1) releasing the retainer from the cylinder.

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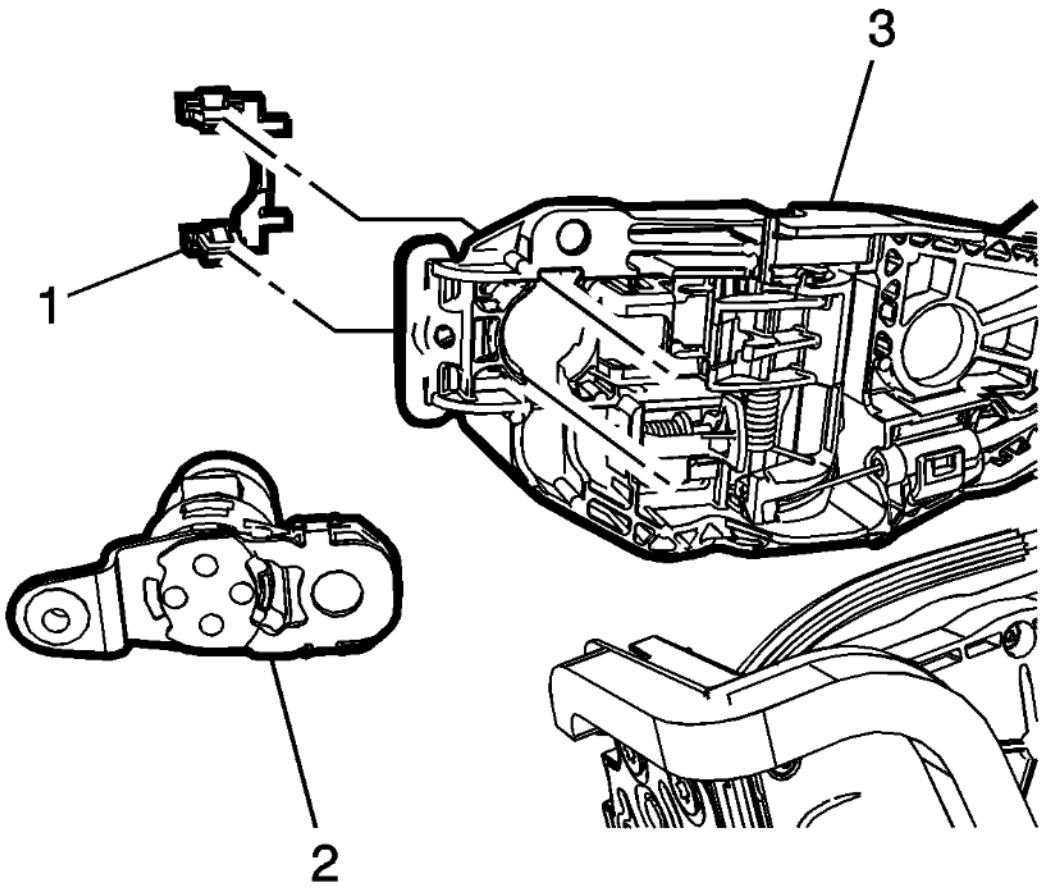


Fig. 12: Front Side Door Lock Cylinder & Mounting Components
Courtesy of GENERAL MOTORS COMPANY

4. With the lock cylinder retainer (1) removed pull the lock cylinder (2) rearward releasing it from the handle bracket (3).

Installation Procedure

1. If replacing with a NEW lock cylinder, code the NEW lock cylinder. Refer to **Front Side Door Lock Cylinder Coding** .

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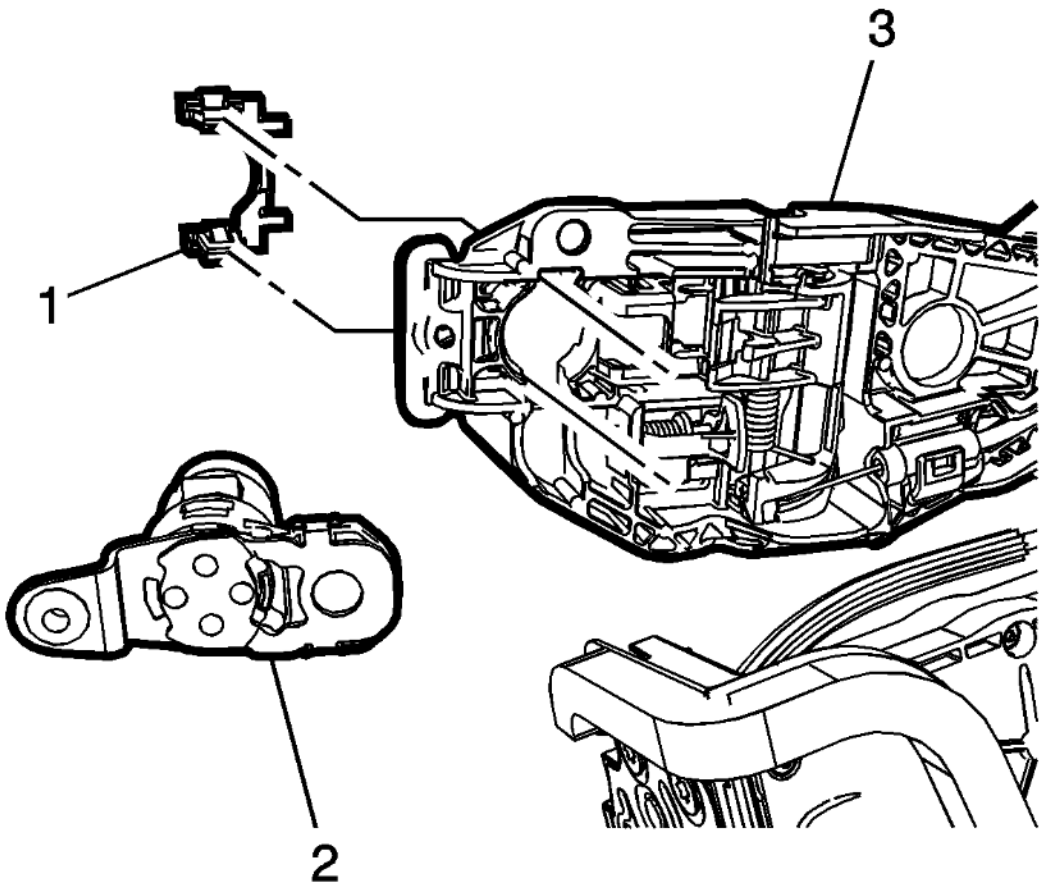


Fig. 13: Front Side Door Lock Cylinder & Mounting Components
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Ensure that the door lock cylinder is engage all the way into the side door handle locator tabs. Insert the key into the door lock cylinder, turn left to right checking for binding before install the assembly to the vehicle.**

2. Install the lock cylinder retainer (1) to the front side door outside handle bracket assembly (3).
3. Install the door lock cylinder (2) in the front side door outside handle bracket, push forward locking the lock cylinder (2) into the lock cylinder retainer.

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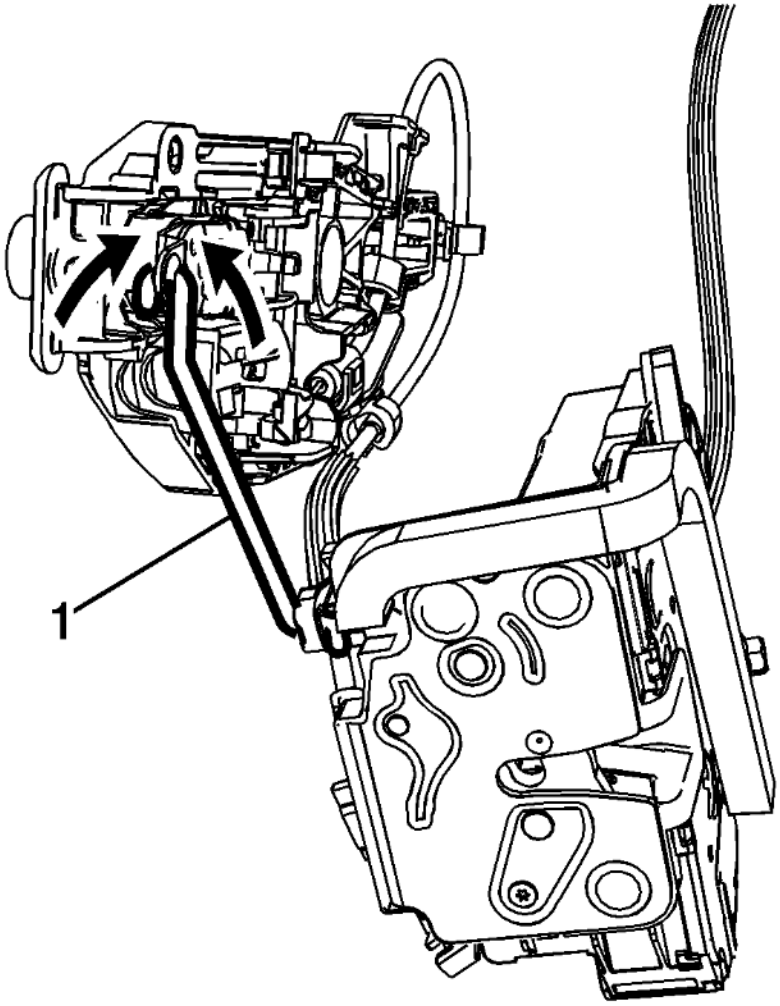


Fig. 14: Front Side Door Lock Cylinder Rod
Courtesy of GENERAL MOTORS COMPANY

4. Connect the door lock cylinder rod (1) to the lock cylinder.
5. Install the front side door latch and handle bracket assembly as one in the vehicle. Refer to **Front Side Door Latch Replacement**.
6. Ensure that the door lock system operates properly before installing the trim.

ENDGATE HANDLE REPLACEMENT

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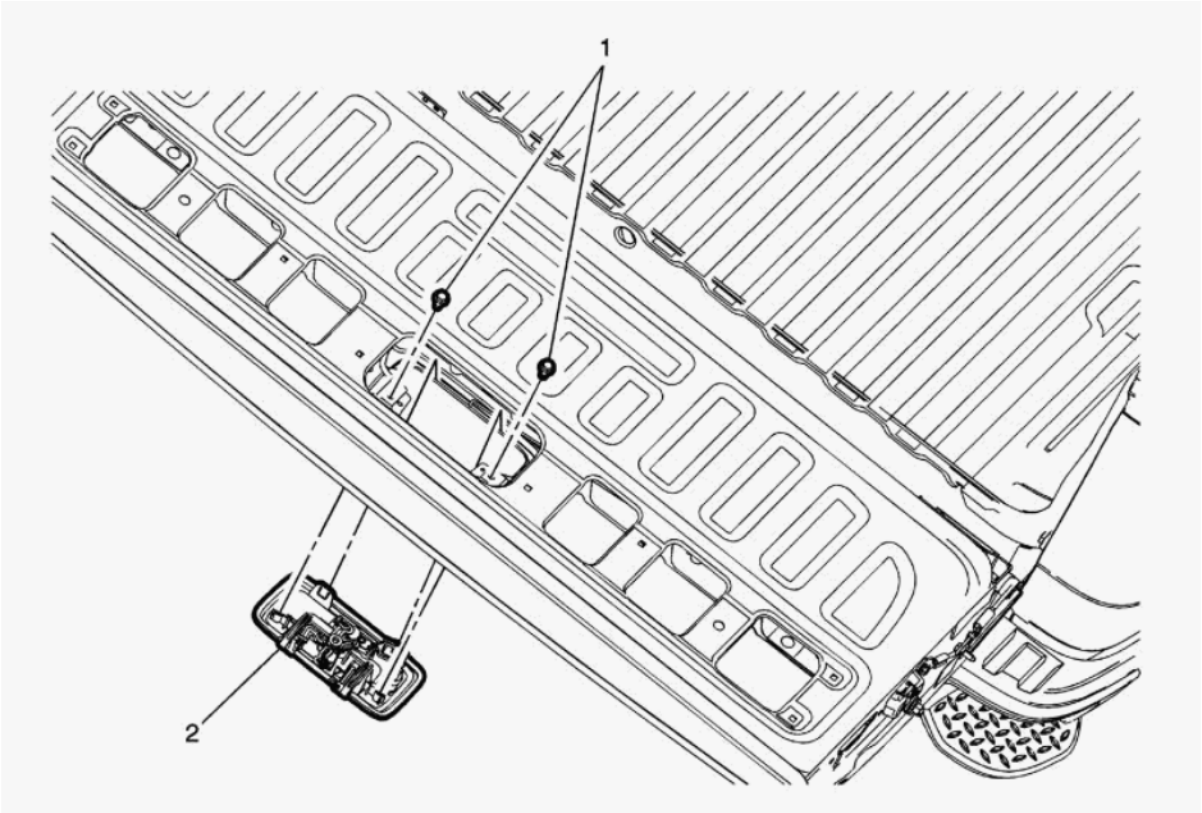


Fig. 15: Endgate Handle
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure 1. Remove the pickup box endgate access hole cover. Refer to **Pickup Box Endgate Access Hole Cover Panel Replacement** . 2. Remove the rearview driver information camera. Refer to **Rearview Driver Information Camera Replacement**	
1	Endgate Handle Bolt (Qty: 2) **CAUTION:** **Refer to Fastener Caution** . **Tighten** 9 (80 lb in)
2	Endgate Handle Assembly **NOTE:** • **Disconnect the actuator**

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Callout	Component Name
	rods. • Release the lower retainer tabs

FRONT SIDE DOOR INSIDE HANDLE REPLACEMENT

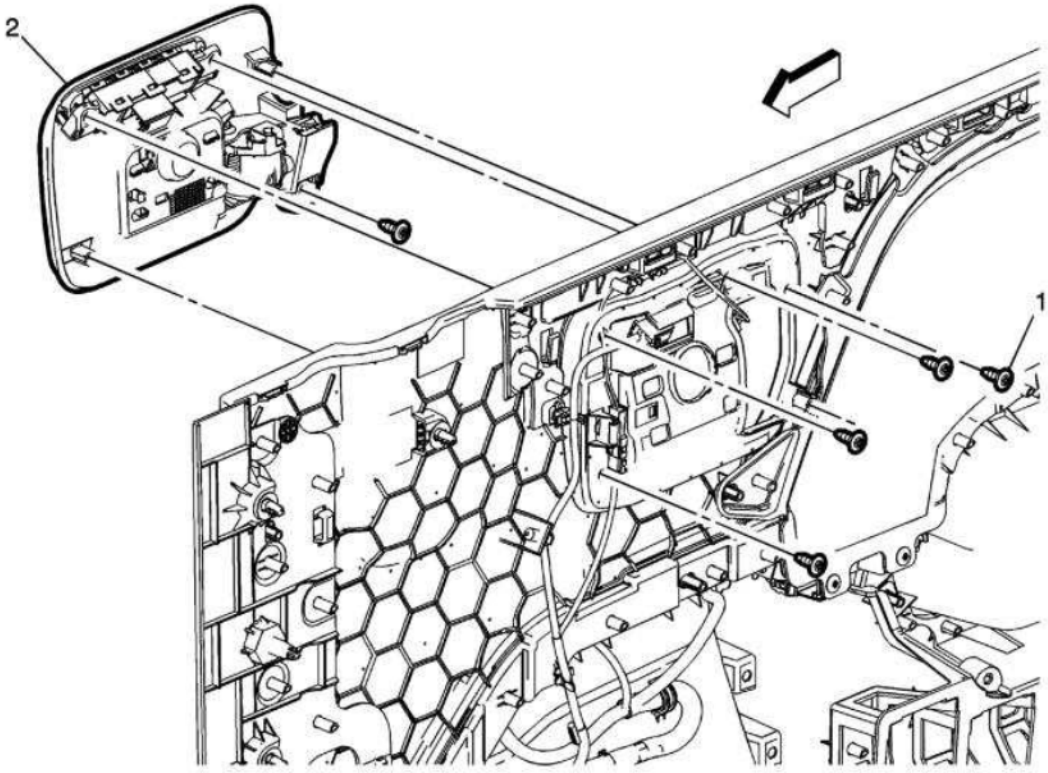


Fig. 16: Front Side Door Inside Handle
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front side door trim. Refer to **Front Side Door Trim Replacement (With A31)** **Front Side Door Trim Replacement (Without A31)** .	
1	Front Side Door Inside Handle Fastener (Qty: 5) **CAUTION:** **Refer to Fastener Caution .** **NOTE:**

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Callout	Component Name
	The five screws are located on the backside of the trim panel.
2	Front Side Door Inside Handle Assembly **Procedure** 1. Disconnect the seat adjuster memory switch, if equipped. 2. Remove the handle and bezel as an assembly from the door trim panel. 3. Transfer the seat adjuster memory switch, if equipped to the new handle.

FRONT SIDE DOOR OUTSIDE HANDLE REPLACEMENT

Special Tools

BO 51363 Door Handle Spring Retainer

For equivalent regional tools, refer to **Special Tools** .

Removal Procedure

NOTE: **When removing the door lock cylinder screw Do Not go past the hard stop.**

1. Loosen screw for lock cylinder bezel. Refer to **Front Side Door Lock Cylinder Bezel Replacement**.

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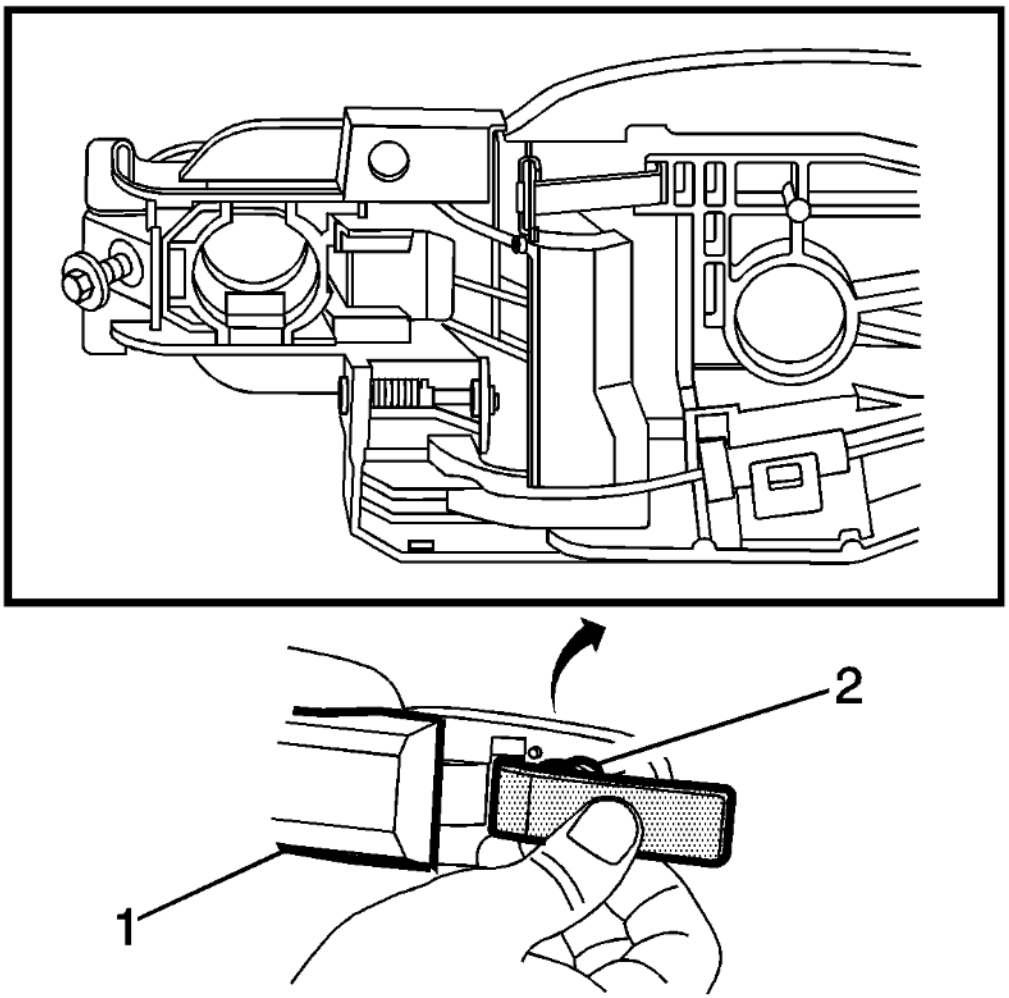


Fig. 17: Front Side Door Outside Handle And Door Handle Spring Retainer
Courtesy of GENERAL MOTORS COMPANY

2. Pull front side door outside handle (1) outward and insert **BO-51363** Door Handle Spring Retainer over the lock cylinder (2) and under door handle (1).
3. Press rear part of **BO-51363** Door Handle Spring Retainer towards the door (3). The front side door outside handle (1) should now be held in the extended position.
4. Release pressure on **BO-51363** Door Handle Spring Retainer which allows front side door outside handle (1) to slightly retract.

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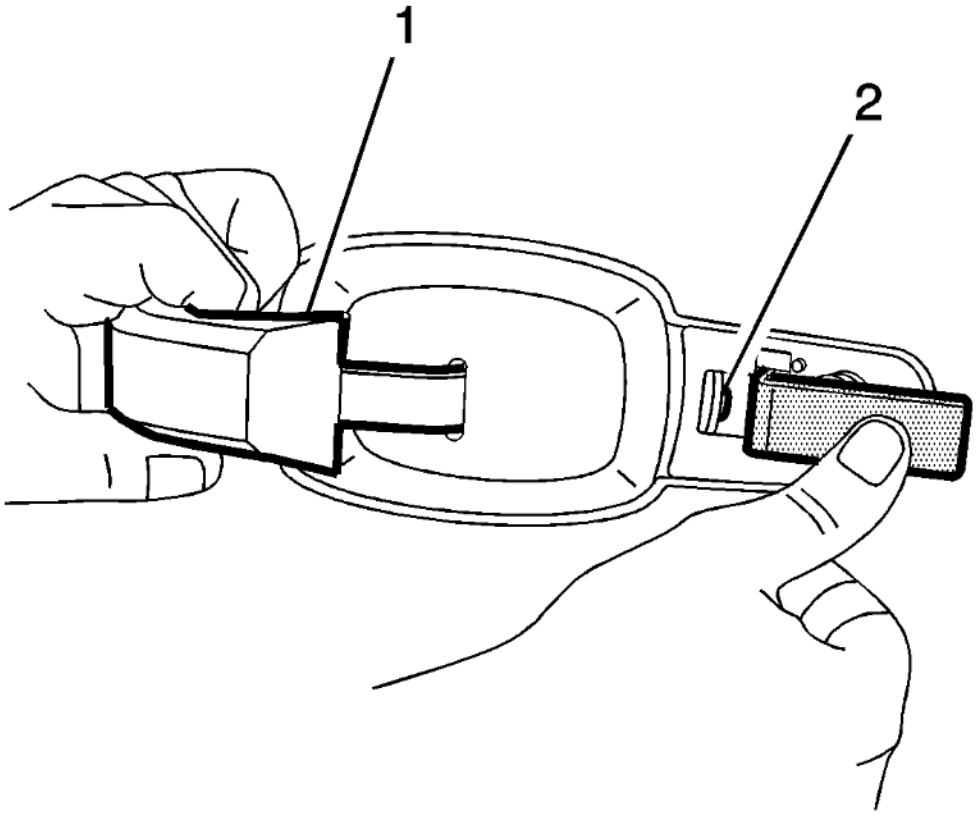


Fig. 18: Front Side Door Outside Handle & Mechanism
Courtesy of GENERAL MOTORS COMPANY

5. Slide front side door outside handle (1) rearward and then pull outward releasing outside door handle from front side door handle mechanism (2).

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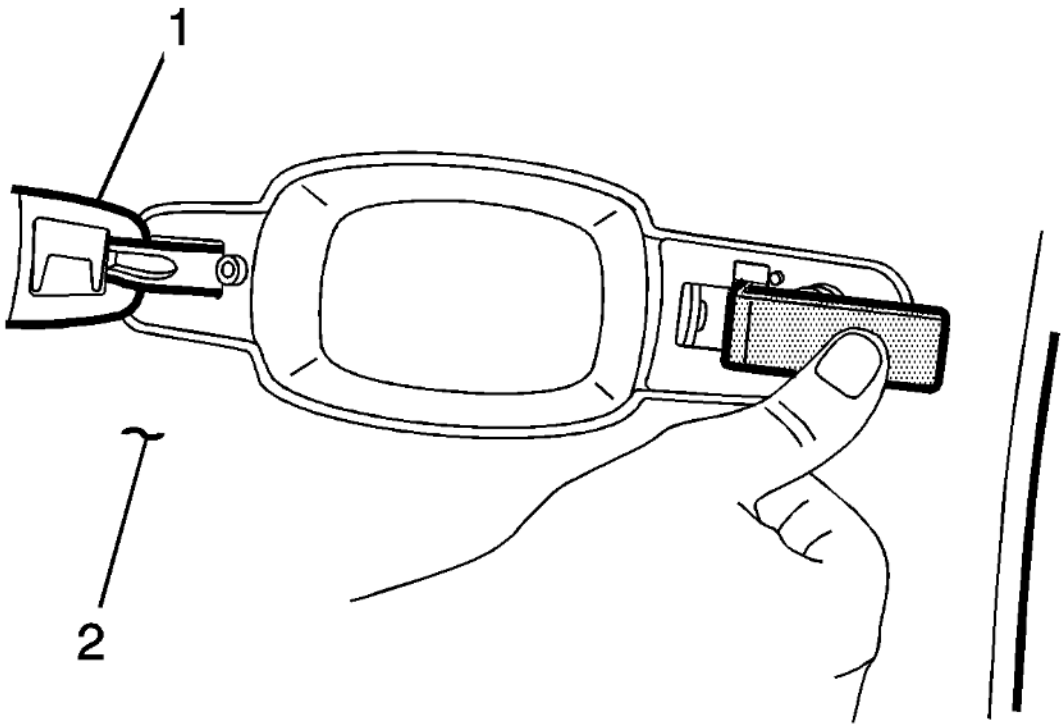


Fig. 19: Front Side Door Outside Handle At 90Degrees
Courtesy of GENERAL MOTORS COMPANY

6. Pull front side door outside handle (1) forward until door handle is approximately at a 90 degree angle to door (2).

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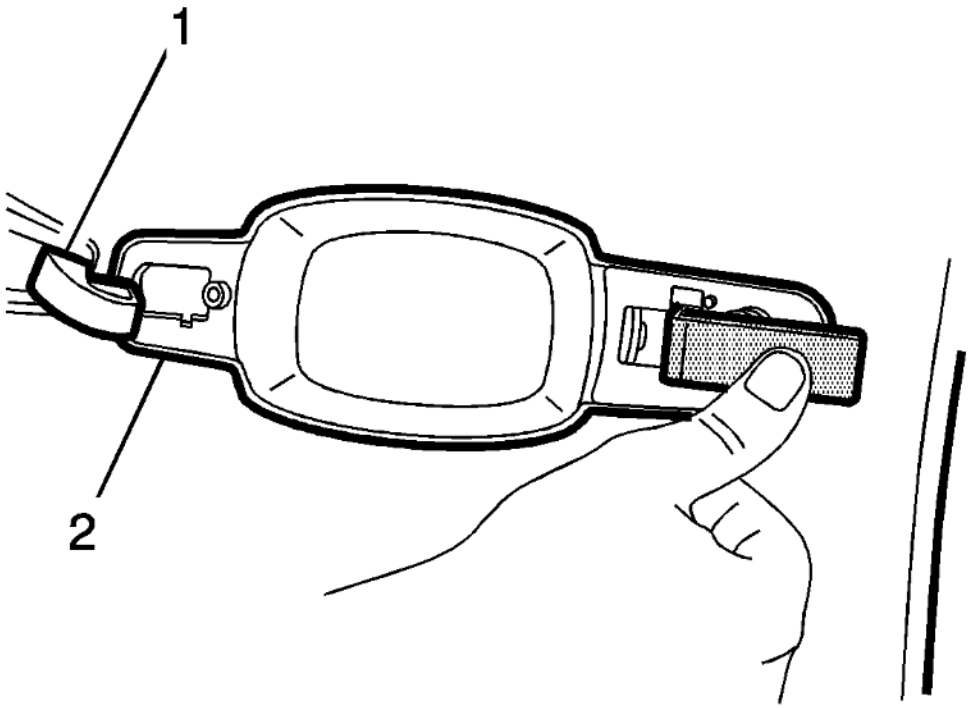


Fig. 20: Removing Front Side Door Outside Handle
Courtesy of GENERAL MOTORS COMPANY

7. Gentle pull front side door outside handle (1) outward and remove from door (2).

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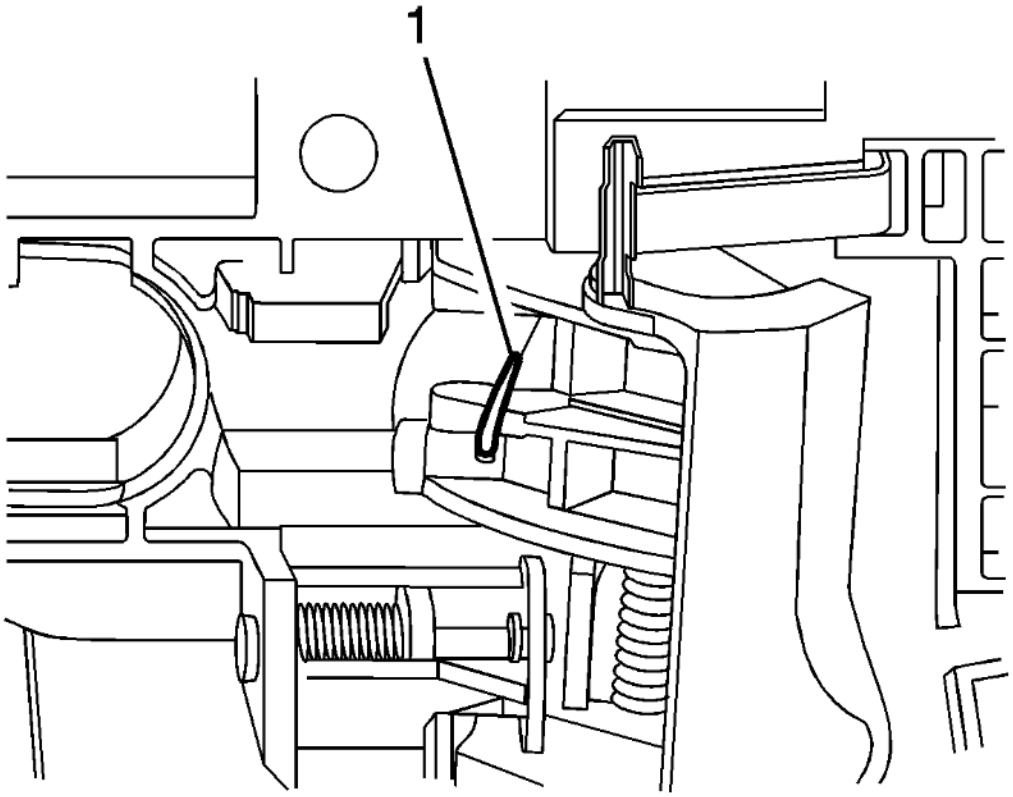


Fig. 21: Hooked Pick Tool And Door Handle Mechanism
Courtesy of GENERAL MOTORS COMPANY

NOTE:

- **It is NOT necessary to remove the door panel if the BO-51363 Door Handle Spring Retainer slips off of the door handle mechanism.**
- **DO NOT hook the outer parts of the door handle mechanism. The hooked pick tool or equivalent tool could slip off and damage the front door.**

8. If **BO-51363** Door Handle Spring Retainer slips off of door handle mechanism (1) during repair, use a hooked pick tool or equivalent to access the handle mechanism.

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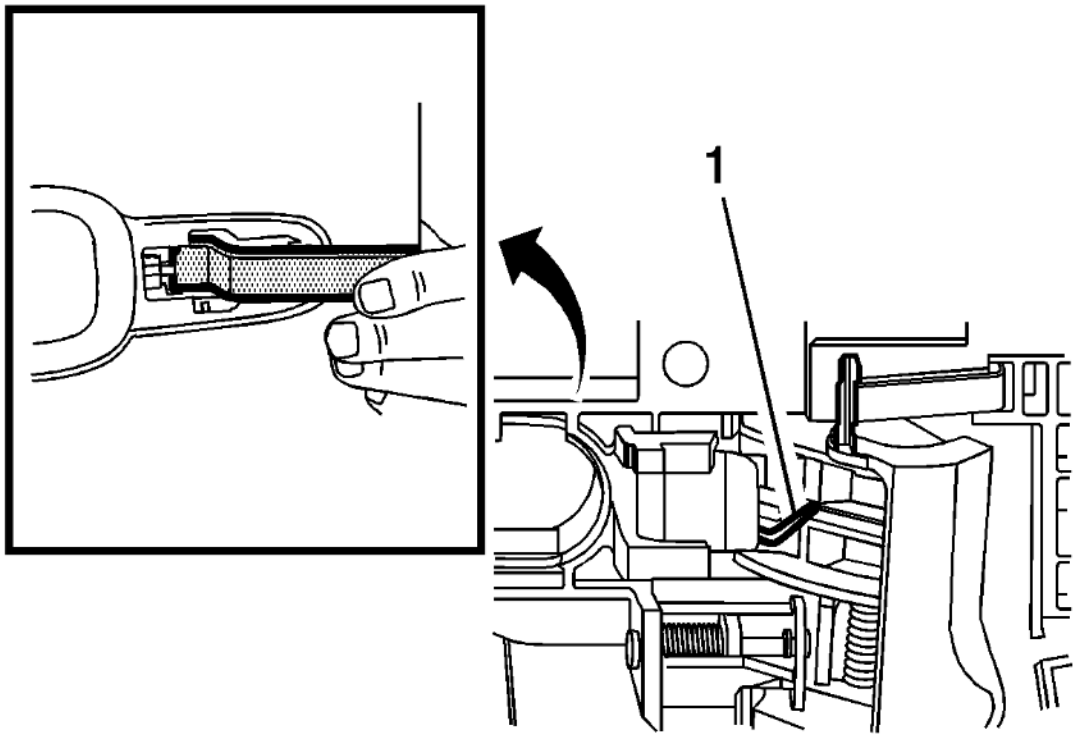


Fig. 22: Door Handle Spring Retainer And Hooked Pick Tool
Courtesy of GENERAL MOTORS COMPANY

9. Pull door handle mechanism (1) outward to the open position and reinstall **BO-51363** Door Handle Spring Retainer into door handle mechanism (1). The hooked pick tool or equivalent tool can then be removed.

Installation Procedure

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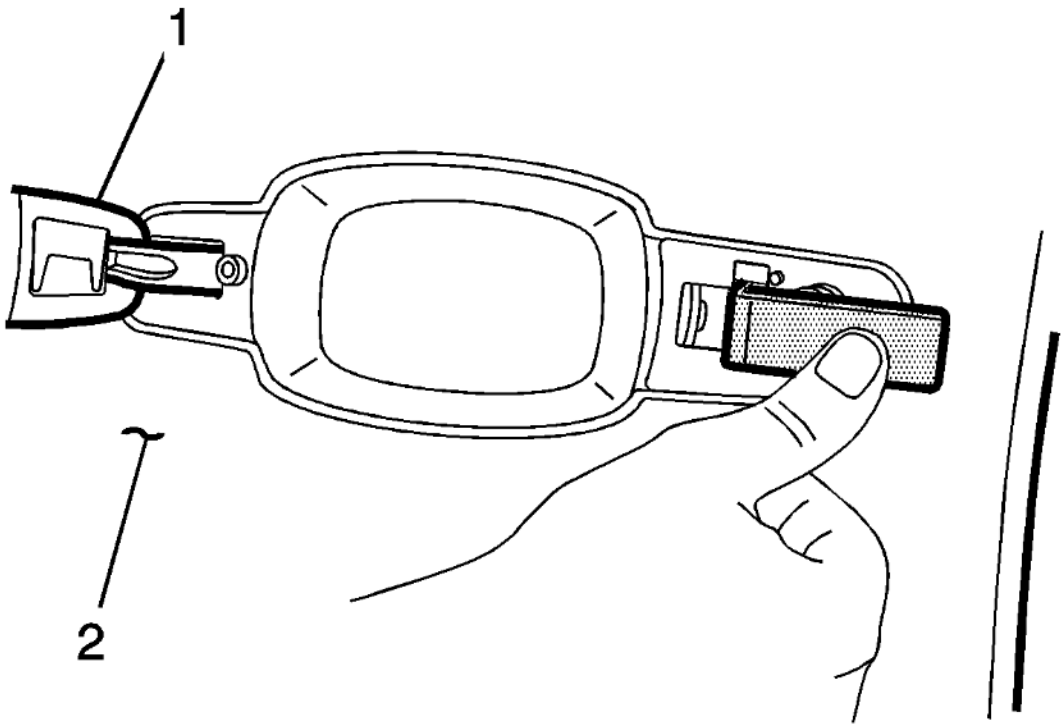


Fig. 23: Front Side Door Outside Handle At 90Degrees
Courtesy of GENERAL MOTORS COMPANY

1. While holding **BO-51363** Door Handle Spring Retainer in place, install front side door outside handle (1) into door (2) at approximately a 90 degree angle to door.

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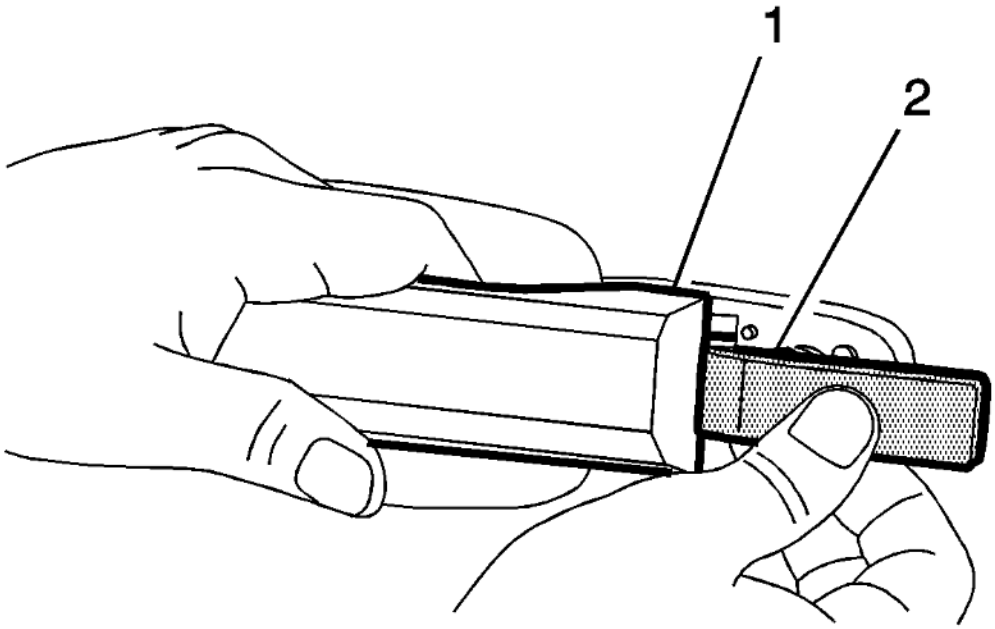


Fig. 24: Front Side Door Outside Handle & Mechanism
Courtesy of GENERAL MOTORS COMPANY

2. Rotate front side door outside handle (1) rearward into front side door handle mechanism (2).

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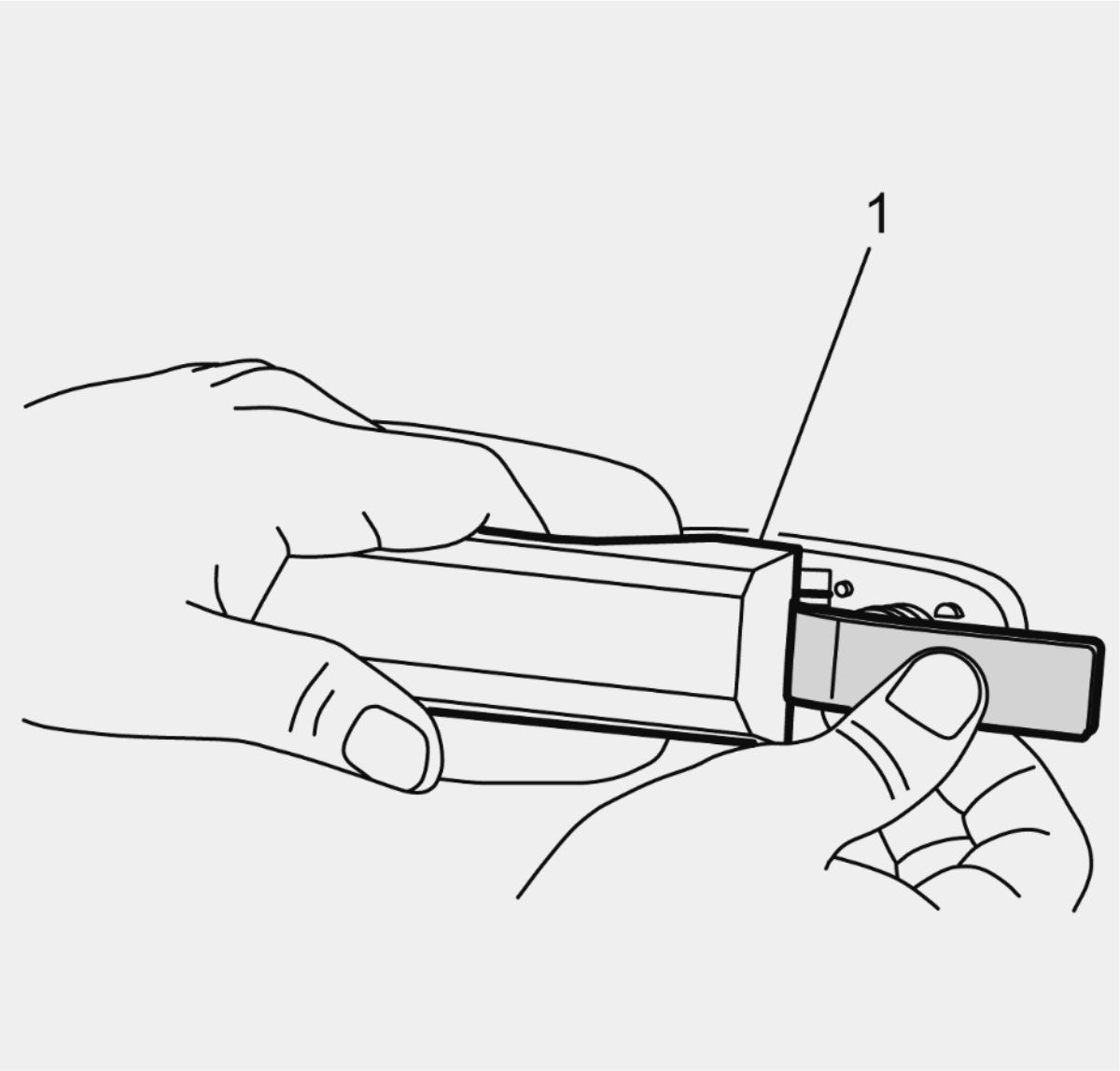


Fig. 25: Front Side Door Outside Handle
Courtesy of GENERAL MOTORS COMPANY

3. Slide front side door outside handle (1) forward to lock into position.

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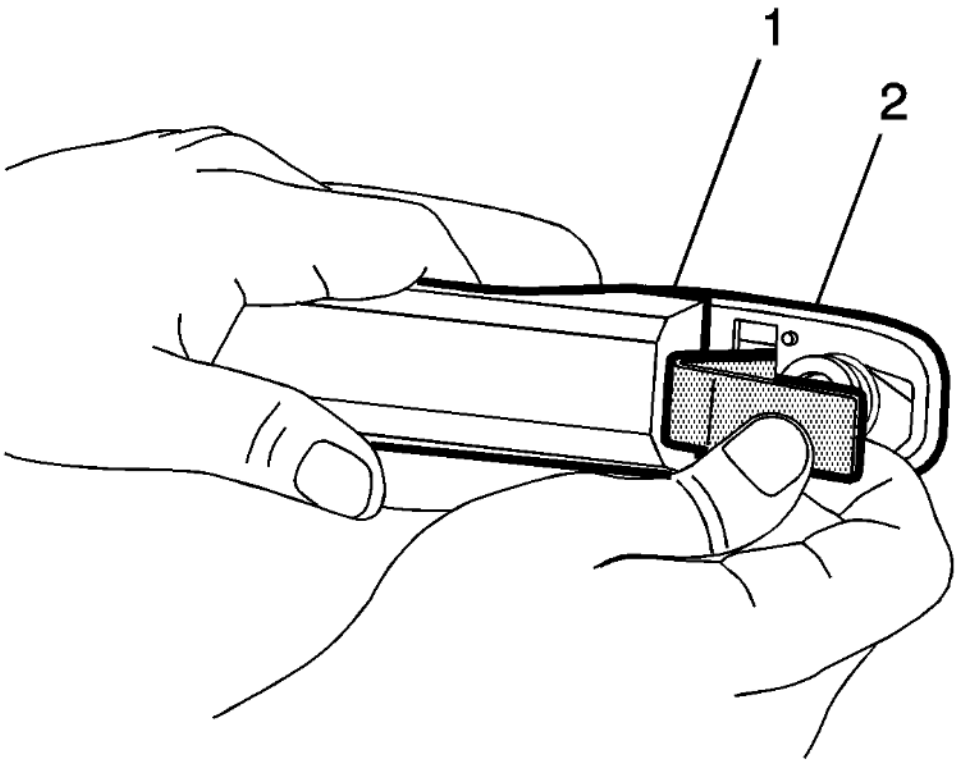


Fig. 26: Front Side Door Outside Handle & Spring Retainer
Courtesy of GENERAL MOTORS COMPANY

4. Release pressure on **BO-51363** Door Handle Spring Retainer. Pull front side door outside handle (1) outward and remove **BO-51363** Door Handle Spring Retainer from door (2) .

NOTE: **When installing the door lock cylinder screw Do Not go past the hard stop.**

5. Tighten screw for lock cylinder bezel. Refer to **Front Side Door Lock Cylinder Bezel Replacement**.
6. Ensure that the door lock system operates properly.

FRONT AND REAR SIDE DOOR OUTSIDE HANDLE ROD CLIP REPLACEMENT

Removal Procedure

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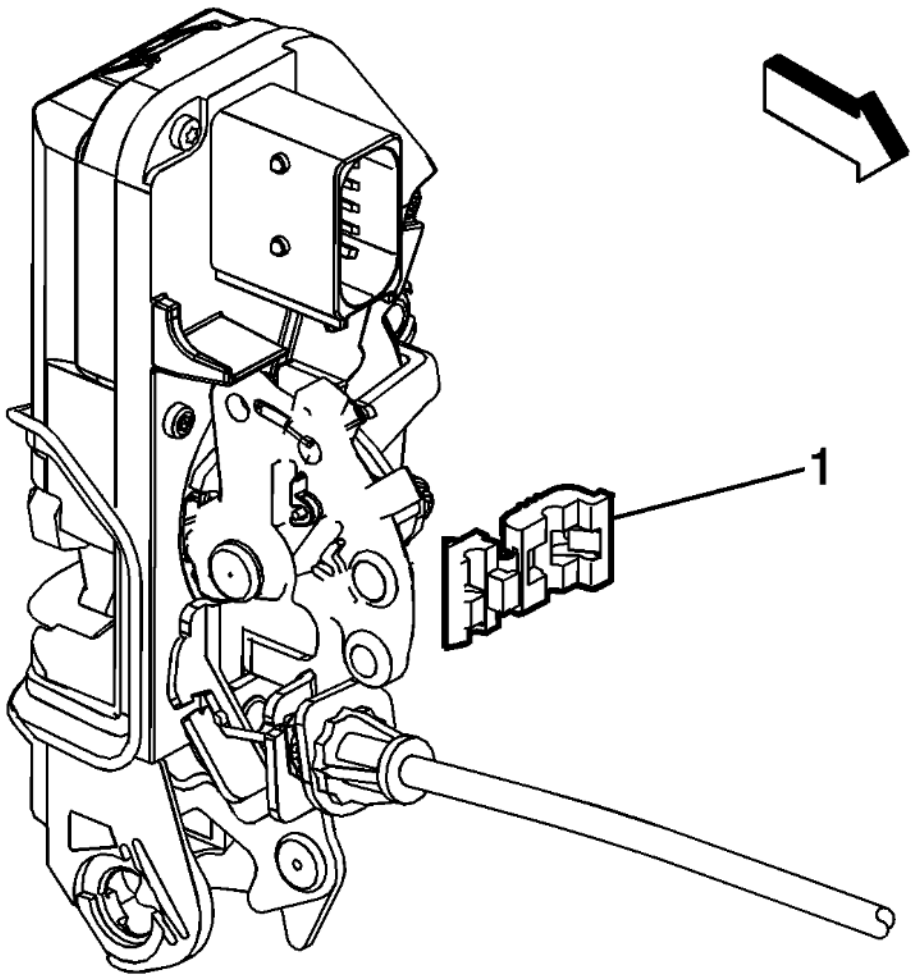


Fig. 27: Outside Door Handle Rod Clip
Courtesy of GENERAL MOTORS COMPANY

NOTE: **It maybe necessary to remove the front or rear side door latch from some of the vehicles to access the rod clip, refer to the appropriate procedure in this sub-section.**

1. Using the appropriate tool, open the outside door handle rod clip (1) on the latch.

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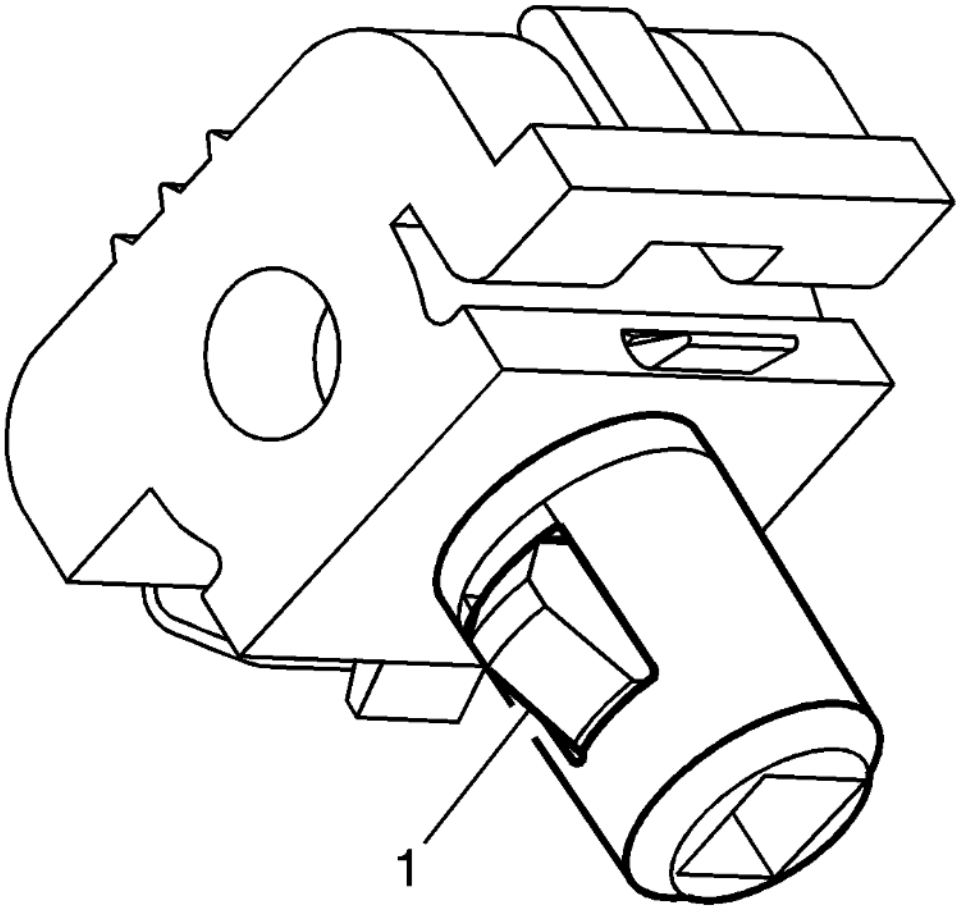


Fig. 28: Outside Door Handle Rod Clip Retaining Tabs
Courtesy of GENERAL MOTORS COMPANY

NOTE: **The clip for the outside door handle rod is designed for one use only, a new clip Must be installed to the door latch to retain the outside handle rod.**

NOTE: **Use the appropriate tool to push in on the retaining tabs (1) located on each side of the old clip to remove.**

2. Remove the old outside door handle rod clip (1) from the door latch.

Installation Procedure

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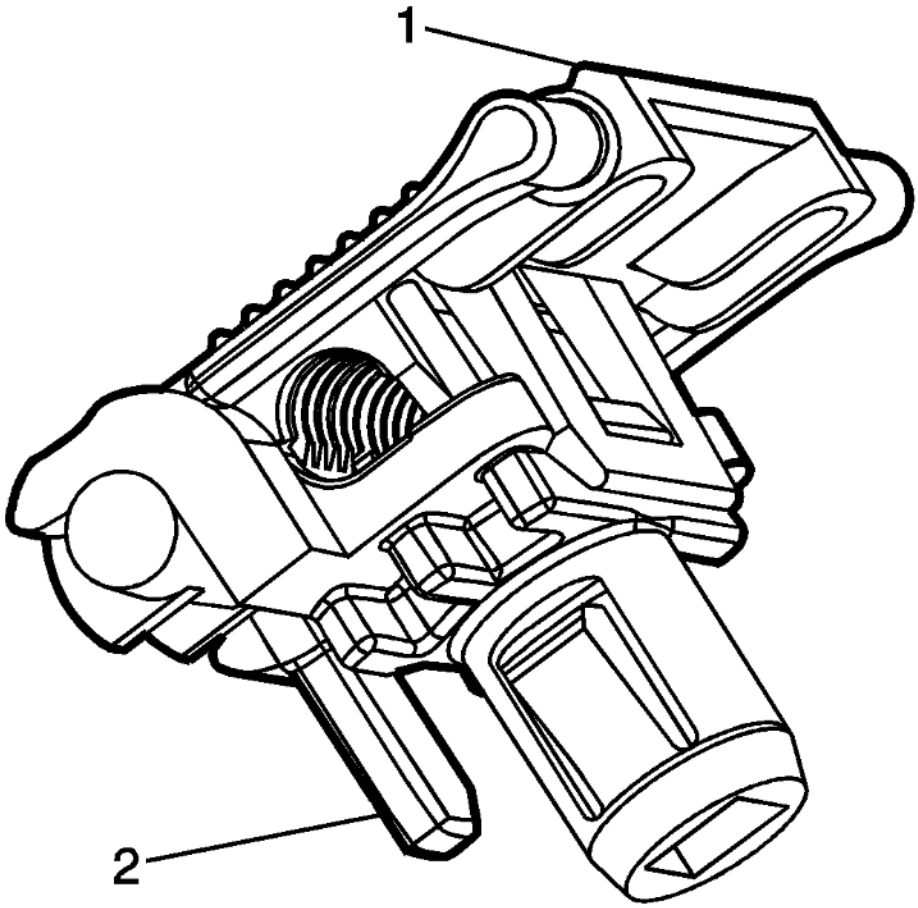


Fig. 29: Outside Door Handle Rod Clip
Courtesy of GENERAL MOTORS COMPANY

NOTE: **When replacing the old designed outside door handle rod clip with the new designed clip (1) the anti rotation tab (2) will need to be removed.**

NOTE: **When installing the outside door handle rod to latch in order to prevent outside handle lever pre-load, the outside handle shall be fully secured to the door prior to securing integral latch clip to outside handle release rod. Push upward at the bottom the rod clip.**

1. Install the new outside door handle rod clip (1) to the latch.
2. Verify the outside door handle will release the door latch.

FRONT SIDE DOOR OUTSIDE HANDLE BRACKET REPLACEMENT

Removal Procedure

1. Remove the front side door outside handle. Refer to **Front Side Door Outside Handle Replacement**.

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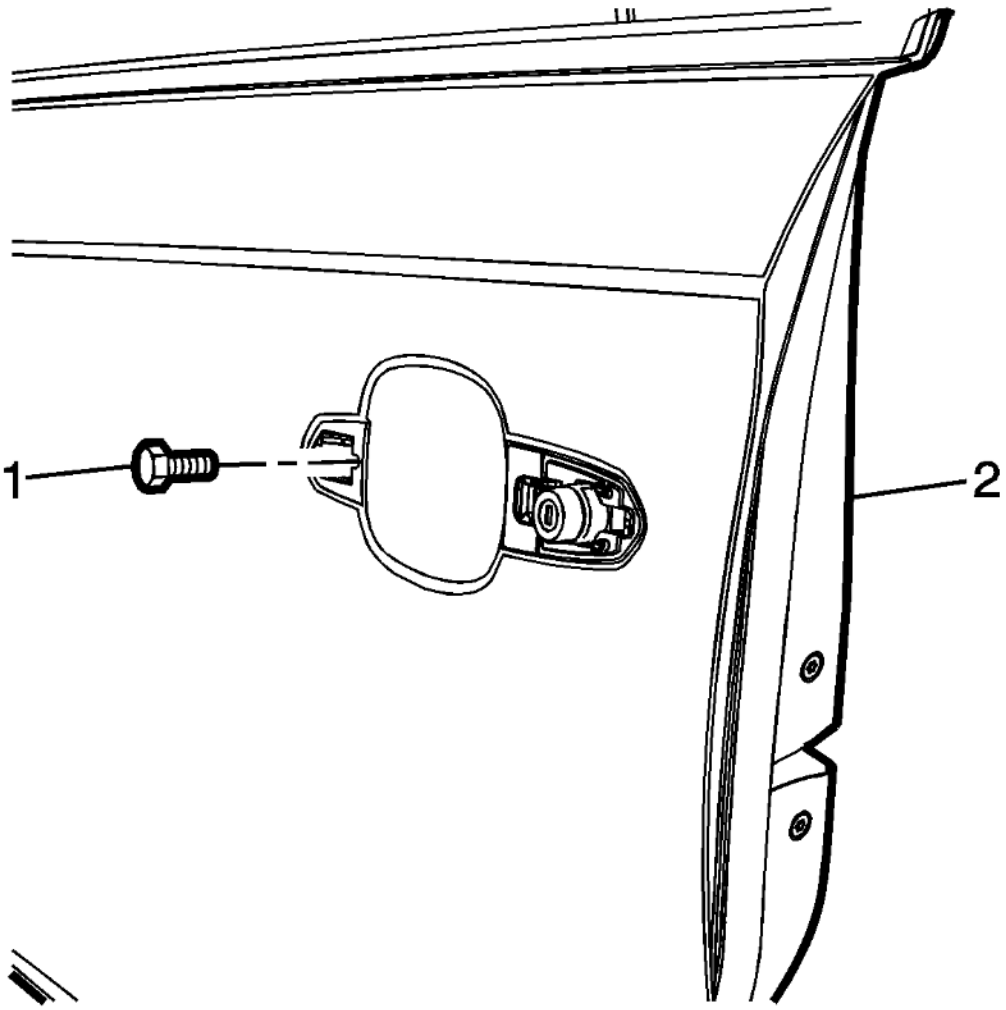


Fig. 30: Front Side Door Outside Bracket & Screws
Courtesy of GENERAL MOTORS COMPANY

2. Loosen the front side door outside handle bracket screw (1) from the door (2).

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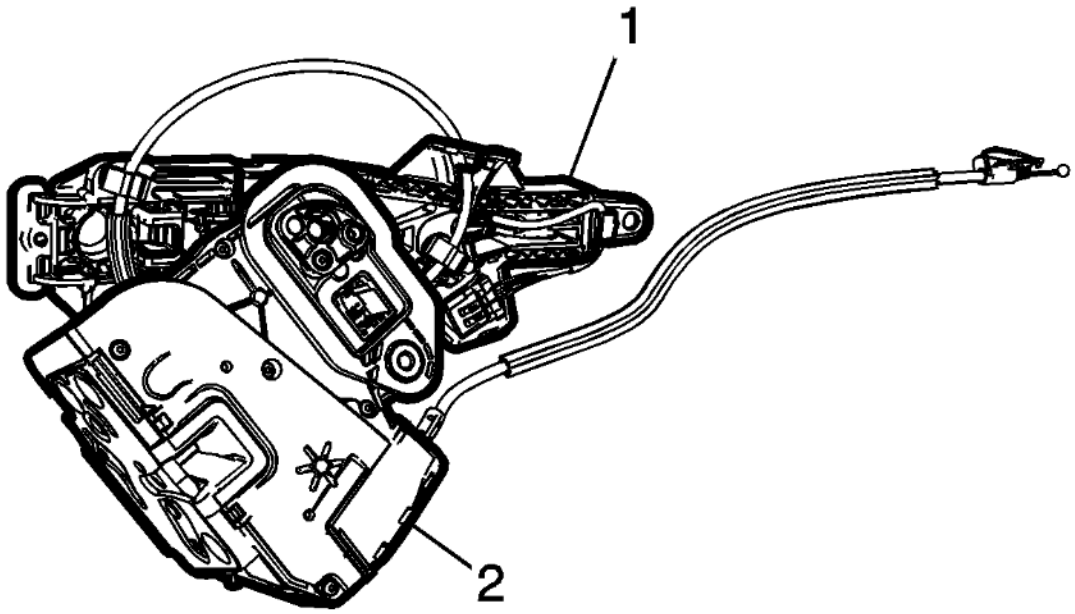


Fig. 31: Door Outside Handle Bracket & Latch
Courtesy of GENERAL MOTORS COMPANY

3. Remove the door outside handle bracket (1) and the front side door latch (2) assembly from the vehicle as one. Refer to **Front Side Door Latch Replacement**.
4. Remove the front side door lock rod from the cylinder.

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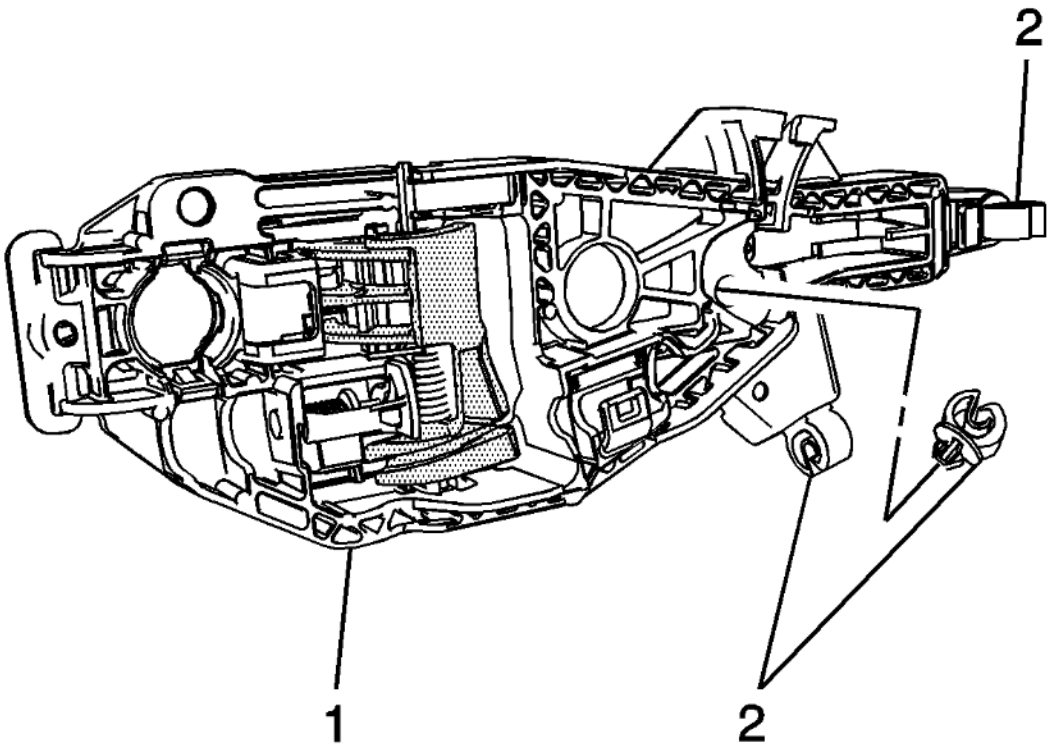


Fig. 32: Door Outside Handle Bracket & Cable Retainers
Courtesy of GENERAL MOTORS COMPANY

5. Remove the front side door outside handle bracket cable retainers (2) from the bracket (1).
6. Remove the front side door outside handle cable from the latch. Refer to **Front Side Door Outside Handle Cable Replacement**.
7. Remove the front side door lock cylinder from the handle bracket. Refer to **Front Side Door Lock Cylinder Replacement**.

Installation Procedure

1. Install the front side door lock cylinder from the handle bracket. Refer to **Front Side Door Lock Cylinder Replacement**.

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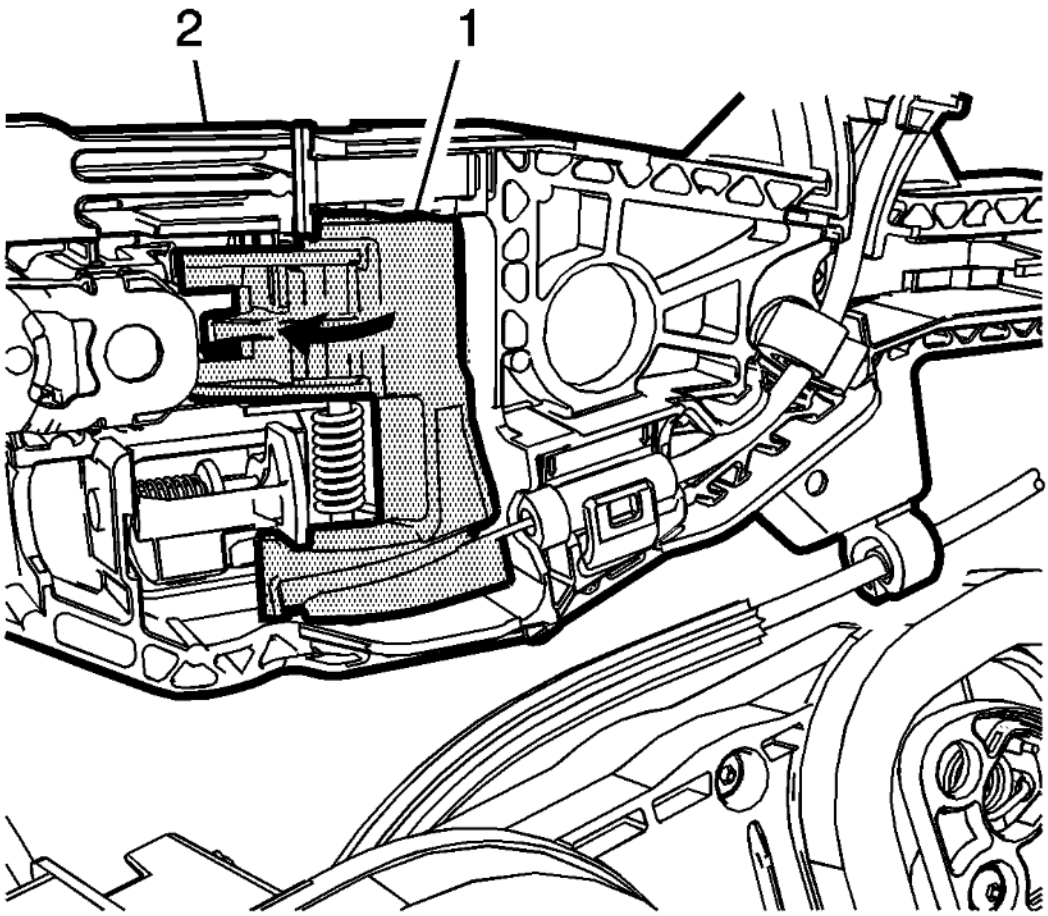


Fig. 33: Front Side Door Outside Bracket Counter Balance & Wire Harness Retainers
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Ensure that the counter balance is reset and locked in the detent of the handle bracket. The counter balance can't Not be reset after the latch and handle bracket has been reinstalled in the door.**

2. Reset the front side door outside handle bracket (2) counter balance (1) as follows:
    1. The outside door handle can Not be install until the counter balance (1) is reset.
    2. Grasp the front side door outside handle bracket (2) with one hand.
    3. From the back side of the counter balance (1), push forward on the counter balance until it locks into the detent of the handle bracket.
3. Install the front side door lock cylinder to the handle bracket. Refer to **Front Side Door Lock Cylinder Replacement**.
4. Install the front side door lock rod to the lock cylinder.

NOTE: **It may be necessary to transfer the wire harness retainers (2) from the old handle bracket.**

5. Install the front side door outside handle cable to the bracket retainers. Refer to **Front Side Door Outside**

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Handle Cable Replacement.

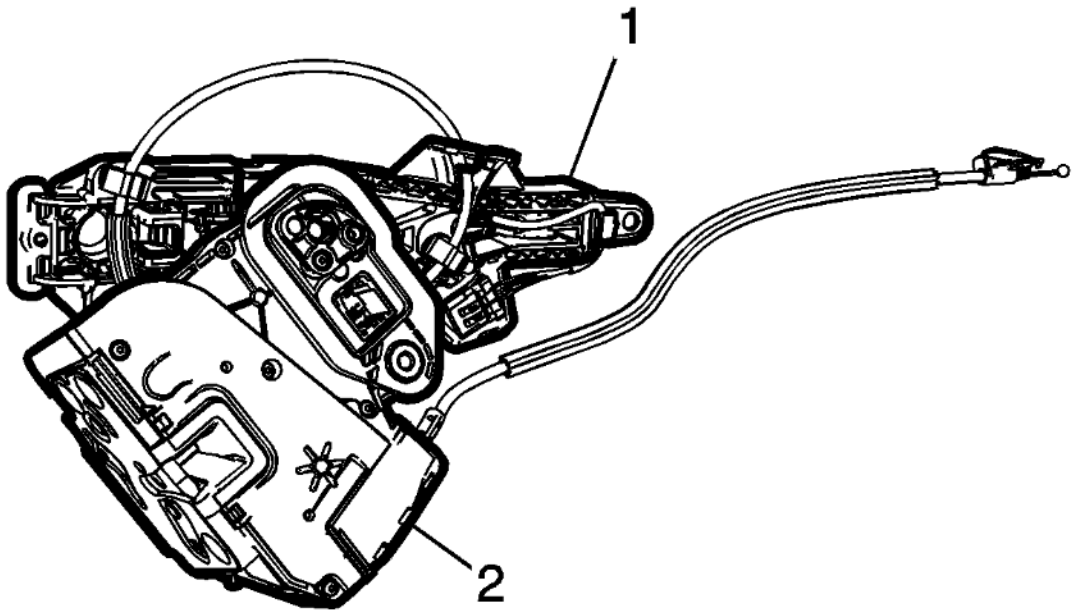


Fig. 34: Door Outside Handle Bracket & Latch
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Bracket should be slid full rearward prior to tightening bracket screw.**

6. Install the outside handle bracket (1) and the front side door latch (2) assembly to the vehicle. Refer to Front Side Door Latch Replacement.

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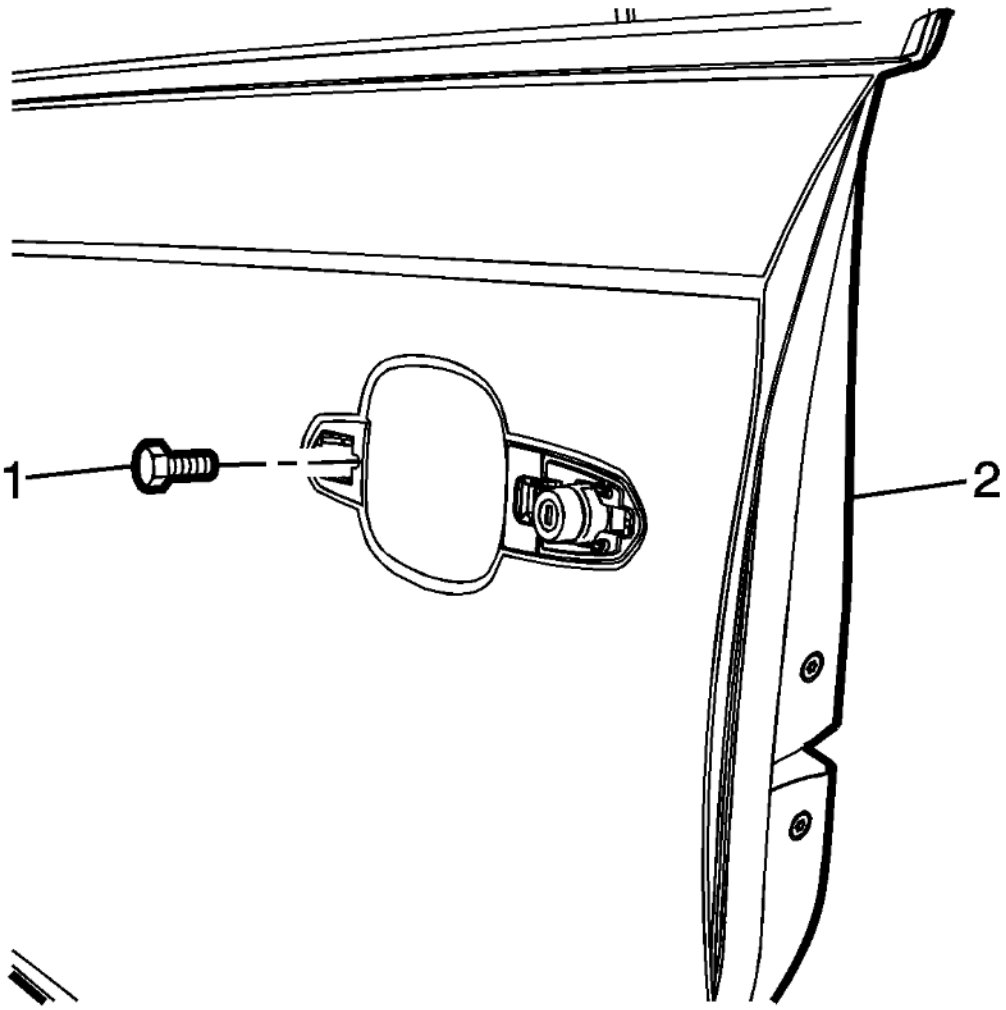


Fig. 35: Front Side Door Outside Bracket & Screws
Courtesy of GENERAL MOTORS COMPANY

CAUTION: **Refer to Fastener Caution .**

7. Install the front side door outside handle bracket screw (1) to the door (2) and tighten to 3.5 (31 lb in).
8. Install the front side door outside handle. Refer to **Front Side Door Outside Handle Replacement**.
9. Ensure that the door lock system operates properly before installing the trim.

FRONT SIDE DOOR OUTSIDE HANDLE CABLE REPLACEMENT

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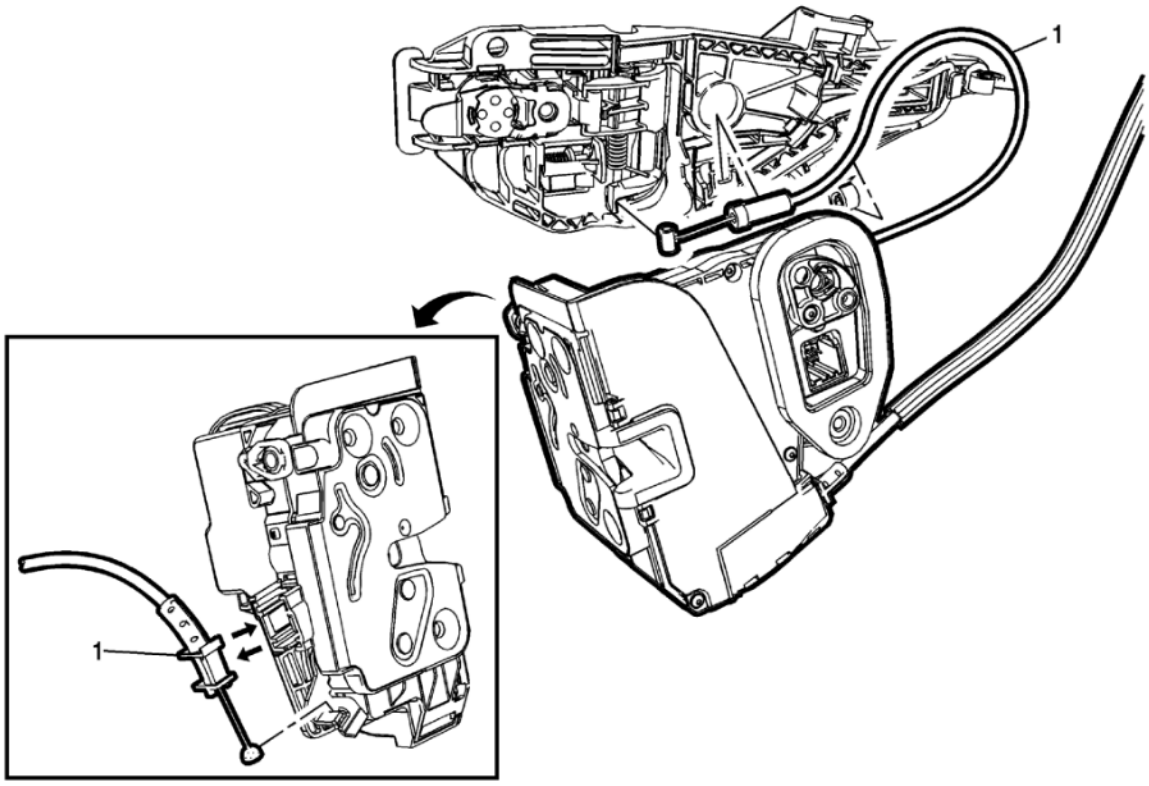


Fig. 36: Side Door Outside Handle Cable
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front side door latch and handle bracket assembly from the door. Refer to **Front Side Door Latch Replacement**.	
1	Front Side Door Outside Handle Cable **Procedure** 1. Remove the front side door outside handle cable from the retainers. 2. Release the cable from the back of the latch assembly. 3. Remove the front side door outside handle cable from the front side door outside handle bracket. **NOTE:** **Ensure that the door lock system operates properly before installing the trim.**

REAR SIDE DOOR OUTSIDE HANDLE BRACKET REPLACEMENT

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Removal Procedure

1. Remove the rear side door outside handle. Refer to **Rear Side Door Outside Handle Replacement**.

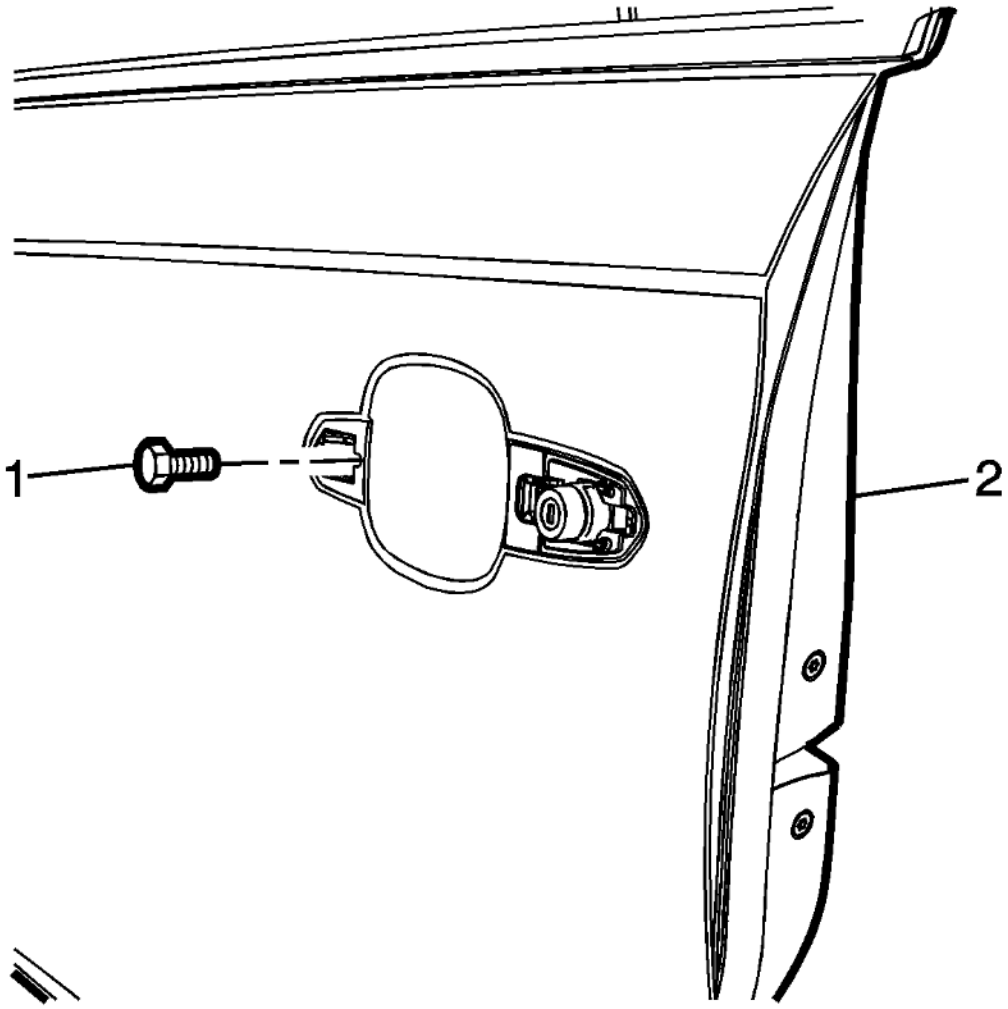


Fig. 37: Front Side Door Outside Bracket & Screws
Courtesy of GENERAL MOTORS COMPANY

2. Remove the screw (1) that retains the rear side door outside bracket to the door (2).

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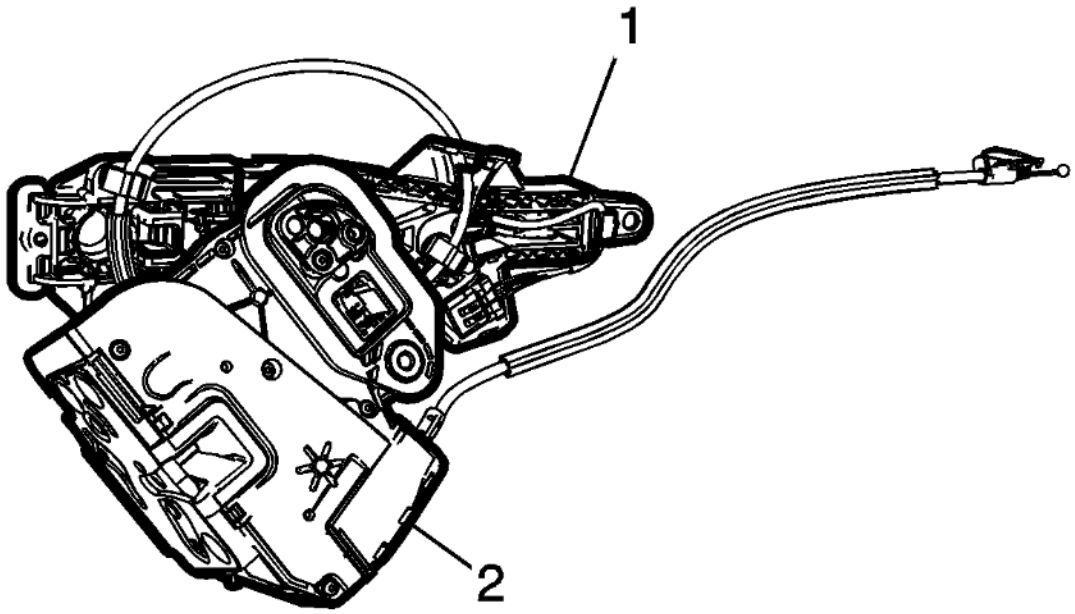


Fig. 38: Door Outside Handle Bracket & Latch
Courtesy of GENERAL MOTORS COMPANY

3. Remove the outside handle bracket (1) and the rear side door latch (2) assembly from the vehicle as one. Refer to **Rear Side Door Latch Replacement**.

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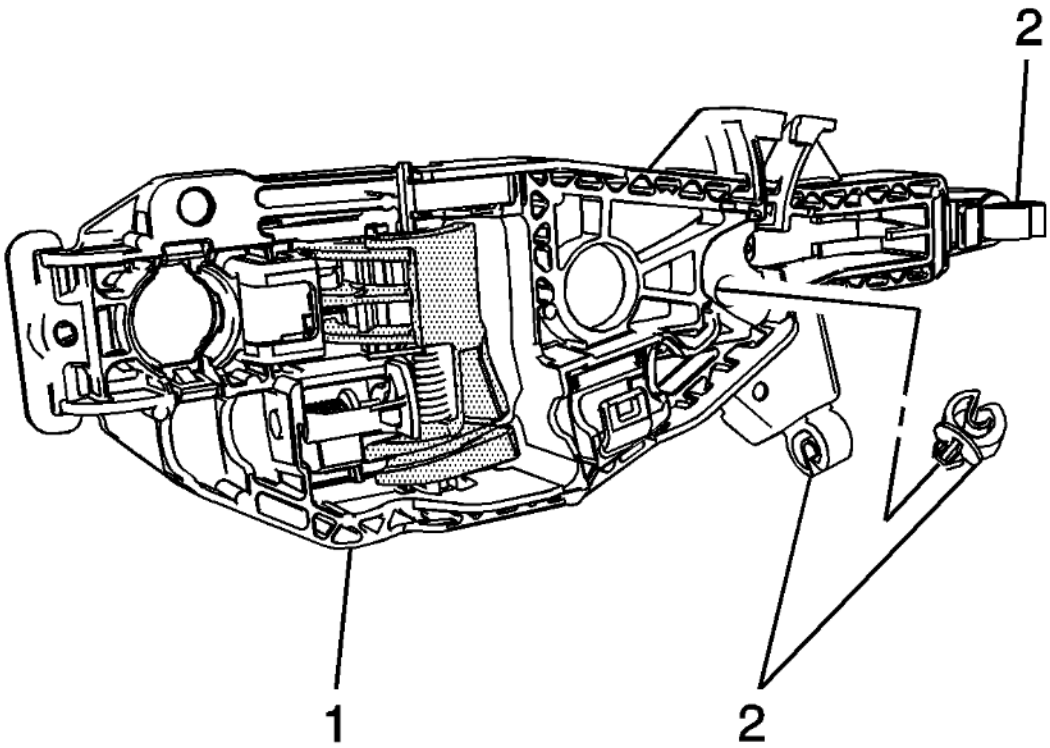


Fig. 39: Door Outside Handle Bracket & Cable Retainers
Courtesy of GENERAL MOTORS COMPANY

4. Remove the rear side door outside handle cable from the bracket (1) retainers (2).
5. Remove the rear side door outside handle cable. Refer to **Rear Side Door Outside Handle Cable Replacement**.
6. Remove the lock cylinder blank from the bracket.

Installation Procedure

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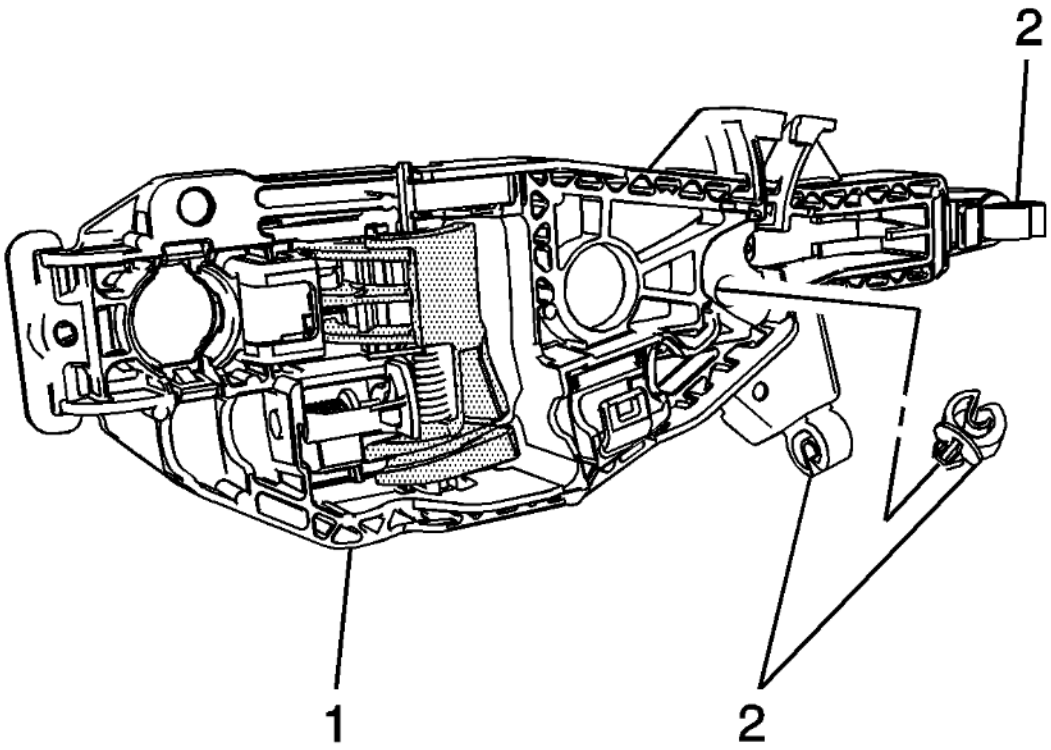


Fig. 40: Door Outside Handle Bracket & Cable Retainers
Courtesy of GENERAL MOTORS COMPANY

1. Transfer the rear side door outside handle bracket cable retainers (2) and lock cylinder blank to the new bracket.
2. Install the rear side door outside handle cable. Refer to **Rear Side Door Outside Handle Cable Replacement**.

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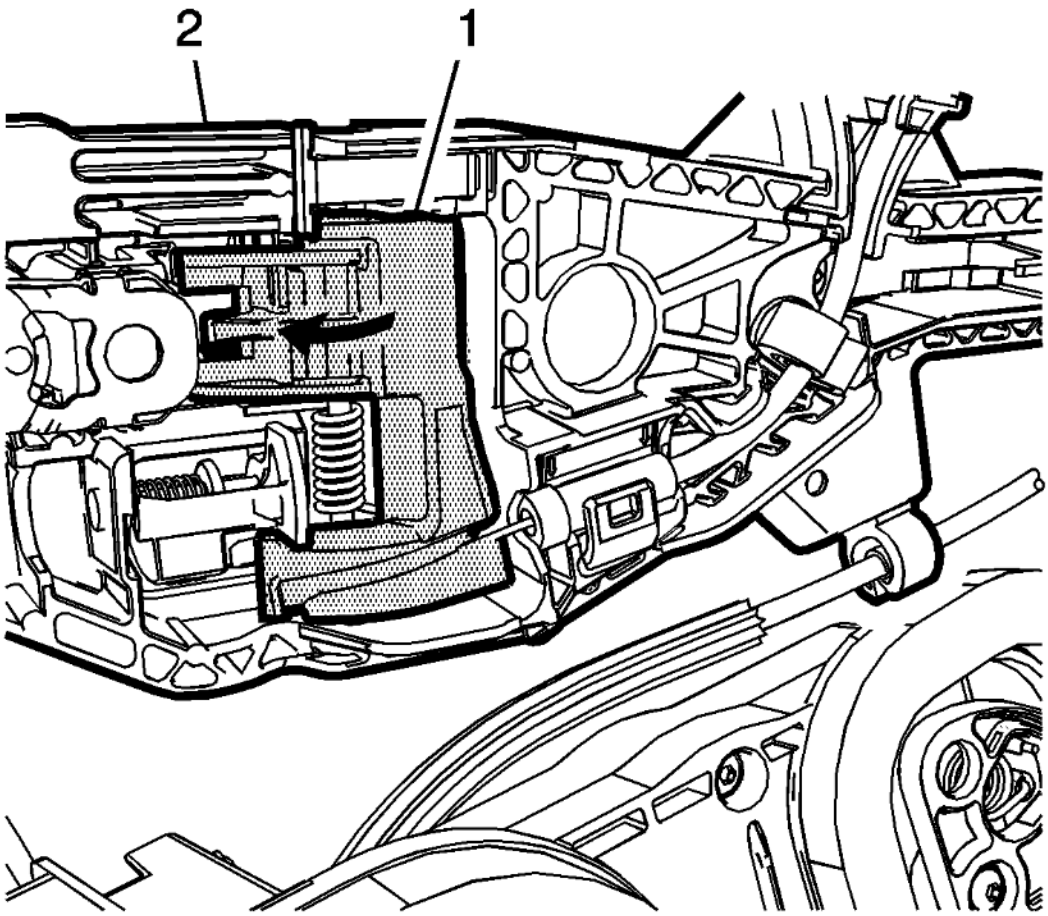


Fig. 41: Front Side Door Outside Bracket Counter Balance & Wire Harness Retainers
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Ensure that the counter balance is reset and locked in the detent of the handle bracket. The counter balance can't Not be reset after the latch and handle bracket has been reinstalled in the door.**

3. Set the rear side door outside handle bracket counter balance (1) as follows:
    1. The outside door handle can Not be install until the counter balance (1) is reset.
    2. Grasp the rear side door outside handle bracket (2) with one hand.
    3. From the back side of the counter balance (1), push forward until the counter balance locks into the detent of the handle bracket.

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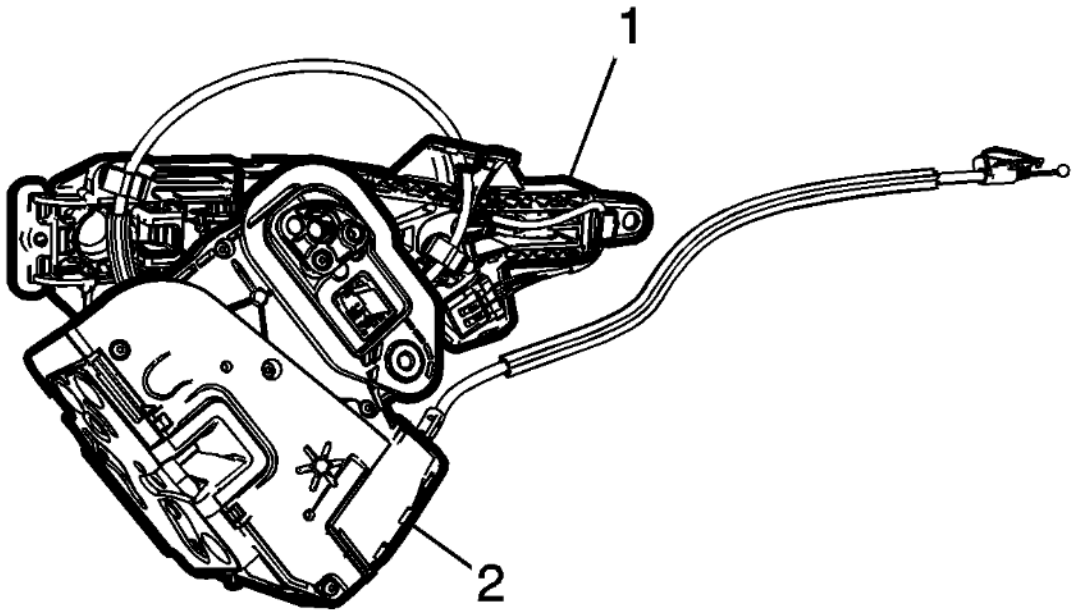


Fig. 42: Door Outside Handle Bracket & Latch
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Bracket should be slid full rearward prior to tightening bracket screw.**

4. Install the outside handle bracket (1) and the rear side door latch (2) assembly in the vehicle as one. Refer to **Rear Side Door Latch Replacement**.

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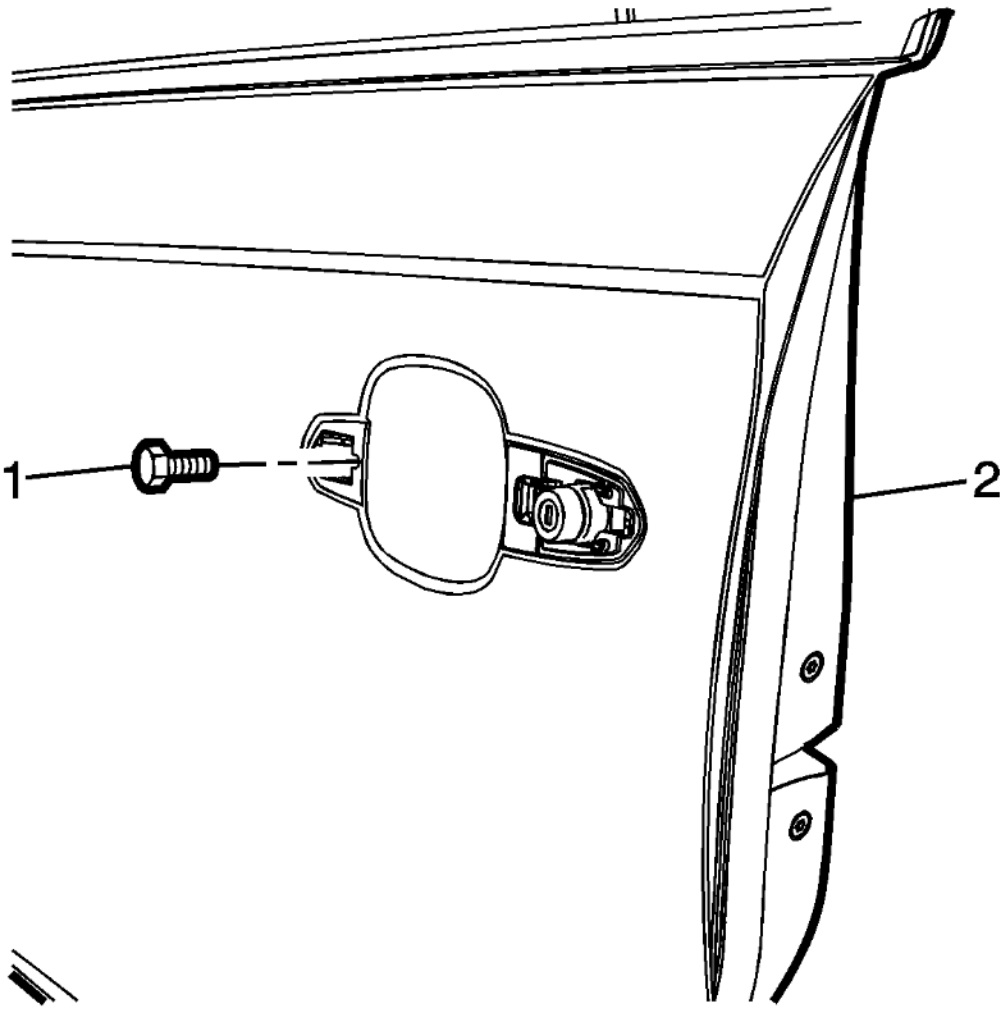


Fig. 43: Front Side Door Outside Bracket & Screws
Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to Fastener Caution .

5. Install the rear side door outside handle bracket screw to the door (2) and tighten to 3.5 N.m (31 lb in).
6. Install the rear side door outside handle. Refer to **Rear Side Door Outside Handle Replacement**.
7. Ensure that the door lock system operates properly before installing the trim.

REAR SIDE DOOR INSIDE HANDLE REPLACEMENT

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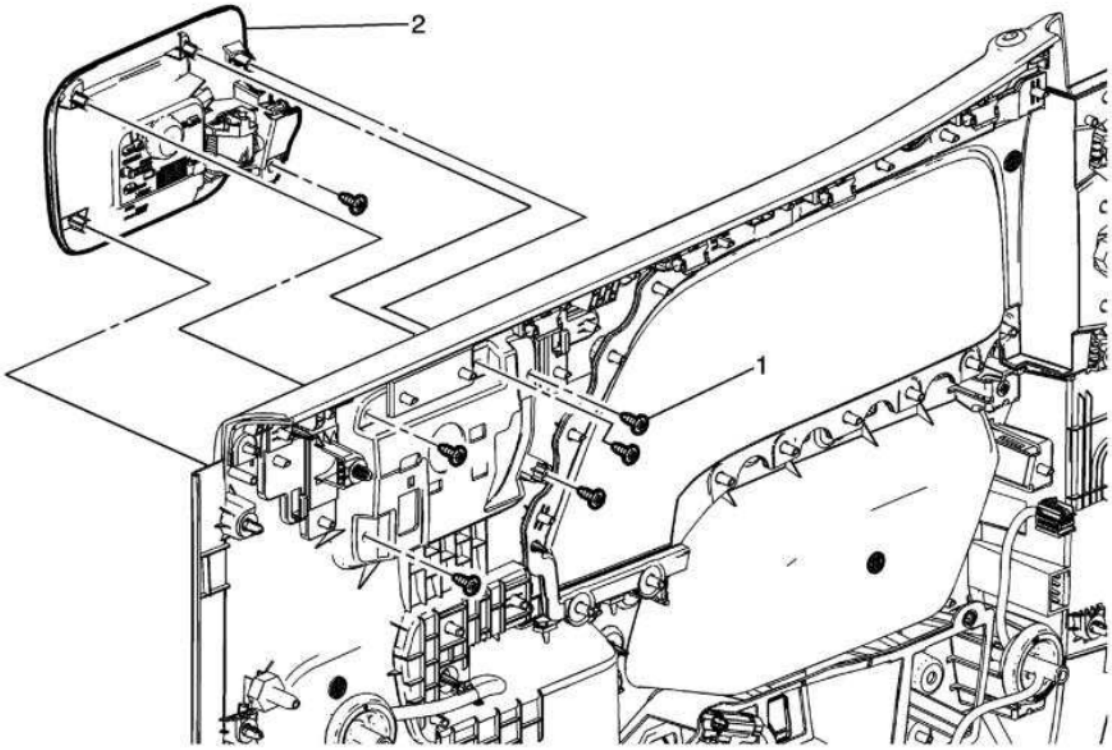


Fig. 44: Rear Side Door Inside Handle
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the rear side door trim. Refer to **Rear Side Door Trim Panel Replacement (Crew Cab, Extended Cab)** .	
1	Rear Side Door Inside Handle Fastener (Qty: 6) **CAUTION:** **Refer to Fastener Caution .** **NOTE:** **The six screws are located on the backside of the trim panel.**
2	Rear Side Door Inside Handle Assembly **Procedure** 1. Remove the handle and bezel as an assembly from the door trim panel. 2. Transfer parts as necessary.

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REAR SIDE DOOR OUTSIDE HANDLE REPLACEMENT

Special Tools

BO 51363 Door Handle Spring Retainer

For equivalent regional tools, refer to **Special Tools** .

Removal Procedure

NOTE: **When removing the door lock cylinder screw Do Not go past the hard stop.**

1. Loosen screw for rear side door lock cylinder cover. Refer to **Rear Side Door Lock Cylinder Opening Cover Replacement**.

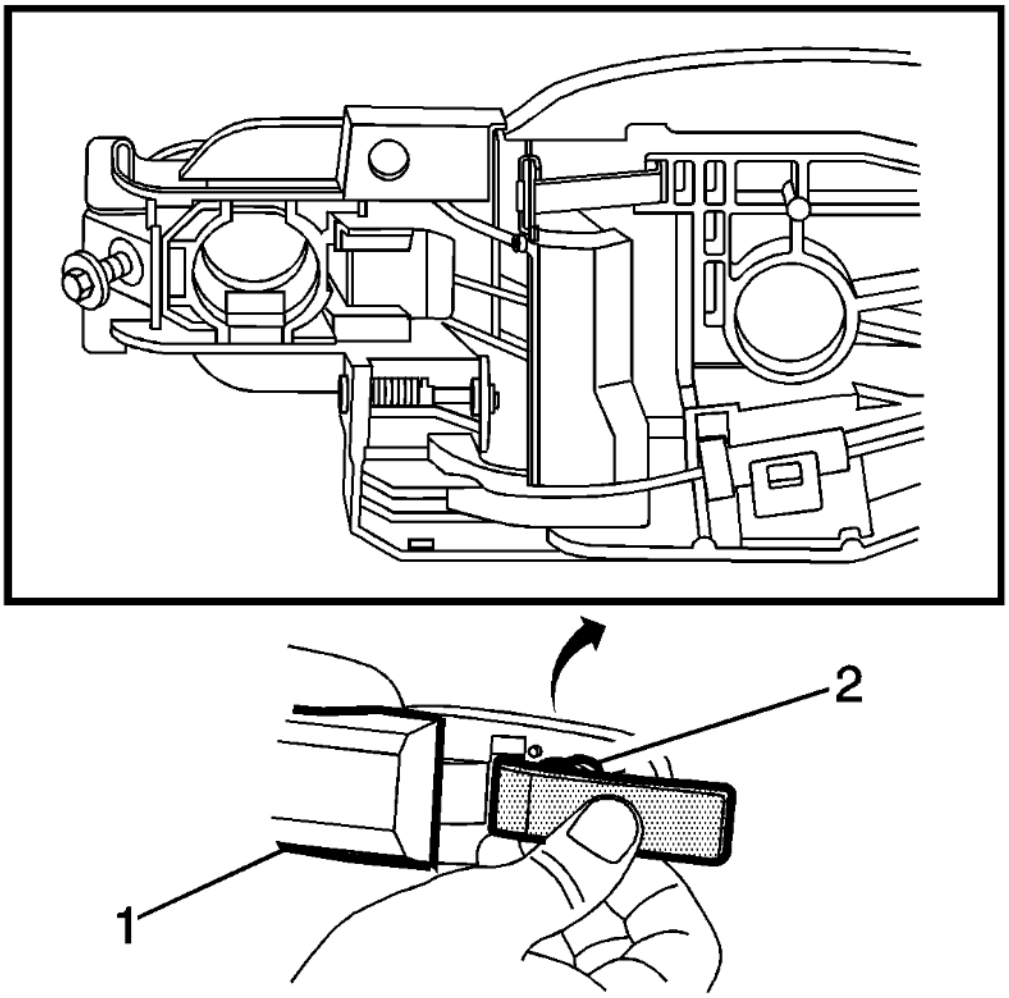


Fig. 45: Front Side Door Outside Handle And Door Handle Spring Retainer
Courtesy of GENERAL MOTORS COMPANY

2. Pull rear side door outside handle (1) outward and insert **BO-51363** Door Handle Spring Retainer over lock cylinder (2) and under door handle (1).
3. Press rear part of **BO-51363** Door Handle Spring Retainer towards door (3). The rear side door outside handle (1) should now be held in the extended position.

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4. Release pressure on **BO-51363** Door Handle Spring Retainer which allows rear side door outside handle (1) to slightly retract.

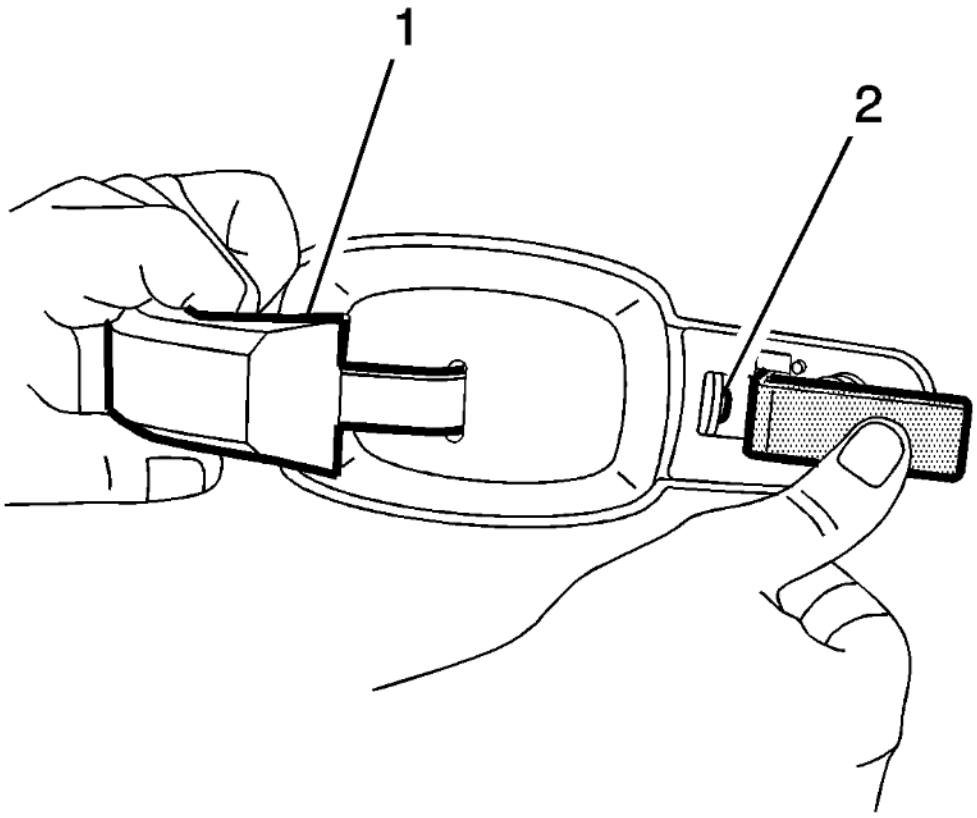


Fig. 46: Front Side Door Outside Handle & Mechanism
Courtesy of GENERAL MOTORS COMPANY

5. Slide rear side door outside handle (1) rearward and then pull outward releasing outside handle from rear side door handle mechanism (2).

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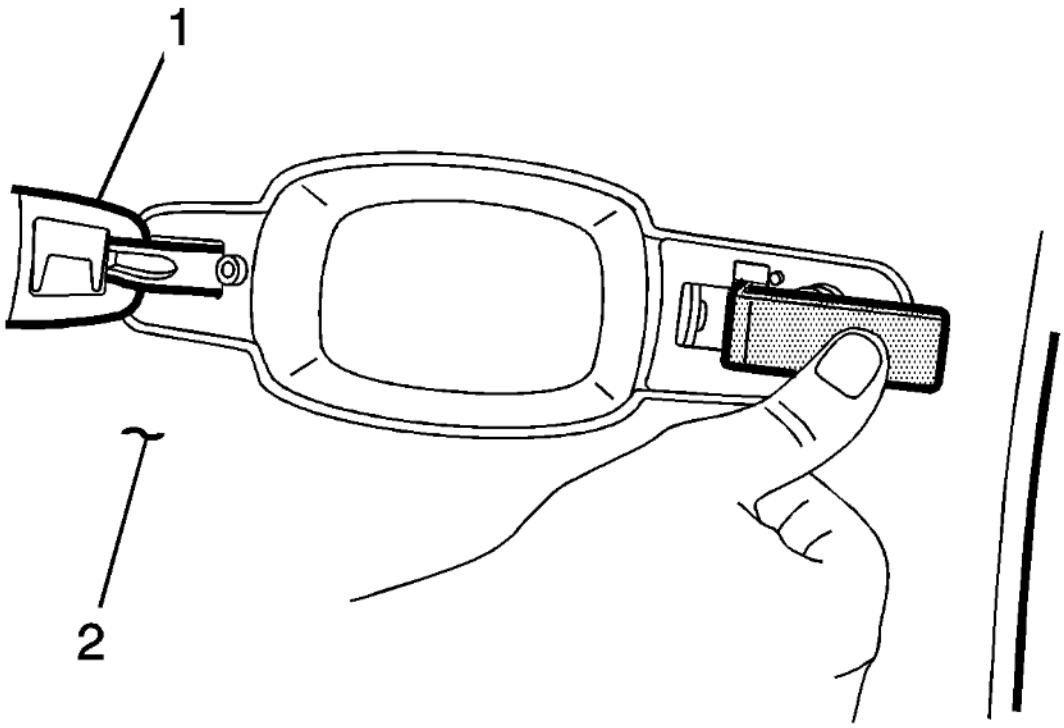


Fig. 47: Front Side Door Outside Handle At 90Degrees
Courtesy of GENERAL MOTORS COMPANY

6. Pull rear side door outside handle (1) forward until handle is approximately at a 90 degree angle with door (2).

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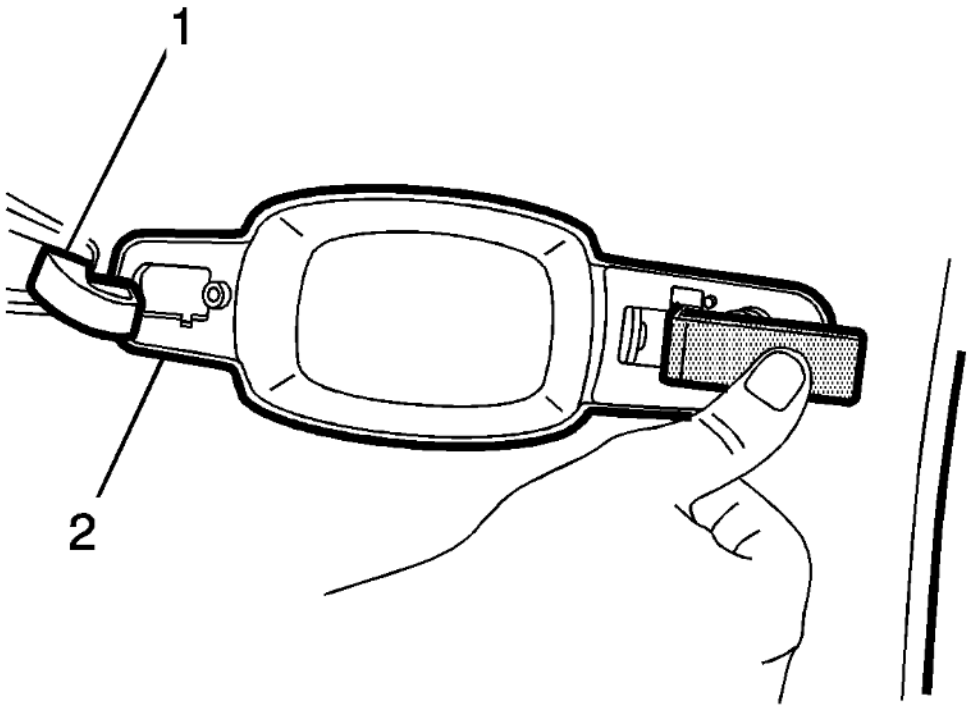


Fig. 48: Removing Front Side Door Outside Handle
Courtesy of GENERAL MOTORS COMPANY

7. Gentle pull rear side door outside handle (1) outward to remove from door (2).

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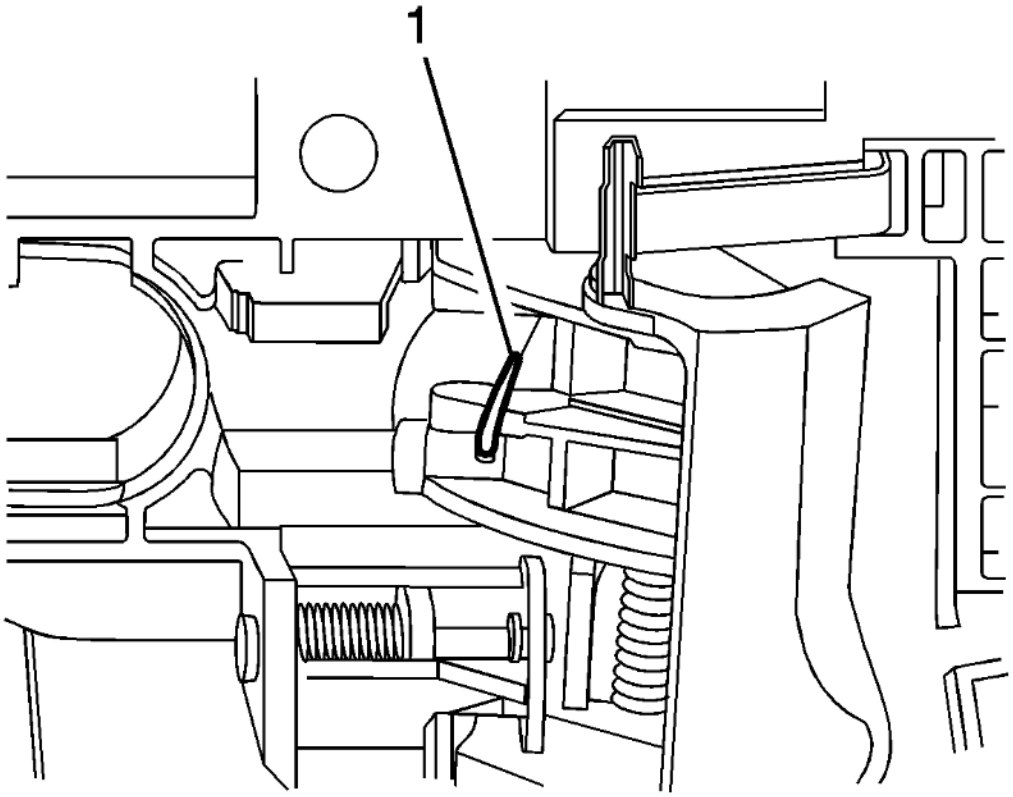


Fig. 49: Hooked Pick Tool And Door Handle Mechanism
Courtesy of GENERAL MOTORS COMPANY

NOTE:

- **It is NOT necessary to remove the door panel if the BO-51363 Door Handle Spring Retainer slips off of the door handle mechanism.**
- **DO NOT hook outer parts of the door handle mechanism. The hooked pick tool or equivalent tool could slip off and damage the rear door.**

8. If **BO-51363** Door Handle Spring Retainer slips off of door handle mechanism (1) during the repair, use a hooked pick tool or equivalent to access the handle mechanism. The hook tool can be inserted in the center area of the handle bracket to reset the mechanism.

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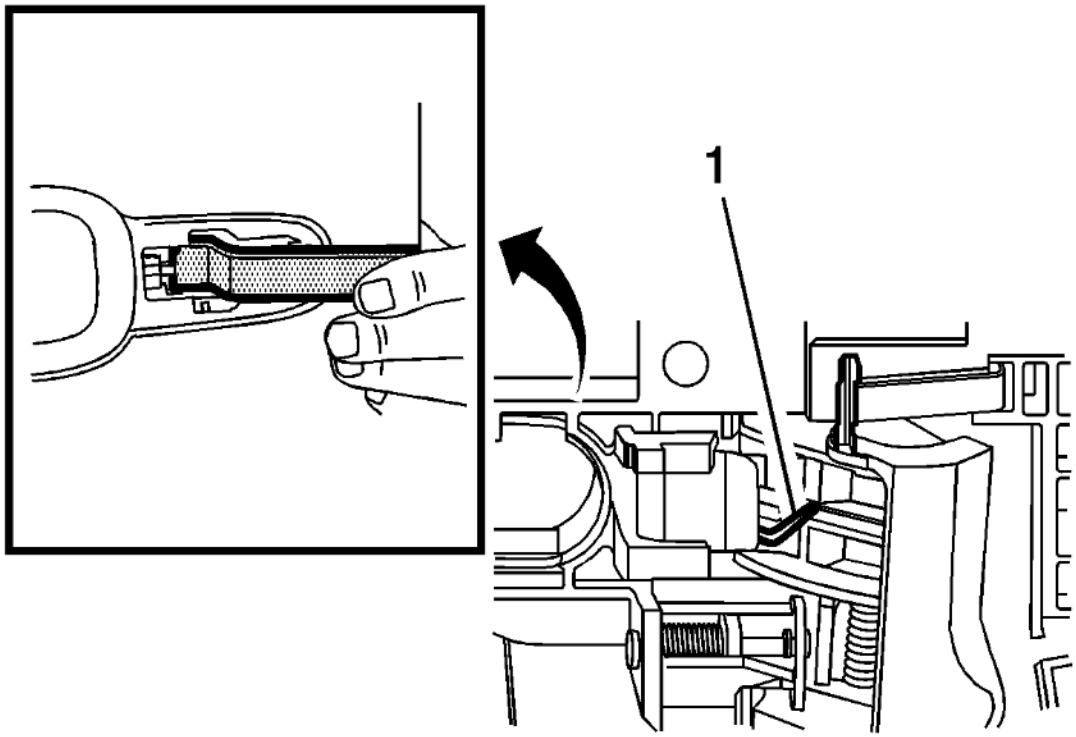


Fig. 50: Door Handle Spring Retainer And Hooked Pick Tool
Courtesy of GENERAL MOTORS COMPANY

9. Pull door handle mechanism (1) outward to open position and reinstall **BO-51363** Door Handle Spring Retainer into door handle mechanism (1). The hooked pick tool or equivalent tool can then be removed.

Installation Procedure

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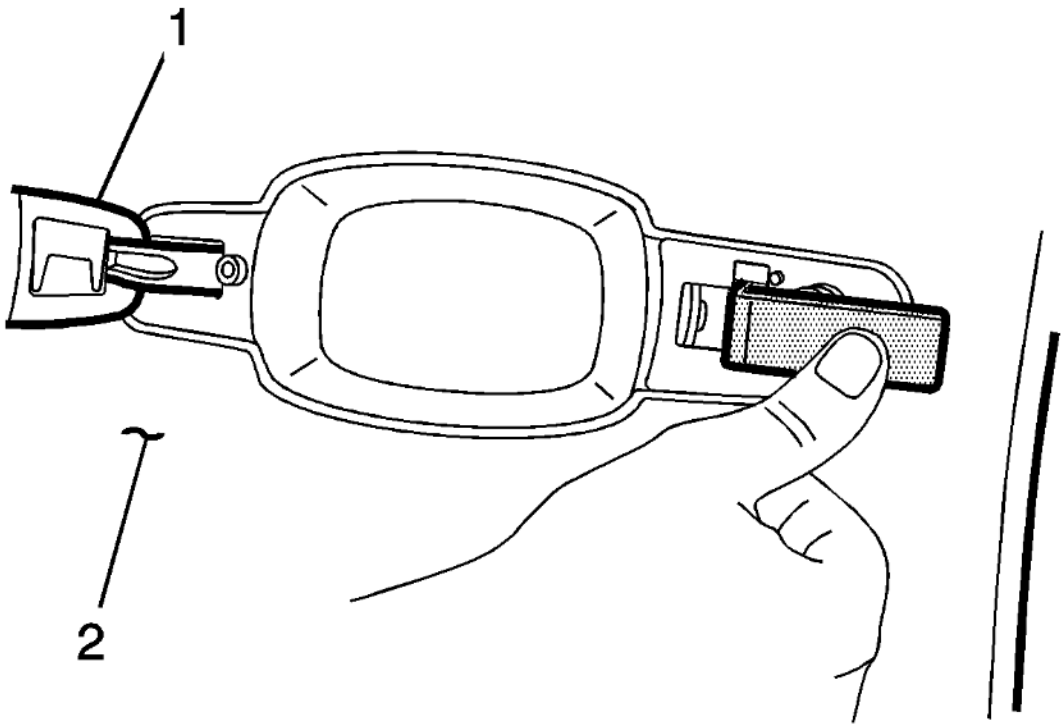


Fig. 51: Front Side Door Outside Handle At 90Degrees
Courtesy of GENERAL MOTORS COMPANY

1. While holding **BO-51363** Door Handle Spring Retainer in place, install rear side door outside handle (1) into door (2) at approximately a 90 degree angle to door (2).

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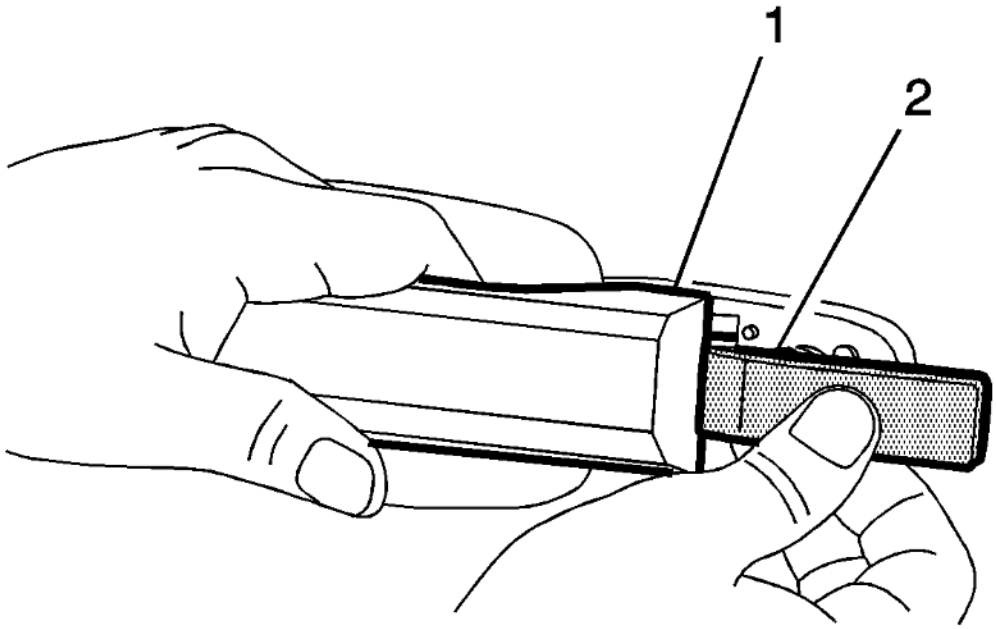


Fig. 52: Front Side Door Outside Handle & Mechanism
Courtesy of GENERAL MOTORS COMPANY

2. Rotate rear side door outside handle (1) rearward into rear side door handle mechanism (2).

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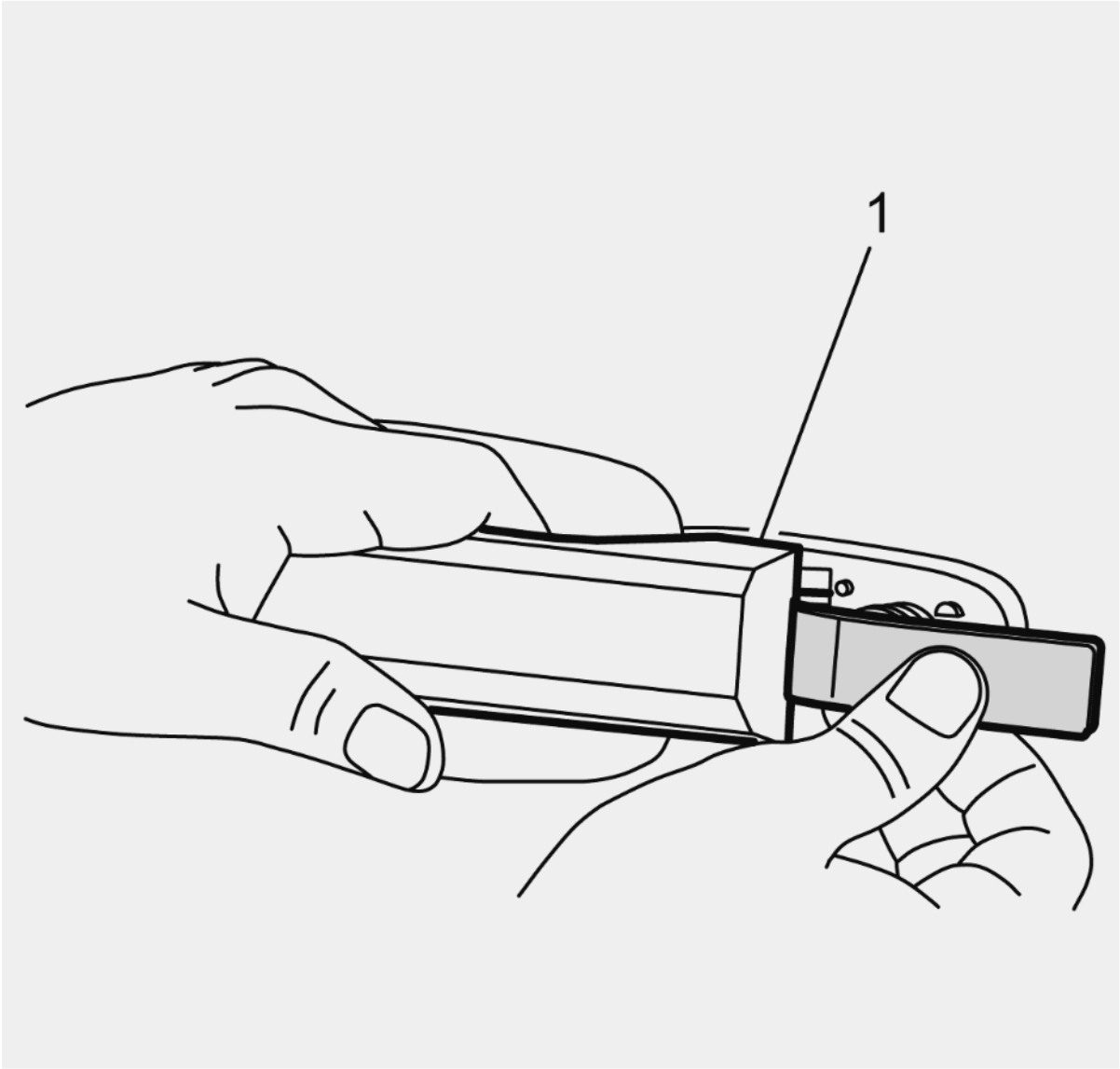


Fig. 53: Front Side Door Outside Handle
Courtesy of GENERAL MOTORS COMPANY

3. Slide rear side door outside handle (1) forward to lock into position.

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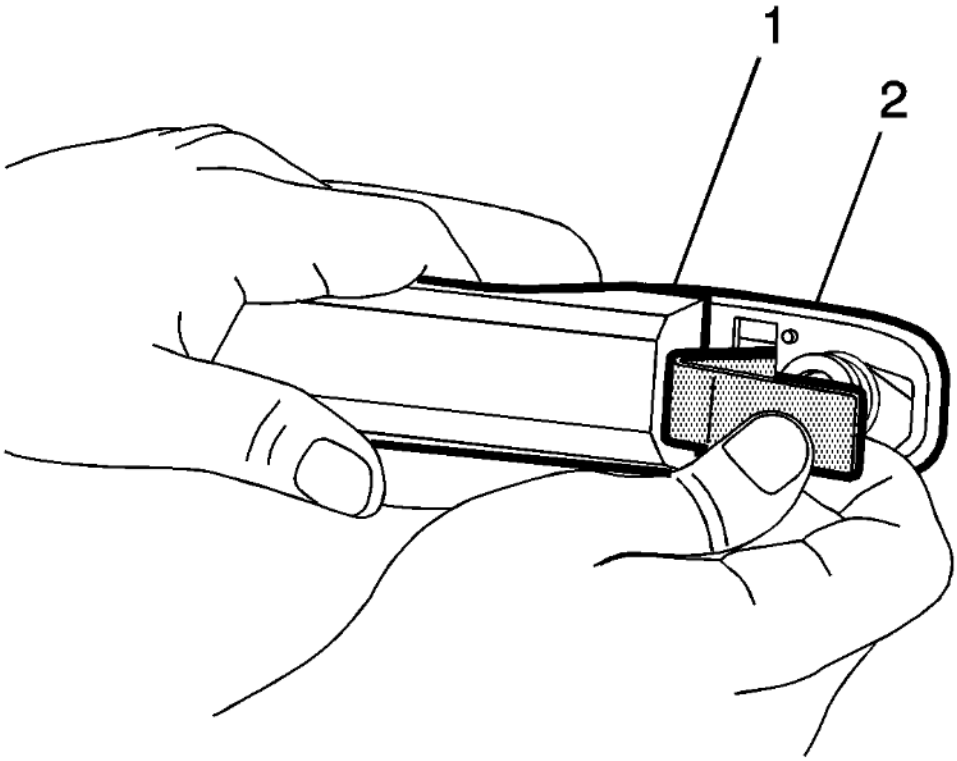


Fig. 54: Front Side Door Outside Handle & Spring Retainer
Courtesy of GENERAL MOTORS COMPANY

4. Release pressure on **BO-51363** Door Handle Spring Retainer. Pull rear side door outside handle (1) outward and remove the **BO-51363** Door Handle Spring Retainer from door (2) .

NOTE: **When installing the door lock cylinder screw Do Not go past the hard stop.**

5. Install screw to rear side door lock cylinder cover. Refer to **Rear Side Door Lock Cylinder Opening Cover Replacement**.
6. Ensure that door lock system operates properly.

REAR SIDE DOOR OUTSIDE HANDLE CABLE REPLACEMENT

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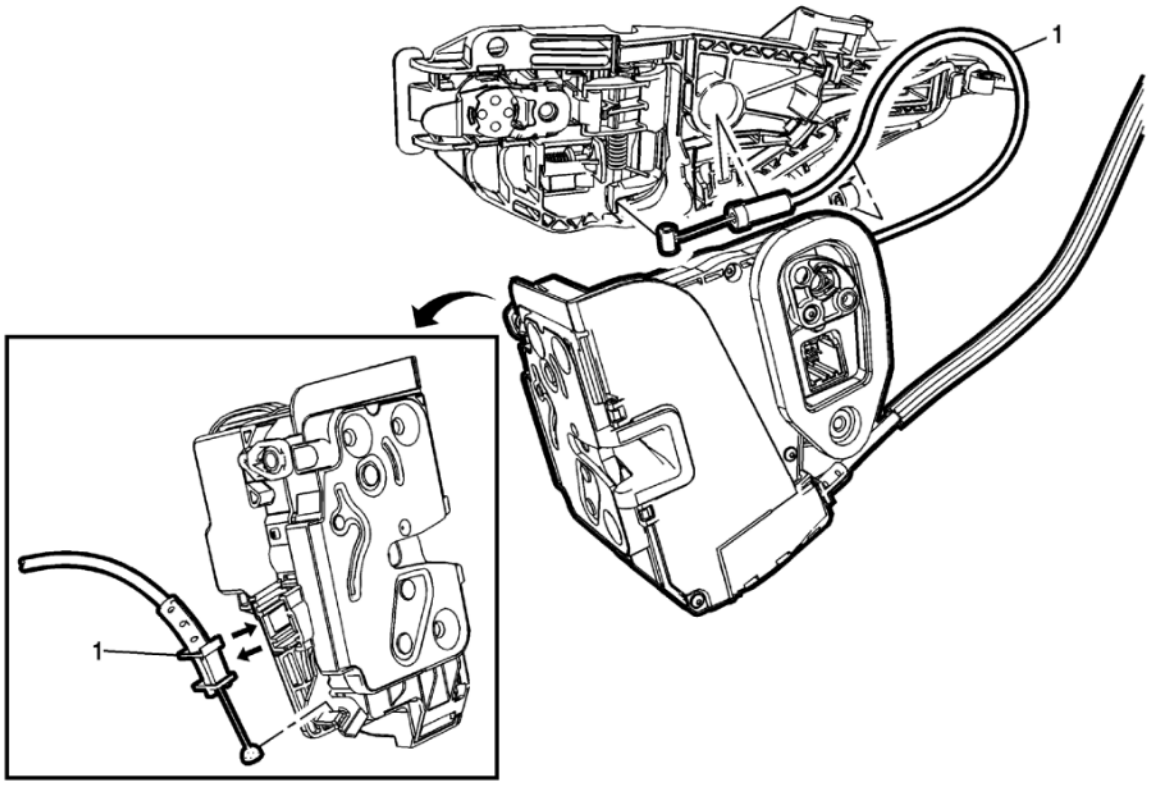


Fig. 55: Side Door Outside Handle Cable
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the rear side door latch and handle bracket assembly from the door. Refer to **Rear Side Door Latch Replacement**.	
1	Rear Side Door Outside Handle Cable **Procedure** 1. Remove the rear side door outside handle cable from the retainers. Do not remove the inside door handle cable from the latch. 2. Release the cable from the back of the latch assembly. 3. Unhook the cable from the handle bracket. **NOTE:** **Ensure that the door lock system operates properly before installing the trim.**

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FRONT SIDE DOOR LATCH REPLACEMENT

Removal Procedure

1. Remove the front side door trim. Refer to **Front Side Door Trim Replacement (With A31)** **Front Side Door Trim Replacement (Without A31)** .
2. Remove the front side door water deflector.

NOTE: **Disconnect the window from the window regulator, place the window in the full up position, use masking tape to tape the window to the upper door frame.**

3. Position the front side door window regulator rear rail to access and remove the door latch and handle bracket assembly. Refer to **Front Side Door Window Regulator Replacement (Power)** **Front Side Door Window Regulator Replacement (Manual)** .
4. Remove the front side door window rear channel. Refer to **Front Side Door Window Rear Channel Retainer Replacement (Crew Cab, Extended Cab)** **Front Side Door Window Rear Channel Retainer Replacement (Regular Cab)** .
5. Remove the front side door outside handle. Refer to **Front Side Door Outside Handle Replacement**.
6. Remove the front side door outside handle bracket screw. Refer to **Front Side Door Outside Handle Bracket Replacement**.
7. Remove the front side door locking rod knob. Refer to **Front Side Door Locking Rod Knob Replacement (Crew Cab, Extended Cab)** **Front Side Door Locking Rod Knob Replacement (Regular Cab)**.
8. Disconnect the front side door latch electrical connector.

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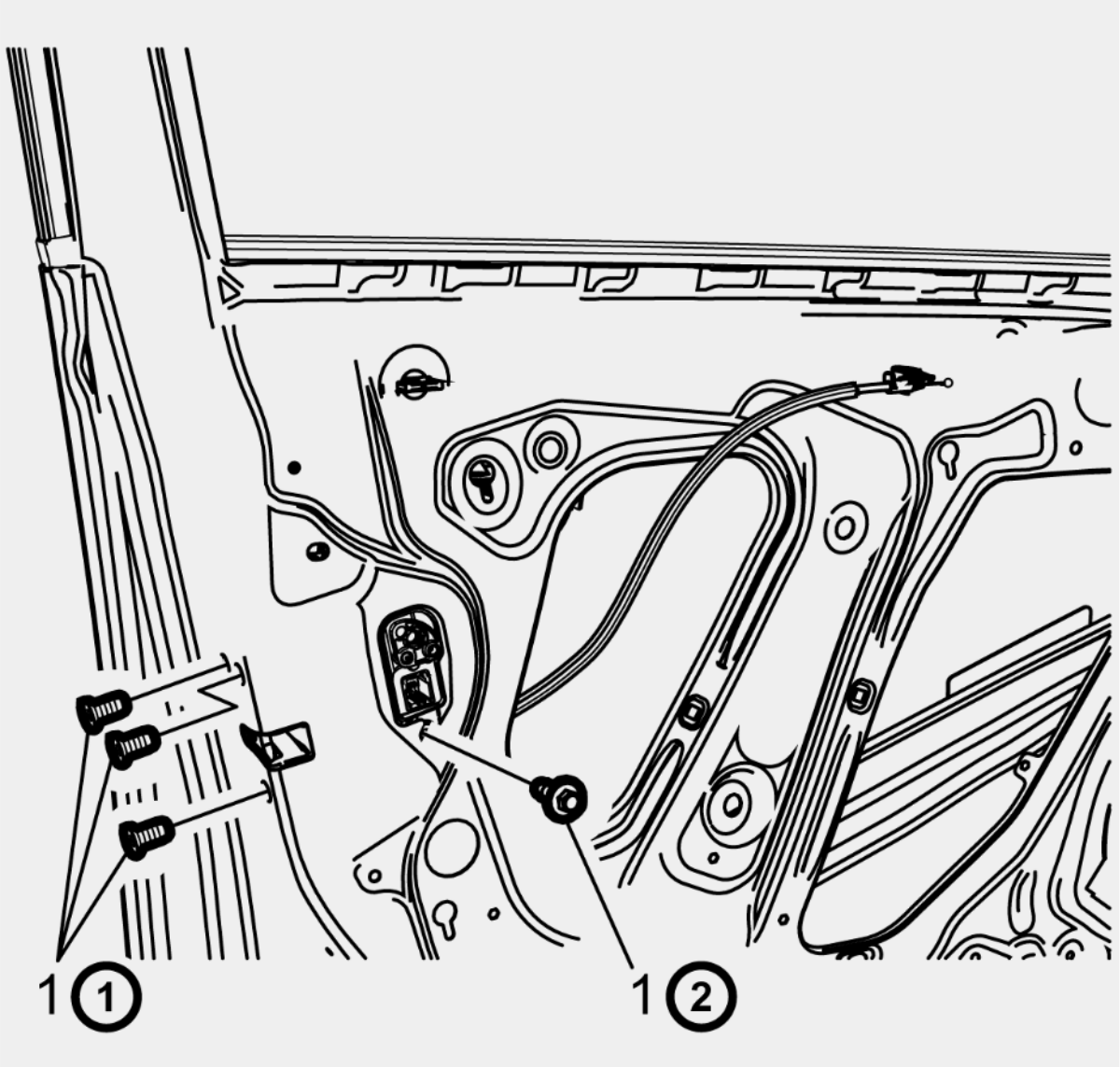


Fig. 56: Side Door Latch & Bolts
Courtesy of GENERAL MOTORS COMPANY

9. Remove the four bolts (1) from the front side door latch.

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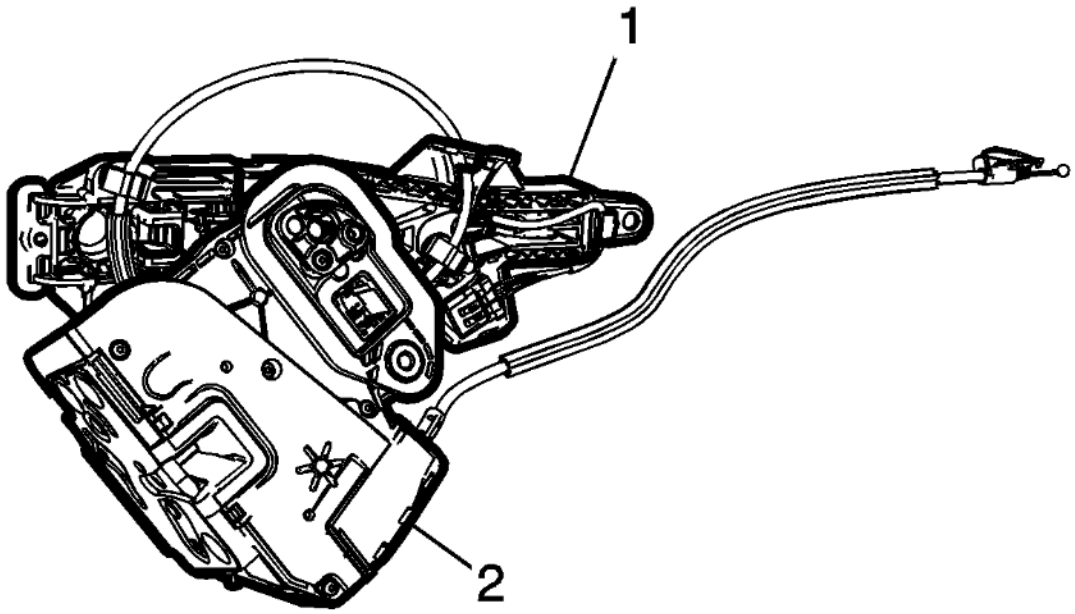


Fig. 57: Door Outside Handle Bracket & Latch
Courtesy of GENERAL MOTORS COMPANY

10. Remove the outside handle bracket (1) and the front side door latch (2) as assembly from the vehicle.

Installation Procedure

1. Transfer the front side door inside handle cable. Refer to **Front Side Door Inside Handle Cable Replacement**.
2. Transfer the front side door outside handle cable. Refer to **Front Side Door Outside Handle Cable Replacement**.
3. Transfer the front side door lock cylinder rod.

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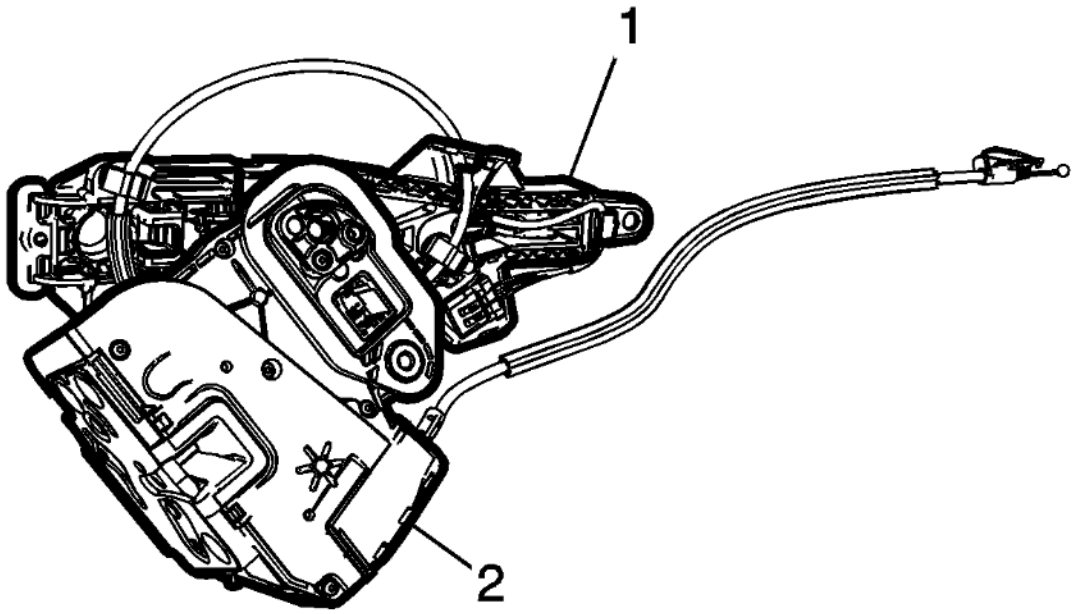


Fig. 58: Door Outside Handle Bracket & Latch
Courtesy of GENERAL MOTORS COMPANY

4. Install the outside handle bracket (1) and the front side door latch (2) assembly to the vehicle.

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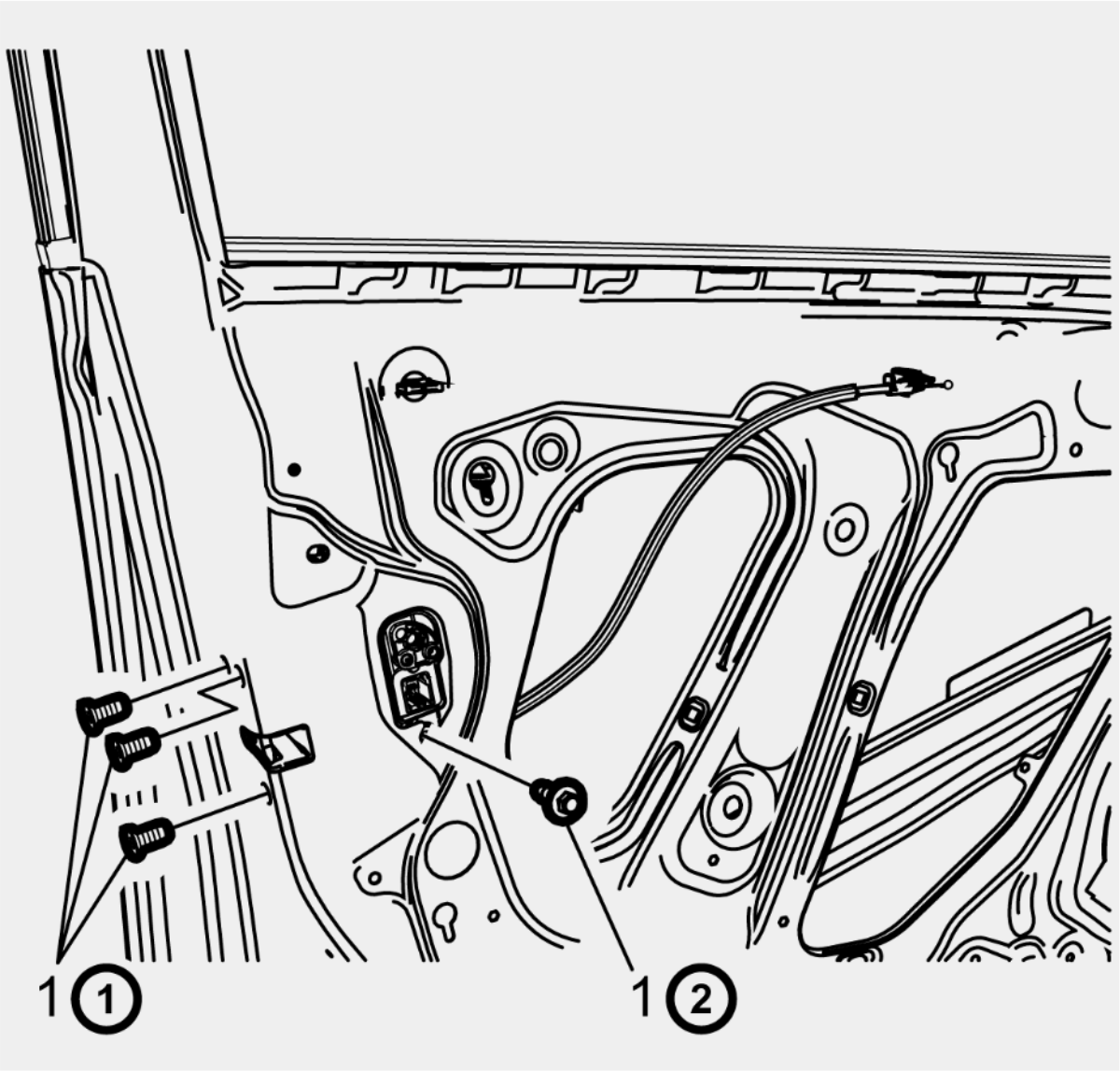


Fig. 59: Side Door Latch & Bolts
Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to Fastener Caution .

NOTE: Install and torque the four latch bolts in proper sequence to prevent damage to the latch mechanism.

5. Install the four bolts (1) to the front side door latch and tighten to 11 N.m (97 lb in).
6. Install the front side door outside handle bracket screw. Refer to **Front Side Door Outside Handle Bracket Replacement**.
7. Install the front side door outside handle. Refer to **Front Side Door Outside Handle Replacement**.
8. Install the front side door window rear channel. Refer to **Front Side Door Window Rear Channel Retainer Replacement (Crew Cab, Extended Cab)** **Front Side Door Window Rear Channel Retainer Replacement (Regular Cab)** .
9. Install the front side door locking rod knob. Refer to **Front Side Door Locking Rod Knob Replacement (Crew Cab, Extended Cab)Front Side Door Locking Rod Knob Replacement (Regular Cab)**.
10. Connect the electrical connector to the latch.

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11. Position the window to the window regulator and reinstall the rear rail to the door. Refer to **Front Side Door Window Regulator Replacement (Power)** **Front Side Door Window Regulator Replacement (Manual)** .
12. Remove the tape from the front side door window and frame.
13. Inspect the door latch and outside handle for proper operation before install the door trim.
14. Install the front side door water deflector.
15. Install the front side door trim. Refer to **Front Side Door Trim Replacement (With A31)** **Front Side Door Trim Replacement (Without A31)** .

REAR SIDE DOOR LATCH REPLACEMENT

Removal Procedure

1. Remove the rear side door trim. Refer to **Rear Side Door Trim Panel Replacement (Crew Cab, Extended Cab)** .
2. Remove the rear side door armrest plate bolts and plate from the inner door panel.
3. Remove the water deflector.
4. Position the rear side door window to access and remove the door latch and handle bracket.
5. Remove the rear side door locking rod. Refer to **Rear Side Door Locking Rod Knob Replacement**.
6. Disconnect the rear side door latch electrical connector.
7. Remove the rear side door outside handle. Refer to **Rear Side Door Outside Handle Replacement**.
8. Remove the rear side door outside handle bracket screw. Refer to **Rear Side Door Outside Handle Bracket Replacement**.

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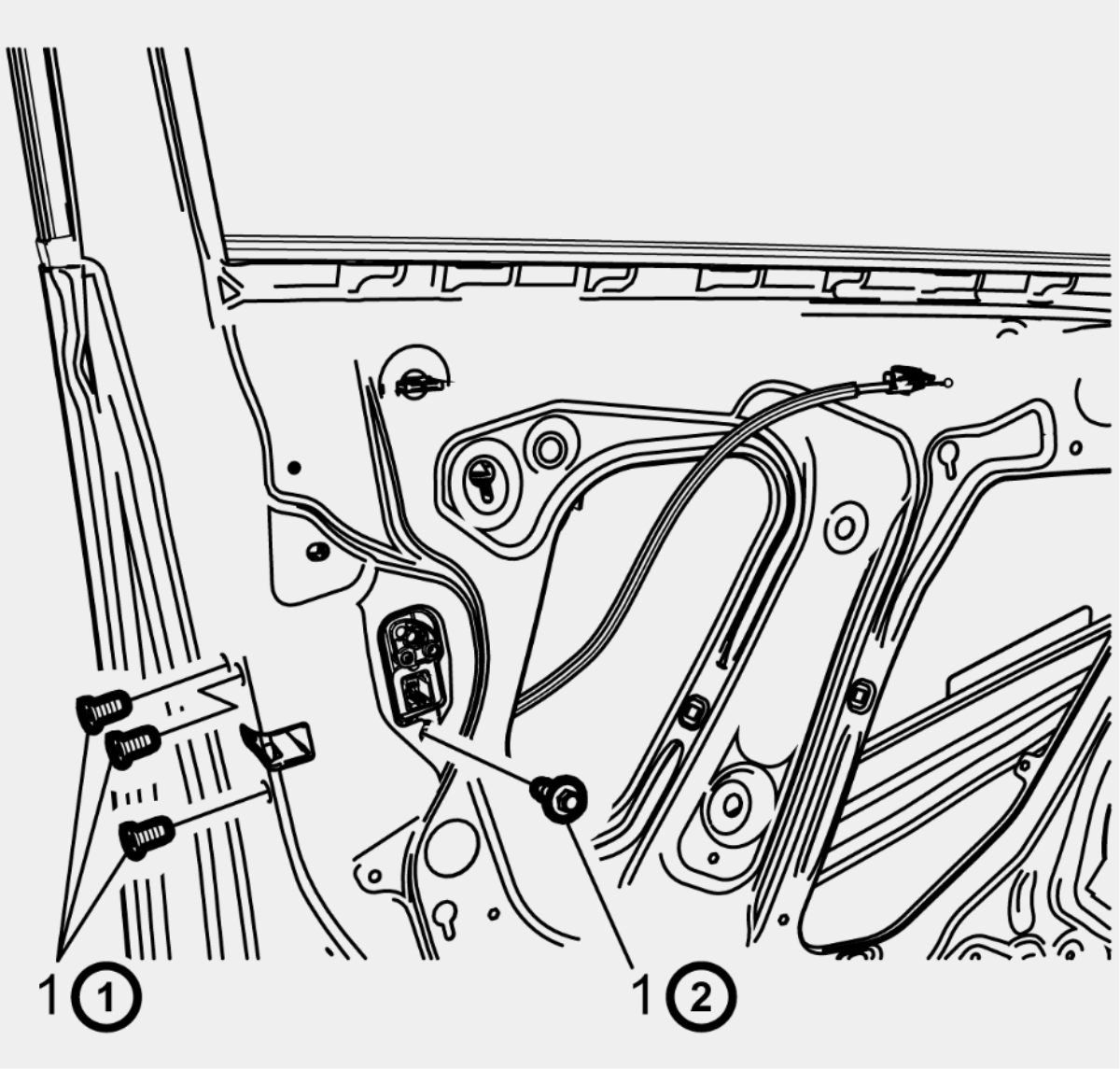


Fig. 60: Side Door Latch & Bolts
Courtesy of GENERAL MOTORS COMPANY

9. Remove the four bolts (1) from the rear side door latch.

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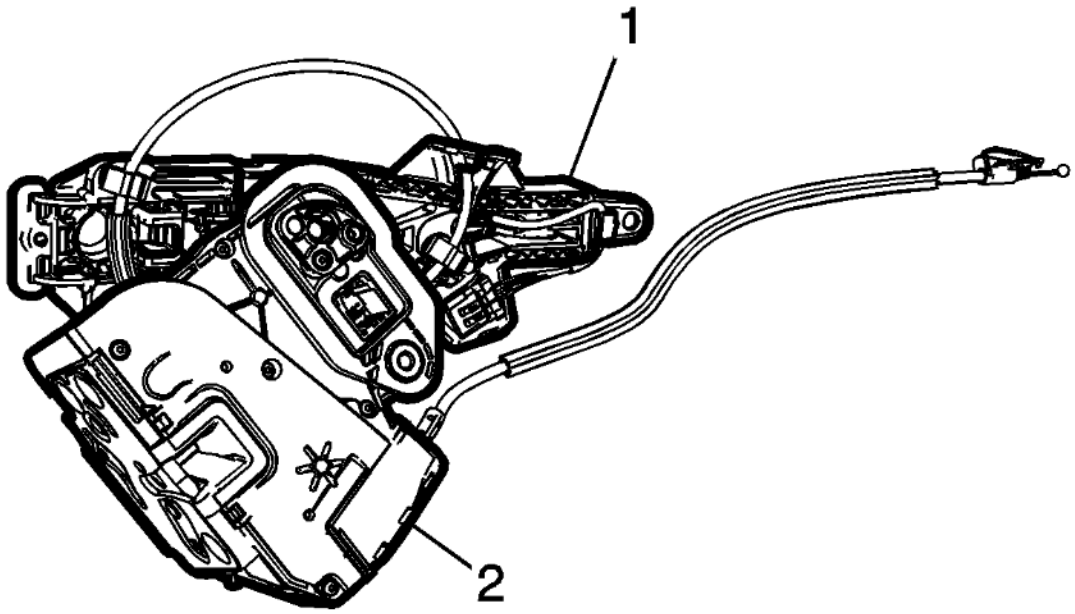


Fig. 61: Door Outside Handle Bracket & Latch
Courtesy of GENERAL MOTORS COMPANY

10. Remove the outside handle bracket (1) and the rear side door latch (2) assembly from the vehicle.

Installation Procedure

1. Transfer the rear side door inside handle cable. Refer to **Rear Side Door Inside Handle Cable Replacement**.
2. Transfer the rear side door outside handle cable. Refer to **Rear Side Door Outside Handle Cable Replacement**.
3. Place the window in the full up position.

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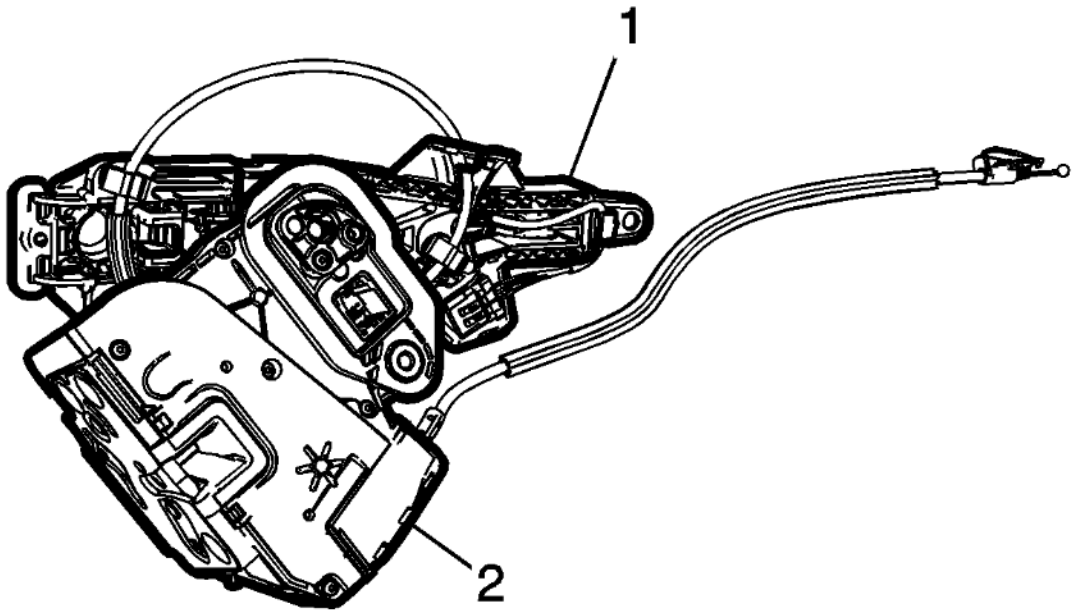


Fig. 62: Door Outside Handle Bracket & Latch
Courtesy of GENERAL MOTORS COMPANY

4. Install the outside handle bracket (1) and the rear side door latch (2) assembly in the vehicle.

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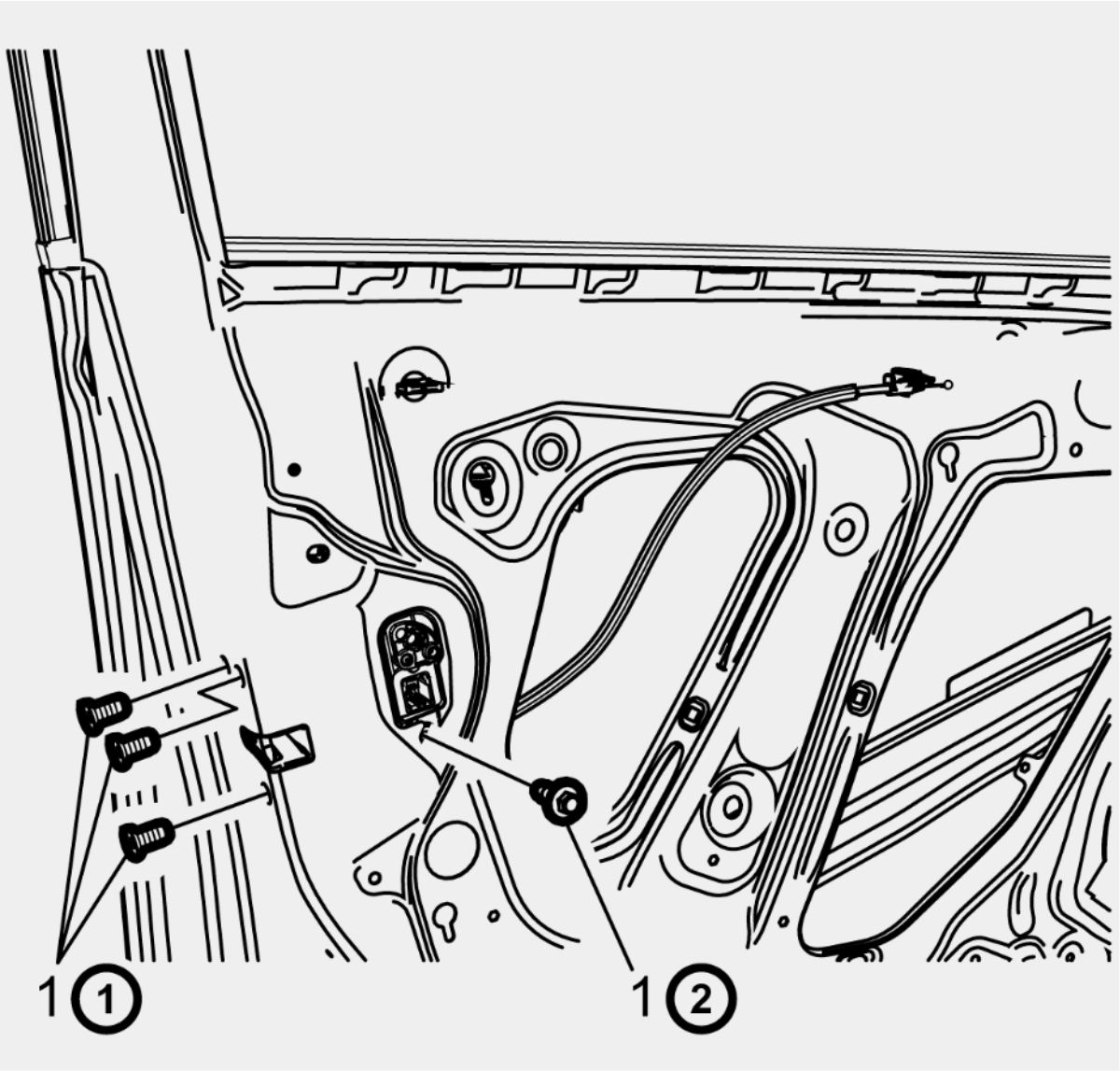


Fig. 63: Side Door Latch & Bolts
Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to Fastener Caution .

NOTE: Install and torque the four latch bolts in proper sequence to prevent damage to the latch mechanism.

5. Install four bolts (1) to the rear side door latch and tighten to 11 N.m (97 lb in).
6. Install the rear side door outside handle bracket screw. Refer to **Rear Side Door Outside Handle Bracket Replacement**.
7. Install the rear side door outside handle. Refer to **Rear Side Door Outside Handle Replacement**.
8. Connect the rear side door latch electrical connector.
9. Install the rear side door locking rod. Refer to **Rear Side Door Locking Rod Knob Replacement**.
10. Inspect the door latch and the outside handle for proper operation before install the door trim.
11. Install the water deflector.
12. Install the rear side door armrest plate bolts and plate to the inner door panel.

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13. Install the rear side door trim. Refer to **Rear Side Door Trim Panel Replacement (Crew Cab, Extended Cab)** .

REAR SIDE DOOR LOCK CYLINDER OPENING COVER REPLACEMENT

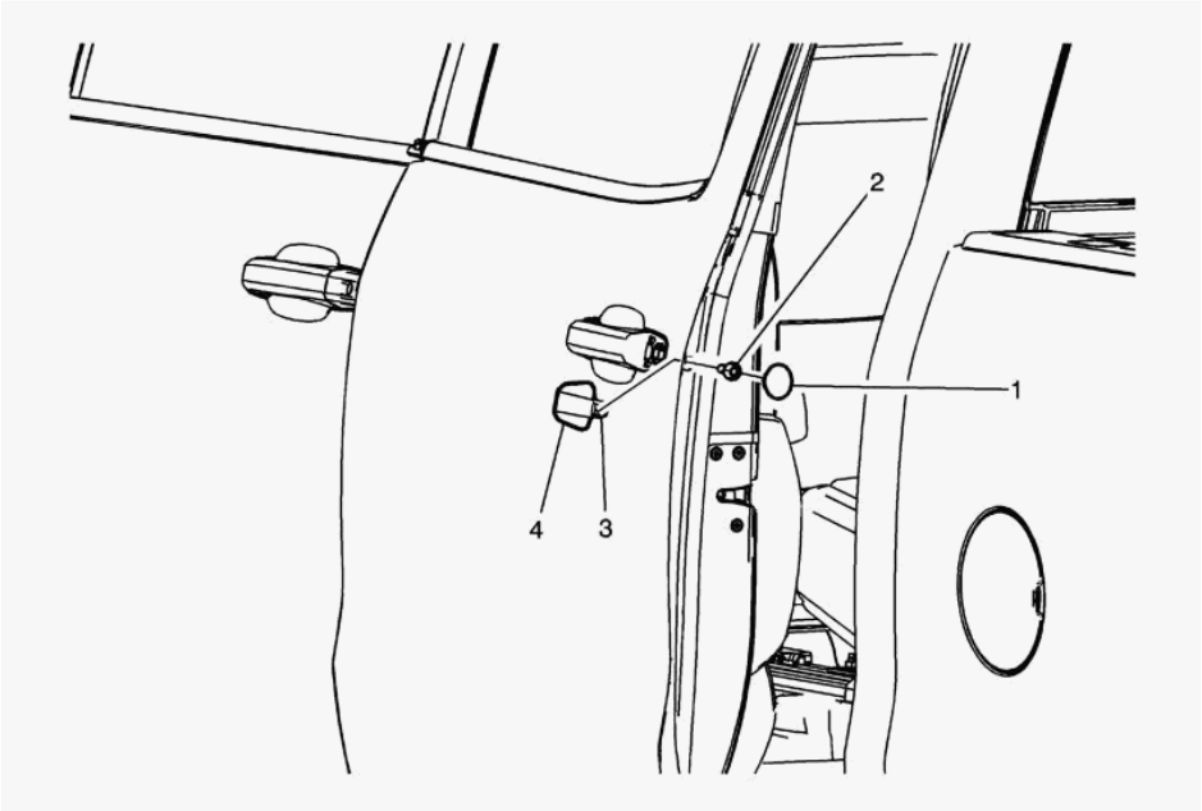


Fig. 64: Rear Side Door Lock Cylinder Opening Cover
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Rear Side Door Access Hole Cover **NOTE:** **Do not remove the door trim panel to do this procedure, using a plastic flat-bladed tool, remove the cover that conceals the screw for the lock cylinder/blank.**
2	Rear Side Door Lock Cylinder/Blank Screw **CAUTION:**

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Callout	Component Name
	Refer to Fastener Caution . **NOTE:** **When removing the lock cylinder/blank, Do Not completely unscrew the screw from the handle bracket (only far enough to remove lock cylinder bezel from the handle bracket).** **Tighten** 3.5 (31 lb in)
3	Rear Side Door Lock Cylinder/Blank
4	Rear Side Door Lock Cylinder/Blank Opening Cover **Procedure** Pull the rear side door handle outward and remove the lock cylinder opening cover. **NOTE:** **Ensure that the door lock system operates properly before installing the trim.**

FRONT SIDE DOOR LOCK CYLINDER BEZEL REPLACEMENT

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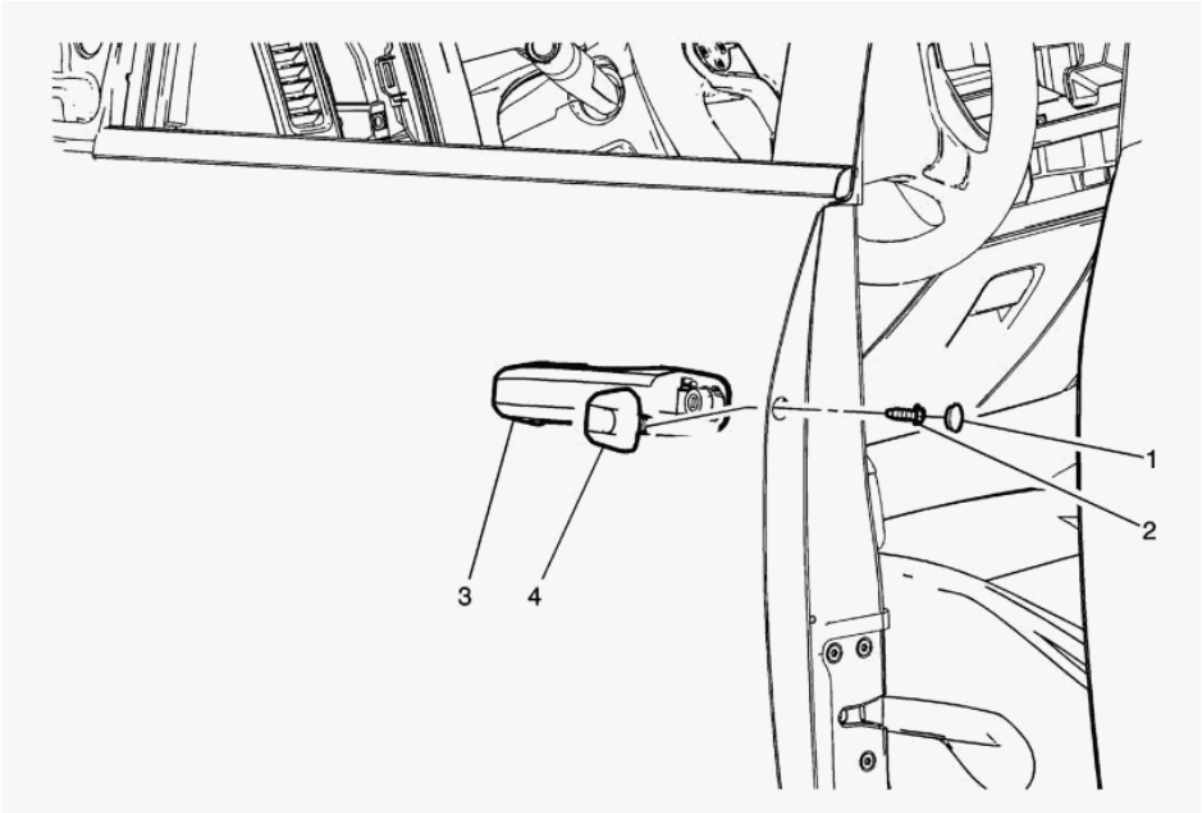


Fig. 65: Front Side Door Lock Cylinder Bezel
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Front Side Door Access Hole Cover **Procedure** Using the appropriate tool, remove the cover that conceals the screw from the inside of the door opening. **NOTE:** **Do not remove the door trim panel to do this procedure.**
2	Front Side Door Outside Handle Lock Cylinder Screw **CAUTION:** **Refer to Fastener Caution .** **NOTE:** **When removing the lock**

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Callout	Component Name
	cylinder/blank, Do Not completely unscrew the screw from the handle bracket (only far enough to remove lock cylinder bezel from the handle bracket). **Tighten** 3.5 (31 lb in)
3	Front Side Door Lock Cylinder Bezel Retainer
4	Front Side Door Lock Cylinder Bezel **Procedure** Pull the front side door handle outward and remove the lock cylinder bezel. **NOTE:** **Ensure that the door lock system operates properly before installing the trim.**

FRONT SIDE DOOR LOCKING ROD CLIP REPLACEMENT (CREW CAB, EXTENDED CAB - UPPER)

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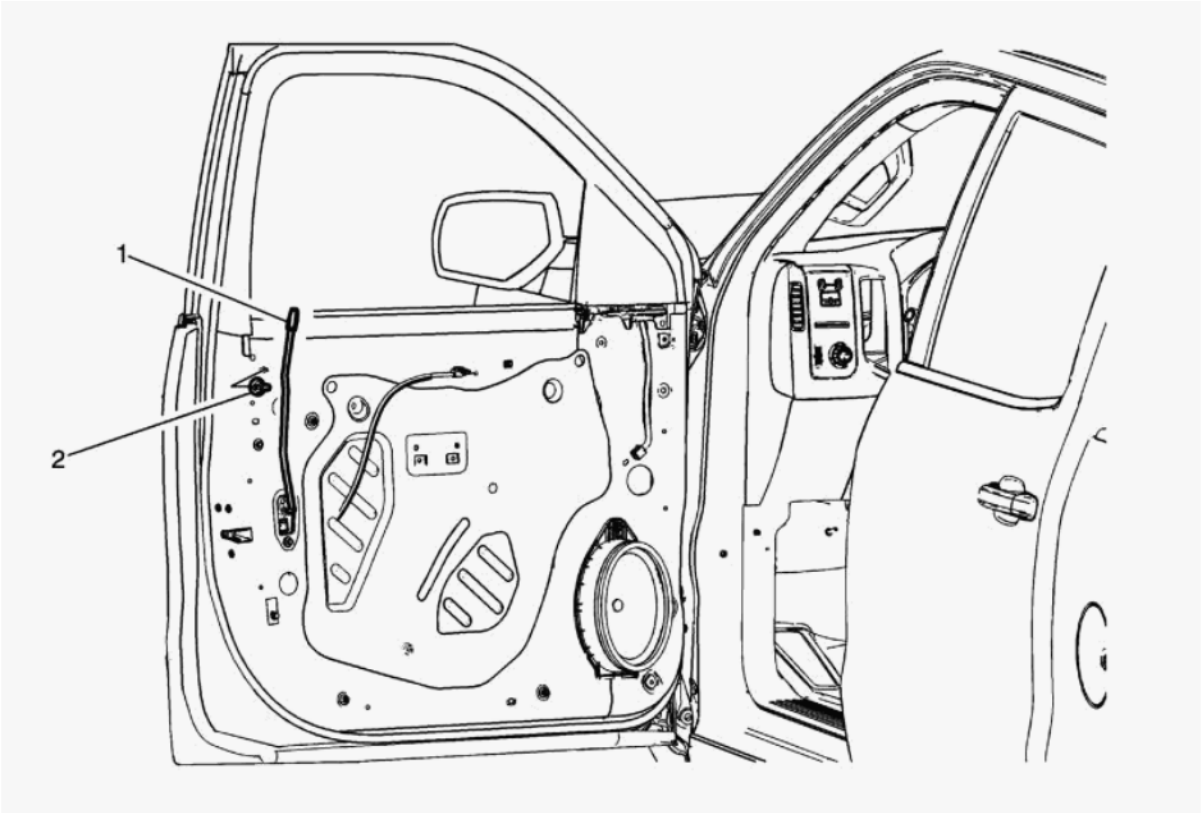


Fig. 66: Front Side Door Locking Rod Clip (Crew Cab, Extended Cab - Upper)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front side door trim. Refer to Front Side Door Trim Replacement (With A31) Front Side Door Trim Replacement (Without A31) .	
1	Front Side Door Locking Rod Knob **Procedure** Separate the front side door locking rod knob from the clip and move to the side.
2	Front Side Door Locking Rod Clip **Procedure** Turn the front side door locking rod clip 180 degrees and pull from the door. **NOTE:** **Inspect the front side door lock for proper operating before installing the door trim.**

FRONT SIDE DOOR LOCKING ROD CLIP REPLACEMENT (REGULAR CAB - UPPER)

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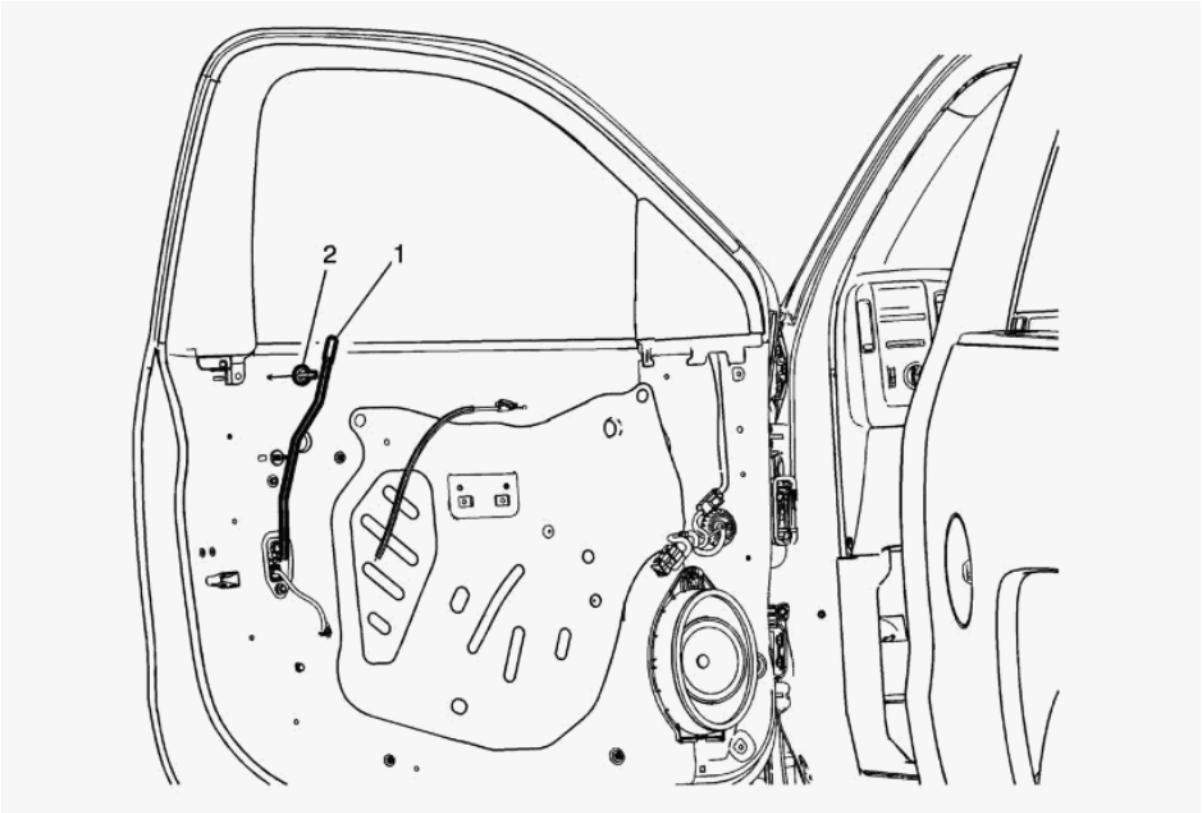


Fig. 67: Front Side Door Locking Rod Clip (Regular Cab - Upper)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front side door trim. Refer to Front Side Door Trim Replacement (With A31) Front Side Door Trim Replacement (Without A31) .	
1	Front Side Door Locking Rod Knob **Procedure** Release the front side door locking rod knob from the clips and move to the side.
2	Front Side Door Locking Rod Clip **Procedure** Turn the front side door locking rod clip 180 degrees and pull from the door. **NOTE:** **Inspect the front side door lock for proper operating before installing the door trim.**

FRONT SIDE DOOR LOCKING ROD CLIP REPLACEMENT (REGULAR CAB - LOWER)

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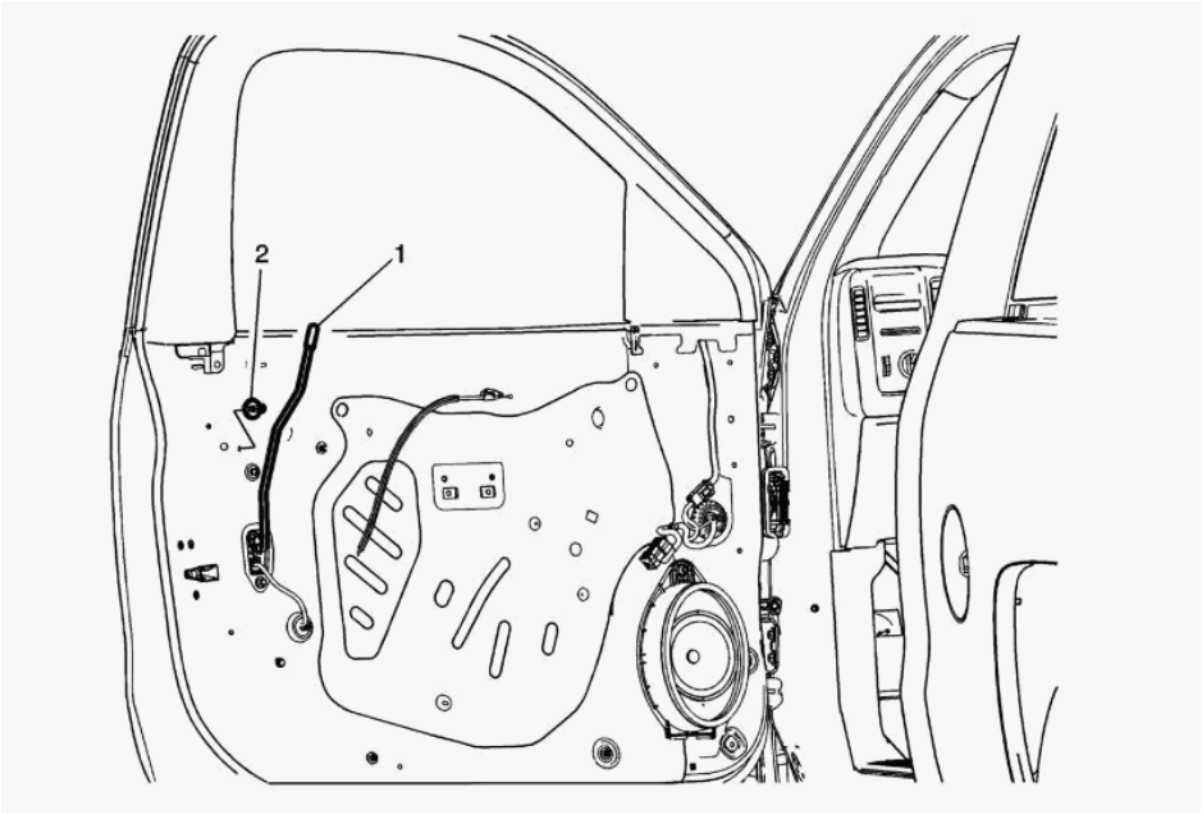


Fig. 68: Front Side Door Locking Rod Clip (Regular Cab - Lower)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front side door trim. Refer to Front Side Door Trim Replacement (With A31) Front Side Door Trim Replacement (Without A31) .	
1	Front Side Door Locking Rod Knob **Procedure** Release the front side door locking rod knob from the clips and move to the side.
2	Front Side Door Locking Rod Clip **Procedure** Pull out the front side door locking rod clip from the door. **NOTE:** **Inspect the front side door lock for proper operating before installing the door trim.**

FRONT SIDE DOOR LOCKING ROD KNOB REPLACEMENT (CREW CAB, EXTENDED CAB)

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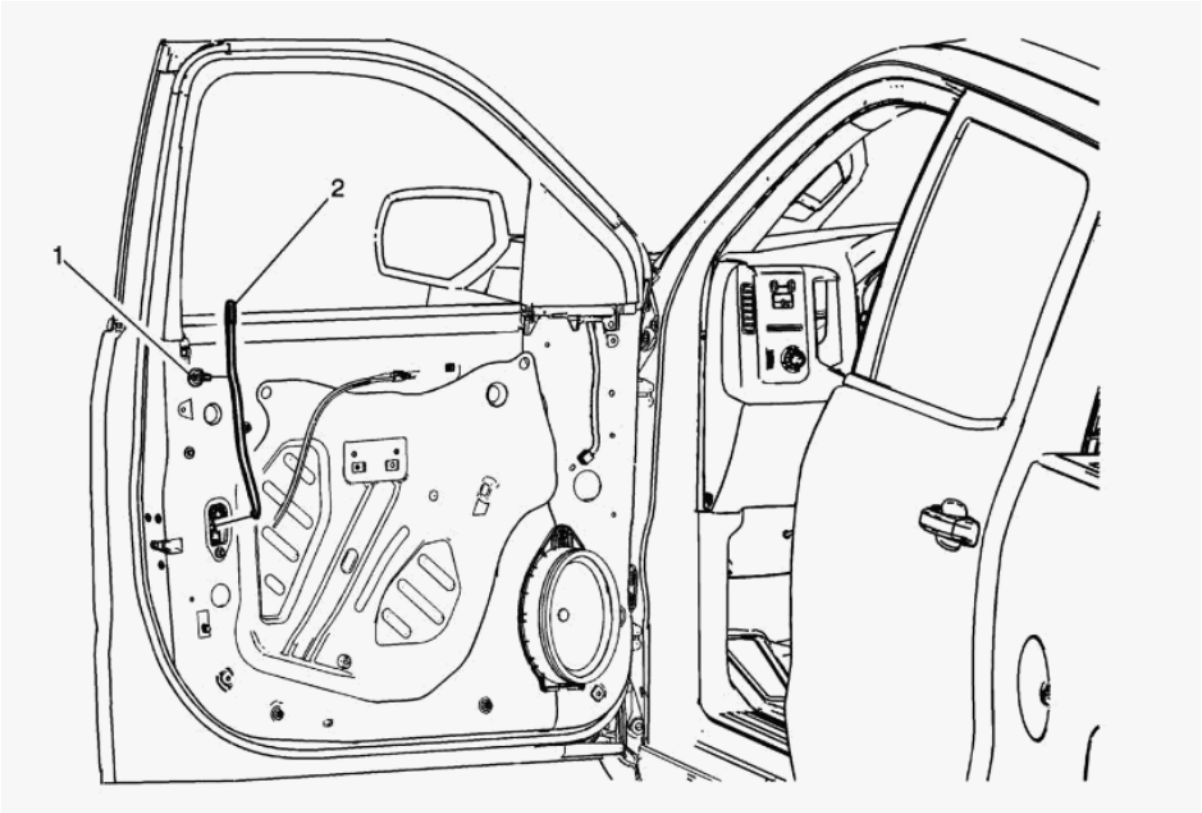


Fig. 69: Front Side Door Locking Rod Knob (Crew Cab, Extended Cab)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front side door trim. Refer to **Front Side Door Trim Replacement (With A31)** **Front Side Door Trim Replacement (Without A31)** .	
1	Front Side Door Locking Rod Clip **Procedure** Release the locking rod from the retainer.
2	Front Side Door Locking Rod **Procedure** Turn the locking rod down, pull upward while turning, releasing it from the latch. **NOTE:** **Ensure that the door lock system operates properly before installing the trim.**

FRONT SIDE DOOR LOCKING ROD KNOB REPLACEMENT (REGULAR CAB)

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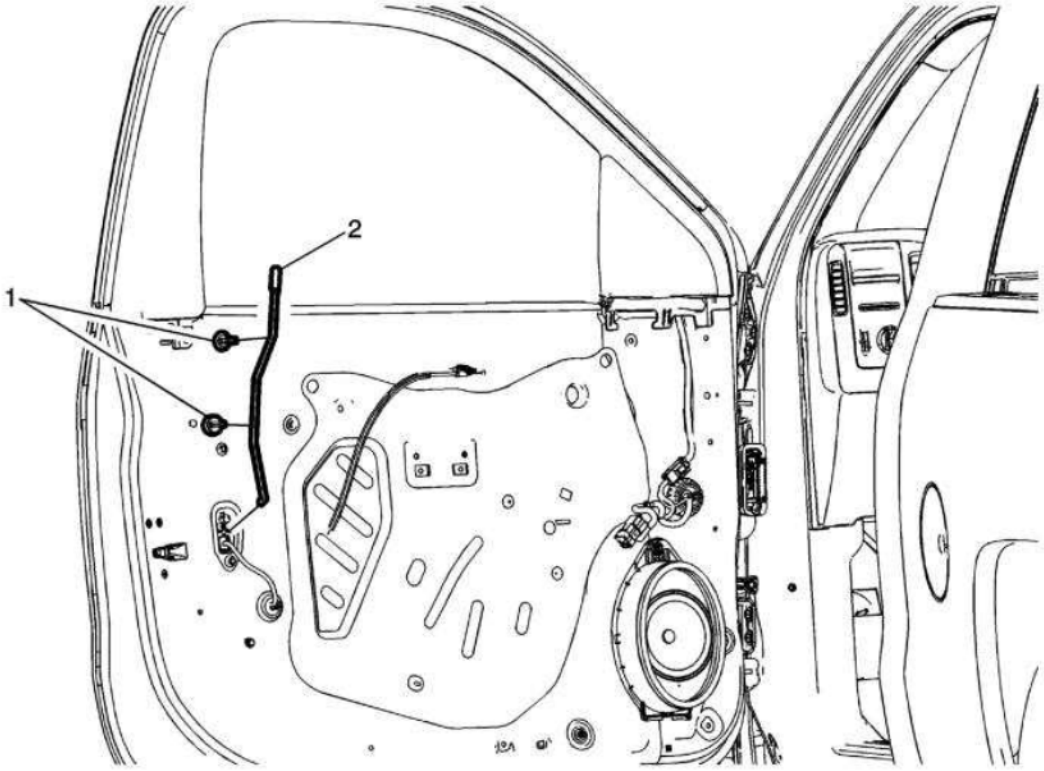


Fig. 70: Front Side Door Locking Rod Knob (Regular Cab)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front side door trim. Refer to **Front Side Door Trim Replacement (With A31)** **Front Side Door Trim Replacement (Without A31)** .	
1	Front Side Door Locking Rod Clip (Qty:2) **Procedure** Release the locking rod from the clips.
2	Front Side Door Locking Rod **Procedure** Turn the locking rod down, pull upward while turning, releasing it from the latch. **NOTE:** **Ensure that the door lock system operates properly before installing the trim.**

FRONT SIDE DOOR LOCK CYLINDER ROD REPLACEMENT

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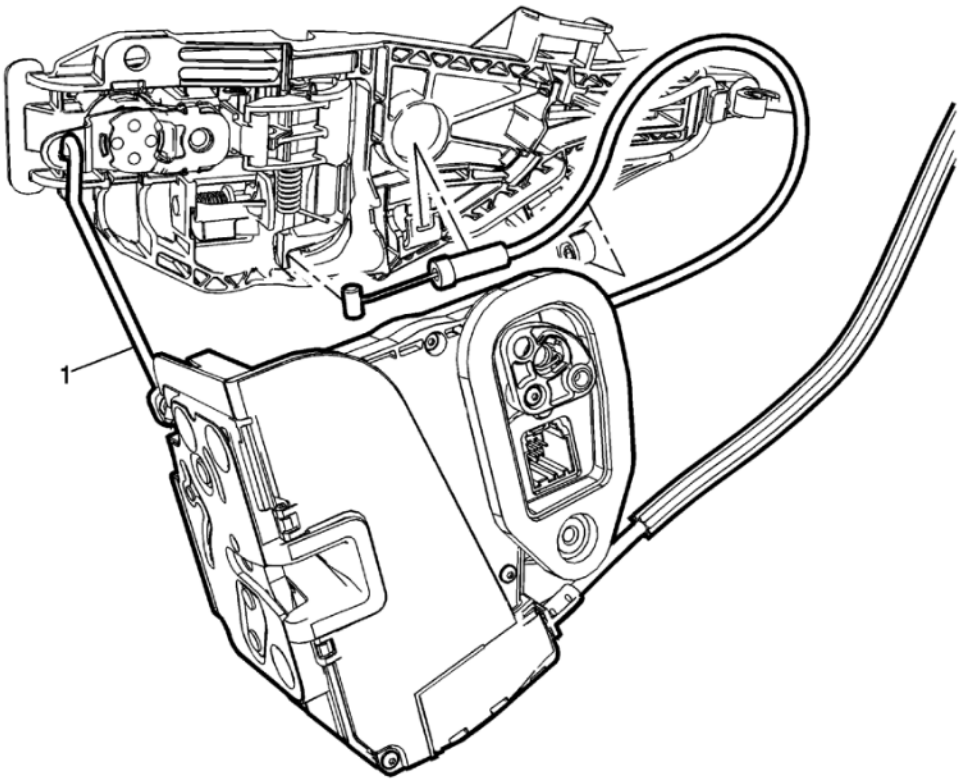


Fig. 71: Front Side Door Lock Cylinder Rod (Sedan)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front side door latch and handle bracket assembly from the door. Refer to **Front Side Door Latch Replacement**.	
1	Front Side Door Lock Cylinder Rod **Procedure** 1. Remove the front side door lock cylinder rod from the lock cylinder by turning the housing bracket clockwise. 2. Release the lock cylinder rod from the latch only, do not remove the handle cables from the latch. **NOTE:** **Ensure that the door lock system operates properly before installing the trim.**

REAR SIDE DOOR LOCKING ROD KNOB REPLACEMENT

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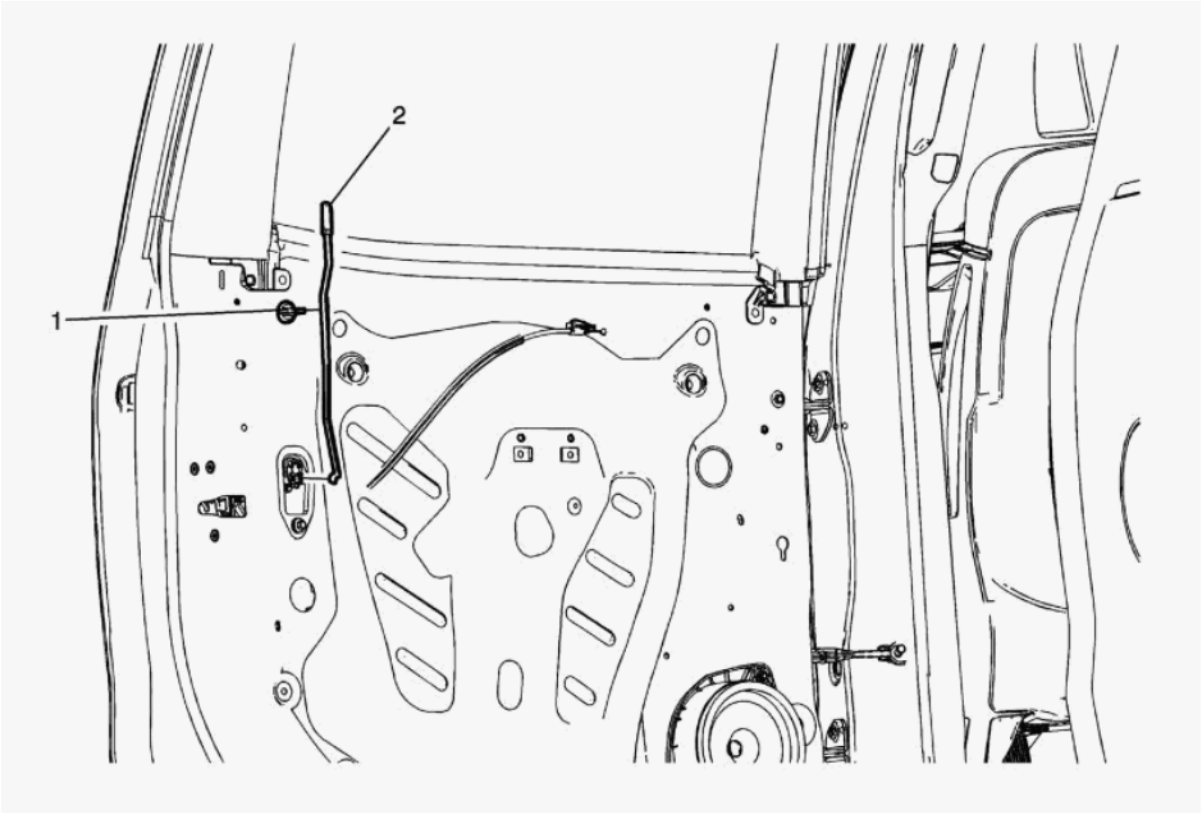


Fig. 72: Rear Side Door Locking Rod Knob
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the rear side door trim. Refer to **Rear Side Door Trim Panel Replacement (Crew Cab, Extended Cab)** .	
1	Rear Side Door Locking Rod Knob Retainer **Procedure** Release the locking rod knob from the retainer. **NOTE:** **Ensure that the door lock system operates properly before installing the trim.**
2	Rear Side Door Locking Rod Knob **Procedure** Turn the locking rod down, pull upward and turning while releasing it from the latch.

REAR SIDE DOOR LOCKING ROD CLIP REPLACEMENT

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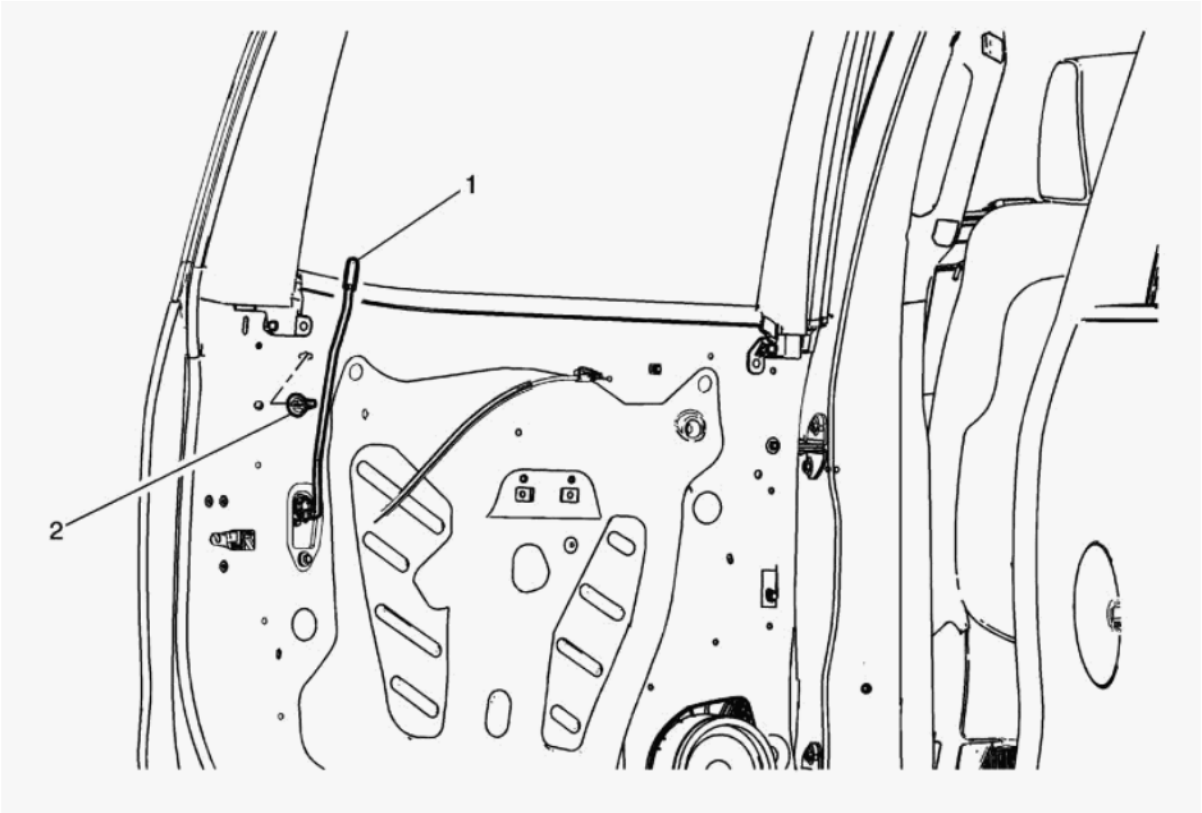


Fig. 73: Rear Side Door Locking Rod Clip
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the rear side door trim. Refer to **Rear Side Door Trim Panel Replacement (Crew Cab, Extended Cab)** .	
1	Rear Side Door Locking Rod Knob **Procedure** Separate the rear side door locking rod knob from the clip and move to the side.
2	Rear Side Door Locking Rod Clip **Procedure** Turn the rear side door locking rod clip 180 degrees and pull from the door. **NOTE:** **Inspect the rear side door lock for proper operating before installing the door trim.**

FRONT SIDE DOOR LOCK STRIKER ADJUSTMENT

To determine if striker adjustment is required, proceed as follows:

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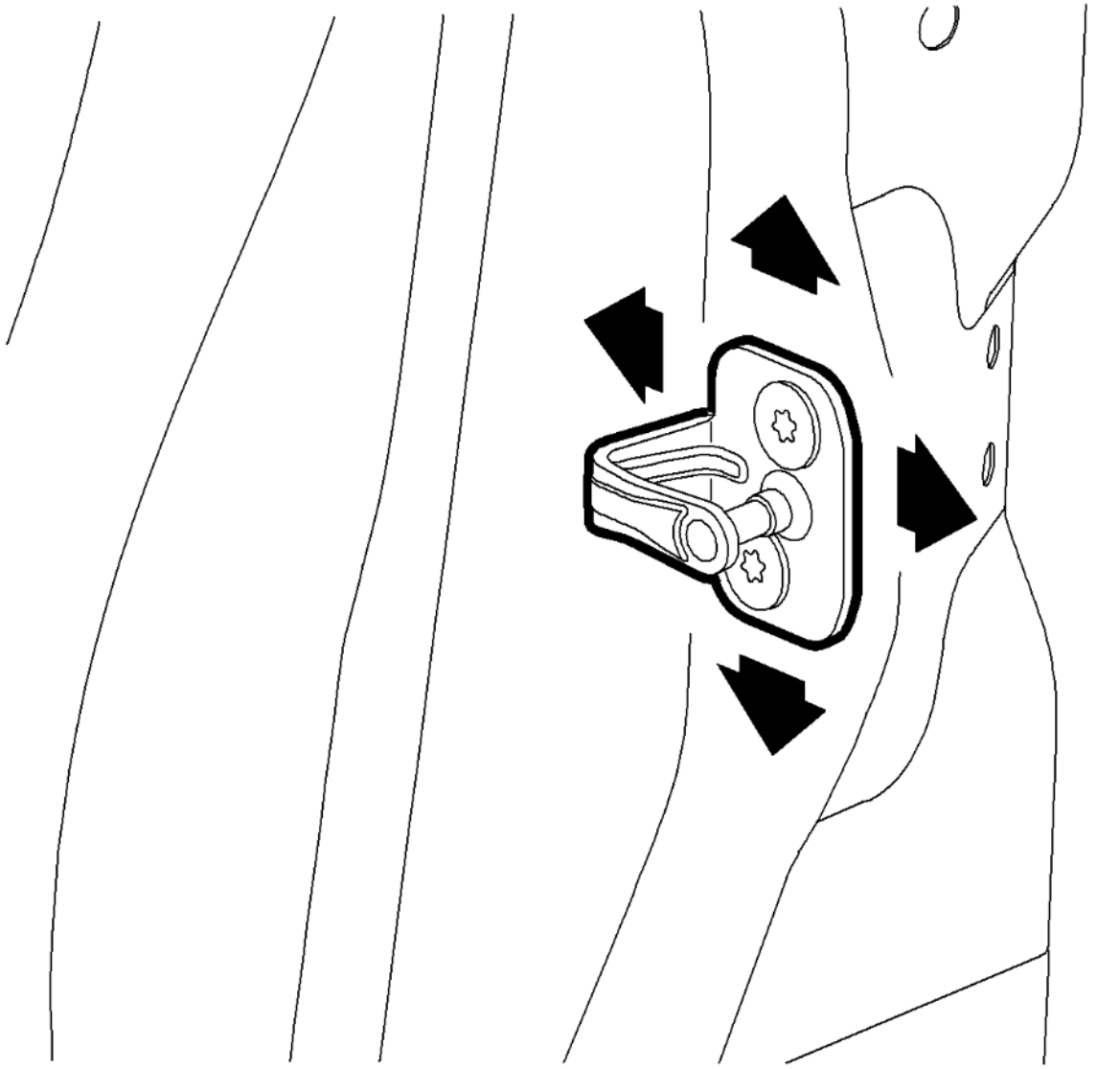


Fig. 74: View Of Door Striker
Courtesy of GENERAL MOTORS COMPANY

1. Ensure the door is properly aligned within the door opening before proceeding with the striker adjustment.
2. Close the door onto the striker and note if the door drags on the striker causing the door to move upward or downward upon contact with the striker. Also note the closing effort to fully engage the lock.
3. Using a grease pencil, mark around the striker for reference of the original position. Loosen the striker.
4. Move the striker to eliminate drag on the striker and door lock and to achieve the proper door position within the door opening. Start with the up/down position, then position the striker to achieve proper alignment to the door opening. Set the in/out adjustment for the proper door seal engagement making sure the door closing efforts are correct.

CAUTION: Refer to Fastener Caution .

5. Tighten the striker bolts. Tighten the front side door striker screws to 25 N.m (18 lb ft).

FRONT SIDE DOOR LOCK STRIKER REPLACEMENT (CREW CAB, EXTENDED CAB)

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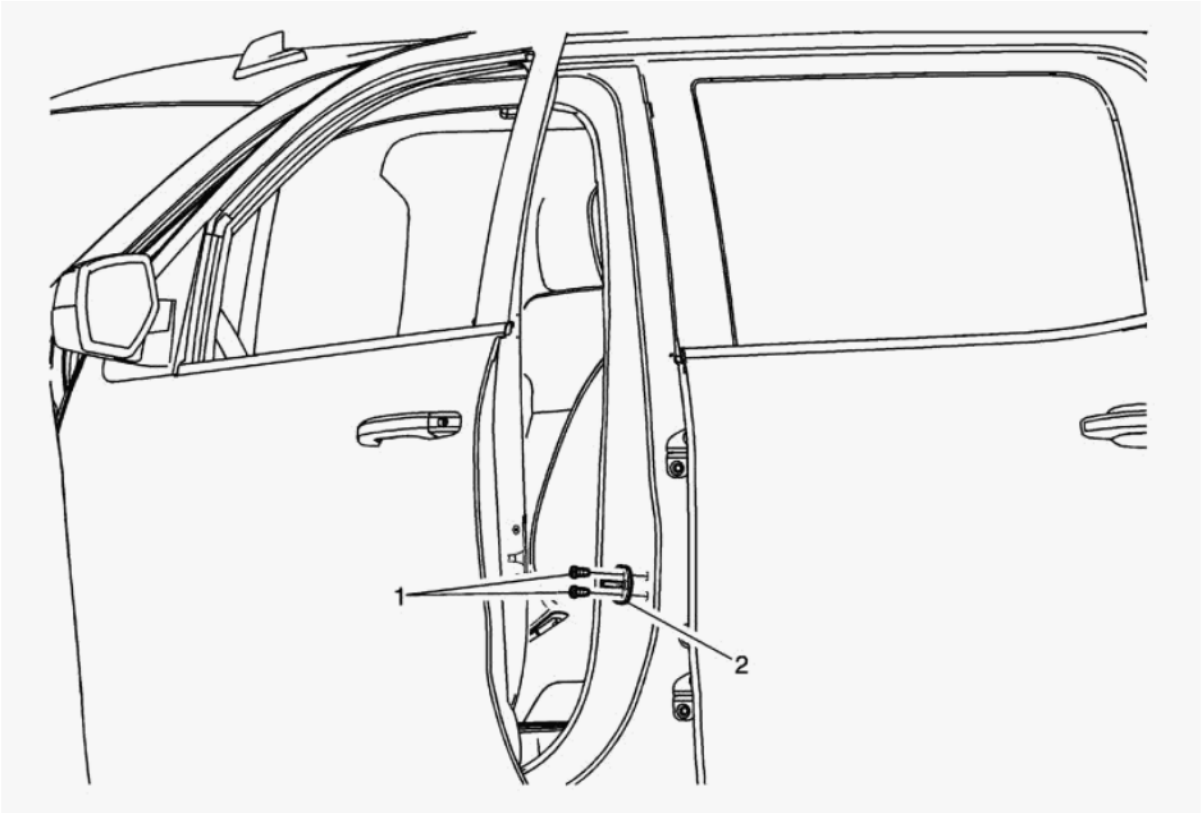


Fig. 75: Front Side Door Lock Striker (Crew Cab, Extended Cab)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Front Side Door Lock Striker Screw (Qty: 2) **CAUTION:** **Refer to Fastener Caution .** **Tighten** 25 N.m (18 lb ft)
2	Front Side Door Lock Striker **Procedure** Ensure the alignment of the striker. Refer to **Front Side Door Lock Striker Adjustment**. **NOTE:** **Inspect the door for proper operation.**

FRONT SIDE DOOR LOCK STRIKER REPLACEMENT (REGULAR CAB)

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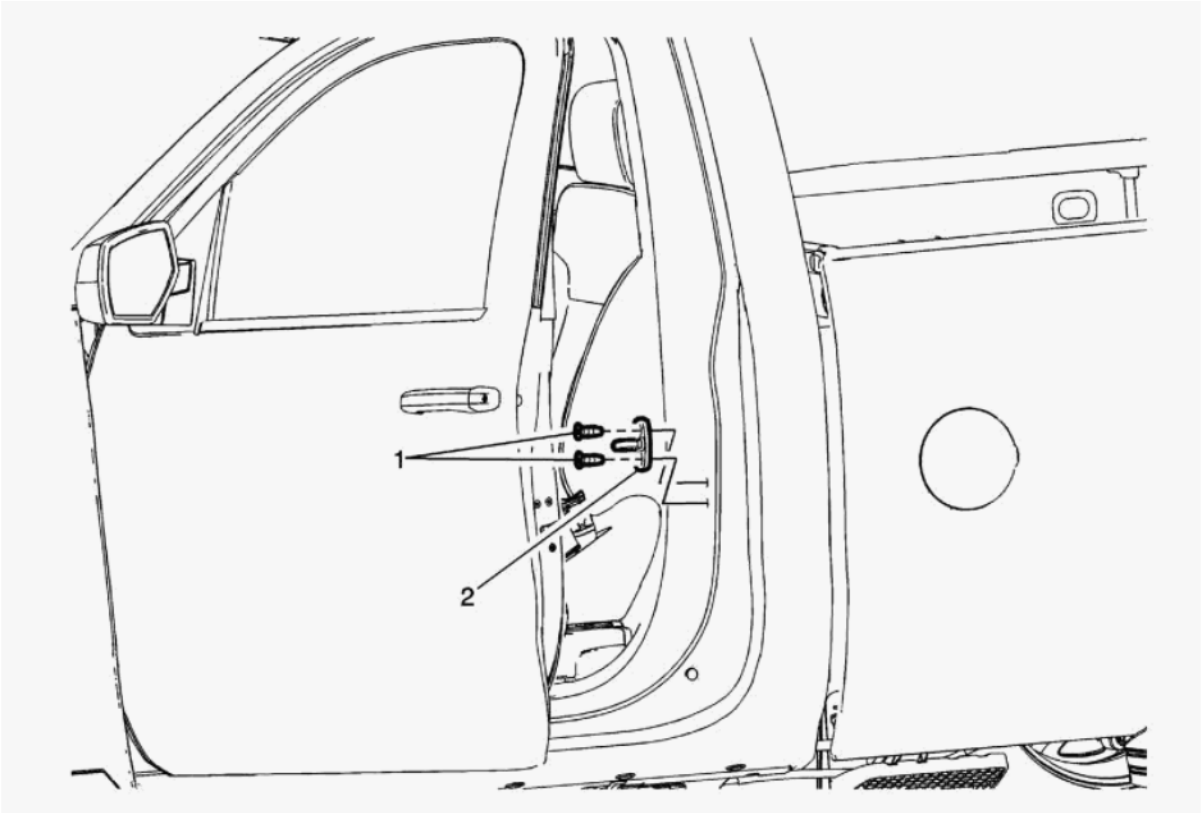


Fig. 76: Front Side Door Lock Striker (Regular Cab)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Front Side Door Lock Striker Screws (Qty: 2) **CAUTION:** **Refer to Fastener Caution .** **Tighten** 25 N.m (18 lb ft)
2	Front Side Door Lock Striker **Procedure** Ensure the alignment of the striker. Refer to **Front Side Door Lock Striker Adjustment**. **NOTE:** **Inspect the door for proper operation.**

REAR SIDE DOOR LOCK STRIKER ADJUSTMENT

To determine if striker adjustment is required, proceed as follows:

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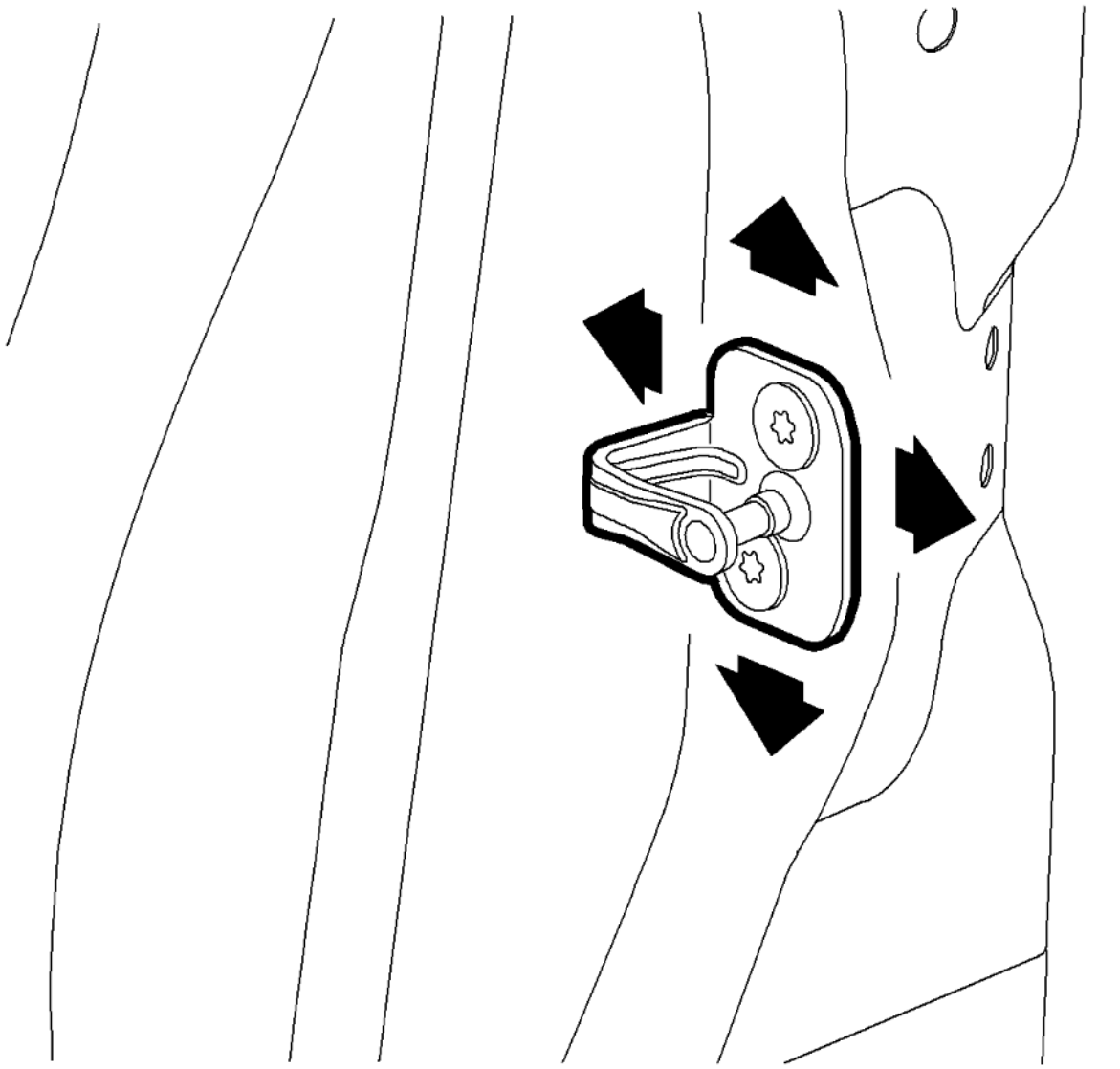


Fig. 77: View Of Door Striker
Courtesy of GENERAL MOTORS COMPANY

1. Ensure the door is properly aligned within the door opening before proceeding with the striker adjustment.
2. Close the door onto the striker and note if the door drags on the striker causing the door to move upward or downward upon contact with the striker. Also note the closing effort to fully engage the lock.
3. Using a grease pencil, mark around the striker for reference of the original position. Loosen the striker.
4. Move the striker to eliminate drag on the striker and door lock and to achieve the proper door position within the door opening. Start with the up/down position, then position the striker to achieve proper alignment to the door opening. Set the in/out adjustment for the proper door seal engagement making sure the door closing efforts are correct.

CAUTION: Refer to Fastener Caution .

5. Tighten the striker bolts. Tighten the rear side door striker bolts to 25 N.m (18 lb ft).

REAR SIDE DOOR LOCK STRIKER REPLACEMENT

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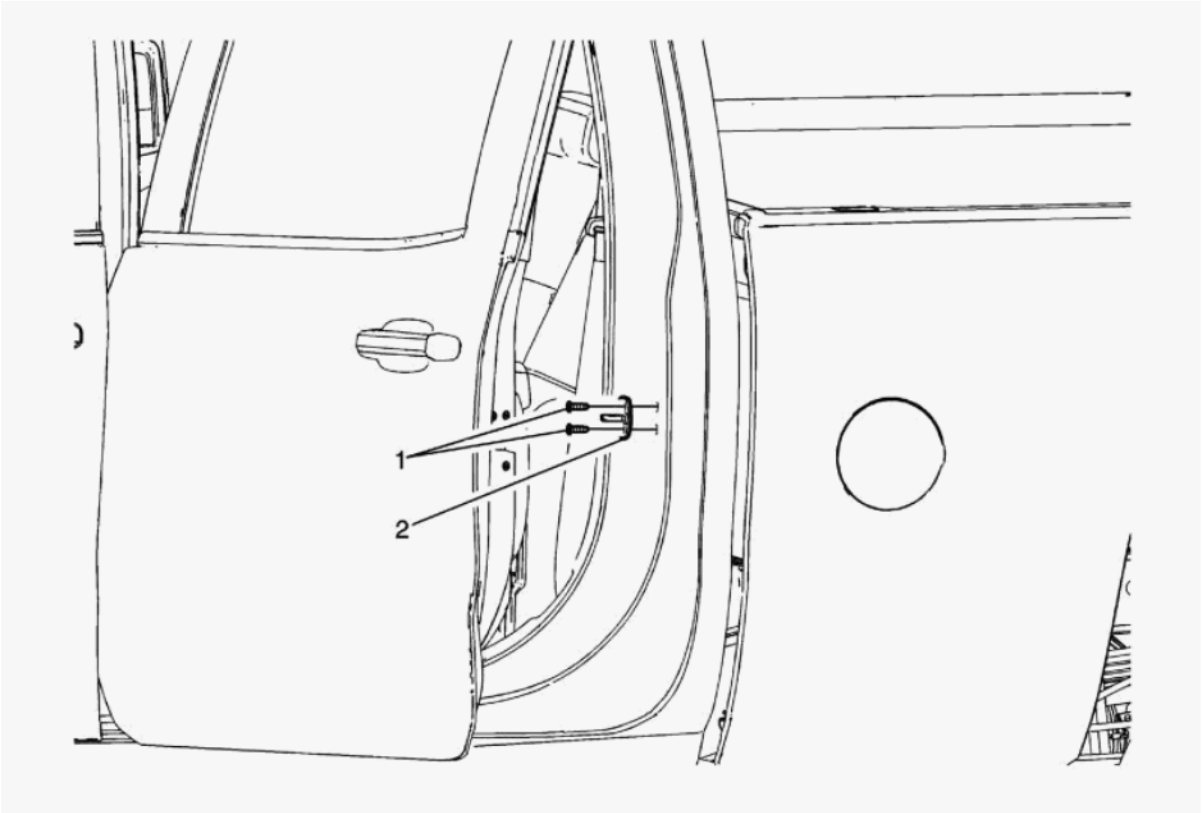


Fig. 78: Rear Side Door Lock Striker
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Rear Side Door Lock Striker Bolt (Qty: 2) **CAUTION:** **Refer to Fastener Caution .** **Tighten** 25 N.m (18 lb ft)
2	Rear Side Door Lock Striker **Procedures** Ensure proper alignment after installation. Refer to **Rear Side Door Lock Striker Adjustment**. **NOTE:** **Inspect the door for proper operation.**

DOOR LOCK SWITCH REPLACEMENT - DRIVER SIDE (WITH A31)

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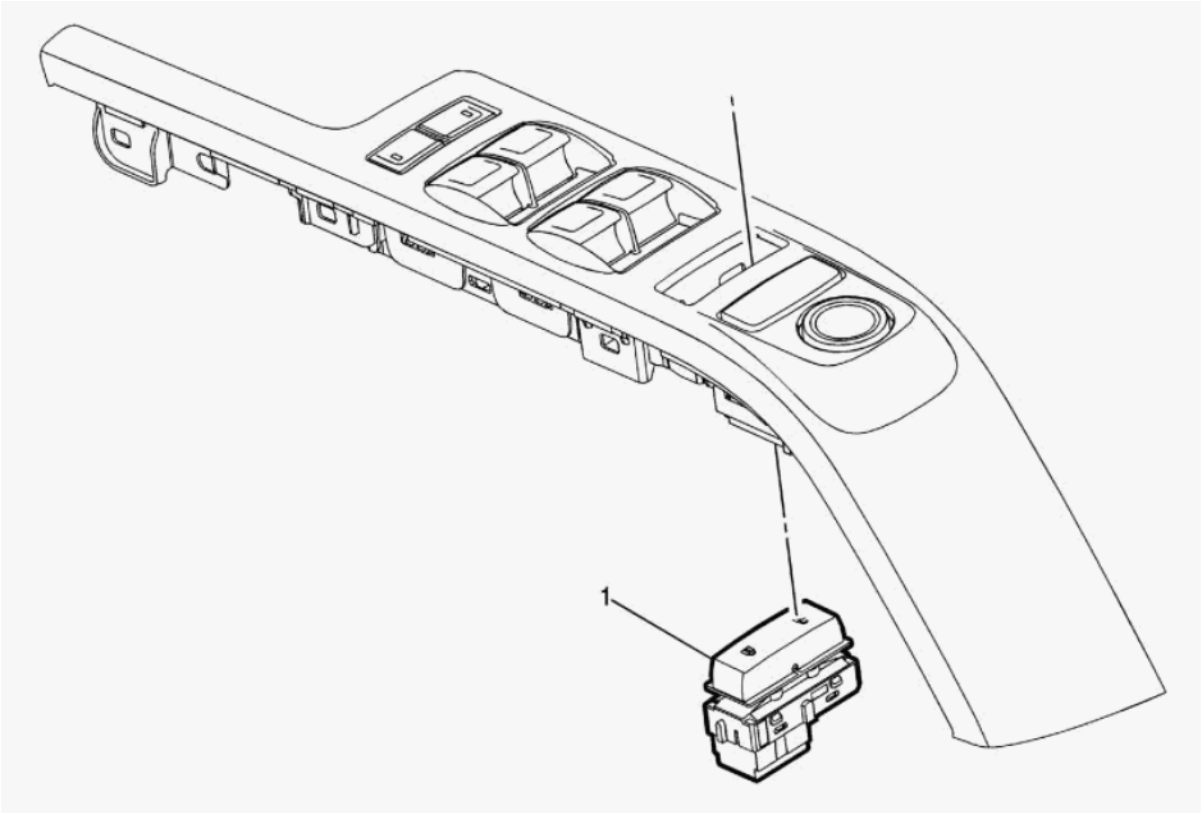


Fig. 79: Door Lock Switch - Driver Side
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front side door accessory switch mount plate - driver side. Refer to **Front Side Door Accessory Switch Mount Plate Replacement - Driver Side (With A31)** .	
1	Door Lock Switch Assembly **Procedure** 1. Using a plastic pry tool, gently pry on the sides to release the switch. 2. Refer to **Control Module References** for programming and set up procedures.

DOOR LOCK SWITCH REPLACEMENT - DRIVER SIDE (WITHOUT A31)

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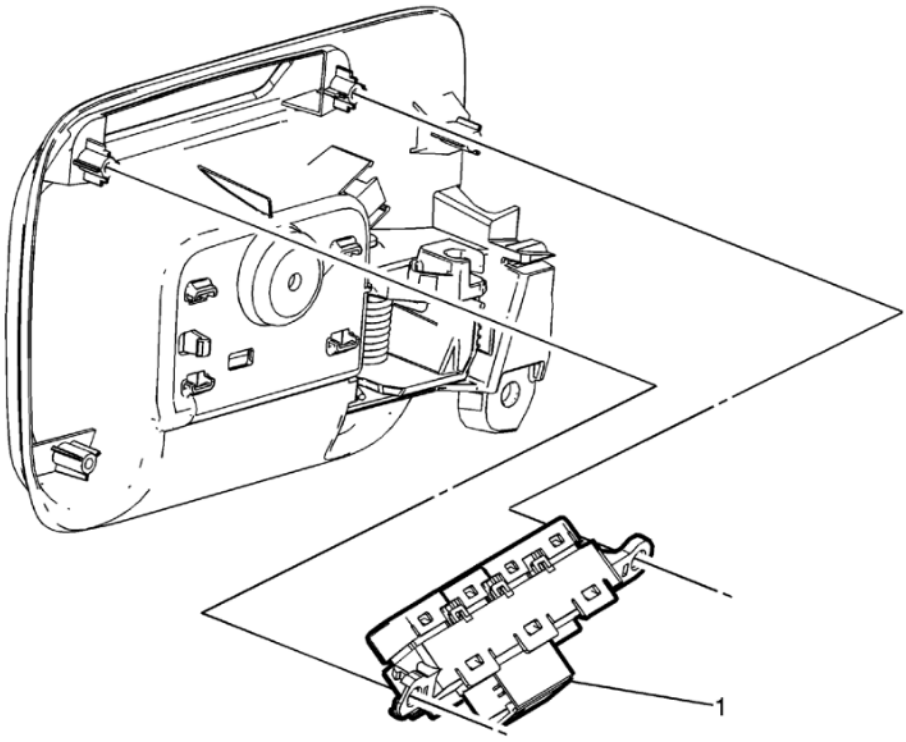


Fig. 80: Door Lock Switch - Passenger Front (Without A31)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front side door inside handle. Refer to **Front Side Door Inside Handle Replacement**.	
1	Door Lock Switch Assembly **Procedure** Disconnect the electrical connector.

DOOR LOCK SWITCH REPLACEMENT - PASSENGER FRONT (WITH A31)

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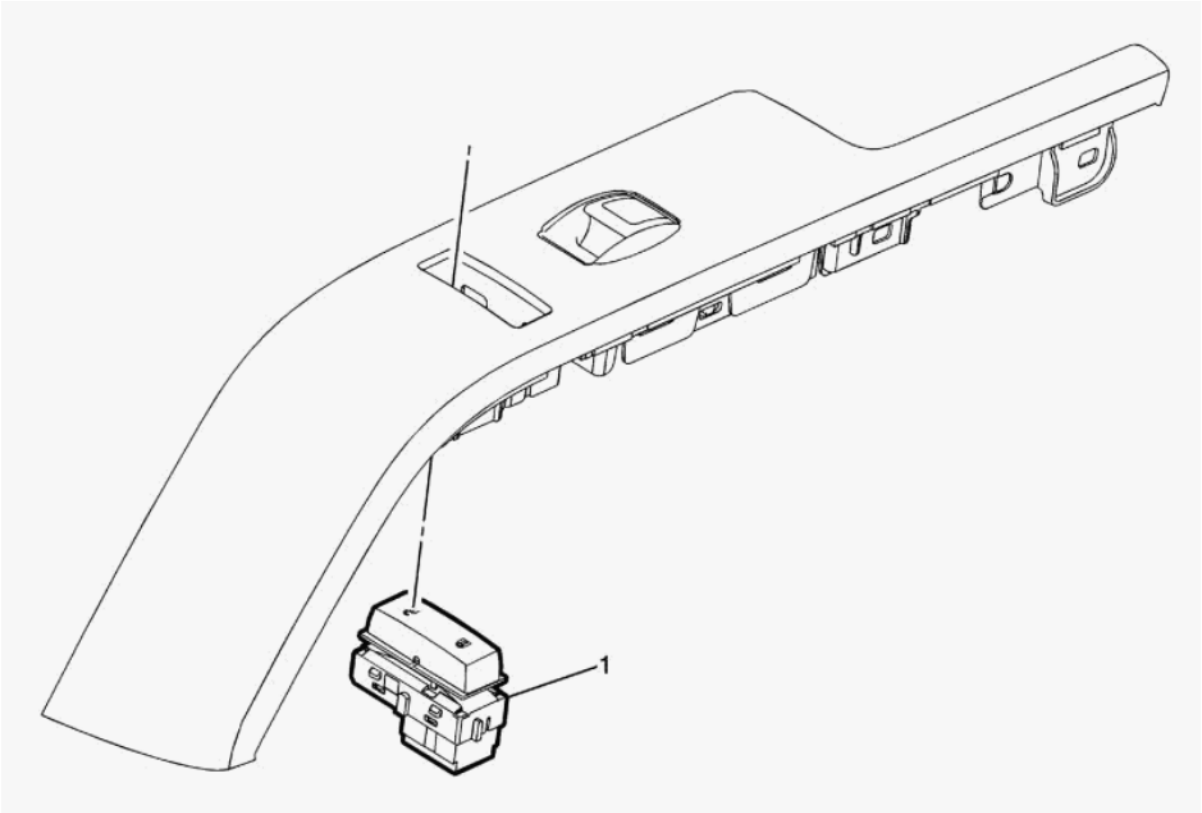


Fig. 81: Door Lock Switch - Passenger Front
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front side door accessory switch mount plate - passenger side. Refer to **Front Side Door Accessory Switch Mount Plate Replacement - Passenger Side** .	
1	Door Lock Switch Assembly **Procedure** 1. Using a plastic pry tool, gently pry on the sides to release the switch. 2. Refer to **Control Module References** for programming and set up procedures.

DOOR LOCK SWITCH REPLACEMENT - PASSENGER FRONT (WITHOUT A31)

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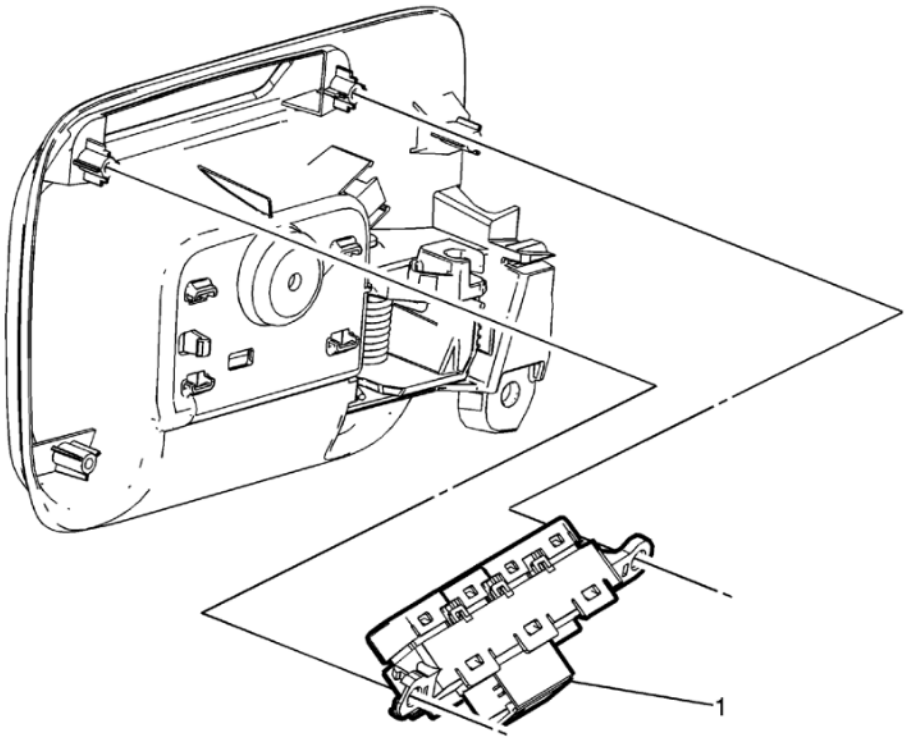


Fig. 82: Door Lock Switch - Passenger Front (Without A31)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front side door inside handle. Refer to **Front Side Door Inside Handle Replacement**.	
1	Door Lock Switch Assembly **Procedure** Disconnect the electrical connector.

DESCRIPTION AND OPERATION

DOOR AJAR INDICATOR DESCRIPTION AND OPERATION

Door Ajar Indicator System Components

The door ajar indicator system consists of the following components:

- Body control module
- Instrument cluster
- Driver door latch
- Passenger door latch
- Left rear door latch
- Right rear door latch
- Driver window motor (AXG)
- Passenger window switch (AED)

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- Left rear window switch (AEQ)
- Right rear window switch (AEQ)

Door Ajar System

Depending upon if the vehicle is a standard cab, extended cab or crew cab and/or is equipped with express up/down power windows or standard express down power windows or manual crank windows affects how the driver and passenger door ajar signal circuits are configured and monitored.



Fig. 83: Door Ajar System Block Diagram
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
P16	P16 Instrument Cluster
M74D	M74D Window Motor - Driver
S79P	S79P Window Switch - Passenger
S79LR	S79LR Window Switch - Left Rear
S79RR	S79RR Window Switch - Right Rear
A23D	A23D Door Latch Assembly - Driver
A23P	A23P Door Latch Assembly - Passenger
A23LR	A23LR Door Latch Assembly - Left Rear
A23RR	A23RR Door Latch Assembly - Right Rear
K9	K9 Body Control Module

Driver Door Ajar (With AXG)

The driver window motor will provide a 12V signal to the driver door ajar switch within the door latch to indicate the status of the door. When the driver door is open, the contract within the ajar switch closes providing a ground part for the signal circuit. The driver window motor will detect the voltage drop in the ajar signal circuit and will send a serial data message to the body control module. The body control module will then send a message to the instrument cluster which will illuminate the door ajar icon.

Passenger and Rear Doors Ajar (With AED and AEQ)

The passenger and rear window switches provide a 12V signal to the respective door ajar switch within the door latch to indicate the status of the door. When the door is open, the contract within the ajar switch closes providing a ground part for the signal circuit. The window switch will detect the voltage drop in the ajar signal circuit and will send a serial data message to the body control module. The body control module will then send

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a message to the instrument cluster which will illuminate the door ajar icon.

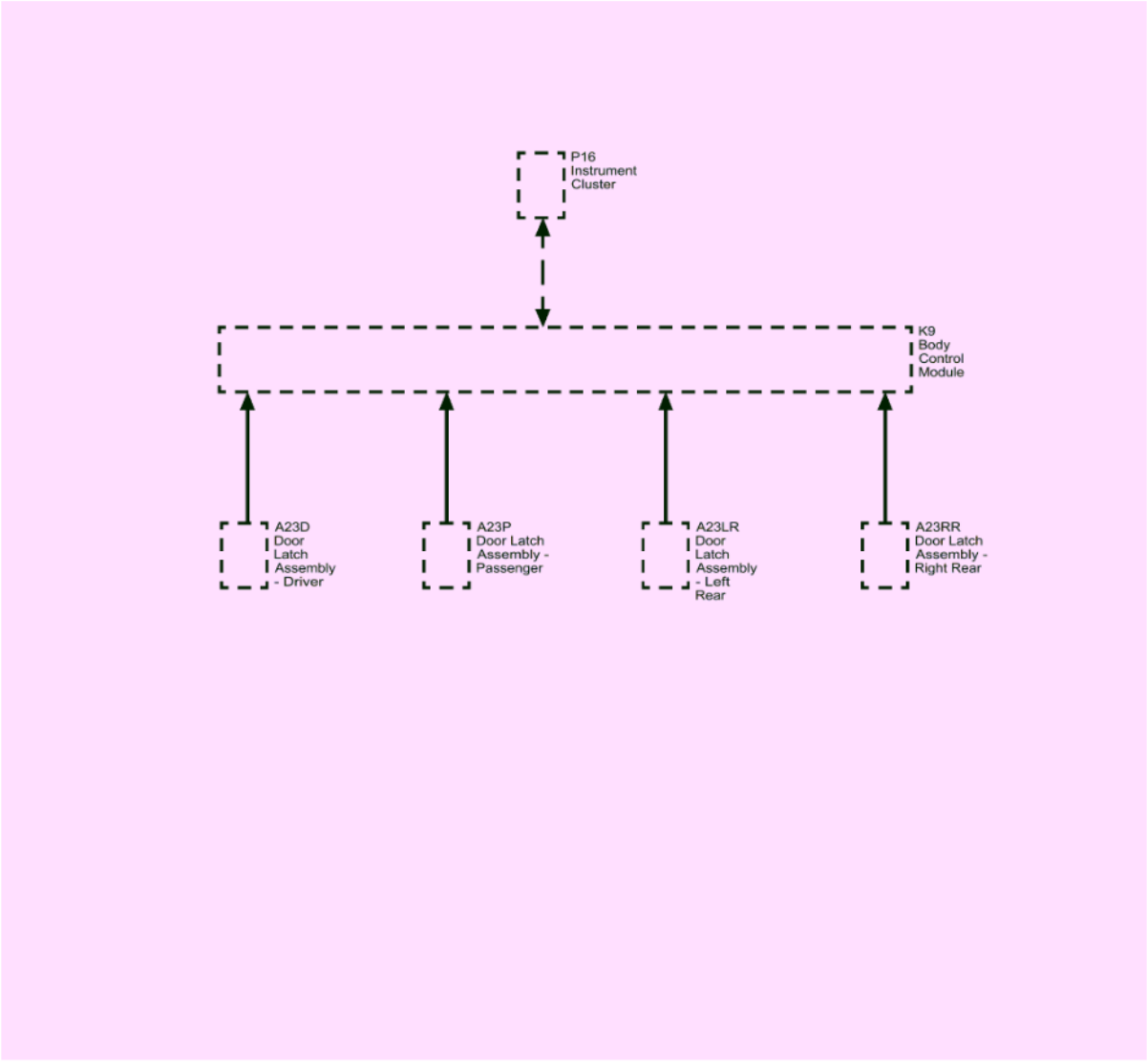


Fig. 84: Passenger and Rear Doors Ajar Block Diagram (With AED and AEQ)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
P16	P16 Instrument Cluster
K9	K9 Body Control Module
A23D	A23D Door Latch Assembly - Driver
A23P	A23P Door Latch Assembly - Passenger
A23LR	A23LR Door Latch Assembly - Left Rear
A23RR	A23RR Door Latch Assembly - Right Rear

Driver, Passenger and Rear Doors Ajar (Without AXG, AED or AEQ)

The body control module provides a 12V signal to each door ajar switch within the door latch to indicate the status of the door. When the door is open, the contract within the ajar switch closes providing a ground part for the signal circuit. The body control module will detect the voltage drop in the ajar signal circuit and will send a message to the instrument cluster which will illuminate the door ajar icon

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POWER DOOR LOCKS DESCRIPTION AND OPERATION

Door Lock System Components

The power door lock system consists of the following components:

- Driver door lock switch
- Child door lockout switch (Part of the driver window switch)
- Passenger door lock switch
- Front door lock actuators
- Rear door lock actuators (Extended and crew cab models)
- Body control module (BCM)
- Keyless entry control module
- Keyless entry transmitter
- Right instrument panel fuse block (Contains child security lock disable PCB relay)

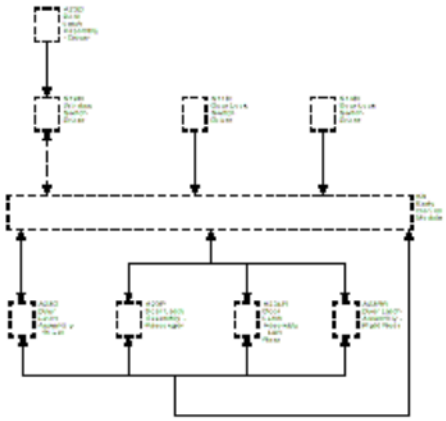


Fig. 85: Power Door Locks Block Diagram
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
A23D	A23D Door Latch Assembly - Driver
S79D	S79D Window Switch - Driver
S13D	S13D Door Lock Switch - Driver
S13D	S13D Door Lock Switch - Driver
K9	K9 Body Control Module
A23RR	A23RR Door Latch Assembly - Right Rear
A23LR	A23LR Door Latch Assembly - Left Rear
A23P	A23P Door Latch Assembly - Passenger
A23D	A23D Door Latch Assembly - Driver

Door Lock System Controls

The power door lock system can be controlled by any of the following:

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- A door lock switch LOCK or UNLOCK activation
- A keyless entry transmitter activation

Door Lock Operation

The BCM supplies a 12 volt signal to the lock and unlock signal circuits of the driver and passenger door lock switches. When the appropriate switch is pressed, a contact within the door lock switch closes providing a ground path for the signal circuit. The BCM will detect the voltage drop in the signal and will command the doors to perform the lock or unlock functions.

The BCM may also receive a LOCK or UNLOCK command from the keyless entry control module, refer to **Keyless Entry System Description and Operation** for information on the keyless entry system

The BCM, upon receipt of a lock switch lock or unlock signal, will supply voltage to the door lock actuator lock or unlock control circuits. Since the opposite side of the lock actuator is connected to ground through the other lock actuator control circuit, the doors will then lock or unlock as commanded.

The following three circuits are used to operate the lock:

- Driver door unlock
- Passenger doors unlock
- All doors lock

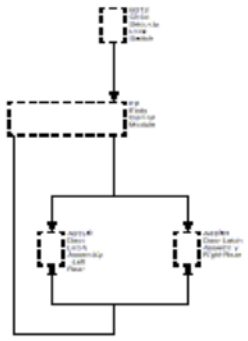


Fig. 86: Power Door Child Lock Block Diagram
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
B272	Child Security Lock Switch
K9	K9 Body Control Module
A23RR	A23RR Door Latch Assembly - Right Rear
A23LR	A23LR Door Latch Assembly - Left Rear

Child Security Lockout System Operation

The child door lockout switch on the driver window switch controls the child locks on the rear doors. The lockout switch is an input to the body control module and the body control module controls the door lock security relay. When the body control module receives a command from the child door lockout switch, it will apply voltage to the child security lock disable relay coil, this will energize the relay and the contact within the relay will then direct the voltage to activate the left rear and right rear child locks and then isolate them from the

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normal door lock system to prevent the rear doors from being opened by using the interior rear door handles. An indicator will also illuminate to alert the driver that the child lockout system has been activated. Pushing the switch again will return normal function to the rear interior door handles and the indicator will go out.

The body control module monitors the voltage level of the child security motor status signal circuit, when the child locks have been activated, the contacts of the child security motor status switch (internal to the rear door latch) will close providing a ground path for the signal circuit pulling the voltage low. It is in this manner that the body control module is able to determine if the rear door latch has been successfully been locked out.

The body control module monitors the status of the child security lockout system, when the body control module detects a fault in the system, it will command the child lockout indicator to flash ON and OFF for 30 seconds to alert the driver that the child security lockout system may not be functioning properly.

The body control module will command the child lockout indicator to flash ON and OFF for the following reasons:

- An open/high resistance in either child security motor status signal circuit
- The body control module detects that one or both rear door latches have not activated and are not locked out
- The body control module detects a short to ground or an open/high resistance in the child security lock disable relay control circuit
- A malfunctioning child security lock disable relay
- An open/high resistance in the child security lock motor control circuit

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

Illustration	Tool Number/ Description

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Illustration	Tool Number/ Description
	BO-51363 Door Handle Spring Retainer

Article GUID: A00854571

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