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SPEC C T ONS

FASTENER TIGHTENING SPECIFICATIONS

Application	Specification	
	Metric	English
Front Side Door Lock Cover Screws	5 N.m	lb in
Front Side Door Lock Cylinder Clamp Screw	5 N.m	lb in
Front Side Door Lock Screws	10 N.m	9 lb in
Front Side Door Inside Handle Screw	2 N.m	1 lb in
Front Side Door Outside Handle Bracket Screw	.5 N.m	39 lb in
Front Side Door Striker Screws	25 N.m	1 lb ft
Hydraulic Pump Filler Screw	1.3 N.m	12 lb in
Liftgate Close Actuator Bracket Nuts	10 N.m	9 lb in
Liftgate Close Actuator Motor Control Module	9 N.m	0 lb in
Liftgate Handle Nuts	N.m	71 lb in
Liftgate Hydraulic Pump Nut	12 N.m	106 lb in
Liftgate Latch Striker Bolts	25 N.m	20 lb ft
Rear Side Door Lock Cylinder Clamp Screw	5 N.m	lb in
Rear Side Door Inside Handle Screws	2 N.m	1 lb in
Rear Side Door Lock Screws	10 N.m	9 lb in
Rear Side Door Outside Handle Bracket Screw	.5 N.m	39 lb in
Rear Side Door Striker Screws	25 N.m	1 lb ft

ADHESI ES, FL IDS, L BRICANTS, AND SEALERS

Application	Type of Material	GM Part Num er	
		nited States	Canada
Liftgate Hydraulic Fluid Reservoir	Hydraulic Fluid	63 5	63 59

SC E T C N RO T N R S

DOOR LOC INDICATOR SCHEMATICS

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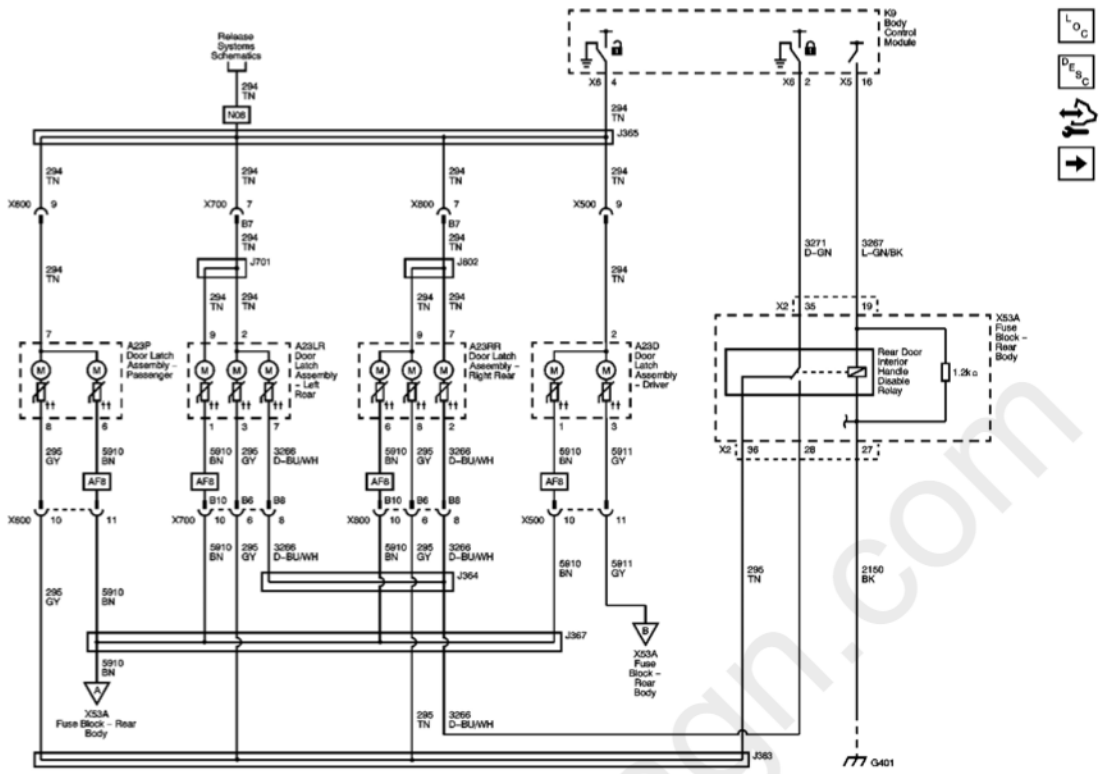


Fig. : Door Loc s Circuit Schematic (Of)
Courtesy of GENERAL MOTORS CORP.

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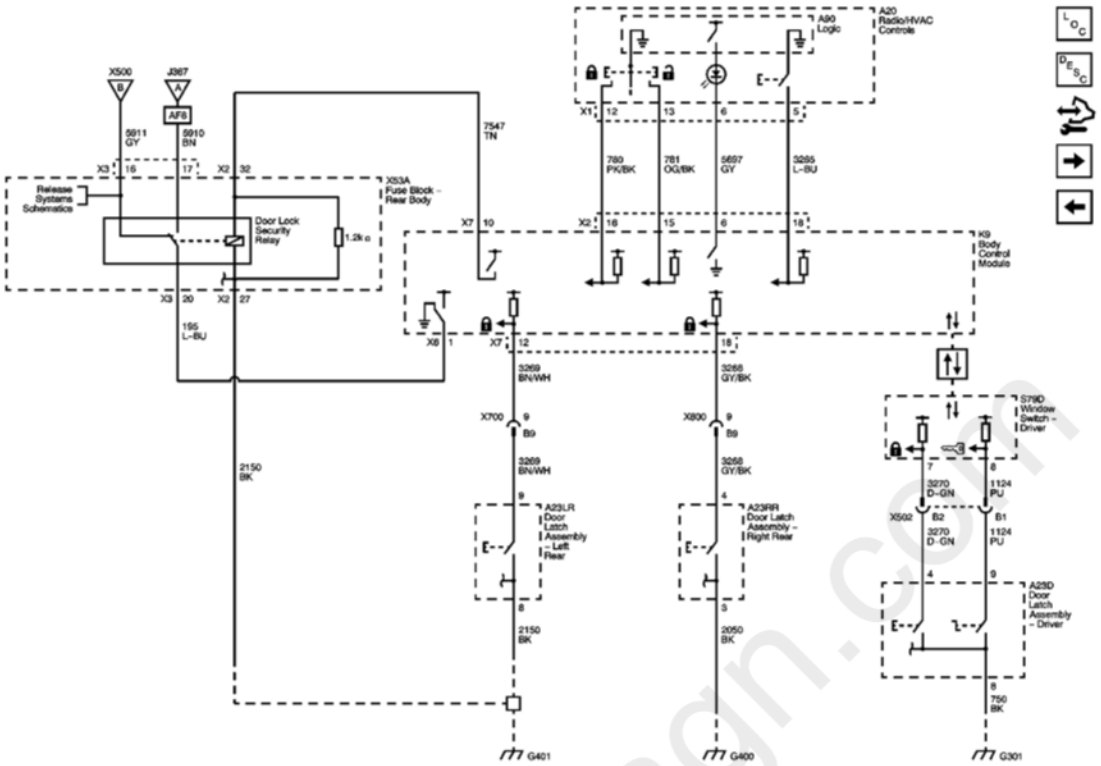


Fig. : Door Loc s Circuit Schematic (Of)
Courtesy of GENERAL MOTORS CORP.

cardiagn.com

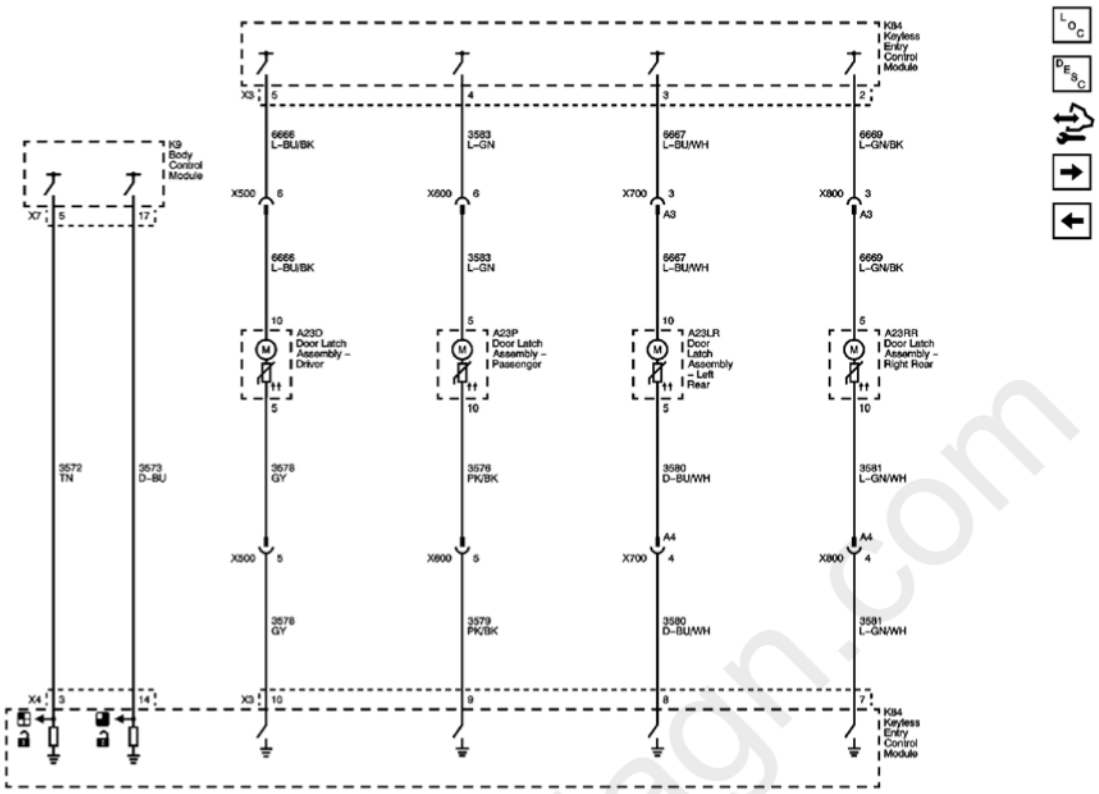


Fig. : Door Loc s Circuit Schematic (ATH) of
Courtesy of GENERAL MOTORS CORP.

cardiagn.com

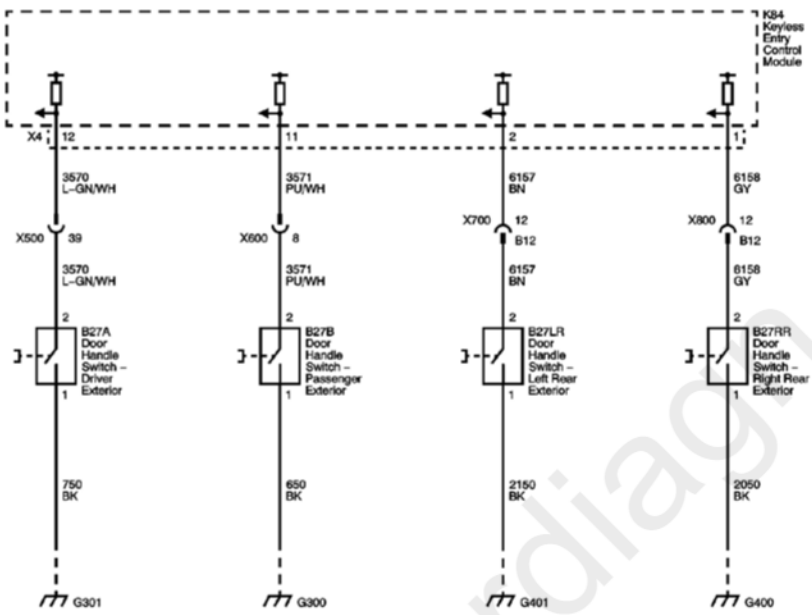


Fig. : Door Loc s Circuit Schematic (ATH) of
Courtesy of GENERAL MOTORS CORP.

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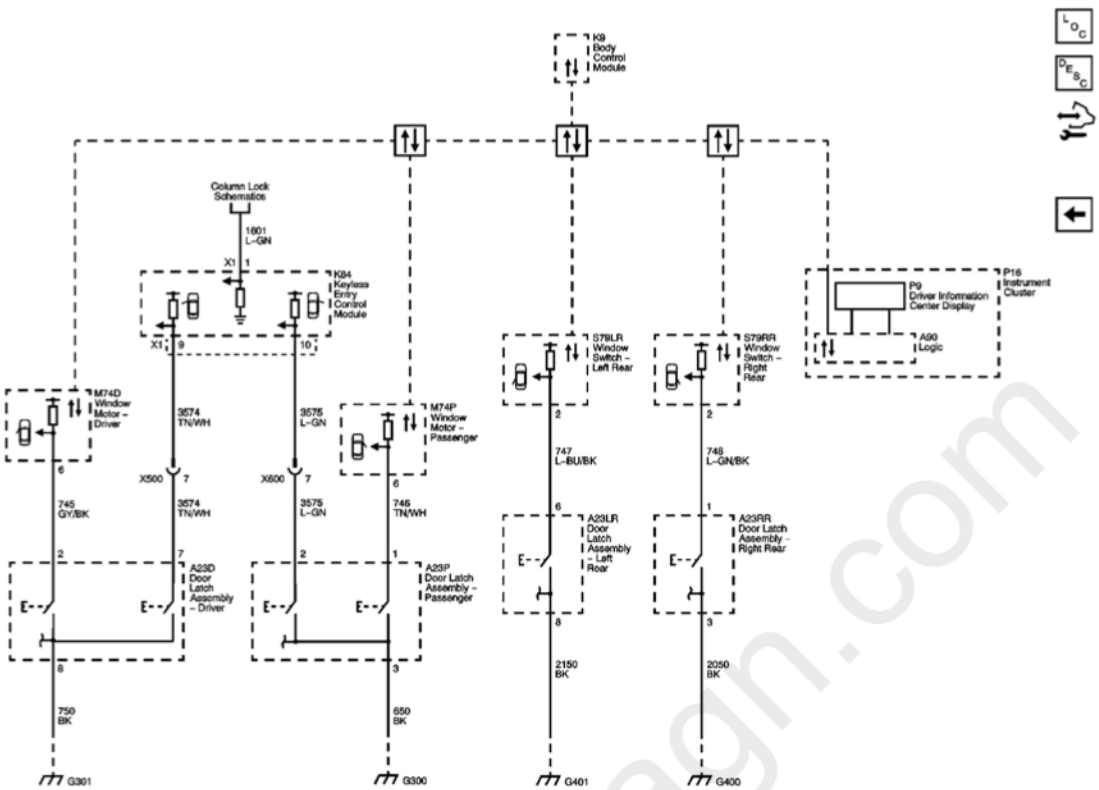


Fig. 5: Door Ajar & Door Open Switches Circuit Schematic
Courtesy of GENERAL MOTORS CORP.

RELEASE SYSTEMS SCHEMATICS

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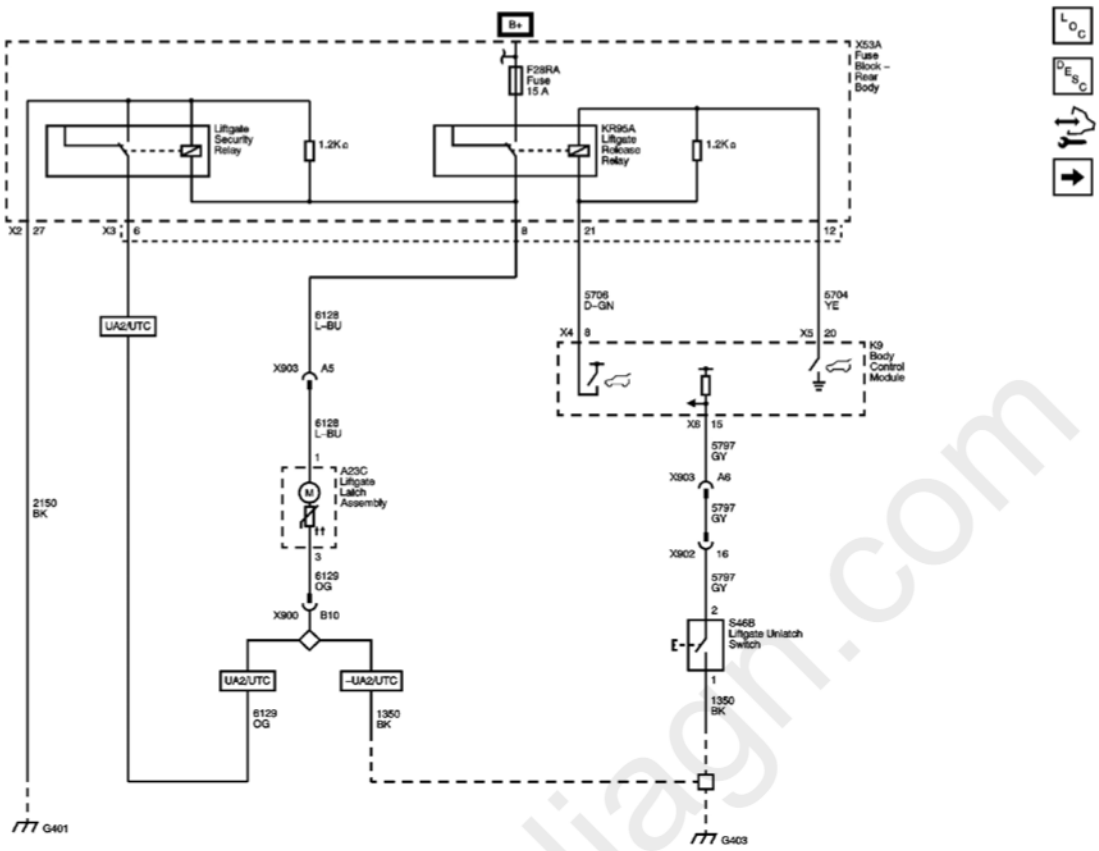


Fig. 6: Liftgate Release Controls Circuit Schematic (Without TB5)
Courtesy of GENERAL MOTORS CORP.

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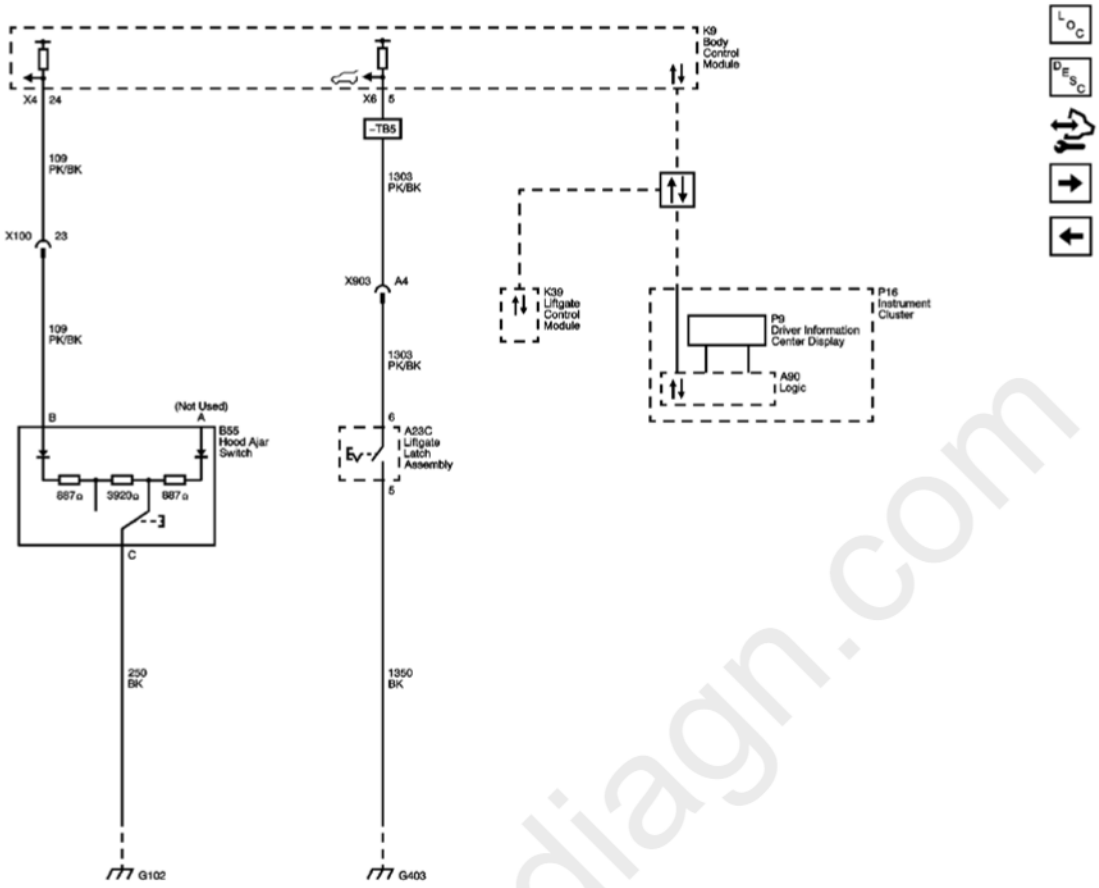


Fig. 7: Liftgate Ajar Switch Circuit Schematic
Courtesy of GENERAL MOTORS CORP.

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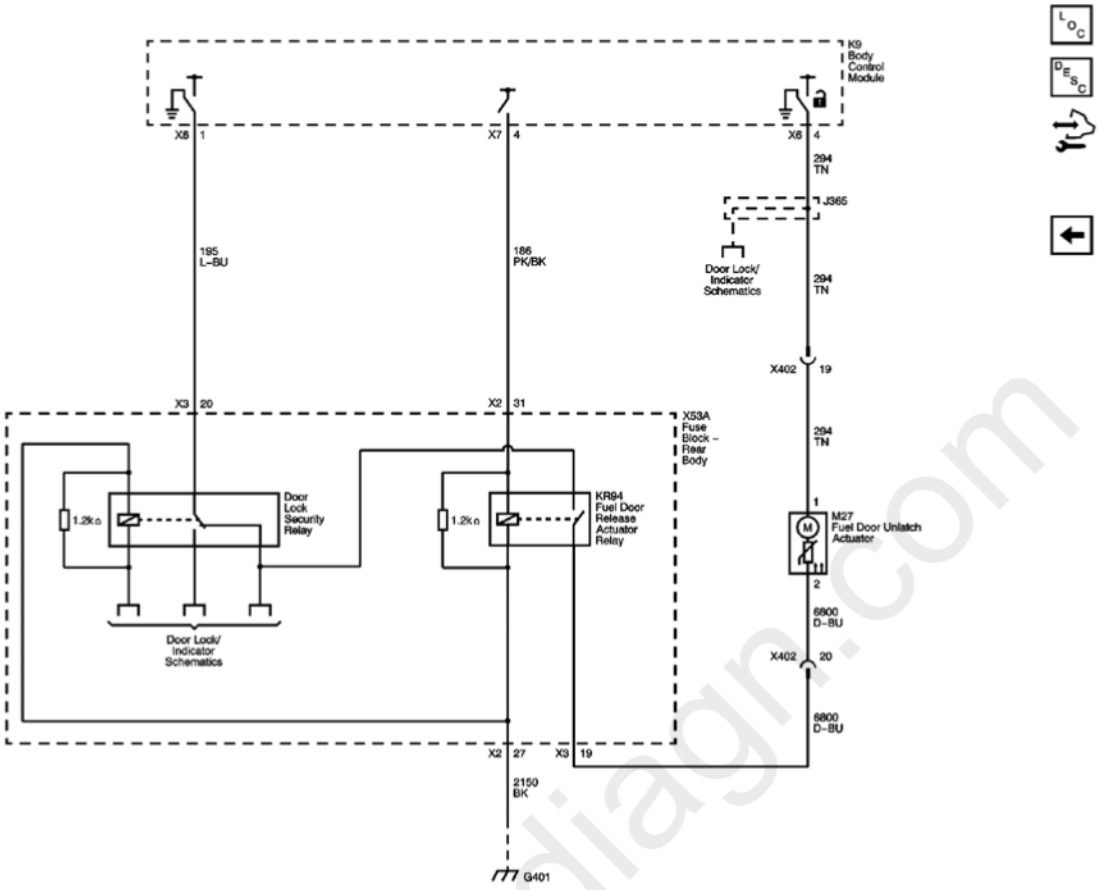


Fig. 8: Fuel Door Release Circuit Schematic (NO8)
Courtesy of GENERAL MOTORS CORP.

LIFTGATE SCHEMATICS

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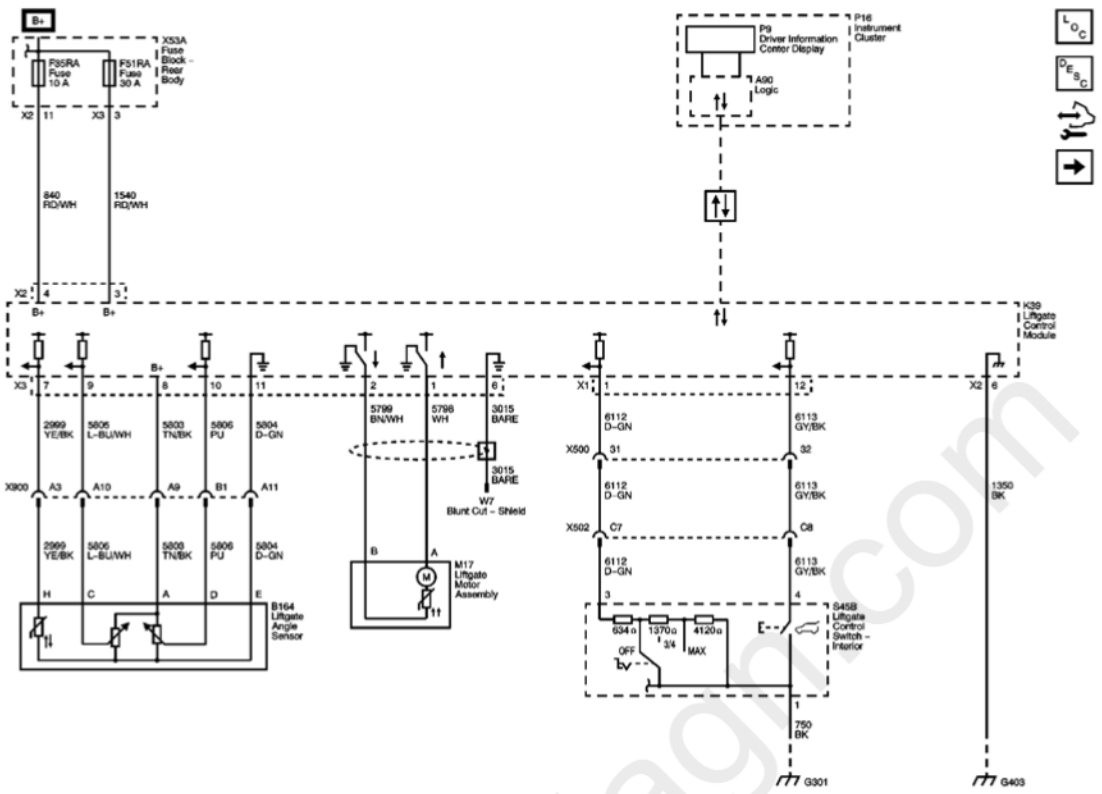


Fig. 9: Power, Ground, Serial Data & Front Controls Circuit Schematic (TB5)
Courtesy of GENERAL MOTORS CORP.

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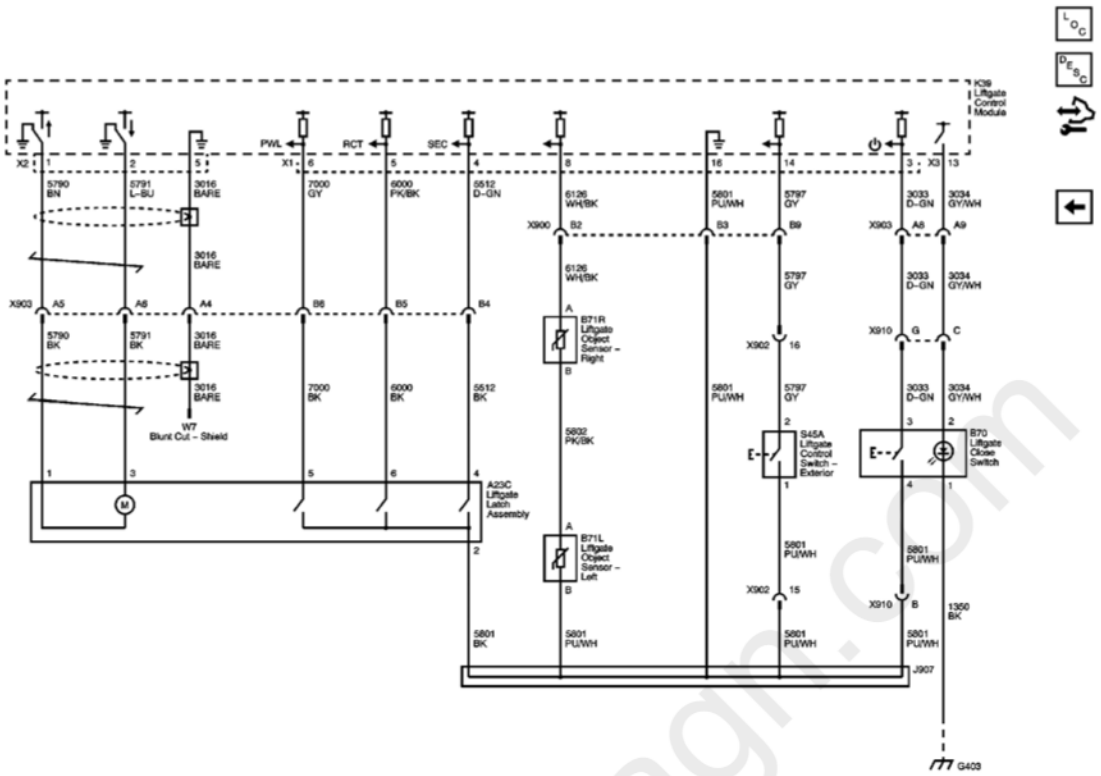


Fig 10 Liftgate Release Controls Circuit Schematic (TB5)
Courtesy of GENERAL MOTORS CORP

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DIAGNOSTIC CODE INDE

DIAGNOSTIC CODE INDE

DTC	Description
DTC B14 4	B1 7 02 Passenger E terior Door Handle Switch Circuit Short to Ground
DTC B1534 or B1535	B153 02 Left Rear Door Handle Switch Circuit Short to Ground B1535 02 Right Rear Door Handle Switch Circuit Short to Ground
DTC B2494 (Manual Liftgate)	B2 9 00 Liftgate Handle Switch Circuit
DTC B2500	B2500 00 Driver E terior nlock Switch Circuit
DTC B250B	B250B 01 Driver Door nlatch Low Control Circuit Short to Battery B250B 02 Driver Door nlatch Low Control Circuit Short to Ground
DTC B251	B2516 00 Driver E terior Lock Sensor Malfunction
DTC B251A-B251F	B251A 01 All Door nlatch Circuit Short to Battery B251A 02 All Door nlatch Circuit Short to Ground B251B 02 Driver Door nlatch High Control Circuit Short to Ground

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	B251B 0 Driver Door nlatch High Control Circuit Open B251C 0 Passenger Door nlatch High Control Circuit Open B251D 0 Left Rear Door nlatch High Control Circuit Open B251E 0 Right Rear Door nlatch High Control Circuit Open
DTC B252A or B252B	B252A 01 Driver Door nlatch Enable Circuit Short to Battery B252B 01 Passenger Door nlatch Enable Circuit Short to Battery
DTC B252C	B252C 00 Child Security Lock Switch Circuit
DTC B252E	B252E 02 Child Security Lock Switch Indicator Circuit Short To Ground
DTC B29 B or B29 C	B297B 5A Driver Door Open Switch Circuit Not Plausible B297C 5A Passenger Door Open Switch Circuit Not Plausible
DTC B3125 B3130 or B3135	B3125 01 Driver Door Only nlock Circuit Short to Battery B3125 02 Driver Door Only nlock Circuit Short to Ground B3130 01 All Doors nlock Circuit Short to Battery B3130 02 All Doors nlock Circuit Short to Ground B3135 01 All Doors Lock Circuit Short to Battery B3135 02 All Doors Lock Circuit Short to Ground
DTC B3140 or B3150	B31 0 00 Driver nlock Switch Circuit B3150 00 Driver Lock Switch Circuit
DTC B3155	B3155 00 Passenger E terior Lock Sensor Malfunction
DTC B324A	B32 A 02 Rear Cargo Door nlock Motor Circuit Short to Ground
DTC B3 9	B3797 02 All Door Dead Lock Circuit Short to Ground
DTC B3 49	B3 9 02 Driver E terior Door Handle Switch Circuit Short to Ground
DTC B3930	B3930 01 Child Security Lock Motors Circuit Short to Battery B3930 02 Child Security Lock Motors Circuit Short to Ground B3930 0 Child Security Lock Motors Circuit Open
DTC B393	B393 01 Fuel Door Actuator Lock Circuit Short to Battery B393 02 Fuel Door Actuator Lock Circuit Short to Ground B393 0 Fuel Door Actuator Lock Circuit Open
Liftgate Angle Sensor Malfunction - DTC B153E	B153E 0 Power Liftgate Angle Sensor - E ternal Signal Invalid
Liftgate Close Switch Malfunction - DTC B39 E	B396E 02 Rear Liftgate Actuator Switch Circuit Short To Ground
Liftgate Control Module - DTC B1019	B1019 00 System Configuration Error
Liftgate Handle Switch Malfunction - DTC B2494	B2 9 02 Liftgate Handle Switch Circuit Short to Ground
Liftgate Interior Release Open/Close Switch Malfunction - DTC B39 C or B39 D	B396C 0 Liftgate Mode Switch Circuit Performance Signal Invalid B396D 02 Front Liftgate Actuator Switch Circuit Short To Ground
Liftgate Latch Release/Cinch Malfunction - DTC B2495	B2 95 01 Liftgate Latch Control Circuit Short to Battery B2 95 02 Liftgate Latch Control Circuit Short to Ground B2 95 0 Liftgate Latch Control Circuit Open
Liftgate Latch Switches	B153A 0 Power Liftgate Latch Switches Signal Invalid

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Malfunction - DTC B153A	
Liftgate O ect Sensor Malfunction - DTC B153F	B153F 02 Liftgate Object Sensor Signal Circuit Short to Ground B153F 05 Liftgate Object Sensor Signal Circuit Short to Battery or Open
Liftgate Motor Power Open/Close Malfunction - DTC B39 A	B396A 01 Liftgate Motor Control Circuit Short to Battery B396A 02 Liftgate Motor Control Circuit Short to Ground B396A 0 Liftgate Motor Control Circuit Open

DTC B14 4

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 B14 4 02

Passenger E terior Door Handle Switch Circuit Short to Ground

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Passenger Door Handle Switch Signal	B1 7 02	1	1	-
Passenger Door Handle Switch Ground	-	1	-	-
1. Power Door nlatch Malfunction				

Circuit/System Description

The keyless entry control module supplies a 12V signal to the passenger e terior door handle switch. When the door handle is activated, the switch closes and the voltage signal from the keyless entry control module is pulled to ground, this input allows the keyless entry control module to detect a door open request

Conditions for Running the DTC

Battery voltage is between 9-16 V.

Conditions for Setting the DTC

The keyless entry control module detects the right front e terior door handle switch signal circuit is shorted to ground or closed for greater than 60 s.

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Action Taken When the DTC Sets

Passenger door will not open unless the passenger door is unlocked.

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 0 ignition cycles.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics

Connector End View Reference

Component Connector End Views

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

Ignition ON, observe the scan tool keyless entry control module E terior Passenger Door Handle Switch parameter while pulling and releasing the passenger door handle. The parameter should change between Active and Inactive as the handle is pulled and released.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the B27B door handle switch - passenger e terior.
2. Ignition ON, verify the scan tool E terior Passenger Door Handle Switch parameter is Inactive.
    - If not the specified value, test the signal circuit terminal 2 for a short to ground. If the circuit tests

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normal, replace the K keyless entry control module.

3. Install a 3 A fused jumper wire between the signal circuit terminal 2 and ground. Verify the scan tool E terior Passenger Door Handle Switch parameter is Active.
   - If not the specified value, test the signal circuit terminal 2 for an open/high resistance. If the circuit tests normal, replace the K keyless entry control module.
. If all circuits test normal, test or replace the B27B door handle switch - passenger e terior.

Component Testing

Passenger Door Handle Switch

1. Ignition OFF, disconnect the harness connector at the B27B door handle switch - passenger e terior.
2. With the switch in the open position, test for infinite resistance between the signal terminal 2 and the ground terminal 1.
   - If not the specified value, replace the B27B door handle switch - passenger e terior.
3. With the switch in the closed position, test for less than 5 ohms between the signal terminal 2 and the ground terminal 1
   - If greater than the specified range, replace the B27B door handle switch - passenger e terior.

Repair Procedures

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

- **Front Side Door Outside Handle Replacement**
- **Control Module References** for keyless entry control module replacement, setup, and programming

DTC B1534 OR B1535

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 B1534 02

Left Rear Door Handle Switch Circuit Short to Ground

DTC B1535 02

Right Rear Door Handle Switch Circuit Short to Ground

Diagnostic Fault Information

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Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Left Rear Door Handle Switch Signal	B153 02	1	1	-
Right Rear Door Handle Switch Signal	B1535 02	1	1	-
Left Rear Door Handle Switch Ground	-	1	-	-
Right Rear Door Handle Switch Ground	-	1	-	-
1. Power Door nlatch Malfunction				

Circuit/System Description

The keyless entry control module supplies a 12V signal to the left rear and right rear e terior door handle switches. When the door handle is activated, the switch closes and the voltage signal from the keyless entry control module are pulled to ground, this input allows the keyless entry control module to detect a door open request.

Conditions for Running the DTC

Battery voltage is between 9-16 V.

Conditions for Setting the DTC

B1534 02

The keyless entry control module detects the left rear e terior door handle switch signal circuit is shorted to ground or closed for greater than 60 seconds.

B1535 02

The keyless entry control module detects the right rear e terior door handle switch signal circuit is shorted to ground or closed for greater than 60 seconds.

Action Taken When the DTC Sets

B1534 02

The passive entry feature will be inoperative for the left rear door and the left rear door will not open unless the door is first unlocked by pressing the appropriate button on the keyless entry transmitter.

B1535 02

The passive entry feature will be inoperative for the right rear door and the right rear door will not open unless the door is first unlocked by pressing the appropriate button on the keyless entry transmitter.

Conditions for Clearing the DTC

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- 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

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, observe the scan tool E terior Left Rear Door Handle Switch parameter while pulling and releasing the B27LR door handle switch - left rear e terior. The parameter should change between Active and Inactive.
    - If the value is always Inactive or always Active, refer to **Left Rear Exterior Door Handle Inoperative**.
2. Ignition ON, observe the scan tool E terior Right Rear Door Handle Switch parameter while pulling and releasing the B27RR door handle switch - right rear e terior. The parameter should change between Active and Inactive.
    - If the value is always Inactive or always Active, refer to **Right Rear Exterior Door Handle Inoperative**.

Circuit/System Testing

Left Rear Exterior Door Handle Inoperative

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1. Ignition OFF, disconnect the harness connector at the B27LR door handle switch-left rear e terior.
2. Ignition ON, verify the scan tool E terior Left Rear Door Handle Switch parameter is Inactive
   - If not the specified value, test the signal circuit terminal 2 for a short to ground. If the circuit tests normal, replace the K keyless entry control module.
3. Install a 3 A fused jumper wire between the signal circuit terminal 2 and ground. Verify the scan tool E terior Left Rear Door Handle Switch parameter is Active.
   - If not the specified value, test the signal circuit terminal 2 for an open/high resistance. If the circuit tests normal, replace the K keyless entry control module.
. If all circuits test normal, test or replace the B27LR door handle switch-left rear e terior.

Right Rear Exterior Door Handle Inoperative

1. Ignition OFF, disconnect the harness connector at the B27RR door handle switch-right rear e terior.
2. Ignition ON, verify the scan tool E terior Right Rear Door Handle Switch parameter is Inactive
   - If not the specified value, test the signal circuit terminal 2 for a short to ground. If the circuit tests normal, replace the K keyless entry control module.
3. Install a 3 A fused jumper wire between the signal circuit terminal 2 and ground. Verify the scan tool E terior Right Rear Door Handle Switch parameter is Active.
   - If not the specified value, test the signal circuit terminal 2 for an open/high resistance. If the circuit tests normal, replace the K keyless entry control module.
. If all circuits test normal, test or replace the B27RR door handle switch-right rear e terior.

Component Testing

Rear Door Handle Switch

1. Ignition OFF, disconnect the harness connector at the appropriate B27 Door Handle Switch - Rear.
2. With the switch in the open position, test for infinite resistance between the signal terminal 2 and the ground terminal 1.
   - If not the specified value, replace the B27 Door Handle Switch - Rear.
3. With the switch in the closed position, test for less than 5 ohms between the signal terminal 2 and the ground terminal 1
   - If greater than the specified range, replace the B27 Door Handle Switch - Rear.

Repair Procedures

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

- **Rear Side Door Outside Handle Replacement**
- **Control Module References** for the keyless entry control module replacement, setup, and programming

DTC B2494 (MANUAL LIFTGATE)

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 Descriptor

DTC B2494 00

Liftgate Handle Switch Circuit

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Liftgate Release Switch Signal	B2 9 00	1	1	-
1. Liftgate Release Switch Malfunction				

Circuit/System Description

The liftgate release switch is an input to the body control module (BCM). The BCM supplies battery voltage to the signal circuit and when the release switch is activated the signal circuit voltage goes low. The BCM controls the liftgate release actuator through the liftgate latch release relay. When the release switch signal is activated, the BCM enables the liftgate latch release relay by applying battery voltage to the liftgate latch release relay supply circuit and the relay is energized when the BCM grounds the liftgate latch release relay control circuit. When the relay is energized battery voltage is supplied to the liftgate release actuator through the liftgate release actuator control circuit.

Conditions for Running the DTC

The system voltage is 9-1 V.

Conditions for Setting the DTC

The liftgate release switch signal circuit is active for longer than 10 minutes.

Action Taken When the DTC Sets

The liftgate latch will malfunction.

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.

Diagnostic Aids

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Before testing can be performed the liftgate must be opened. Refer to **Opening the Liftgate Without Electrical Power** for the appropriate procedure.

Reference Information

Schematic Reference

Liftgate Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Rear Hatch/Gate 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

Ignition ON, observe the scan tool Trunk Lid/Liftglass E terior nlatch Switch parameter while pressing the e terior liftgate switch. The reading should change between Active and Inactive.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the e terior liftgate switch.
2. Test for less than 1.0 ohms between the ground circuit terminal 2 and ground.
   - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition ON, verify the scan tool Trunk Lid/Liftglass E terior nlatch Switch parameter is Inactive.
   - If not the specified parameter, test the signal circuit terminal 1 for a short to ground. If the circuit tests normal, replace the BCM.
. Install a 3 A fused jumper wire between the signal circuit terminal 1 and the ground circuit terminal 2. Verify the scan tool Trunk Lid/Liftglass E terior nlatch Switch parameter is Active.
   - If not the specified parameter, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the BCM.

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5. If all circuits test normal, test or replace the e terior liftgate switch.

Component Testing

1. Ignition OFF, disconnect the harness connector at the e terior liftgate switch.
2. Test for infinite resistance between the signal terminal 1 and the ground terminal 2 with the switch in the open position.
   - If not the specified value, replace the e terior liftgate switch.
3. Test for less than 2.0 ohms between the signal terminal 1 and the ground terminal 2 with the switch in the closed position.
   - If greater than the specified range, replace the e terior liftgate switch.

Repair Procedures

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

- **Liftgate Release Switch Replacement**
- **Control Module References** for BCM replacement, setup and programming

DTC B2500

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 E terior nlock Switch Circuit

Diagnostic Fault Information

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

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 nlock position, a switch within the driver door

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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

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

Insert the key into the driver door lock cylinder, turn the key to the unlock position while observing the scan tool Driver Door Key Cylinder nlock Switch parameter, the value should change from Inactive to Active.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the A23D door latch assembly-driver.
2. Ignition ON, verify the scan tool Driver Door Key Cylinder nlock Switch parameter is Inactive.
    - If not the specified value, test the signal circuit terminal listed below for a short to ground. If the circuits test normal, replace the S79D window switch - driver.
        - Right hand drive terminal
        - Left hand drive terminal 9
3. If all circuits tests normal, 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 terminals listed below with the switch in the open position.
    - Right hand drive terminal and terminal
    - Left hand drive terminal 9 and terminal
    - If not the specified value, replace the A23D door latch assembly-driver.
3. Test for less than 2.0 ohms between the terminals listed below with the switch in the unlock position.
    - Right hand drive terminal and terminal
    - Left hand drive terminal 9 and terminal
    - If greater than the specified range, replace the A23D door latch assembly-driver.

Repair Procedures

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

- **Front Side Door Window and Multifunction Switch Replacement**
- **Front Side Door Lock Replacement**

DTC B250B

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.

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DTC Descriptors

DTC B250B 01

Driver Door nlatch Low Control Circuit Short to Battery

DTC B250B 02

Driver Door nlatch Low Control Circuit Short to Ground

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Driver Door Latch Signal	B250B 02	B251B 0	B250B 01	-
Driver Door nlatch Signal	B250B 02	B251B 0	B250B 01	-

Circuit/System Description

When any e terior door handle is lifted, switched ground signals are sent to the keyless entry control module through the door handle switch signal circuits. pon receipt of these inputs, the keyless entry control module will check the door lock status of the following inputs

- Door unlock switch activation
- Keyless entry unlock command
- Passive keyless entry unlock command message is received by the keyless entry control module

Once the enable criteria has been met, the keyless entry control module will supply power and ground to door latch control circuits and the door will release.

Conditions for Running the DTC

Battery voltage is between 9-16 V.

Conditions for Setting the DTC

B250B 01

The keyless entry control module detects a short to battery in the driver door latch signal circuit.

B250B 02

The keyless entry control module detects a short to ground in the driver door unlatch signal circuit.

Action Taken When the DTC Sets

The passive entry feature will be inoperative for the driver door and the driver door will not open unless the

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door is first unlocked by pressing the appropriate button on the keyless entry transmitter.

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 0 ignition cycles.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Power Door Latch Description and Operation

Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Ignition OFF, with the doors closed and locked, approach the vehicle with the keyless entry transmitter and pull the e terior driver door handle. The driver door should unlock and unlatch allowing the driver door to be pulled open.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the A23D door latch assembly-driver.
2. Connect a test lamp between control circuit terminal 10 and ground.
3. Ignition ON, command the door to NLATCH by lifting the driver e terior door handle. The test lamp should illuminate during the NLATCH command.
    - If the test lamp is always ON, test the control circuit for a short to voltage. If the circuit tests

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normal. replace the K84 keyless entry control module.

- If the test lamp is always OFF, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal. replace the K84 keyless entry control module.

4. Connect a test lamp between control circuit terminal 5 and B+.
5. Command the door to UNLATCH by lifting the driver exterior door handle. The test lamp should illuminate during the UNLATCH command.
   - If the test lamp is always ON, test the control circuit for a short to ground. If the circuit tests normal. replace the K84 keyless entry control module.
   - If the test lamp is always OFF, test the control circuit for a short to voltage or an open/high resistance. If the circuit tests normal. replace the K84 keyless entry control module.
6. If all circuits test normal, test or replace the A23D door latch assembly-driver.

Repair Procedures

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

- **Front Side Door Lock Replacement**
- **Control Module References** for the keyless entry control module replacement, setup, and programming

DTC B251

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 B251 00

Driver Exterior Lock Sensor Malfunction

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Driver Door Lock Switch Signal	B2516 00	1	1	-
Driver Door Handle Ground	-	1	-	-
1. Exterior Door Lock Switch Malfunction				

Circuit/System Description

The exterior driver door handle contains a small sensor which allows the driver to lock the vehicle doors from the outside without using the remote keyless transmitter. The keyless entry control module monitors the voltage

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level on the driver door handle switch signal circuit, when the switch is pressed, the voltage in the signal circuit will drop and the keyless entry control module will then send a serial data message to the BCM to command all the doors to lock.

Conditions for Running the DTC

Battery voltage is between 9-16 V.

Conditions for Setting the DTC

The keyless entry control module detects the driver door lock switch signal circuit is shorted to ground for greater than 45 seconds.

Action Taken When the DTC Sets

The keyless entry control module ignores inputs from the left front exterior door handle 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

Remote Function Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Power Door Latch 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

Ignition ON, observe the scan tool Exterior Driver Door Handle Proximity Sensor parameter while pressing and releasing the driver door handle lock switch. The value should change between Active and Inactive as the switch is pressed and released.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the A24D Door Handle Assembly-Driver.
2. Ignition ON, verify the scan tool Exterior Driver Door Handle Proximity Sensor parameter is Inactive.
    - If not the specified value, test the signal circuit terminal 3 for a short to ground. If the circuit tests normal, replace the K84 Keyless Entry Control Module.
3. If all circuits test normal, test or replace the A24D Door Handle Assembly-Driver.

Repair Procedures

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

- **Front Side Door Outside Handle Replacement**
- **Control Module References** for the keyless entry control module replacement, setup and programming

DTC B251A-B251F

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 B251A 01

All Door Unlatch Circuit Short to Battery

DTC B251A 02

All Door Unlatch Circuit Short to Ground

DTC B251B 02

Driver Door Unlatch High Control Circuit Short to Ground

DTC B251B 04

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Driver Door Unlatch High Control Circuit Open

DTC B251C 04

Passenger Door Unlatch High Control Circuit Open

DTC B251D 04

Left Rear Door Unlatch High Control Circuit Open

DTC B251E 04

Right Rear Door Unlatch High Control Circuit Open

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Driver Door Lock Actuator Unlock Control	B251B 02	1	B252A 01	-
Door Lock Control	B251A 02	2, 3, 4	B252B 01	-
Driver Door Unlatch Motor Unlatch Control	B251B 02	B251B 04	1	-
Passenger Door Unlatch Motor Unlatch Control	B251A 02	B251C 04	B251A 01	-
Left Rear Door Unlatch Motor Unlatch Control	B251A 02	B251D 04	B251A 01	-
Right Rear Door Unlatch Motor Unlatch Control	B251A 02	B251E 04	B251A 01	-
Keyless Entry Control Module Ground	-	B251B 04, B251C 04, B251E 04, B250B 01, B251A 01	-	-
1. Driver Door Unlatch Malfunction 2. Passenger Door Unlatch Malfunction 3. Left Rear Door Unlatch Malfunction 4. Right Rear Door Unlatch Malfunction				

Circuit/System Description

The system is designed so that when the operator approaches a locked vehicle with the keyless entry transmitter, the keyless entry control module will detect the keyless entry transmitter and when an exterior door handle is pulled the keyless entry control module will command all doors to unlock and the door to unlatch allowing the door to be pulled open.

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Conditions for Running the DTC

The system voltage is 9-16 V.

Conditions for Setting the DTC

B251A 01

The keyless entry control module detects a short to voltage on the passenger or left rear or right rear door latch motor unlatch low control circuit.

B251A 02

The keyless entry control module detects a short to ground on the passenger or left rear or right rear door latch motor unlatch low control circuit.

B251A 02

The BCM detects a short to ground on the passenger door lock actuator unlock control circuit.

B251B 04

The keyless entry control module detects an open/high resistance in the driver door latch motor unlatch control circuit.

B251B 02

The BCM detects a short to ground on the driver door lock actuator unlock control circuit

B251C 04

The keyless entry control module detects an open/high resistance on the passenger door latch motor unlatch control circuit.

B251D 04

The keyless entry control module detects an open/high resistance on the left rear door latch motor unlatch control circuit.

B251E 04

The keyless entry control module detects an open/high resistance on the right rear door latch motor unlatch control circuit.

Action Taken When the DTC Sets

The affected door will require a pull of the exterior door handle to unlock the door and a second pull of the exterior door handle to open the door.

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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 40 ignition cycles

Diagnostic Aids

DTC B1330 03 and B251A 02 may sent concurrently, correct the condition for setting DTC B1330 03 first before performing diagnostics testing for B251A 02. Refer to **Diagnostic Trou le Code DTC List - Vehicle** to locate the correct procedure.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics

Connector End View Reference

Component Connector End Views

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 OFF, with the doors closed and locked, approach the vehicle with the keyless entry transmitter and pull the exterior driver door handle. The driver door should unlock and unlatch allowing the driver door to be pulled open.
    - If the driver door will not unlock and open with a single pull of the exterior door handle, refer to **Driver Door Latch Malfunction**.
2. With the doors closed and locked, approach the vehicle with the keyless entry transmitter and pull the exterior passenger door handle or the exterior left rear door handle or the exterior right rear door handle.

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The appropriate door should unlock and unlatch allowing the door to be pulled open.

- If all the passenger, left rear and right rear doors will not unlock and open with a single pull of the exterior door handle, refer to **Passenger and Rear Door Release Command Inoperative**.
- If a door will not unlock and open with a single pull of the door handle, refer to **Passenger or Rear Door Latch Malfunction**.

Circuit/System Testing

Driver Door Latch Malfunction

1. Ignition OFF, disconnect the X2 harness connector at the K84 keyless entry control module.
2. Test for less than 10 ohms between the ground circuit terminal 6 and ground.
   - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition OFF, connect the X2 harness connector and disconnect the X4 harness connector at the K84 keyless entry control module.
4. Test for infinite resistance between the control circuit terminal 3 and ground.
   - If less than the specified value, test the control circuit for a short to ground. If the circuit tests normal, replace the K9 BCM.
5. Ignition OFF, connect the X4 harness connector at the K84 keyless entry control module.
6. Disconnect the harness connector at the A23D door latch assembly - driver.
7. Connect a test lamp between the control circuit terminal 5 and control circuit terminal 10.
8. Pull and release the exterior driver door handle, the test lamp should briefly illuminate while the exterior door handle is being pulled.
   - If the test lamp is always OFF, test either control circuit for a short to ground or an open/high resistance. If the circuits test normal, replace the K84 keyless entry control module.
   - If the test lamp is always ON, test either control circuit for a short to voltage. If the circuits test normal, replace the K84 keyless entry control module.
9. If all circuits test normal, test or replace the A23D door latch assembly - driver.

Passenger and Rear Door Release Command Inoperative

1. Ignition OFF, disconnect the X4 harness connector at the K84 keyless entry control module.
2. Test for infinite resistance between the control circuit terminal 14 and ground.
   - If less than the specified value, test the control circuit for a short to ground. If the circuit tests normal, replace the K9 BCM.
3. If all circuits test normal, replace the K84 keyless entry control module.

Passenger or Rear Door Latch Malfunction

1. Ignition OFF, disconnect the harness connector at the appropriate A23 door latch assembly.
2. Connect a test lamp between the control circuit terminal 5 and control circuit terminal 10.
3. Pull and release the appropriate exterior door handle, the test lamp should briefly illuminate while the exterior door handle is being pulled.

- If the test lamp is always OFF, test either control circuit for a short to ground or an open/high resistance. If the circuits test normal, replace the K84 keyless entry control module.
- If the test lamp is always ON, test either control circuit for a short to voltage. If the circuits test normal, replace the K84 keyless entry control module.

4. If all circuits test normal, test or replace the A23 door latch assembly.

Repair Procedures

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

- **Front Side Door Lock Replacement**
- **Rear Side Door Lock Replacement**
- **Control Module References** for BCM or keyless entry control module replacement, setup and programming

DTC B252A OR B252B

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 B252A 01

Driver Door Unlatch Enable Circuit Short to Battery

DTC B252B 01

Passenger Door Unlatch Enable Circuit Short to Battery

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Driver Door Release Signal	B251B 02	1	B252A 01	-
Passenger Door Release Signal	B251A 02	2	B252B 01	-
1. Driver Door Unlatch Malfunction 2. Passenger Door, Left Rear Door and Right Rear Door Unlatch Malfunction				

Circuit/System Description

The keyless entry control module will detect the keyless entry transmitter when an exterior door handle is

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pulled and the transmitter is within 1 meter (3 feet) of the door handle, the body control module (BCM) will unlock the doors and send the unlatch enable signal to keyless entry control module.

Conditions for Running the DTC

The system voltage is 9-16 V.

Conditions for Setting the DTC

B252A 02

The keyless entry control module detects a short to voltage for greater than 3 seconds on the driver door lock actuator unlock control circuit.

B252B 02

The keyless entry control module detects a short to voltage for greater than 3 seconds on the door lock control circuit.

Action Taken When the DTC Sets

B252A 02

The driver door will require two pulls of their exterior door handle to unlock the door and then to unlatch the door.

B252B 02

The passenger, left rear and right rear doors will require two pulls of their exterior door handles to unlock the doors and then to unlatch the doors.

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 40 ignition cycles

Reference Information

Schematic Reference

Door Lock/Indicator Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

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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. Doors locked, approach the vehicle with the keyless entry transmitter and lift the exterior driver door handle. The driver door should unlock and unlatch allowing the driver door to be pulled open.
    - If the driver door will not unlock and unlatch with a single pull of the driver door handle, refer to **Driver Door Release Command Malfunction**.
2. Doors locked, approach the vehicle with the keyless entry transmitter and lift the exterior passenger door handle. The passenger door should unlock and unlatch allowing the passenger door to be pulled open.
    - If the passenger door will not unlock and unlatch with a single pull of the door handle, refer to **Passenger and Rear Door Release Command Malfunction**.

Circuit/System Testing

Driver Door Release Command Malfunction

1. Ignition OFF, disconnect the X4 harness connector at the K84 keyless entry control module.
2. Verify that a test lamp does not illuminate between the signal circuit terminal 3 and ground.
    - If the test lamp is ON, test the signal circuit for a short to voltage. If the circuit tests normal, replace the K9 BCM.
3. If all circuits test normal, replace the K84 keyless entry control module.

Passenger and Rear Door Release Command Malfunction

1. Ignition OFF, disconnect the X4 harness connector at the K84 keyless entry control module.
2. Verify that a test lamp does not illuminate between the signal circuit terminal 14 and ground.
    - If the test lamp is ON, test the signal circuit for a short to voltage. If the circuit tests normal, replace the K9 BCM.
3. If all circuits test normal, replace the K84 keyless entry control module.

Repair Procedures

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

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Control Module References for BCM or keyless entry control module replacement, setup and programming

DTC B252C

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
Child Security Door Lockout Signal	B252C 00	1	1	-
Radio/HVAC Control 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 BCM will ignore the input from the lockout switch and the child lockout feature 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

Door Lock/Indicator Schematics

Connector End View Reference

Component Connector End Views

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

Ignition ON, doors locked, command the child lockout function by pressing the child lockout switch, the interior rear door handles should become inoperative and the lockout indicator should illuminate.

Circuit/System Testing

1. Ignition OFF, disconnect the X1 harness connector at the A20 radio/HVAC control.
2. Ignition ON, test for greater than 10 V between the signal circuit terminal 5 and ground.
    - If less than the specified range, test the signal circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the BCM.
3. If all circuits test normal, test or replace the A20 radio/HVAC control.

Component Testing

Child Lockout Switch Test

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1. Ignition OFF, disconnect the X1 harness connector at the A20 radio/HVAC control.
2. Test for infinite resistance between the signal terminal 5 and the ground terminal 17 with the switch in the open position.
   - If less than the specified value, replace the A20 radio/HVAC control.
3. Test for less than 2 ohms between the signal terminal 5 and the ground terminal 17 while holding the switch in the closed position.
   - If greater than the specified range, replace the A20 radio/HVAC control.

Repair Procedures

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

Control Module References for BCM and the radio/HVAC control replacement, setup and programming

DTC B252E

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 02

Child Security Lock Switch Indicator Circuit Short To Ground

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Child Security Indicator Control	B252E 02	1	1	-
1. Child Security Indicator Inoperative				

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 rear door latches have been disabled.

Conditions for Running the DTC

The system voltage is 9-16 V.

Conditions for Setting the DTC

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

Action Taken When the DTC Sets

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

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

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

Ignition ON, observe the function of the child security lockout indicator while pressing and depressing the child lockout switch. The child security lockout indicator should turn ON and OFF each time the child lockout switch is pressed.

Circuit/System Testing

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1. Ignition OFF, disconnect the X2 harness connector at the K9 BCM.
2. Ignition ON, verify that the child security lockout indicator is OFF.
    - If the child security lockout indicator is ON, test the control circuit terminal 6 for a short to ground. If the circuit tests normal, replace the A20 radio/HVAC control.
3. If all circuits test normal, replace the K9 BCM.

Repair Procedures

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

Control Module References for BCM and HVAC control replacement, setup and programming

DTC B29 B OR B29 C

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 B29 B 5A

Driver Door Open Switch Circuit Not Plausible

DTC B29 C 5A

Passenger Door Open Switch Circuit Not Plausible

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Driver Door Open Switch Signal	B297B 5A	B297B 5A	B297B 5A	-
Passenger Door Open Switch Signal	B297C 5A	B297C 5A	B297C 5A	-
Driver Door Latch Ground	-	1	-	-
Passenger Door Latch Ground	-	1	-	-
1. Ajar Indicator Malfunction				

Circuit/System Description

The keyless entry control module supplies a 12V signal to the driver and passenger door open switch signal circuits. The driver window motor supplies a 12V signal to the driver door ajar switch signal circuit. The passenger window switch supplies a 12V signal to the passenger door ajar switch signal circuit. The door open

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switches and the door ajar switches are integral to each door latch assembly.

The door open switch and the door ajar switch contacts will be open with the door is fully closed, the door switches within the door latch are designed so that the when the door is ajar, the contact in the door ajar switch closes and the window motor will then send a serial data message to the BCM indicating that the door is ajar. When the door is opened further, the contact in the door open switch will then close providing a ground for the door open signal circuit, the keyless entry control module will then detect that the door is open.

Conditions for Running the DTC

Battery voltage is between 9-16 V.

Conditions for Setting the DTC

B297B 5A

- The keyless entry control module detects the driver door open switch is Active while receiving a serial data message from the BCM that the driver door ajar switch is Inactive.
- The condition must be present for greater than 2 seconds

B297C 5A

- The keyless entry control module detects the passenger door open switch is Active while receiving a serial data message from the BCM that the passenger door ajar switch is Inactive.
- The condition must be present for greater than 2 seconds.

Action Taken When the DTC Sets

B297B 5A

The keyless entry control module ignores the inputs from the driver exterior door handle switch.

B297C 5A

The keyless entry control module ignores the inputs from the passenger exterior door handle switch.

Conditions for Clearing the DTC

- The DTC will be current for as long as the fault is present.
- When the keyless entry control module receives a serial data message from the BCM that the door is ajar before the keyless entry control module detects the door open switch is active, then the DTC will be a history DTC.
- A history DTC will clear after 50 ignition cycles.

Reference Information

Schematic Reference

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Door Lock/Indicator Schematics

Connector End View Reference

Component Connector End Views

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, observe the scan tool BCM Driver Door Ajar Switch parameter while opening and closing the driver door. The parameter should change between Active and Inactive.
    - If the value does not change, refer to **Driver Door Ajar Switch Malfunction**.
2. Observe the scan tool keyless entry control module Driver Door Open Switch parameter while opening and closing the driver door. The parameter should change between Active and Inactive.
    - If the value does not change, refer to **Driver Door Open Switch Malfunction**.
3. Observe the scan tool BCM Passenger Door Ajar Switch parameter while opening and closing the passenger door. The parameter should change between Active and Inactive.
    - If the value does not change, refer to **Passenger Door Ajar Switch Malfunction**.
4. Observe the scan tool keyless entry control module Passenger Door Open Switch parameter while opening and closing the passenger door. The parameter should change between Active and Inactive.
    - If the value does not change, refer to **Passenger Door Open Switch Malfunction**.

Circuit/System Testing

Driver Door Ajar Switch Malfunction

1. Ignition OFF, disconnect the harness connector at the A23D door latch assembly - driver.
2. Test for less than 10 ohms between the ground circuit terminal 8 and ground.
    - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition ON, verify the scan tool BCM Driver Door Ajar Switch parameter is Inactive.

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- If not the specified value, test the signal circuit terminal 6 for a short to ground. If the circuit tests normal, replace the M74D window motor - driver.

4. Install a 3 A fused jumper wire between the signal circuit terminal 6 and ground. Verify the scan tool BCM Driver Door Ajar Switch parameter is Active.
   - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the M74D window motor - driver.
5. If all circuits test normal, test or replace the A23D door latch assembly - driver.

Driver Door Open Switch Malfunction

1. Ignition OFF, disconnect the harness connector at the A23D door latch assembly - driver.
2. Ignition ON, verify the scan tool keyless entry control module Driver Door Open Switch parameter is Inactive.
   - If not the specified value, test the signal circuit terminal 7 for a short to ground. If the circuit tests normal, replace the K84 keyless entry control module.
3. Install a 3 A fused jumper wire between the signal circuit terminal 7 and ground. Verify the scan tool keyless entry control module Driver Door Open Switch parameter is Active.
   - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K84 keyless entry control module.
4. If all circuits test normal, test or replace the A23D door latch assembly - driver

Passenger Door Ajar Switch Malfunction

1. Ignition OFF, disconnect the harness connector at the A23P door latch assembly - passenger.
2. Test for less than 10 ohms between the ground circuit terminal 3 and ground.
   - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition ON, verify the scan tool BCM Passenger Door Ajar Switch parameter is Inactive.
   - If not the specified value, test the signal circuit terminal 1 for a short to ground. If the circuit tests normal, replace the M74P window motor - passenger.
4. Install a 3 A fused jumper wire between the signal circuit terminal 1 and ground. Verify the scan tool BCM Passenger Door Ajar Switch parameter is Active.
   - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the M74P window motor - passenger.
5. If all circuits test normal, test or replace the A23P door latch assembly - passenger.

Passenger Door Open Switch Malfunction

1. Ignition OFF, disconnect the harness connector at the A23P door latch assembly - passenger.
2. Ignition ON, verify the scan tool keyless entry control module Passenger Door Open Switch parameter is Inactive.
   - If not the specified value, test the signal circuit terminal 2 for a short to ground. If the circuit tests normal, replace the K84 keyless entry control module.
3. Install a 3 A fused jumper wire between the signal circuit terminal 2 and ground. Verify the scan tool

keyless entry control module Passenger Door Open Switch parameter is Active.

- If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K84 keyless entry control module.

4. If all circuits test normal, test or replace the A23P door latch assembly - passenger

Component Testing

1. Ignition OFF, disconnect the harness connector at the appropriate A23 door latch assembly.
2. With the switch in the open position, test for infinite resistance between the signal terminal and ground terminal listed below
   - A23D door latch assembly - driver signal terminal 6 and ground terminal 8
   - A23D door latch assembly - driver signal terminal 7 and ground terminal 8
   - A23P door latch assembly - passenger signal terminal 1 and ground terminal 3
   - A23P door latch assembly - passenger signal terminal 2 and ground terminal 3
   - If not the specified value, replace the A23 door latch assembly
3. With the switch in the closed position, test for less than 5 ohms between the signal terminal and ground terminal listed below
   - A23D door latch assembly - driver signal terminal 6 and ground terminal 8
   - A23D door latch assembly - driver signal terminal 7 and ground terminal 8
   - A23P door latch assembly - passenger signal terminal 1 and ground terminal 3
   - A23P door latch assembly - passenger signal terminal 2 and ground terminal 3
   - If greater than the specified range, replace the A23 door latch assembly

Repair Procedures

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

- **Front Side Door Lock Replacement**
- **Control Module References** for BCM and keyless entry control module replacement, setup and programming

DTC B3125, B3130, OR B3135

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 01

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Driver Door Only Unlock Circuit Short to Battery

DTC B3125 02

Driver Door Only Unlock Circuit Short to Ground

DTC B3130 01

All Doors Unlock Circuit Short to Battery

DTC B3130 02

All Doors Unlock Circuit Short to Ground

DTC B3135 01

All Doors Lock Circuit Short to Battery

DTC B3135 02

All Doors Lock Circuit Short to Ground

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,	2	B3125 01, B3130 01,	-

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	B3135 02		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, B3135 02	4	B3125 01, B3130 01, 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) controls the door lock, passenger door unlock and driver door unlock circuits. Voltage is applied to the appropriate circuit when the BCM senses a door lock/unlock switch activation or a keyless entry lock or unlock command.

Conditions for Running the DTC

The system voltage is 9-16 V.

Conditions for Setting the DTC

B3125 01 B3130 01 B3135 02

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

B3125 02 B3130 02 B3135 02

The BCM detects a short to ground 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

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Schematic Reference

Door Lock/Indicator Schematics

Connector End View Reference

Component Connector End Views

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

Ignition ON, command the doors to LOCK and UNLOCK by using the central door lock switch, all doors should LOCK and UNLOCK while changing between the commanded states.

Circuit/System Testing

1. Ignition OFF, disconnect the X2 harness connector at the K9 BCM
2. Ignition ON, verify that a test lamp illuminates between the B+ circuit terminal 4 and ground.
    - If the test lamp does not illuminate, test the B+ circuit for a short to ground or an open/high resistance. If the circuit tests normal and the B+ circuit fuse is open, replace the K9 BCM.
3. Ignition OFF, disconnect the X6 harness connector at the K9 BCM.
4. Disconnect the X2 and X3 harness connectors at the X53 fuse block-rear
5. Test for 5-20 ohms between the control circuit terminal 4 X6 at the K9 BCM and control circuit terminal 36 X2 at the X53 fuse block-rear.
    - If less than the specified range, test either control circuit for a short to ground. If the circuits test normal, test or replace the appropriate A23 door latch assembly.
    - If greater than the specified range, test either control circuit for a short to voltage or an open/high resistance. If the circuits test normal, test or replace the appropriate A23 door latch assembly.
6. Test for 5-20 ohms between the control circuit terminal 4 X6 at the K9 BCM and control circuit terminal 28 X2 at the X53 fuse block-rear.

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- If less than the specified range, test either control circuit for a short to ground. If the circuits test normal, test or replace the appropriate A23 door latch assembly.
- If greater than the specified range, test either control circuit for a short to voltage or an open/high resistance. If the circuits test normal, test or replace the appropriate A23 door latch assembly.

7. Test for 5-20 ohms between the control circuit terminal 4 X6 at the K9 BCM and control circuit terminal 16 X3 at the X53 fuse block-rear.
   - If less than the specified range, test either control circuit for a short to ground. If the circuits test normal, test or replace the A23D door latch assembly-driver.
   - If greater than the specified range, test either control circuit for a short to voltage or an open/high resistance. If the circuits test normal, test or replace the A23D door latch assembly-driver.
8. Test for 5-20 ohms between the control circuit terminal 4 X6 at the K9 BCM and control terminal 17 X3 at the X53 fuse block-rear (If equipped).
   - If less than the specified range, test either control circuit for a short to ground. If the circuits test normal, test or replace the appropriate A23 door latch assembly.
   - If greater than the specified range, test either control circuit for a short to voltage or an open/high resistance. If the circuits test normal, test or replace the appropriate A23 door latch assembly.
9. Test for 5-20 ohms between the control circuit terminal 2 and control circuit terminal 4 at the K9 BCM.
   - If less than the specified range, test either control circuit for a short to ground. If the circuits test normal, replace the X53 fuse block-rear.
   - If greater than the specified range, test either control circuit for a short to voltage or an open/high resistance. If the circuits test normal, replace the X53 fuse block-rear.
10. Test for 5-20 ohms between the control circuit terminal 1 and control circuit terminal 4 at the K9 BCM.
    - If less than the specified range, test either control circuit for a short to ground. If the circuits test normal, replace the X53 fuse block-rear.
    - If greater than the specified range, test either control circuit for a short to voltage or an open/high resistance. If the circuits test normal, replace the X53 fuse block-rear.
11. If all circuits test normal, replace the K9 BCM.

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 functions.
   - If it does not perform as specified, replace the A23 door latch assembly.

Repair Procedures

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

- **Front Side Door Lock Replacement**
- **Rear Side Door Lock Replacement**
- **Fuse Block Replacement**

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

DTC B3140 OR B3150

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 Unlock Switch Circuit

DTC B3150 00

Driver Lock Switch Circuit

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Central Door Lock Switch Lock Signal	B3150 00	1	1	-
Central Door Lock Switch Unlock Signal	B3140 00	1	1	-
1. Door Lock Switch Malfunction				

Circuit/System Description

The body control module (BCM) monitors the voltage level of the door lock and door unlock signal circuits. When the central door lock switch is in the open position, the voltage level in the signal circuit will be near 0 V. When the central door lock switch is pressed to the lock or unlock position, a signal will be sent to the BCM requesting a 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 unlock signal circuit for greater than 60 seconds.

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B3150 00

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

Action Taken When the DTC Sets

The door lock switch will malfunction.

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

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

Ignition ON, observe the scan tool BCM Central Door Lock Switch on Console parameter. The reading should be Inactive and change to Lock and Unlock when pushing the appropriate switch.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the A20 radio/HVAC control.

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2. Ignition ON, verify the scan tool Central Door Lock Switch on Center Console parameter is Inactive.
   - If the value is Lock, test the signal circuit terminal 12 for a short to ground. If the circuit tests normal, replace the K9 BCM.
   - If the value is Unlock, test the signal circuit terminal 13 for a short to ground. If the circuit tests normal, replace the K9 BCM.
3. If all circuits test normal, replace the A20 radio/HVAC control.

Repair Procedures

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

Control Module References for BCM and HVAC control replacement, setup and programming

DTC B3155

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 B3155 00

Passenger Exterior Lock Sensor Malfunction

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Passenger Door Lock Switch Signal	B3155 00	1	1	-
Passenger Door Handle Ground	-	1	-	-
1. Exterior Door Lock Switch Malfunction				

Circuit/System Description

The exterior passenger door handle contains a small sensor which allows a person to lock the vehicle doors from the outside without using the remote keyless transmitter. The keyless entry control module monitors the voltage level on the passenger door handle switch signal circuit, when the switch is pressed, the voltage in the signal circuit will drop and the keyless entry control module will then send a serial data message to the BCM to command all the doors to lock.

Conditions for Running the DTC

Battery voltage is between 9-16 V.

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Conditions for Setting the DTC

The keyless entry control module detects the passenger door lock switch signal circuit is shorted to ground for greater than 45 seconds.

Action Taken When the DTC Sets

The keyless entry control module ignores inputs from the passenger exterior door handle 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

Remote Function Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Power Door Latch Description and Operation

Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Ignition ON, observe the scan tool Exterior Passenger Door Handle Proximity Sensor parameter while pressing and releasing the passenger door handle lock switch. The value should change between Active and Inactive as the switch is pressed and released.

Circuit/System Testing

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1. Ignition OFF, disconnect the harness connector at the A24P door handle assembly - passenger.
2. Ignition ON, verify the scan tool Exterior Passenger Door Handle Proximity Sensor parameter is Inactive.
   - If not the specified value, test the signal circuit terminal 3 for a short to ground. If the circuit tests normal, replace the K84 Keyless Entry Control Module.
3. If all circuits test normal, test or replace the A24P door handle assembly - passenger.

Repair Procedures

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

- **Front Side Door Outside Handle Replacement**
- **Control Module References** for the keyless entry control module replacement, setup and programming

DTC B324A

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 B324A 02

Rear Cargo Door Unlock Motor Circuit Short to Ground

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Rear Closure Relay B	1	1	-	-
Liftgate Relay Coil Control	B324A 02	1	1	-
1. Liftgate Release Malfunction				

Circuit/System Description

When the body control module receives a liftgate release command, it will provide voltage to one side of the relay and ground to the other side of the relay. This will energize the relay causing the switch side of the relay to close and will then provide B voltage to the liftgate latch.

Conditions for Running the DTC

- The system voltage is 9-16 volts.
- When the relay is actively commanded by the BCM

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Conditions for Setting the DTC

The BCM detects a short to ground in the RR CLOSURE relay control circuit.

Actions Taken When DTC Sets

The liftgate latch will malfunction.

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

Liftgate Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Rear Hatch/Gate 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

Doors UNLOCKED, command the M31 liftgate latch assembly to release by pressing the S58A rear compartment lid release switch - exterior. The M31 liftgate latch assembly should release the liftgate.

Circuit/System Testing

1. Ignition OFF, disconnect the RR CLOSURE relay.

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2. Connect a test lamp between the control circuit terminal 85 and ground.
3. Ignition ON, command the Endgate Unlatch with a scan tool. The test lamp should turn ON when commanding the UNLATCH state.
    - If the test lamp is always OFF, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the K9 BCM.
    - If the test lamp is always ON, test the control circuit for a short to voltage. If the circuit tests normal, replace the K9 BCM.
4. If all circuits test normal, test or replace the RR CLOSURE relay.

Component Testing

1. Ignition OFF, disconnect the RR CLOSURE relay.
2. Test for 60-200 ohms between terminals 85 and 86.
    - If not within the specified range, replace the RR CLOSURE relay.
3. Test for infinite resistance between the following terminals
    - 30 and 86
    - 30 and 87
    - 30 and 85
    - 85 and 87
    - If not the specified value, replace the RR CLOSURE relay.
4. Install a 3A fused jumper wire between relay terminal 85 and 12V. Install a jumper wire between relay terminal 86 and ground. Test for less than 2 ohms between terminals 30 and 87.
    - If greater than the specified range, replace the RR CLOSURE relay.

Repair Procedures

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

- **Relay Replacement (Attached to Wire Harness)** or **Relay Replacement (Within an Electrical Center)**
- **Control Module References** for BCM replacement, setup and programming

DTC B3 9

Diagnostic Instructions

- Perform the prior to **Diagnostic System Check - Vehicle** 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 B3 9 02

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All Door Dead Lock Circuit Short to Ground

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Door Lock Sec Relay Control	B3797 02	1	1	-
1. Door Dead Lock Malfunction				

Circuit/System Description

When the body control module (BCM) receives a command to activate the door dead locks, the BCM will apply voltage to the DOOR LK SEC PCB relay. This will energize the relay closing the contacts and enable the BCM to supply voltage to the dead locks in each of the doors.

Conditions for Running the DTC

The system voltage must be between 9-16 V.

Conditions for Setting the DTC

The BCM detects a short to ground in the DOOR LK SEC PCB relay control circuit.

Action Taken When the DTC Sets

The dead locks will be inoperative

Conditions for Clearing the DTC

- This DTC will change from current to history when the fault is no longer present.
- A history DTC will clear after 100 consecutive ignition cycles if the condition for the malfunction is no longer present.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Power Door Locks Description and Operation

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Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Ignition ON, command the Door Deadlock Lock/Unlock to LOCK and UNLOCK with a scan tool. Listen or feel for the operation of the deadlock actuators performing the LOCK and UNLOCK functions.

Circuit/System Testing

1. Ignition OFF, disconnect the X2 harness connector at the rear fuse block
2. Connect a test lamp between the control circuit terminal 32 and ground.
3. Ignition ON, command the Door Deadlock Lock/Unlock to LOCK with a scan tool. The test lamp should illuminate while commanding the LOCK state.
    - If the test lamp is always OFF, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the BCM.
    - If the test lamp is always ON, test the control circuit for a short to voltage. If the circuit tests normal, replace the BCM.
4. If all circuits test normal, replace the rear fuse block.

Repair Procedures

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

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

DTC B3 49

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

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DTC B3 49 02

Driver Exterior Door Handle Switch Circuit Short to Ground

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Driver Door Handle Switch Signal	B3849 02	1	1	-
Driver Door Handle Switch Ground	-	1	-	-
1. Power Door Unlatch Inoperative				

Circuit/System Description

The keyless entry control module supplies a 12V signal to the exterior driver door handle switch. When the driver door handle is activated, the switch closes and the voltage signal from the keyless entry control module are pulled to ground, this input allows the keyless entry control module to detect a door open request.

Conditions for Running the DTC

Battery voltage is between 9-16 V.

Conditions for Setting the DTC

The keyless entry control module detects the driver exterior door handle switch signal circuit is shorted to ground or closed for greater than 180 s.

Action Taken When the DTC Sets

The passive entry feature will be inoperative for the driver door and the driver door will not open unless the door is first unlocked by pressing the appropriate button on the keyless entry transmitter.

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 40 ignition cycles.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics

Connector End View Reference

Component Connector End Views

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Description and Operation

Power Door Latch Description and Operation

Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Ignition ON, observe the scan tool Exterior Driver Door Handle Switch parameter while pulling and releasing the B27A door handle switch - driver exterior. The parameter should change between Active and Inactive.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the B27A door handle switch - driver exterior.
2. Ignition ON, verify the scan tool Exterior Driver Door Handle Switch parameter is Inactive.
    - If not the specified value, test the signal circuit terminal 2 for a short to ground. If the circuit tests normal, replace the K84 keyless entry control module.
3. Connect the a 3 A jumper harness between the signal circuit terminal 2 and ground. Verify the scan tool Exterior Driver Door Handle Switch parameter is Active.
    - If not the specified value, test the signal circuit terminal 2 for a open/high resistance. If the circuit tests normal, replace the K84 keyless entry control module.
4. If all circuits test normal, test or replace the B27A door handle switch - driver exterior.

Component Testing

Static Test

1. Ignition OFF, disconnect the harness connector at the B27A door handle switch - driver exterior.
2. With the switch in the open position, test for infinite resistance between the signal terminal 2 and the ground terminal 1.
    - If not the specified value, replace the B27A door handle switch - driver exterior.
3. With the switch in the closed position, test for less than 5 ohms between the signal terminal 2 and the ground terminal 1
    - If greater than the specified range, replace the B27A door handle switch - driver exterior.

Repair Procedures

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

- **Front Side Door Outside Handle Replacement**
- **Control Module References** for keyless entry control module replacement, setup, and programming

DTC B3930

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 B3930 01

Child Security Lock Motors Circuit Short to Battery

DTC B3930 02

Child Security Lock Motors Circuit Short to Ground

DTC B3930 04

Child Security Lock Motors Circuit Open

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Child Security PCB Relay Control	B3930 02	B3930 04	B3930 01	-
Rear Fuse Block Ground	-	B3930 04	-	-

Circuit/System Description

The body control module (BCM) controls the child security lock relay when it receives a command to lockout the rear doors. The relay will apply voltage to both child security circuits at the rear door latches to disable the interior door handles.

Conditions for Running the DTC

The system voltage is 9-16 V.

Conditions for Setting the DTC

B3930 01

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The BCM detects a short to voltage on the C ILD SEC RIT PCB relay control circuit.

B393 2

The BCM detects a short to ground on the C ILD SEC RIT PCB relay control circuit

B393 4

The BCM detects an open/high resistance on the C ILD SEC RIT PCB relay control circuit or an open/high resistance in the rear fuse block ground circuit.

Action Taken When the DTC Sets

B393 1

The interior rear door handles will always be inoperative.

B393 2 or B393 4

The interior rear door handles will continue to function when the child security lockout has been commanded and the BCM will command the lockout indicator to flash ON and OFF for 30 seconds to indicate a fault in the system

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

Description and Operation

Power Door Locks Description and Operation

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**

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- **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, observe the function of the rear interior door handles while selecting the child safety lock switch to LOCK. The rear interior door handles should be inoperative.
2. Observe the function of the rear interior door handles while selecting the child safety lock switch to NLOCK, the rear doors should open when using the interior rear door handles.

Circuit/System Testing

1. Ignition OFF, disconnect the X2 harness connector at the X53 fuse block-rear.
2. Test for less than 5 ohms between the ground circuit terminal 27 and ground.
   - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Connect a test lamp between the control circuit terminal 19 and the ground circuit terminal 27.
4. Ignition ON, press and release the child safety lock switch. The test lamp should turn ON and OFF with each press of the switch.
   - If the test lamp is always OFF, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the K9 BCM.
   - If the test lamp is always ON, test the control circuit for a short to voltage. If the circuit tests normal, replace the K9 BCM.
5. If all circuits tests normal, replace the X53 fuse block-rear.

Repair Procedures

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

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

DTC B393

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

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DTC B393 1

Fuel Door Actuator Lock Circuit Short to Battery

DTC B393 2

Fuel Door Actuator Lock Circuit Short to Ground

DTC B393 4

Fuel Door Actuator Lock Circuit Open

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Fuel Door Lock Relay Control	B3938 02	B3938 04	B3938 01	-
Rear Fuse Block Ground	-	B3938 04	-	-

Circuit/System Description

The locking and unlocking of the fuel door is a function of the power door lock system. The fuel door 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 fuel filler door unlatch actuator control circuits to B voltage. The opposing side of the door latch and fuel filler door unlatch actuator is connected to ground provided by the BCM through the other the door latch control circuits, along with the fuel filler door unlatch actuator, will lock or unlock as commanded.

Conditions for Running the DTC

When the relay is actively commanded by the BCM

Conditions for Setting the DTC

B393 1

The BCM detects a short to voltage in the F EL DOOR relay control circuit

B393 2

The BCM detects a short to ground in the F EL DOOR relay control circuit.

B393 4

The BCM detects an open/high resistance in the F EL DOOR relay control circuit.

Action Taken When the DTC Sets

The fuel door latch will malfunction and the fuel filler door may not be able to be opened.

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

Release Systems Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Fuel Fill Door Description and Operation

Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Ignition ON, command the doors to LOCK and NLOCK by using the central door lock switch. The M27 fuel door release actuator should LOCK and NLOCK while changing between the commanded states.

Circuit/System Testing

1. Ignition OFF, disconnect the X2 harness connector at the X53 fuse block-rear.
2. Connect a test lamp between the control circuit terminal 31 and ground
3. Command the doors to LOCK with a scan tool. The test lamp should briefly illuminate during the LOCK command.
    - If the test lamp is always ON, test the control circuit for a short to voltage. If the circuit tests normal, replace the K9 BCM.

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- If the test lamp is always OFF, test the control circuit for a short to ground or open/high resistance. If the circuit tests normal, replace the K9 BCM.

4. If all circuits test normal, test or replace the X53 fuse block-rear.

Repair Procedures

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

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

SYMPTOMS - VEHICLE ACCESS

NOTE: T e follo ing ste s must e com leted efore using t e sym tom ta les.

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 familiari e yourself with the system functions. Refer to the following system descriptions:
   - **Door Ajar Indicator Description and Operation**
   - **Rear Hatch/Gate Description and Operation**
   - **Liftgate Description and Operation**
   - **Power Door Latch Description and Operation**
   - **Power Door Locks Description and Operation**
   - **Liftgate Ajar Indicator Description and Operation**

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the system. 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:

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- **Liftgate System Diagnosis (Power)**
- **Liftgate Release Malfunction (Manual)**
- **Liftgate Ajar Indicator Malfunction (Manual Liftgate)** or **Liftgate Ajar Indicator Malfunction (Power Liftgate)**
- **Door Ajar Indicator Malfunction**
- **Power Door Child Lock Malfunction**
- **Power Door Latch System Malfunction**
- **Power Door Locks Malfunction (Without Dead Locks)** or **Power Door Locks Malfunction (Dead Lock)**
- **Power Door Lock Key Cylinder Switches Malfunction**

FUEL FILLER DOOR RELEASE 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
Fuel Door Lock Relay Control	B3938 02	B3938 04	B3938 01	-
Fuel Door Latch Lock Control	1	1	1	-
Fuel Door Latch Unlock Control	B3125 02, B3130 02, B3135 02	1	1	-
Rear Fuse Block Ground	-	B3938 04	-	-
1. Fuel Door Latch Malfunction				

Circuit/System Description

The locking and unlocking of the fuel door is a function of the power door lock system. The fuel door 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 fuel filler door unlatch actuator control circuits to B+ voltage. The opposing side of the door latch and fuel filler door unlatch actuator is connected to ground provided by the BCM through the other the door latch control circuits, along with the fuel filler door unlatch actuator, will lock or unlock as commanded.

Reference Information

Schematic Reference

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Release Systems Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Fuel Fill Door 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. Command the door latches to LOCK and UNLOCK with a scan tool, Each interior door lock knob should move between LOCK and UNLOCK.
    - If any or all doors do not LOCK or UNLOCK, refer to **Power Door Locks Malfunction (Without Dead Locks)** or **Power Door Locks Malfunction (Dead Lock)**.
2. Command the door latches to LOCK and UNLOCK with a scan tool, the M27 fuel door release actuator should LOCK and UNLOCK while changing between the commanded states

Circuit/System Testing

1. Ignition OFF, disconnect the X2 harness connector at the X53 fuse block - rear.
2. Connect a test lamp between the control circuit terminal 31 and ground.
3. Command the door latches to LOCK with a scan tool, the test lamp should briefly illuminate while commanding the LOCK state.
    - If the test lamp is always ON, test the control circuit for a short to voltage. If the circuit tests normal, replace the K9 BCM
    - If the test lamp is always OFF, test the control circuit for a short to ground or open/high resistance. If the circuit tests normal, replace the K9 BCM.
4. Ignition OFF, connect the X2 harness connector at the X53 fuse block - rear and disconnect the M27 fuel door release actuator
5. Connect a test lamp between the control circuit terminal 1 and ground.
6. Command the door latches to UNLOCK with a scan tool, the test lamp should briefly illuminate while

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commanding the UNLOCK state.

- If the test lamp is always ON, test the control circuit for a short to voltage. If the circuit tests normal, refer to **Power Door Locks Malfunction (Without Dead Locks)** or **Power Door Locks Malfunction (Dead Lock)**
- If the test lamp is always OFF, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, refer to **Power Door Locks Malfunction (Without Dead Locks)** or **Power Door Locks Malfunction (Dead Lock)**

7. Connect a test lamp between the control circuit terminal 2 and ground.
8. Command the door latches to LOCK with a scan tool, the test lamp should briefly illuminate while commanding the LOCK state.
   - If the test lamp is always ON, test the control circuit for a short to voltage. If the circuit tests normal, replace the X53 fuse block - rear.
   - If the test lamp is always OFF, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the X53 fuse block - rear.
9. If all circuits test normal, test or replace the M27 fuel door release actuator.

Component Testing

Fuel Door Latch

1. Ignition OFF, disconnect the harness connector at the M27 fuel door release actuator.
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 M27 fuel door release actuator should perform the LOCK and UNLOCK functions.
   - If it does not perform as specified, replace the M27 fuel door release actuator.

Repair Procedures

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

- **Fuse Block Replacement**
- **Fuel Tank Filler Door Replacement**
- **Control Module References** for BCM replacement, setup and programming

LIFTGATE SYSTEM DIAGNOSIS (POWER)

Diagnostic Instructions

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

Circuit/System Description

The power liftgate system is a standard liftgate that has an added electric motor, hydraulic pump, a hydraulic

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arm, and an electric latch/cinch that can open and close the liftgate with no customer input. The liftgate can be both manually or automatically open and closed. Automatic opening or closing of the liftgate can be done through the interior liftgate switch, pushing either the open or close switch at the liftgate, or selecting open or close on the remote keyless transmitter. The automatic liftgate function can be disabled using the interior liftgate on/off control switch.

Diagnostic Aids

Power liftgate function will only be allowed if certain operating criteria are met. Any of the following may cause the power liftgate not to function:

- Vehicle is not in park
- System voltage is below 10.5 V
- Engine is cranking
- The vehicle doors are locked
- A liftgate control module DTC is set
- Liftgate motor excess current is detected which may be caused by a misaligned liftgate striker
- Interior trim and/or liftgate wedge/bumper misalignment

A power liftgate that will not fully open may be caused by kinked or twisted hydraulic lines.

Whenever the liftgate control module loses power or is disconnected, the ignition must be cycled OFF then ON in order to reactivate the liftgate control module.

An open or shorted accessory wake up ignition circuit between the engine control module and transmission control module will cause the power liftgate to work when the ignition is ON but not work when the ignition is OFF.

Reference Information

Schematic Reference

Liftgate Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Liftgate Description and Operation

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**

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

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Verify the K39 liftgate control module is programmed with the latest software.
   - If the software is not the latest, program the K39 liftgate control module with the latest software. Refer to **Control Module References** for liftgate control module replacement, programming and setup.
2. Verify the K39 liftgate control module does not have any current DTCs set.
   - If the K39 liftgate control module has current DTCs set, refer to **Diagnostic Trouble Code (DTC) List - Vehicle** .
3. Verify DTC B2494 or B153F is not set as a history DTC.
   - If DTC B2494 is set only as history, replace the S45A liftgate control switch-exterior, refer to **Liftgate Release Switch Replacement**.
   - If DTC B153F is set only as history, replace both B71 liftgate object sensors, refer to **Liftgate Side Upper Sensor Replacement**.
4. Verify the scan tool Liftgate Mode Switch parameter changes from 125 counts to 350 counts to 245 counts while rotating the S45B liftgate control switch - interior.
   - If the parameter does not indicate each position, refer to **Liftgate Interior Release Open/Close Switch Malfunction - DTC B396C or B396D**.
5. Place the S45B liftgate control switch - interior to the OFF position.
6. Verify the scan tool Liftgate Front Control Switch parameter changes between Inactive and Active while pressing and releasing the S45B liftgate control switch - interior.
   - If the parameter does not change, refer to **Liftgate Interior Release Open/Close Switch Malfunction - DTC B396C or B396D**.
7. With the liftgate closed, observe the scan tool Liftgate Latch Pawl, Ratchet, and Sector Switch parameters. Each parameter status should be as listed below:
   - Liftgate Latch Pawl Switch parameter - Closed
   - Liftgate Latch Ratchet Switch parameter - Closed
   - Liftgate Latch Sector Switch parameter - Inactive
   - If not the specified value, refer to **Liftgate Latch Switches Malfunction - DTC B153A**.
8. Verify the scan tool rear Liftgate Handle Switch parameter changes between Active and Inactive while pressing and releasing the S45A liftgate control switch-exterior.
   - If the parameter does not change, refer to **Liftgate Handle Switch Malfunction - DTC B2494**.
9. Using either the power door lock switches or the keyless entry transmitter, LOCK all doors then UNLOCK all doors. This will set the liftgate module door lock status to unlock.
10. Verify the liftgate will manually open.

- If the liftgate does not manually open, refer to **Liftgate Latch Release/Cinch Malfunction - DTC B2495**.

11. With the liftgate open, verify the scan tool Liftgate Secondary Obstacle Detection parameter is 3V-3.5V
    - If not within the specified range, refer to **Liftgate O ect Sensor Malfunction - DTC B153F**.
12. With the liftgate open, verify the scan tool Liftgate Latch Pawl, Ratchet, and Sector Switch parameters are as listed below:
    - Liftgate Latch Pawl Switch parameter - Open
    - Liftgate Latch Ratchet Switch parameter - Open
    - Liftgate Latch Sector Switch parameter - Inactive
    - If not the specified value, refer to **Liftgate Latch Switches Malfunction - DTC B153A**.
13. Observe the scan tool Liftgate Angle parameter while manually opening and closing the liftgate. The parameter should vary between 0° and approximately 80° as the liftgate opens and closes.
    - If the value does not change, refer to **Liftgate Angle Sensor Malfunction - DTC B153E**
14. Verify while manually opening and closing the liftgate is in proper aligned with the body bumpers, wedges and striker and there is no binding.
15. Verify that the liftgate will remain at or near the full open position and does not drop down.
    - If the liftgate will not remain open or drops, replace the liftgate gas strut. If the liftgate still drops after replacing the gas strut replace the M17 liftgate motor assembly, refer to **Liftgate Hydraulic Pump Replacement**.
16. Verify the scan tool Liftgate Latch Sector Switch parameter changes from Inactive to Active then back to Inactive within 10 seconds while the liftgate is being automatically cinched closed.
    - If the liftgate cinches close and the parameter does not momentarily change states while cinching, refer to **Liftgate Latch Switches Malfunction - DTC B153A**.
    - If the liftgate does not cinch close, refer to **Liftgate Latch Release/Cinch Malfunction - DTC B2495**.
17. Verify the scan tool Liftgate Rear Close Switch parameter changes from Inactive to Active while pressing and releasing the B70 liftgate close switch.
    - If the parameter does not change, refer to **Liftgate Close Switch Malfunction - DTC B396E**
18. Liftgate open, select either the 3/4 or Max position on the S45B liftgate control switch-interior then activate the power close function. Verify the liftgate power closes.
    - If the liftgate does not power close, refer to **Liftgate Motor Power Open/Close Malfunction - DTC B396A**
19. Liftgate closed, activate the power open function. Verify the liftgate power opens.
    - If the liftgate does not power open, refer to **Liftgate Motor Power Open/Close Malfunction - DTC B396A**
20. Verify the liftgate has not been auto reversing un-expectedly.
    - If the liftgate has been auto reversing, check the following:
      - Low pump fluid - refer to **Liftgate Hydraulic System Refilling**
      - Pump actuator hoses for twists or kinks
      - Fluid leaks

- Both liftgate object sensors for interference or deformity

LIFTGATE ANGLE SENSOR MALFUNCTION - DTC B153E

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 B153E 08

Power Liftgate Angle Sensor - External Signal Invalid

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Liftgate Position Sensor 12 V Reference Voltage	B153E 08	B153E 08	B153E 08	-
Liftgate Position Sensor 1 Signal	B153E 08	B153E 08	B153E 08	-
Liftgate Position Sensor 2 Signal	B153E 08	B153E 08	B153E 08	-
Liftgate Position Sensor Low Reference	-	B153E 08	-	-

Circuit/System Description

The liftgate control module continuously monitors power liftgate operation and calculates its location and direction of travel using 2 inputs from the liftgate position sensor. One input returns the position of the liftgate relative to the latch along the x-axis and the other returns the position of the liftgate relative to the latch along the y-axis. The liftgate control module then uses these 2 inputs together to calculate its angle relative to the liftgate latch.

Conditions for Running the DTC

The system voltage is 9-16 V.

Conditions for Setting the DTC

The liftgate control module does not detect the angle inputs when the liftgate is in motion.

Action Taken When the DTC Sets

The liftgate will only be operational in the manual mode.

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.

Diagnostic Aids

NOTE: Before testing can be performed, the liftgate must be opened. Refer to Opening the Liftgate Without Electrical Power for the appropriate procedure.

Whenever the liftgate module loses power or is disconnected, the ignition must be cycled OFF then ON in order to reactivate the liftgate module.

Reference Information

Schematic Reference

Liftgate Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Liftgate 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

Ignition ON, observe the scan tool Liftgate Angle parameter while opening and closing the liftgate. The parameter should vary between 0° and approximately 80° as the liftgate opens and closes.

Circuit/System Testing

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1. Ignition OFF, disconnect the harness connector at the B164 liftgate position sensor.
2. Test for less than 10 ohms between the low reference circuit terminal E and ground.
    - If greater than the specified range, test the low reference circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K39 liftgate control module.
3. Ignition ON, verify that a test lamp illuminates between the 12V reference circuit terminal A and ground.
    - If the test lamp does not illuminate, test the 12V reference circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the K39 liftgate control module.
4. Ignition OFF, disconnect the X3 harness connector at the K39 liftgate control module.
5. Test for infinite resistance between the sensor signal circuit terminal listed below and ground.
    - Sensor 1 signal circuit terminal 9
    - Sensor 2 signal circuit terminal 10
    - If not the specified value, test the signal circuit for a short to ground.
6. Test for less than 1ohms between the signal circuit terminals listed below:
    - Signal circuit terminal C at the B164 liftgate position sensor and the signal circuit terminal 9 at the K39 liftgate control module
    - Signal circuit terminal D at the B164 liftgate position sensor and the signal circuit terminal 10 at the K39 liftgate control module.
    - If greater than the specified range, test the signal circuit for a short to voltage or an open/high resistance.
7. If all circuits test normal, test or replace the B164 liftgate position sensor.

Repair Procedures

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

- **Liftgate Angle Sensor Replacement**
- **Control Module References** for liftgate control module replacement, setup and programming

LIFTGATE CLOSE SWITCH MALFUNCTION - DTC B396E

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 B396E 02

Rear Liftgate Actuator Switch Circuit Short To Ground

Diagnostic Fault Information

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Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal	B396E 02	1	1	-
Low Reference	-	1	1	-
1. Liftgate will not close using the liftgate close switch				

Circuit/System Description

The liftgate close switch circuit provides a single input to the liftgate control module. The liftgate close switch is supplied a signal voltage, when the switch contact closes, the liftgate control module detects the voltage drop and commands the liftgate to close.

Conditions for Running the DTC

The system voltage is 9-16 V.

Conditions for Setting the DTC

The liftgate control module detects the liftgate close signal circuit is active for greater than 30 seconds.

Action Taken When the DTC Sets

The liftgate control module will ignore the input from the liftgate close switch, the liftgate will only power close by using the interior liftgate control switch or by a close request from the remote control door lock receiver.

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.

Diagnostic Aids

- If the liftgate will not release from the closed position, refer to **Opening the Liftgate Without Electrical Power** for the appropriate procedure
- Whenever the liftgate control module loses power or is disconnected, the ignition must be cycled OFF then ON in order to reactivate the liftgate control module.

Reference Information

Schematic Reference

Liftgate Schematics

Connector End View Reference

Component Connector End Views

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Description and Operation

Liftgate 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

Ignition ON, with the liftgate open, observe the scan tool Liftgate Rear Close Switch parameter while pressing and releasing the B70 liftgate close switch. The parameter should change from Inactive to Active.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the B70 liftgate close switch.
2. Test for less than 10 ohms between the low reference circuit terminal and ground.
   - If greater than the specified range, test the low reference circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K39 liftgate control module
3. Ignition ON, verify the scan tool Liftgate Rear Close Switch parameter is Inactive.
   - If not the specified value, test the signal circuit terminal 3 for a short to ground. If the circuit tests normal, replace the K39 liftgate control module.
4. Connect a 3A fused jumper wire between the signal circuit terminal 3 and ground, verify the scan tool Liftgate Rear Close Switch parameter is Active.
   - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K39 liftgate control module.
5. If all circuits test normal, test or replace the B70 liftgate close switch.

Component Testing

Liftgate Close Switch Assem ly

1. Ignition OFF, disconnect the harness connector at the B70 liftgate close switch.
2. Test for infinite resistance between the signal terminal 3 and the low reference terminal with the switch in the inactive position.
   - If not the specified value, replace the B70 liftgate close switch.
3. Test for less than 3 ohms between the signal terminal 3 and the low reference terminal with the switch in the active position.

- If greater than the specified range, replace the B70 liftgate close switch.

Repair Procedures

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

- **Liftgate Close Switch Replacement**
- **Control Module References** for the liftgate control module replacement, setup and programming

LIFTGATE CONTROL MODULE - DTC B1019

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 B1019 00

System Configuration Error

Circuit/System Description

When calibrating the liftgate position, the liftgate control module is placed in a functional state to learn the liftgate travel limits. DTC B1019 00 will set automatically as an indicator that the system is in learn mode and not as a fault indicator. Once the travel limits are learned by the liftgate control module, the liftgate control module will e it calibration mode and DTC B1019 00 become a history code.

Conditions for Running the DTC

The system voltage is 9-1 V.

Conditions for Setting the DTC

Whenever the liftgate control module is replaced or in learn mode.

Action Taken When the DTC Sets

The power liftgate system will be disabled.

Conditions for Clearing the DTC

- The DTC will be current until the liftgate calibration procedure has been completed.
- When the calibration procedure has been completed the DTC will be a history DTC.

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Diagnostic Aids

Setting B1019 00 is normal after flashing the liftgate control module. This DTC will be current after flashing and the DTC will go to history after learning. This is a normal behavior by design and is not necessary to replace the liftgate control module.

Reference Information

Schematic Reference

Liftgate Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Liftgate 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 Testing

Perform the **Liftgate Cali ration**. The K39 liftgate control module should learn the travel limits, e it the calibration mode, and B1019 00 will become a history code.

Repair Procedures

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

Control Module References for liftgate control module replacement, setup and programming

LIFTGATE HANDLE SWITCH MALFUNCTION - DTC B2494

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

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- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptor

DTC B2494 02

Liftgate Handle Switch Circuit Short to Ground

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Handle Switch Signal	B2 9 02	1	1	-
Handle Switch Low Reference	-	1	1	-
1. Liftgate will not release with the liftgate handle				

Circuit/System Description

The power liftgate handle switch circuit provides a single input to the liftgate control module. The liftgate handle switch is supplied a signal voltage, when the switch contact closes and the voltage drops, the liftgate control module detects the voltage drop and commands the liftgate to release.

Conditions for Running the DTC

The system voltage is 9-16 V.

Conditions for Setting the DTC

The liftgate handle switch signal circuit is active for greater than 30 seconds.

Action Taken When the DTC Sets

The liftgate control module will ignore the signal from the liftgate handle switch. Normal power liftgate operation will be available from the interior liftgate control switch or from a request from the remote keyless entry module.

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.

Diagnostic Aids

- If the liftgate will not release from the closed position, refer to **Opening the Liftgate Without Electrical**

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Power for the appropriate procedure

- Whenever the liftgate control module loses power or is disconnected, the ignition must be cycled OFF then ON in order to reactivate the liftgate control module.

Reference Information

Schematic Reference

Liftgate Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Liftgate 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. DTC B2 9 should not be set as a history DTC.
   - If DTC B2 9 is set only as history, replace the S 5A liftgate handle switch-e terior.
2. Ignition ON, observe the scan tool rear Liftgate Handle Switch parameter while pressing and releasing the e terior S 5A liftgate handle switch-e terior. The parameter should change between Active and Inactive.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the S 5A liftgate handle switch-e terior.
2. Test for less than 10 ohms between the low reference circuit terminal 1 and ground.
   - If greater than the specified range, test the low reference circuit terminal for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K39 liftgate control module.
3. Ignition ON, verify the scan tool Liftgate Handle Switch parameter is Inactive.
   - If not the specified value, test the signal circuit terminal 2 for a short to ground. If the circuit tests normal, replace the K39 liftgate control module.

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. Connect a 3 A fused jumper wire between the signal circuit terminal 2 and ground, verify the scan tool Liftgate Handle Switch parameter is Active.
    - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K39 liftgate control module.
5. If all circuits test normal, test or replace the S 5A liftgate handle switch-e terior.

Component Testing

1. Ignition OFF, disconnect the harness connector at the S 5A liftgate handle switch-e terior.
2. Test for infinite resistance between the signal terminal 2 and the low reference terminal 1 with the switch in the open position.
    - If not the specified value, replace the S 5A liftgate handle switch-e terior.
3. Test for less than 2 ohms between the signal terminal 2 and the low reference terminal 1 with the switch in the closed position.
    - If greater than the specified range, replace the S 5A liftgate handle switch-e terior.

Repair Procedures

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

- **Liftgate Release Switch Replacement**
- **Control Module References** for liftgate control module replacement, setup and programming

LIFTGATE INTERIOR RELEASE OPEN/CLOSE SWITCH MALFUNCTION - DTC B396C OR B396D

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 B396C 08

Liftgate Mode Switch Circuit Performance Signal Invalid

DTC B396D 02

Front Liftgate Actuator Switch Circuit Short To Ground

Diagnostic Fault Information

	Short to	Open/High	Short to	Signal

Circuit	Ground	Resistance	Voltage	Performance
Off/3/ open/Ma Signal	B396C 0	B396C 0	B396C 0	-
Open/Close Signal	B396D 02	1	1	-
Ground	-	2	-	-
1. The interior switch will not open/close the power liftgate 2. The liftgate works only in the full open mode using the liftgate handle				

Circuit/System Description

The interior liftgate rotary control switch contains 3 resistors which are in series for the liftgate mode, depending upon which position is selected will determine which combination of resistors are used. The liftgate module monitors the voltage level in the liftgate mode signal circuit, as each mode is selected, the voltage within the signal circuit incrementally drops. It is this method the liftgate module will determine if mode switch is in the manual mode, garage mode or the ma imum open mode.

The interior liftgate control switch has of a push button switch to command the liftgate to open and close. The liftgate module monitors the voltage level on the open/close signal circuit, when the switch is not being pressed the voltage level is at the system voltage. When the switch is pressed a contact within the interior liftgate control switch closes providing a ground path for the signal circuit causing the voltage level to drop to near zero volts. The liftgate module will detect the voltage drop and will then command the liftgate to open or close depending upon the current state of the liftgate at the time the switch is pressed.

Conditions for Running the DTC

The system voltage is 9-16 V.

Conditions for Setting the DTC

B396C 08

The liftgate control module detects an out of range condition in the mode switch signal circuit.

B396D 02

The liftgate control module detects a short to ground in the rear liftgate open/close switch signal circuit for greater than 60 seconds.

Action Taken When the DTC Sets

B396C 08

The manual mode function and the garage mode function will be inoperative.

B396D 02

The liftgate module will ignore the switch input from the interior liftgate control switch and the liftgate operations will only be available from the liftgate switches located on the liftgate panel or by an open or close request from the remote control keyless entry module.

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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.

Diagnostic Aids

- If the liftgate will not release from the closed position, refer to **Opening the Liftgate Without Electrical Power** for the appropriate procedure
- Whenever the liftgate control module loses power or is disconnected, the ignition must be cycled OFF then ON in order to reactivate the liftgate control module.

Reference Information

Schematic Reference

Liftgate Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Liftgate 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, verify the scan tool Liftgate Mode Switch parameter changes from 125 counts to 350 counts to 2 5 counts while rotating the S 5B liftgate control switch - interior.
    - If the value does not change with each position selected, refer to **OFF/ 3/4 position/MAX Switch Circuit Test**.
2. Place the S 5B liftgate control switch - interior to the OFF position.

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3. Observe the scan tool Liftgate Front Control Switch parameter while pressing and releasing the liftgate button on the S 5B liftgate control switch-interior. The parameter should change between Inactive and Active.
    - If the value does not change, refer to **Open/Close Switch Circuit Test**.

Circuit/System Testing

OFF/ 3/4 position/MAX Switch Circuit Test

1. Ignition OFF, disconnect the harness connector at the S 5B liftgate control switch-interior.
2. Test for less than 10 ohms between the ground circuit terminal 1 and ground.
    - If greater than the specified range, test the ground circuit for a open/high resistance.
3. Ignition ON, verify the scan tool Liftgate Mode Switch parameter is greater than 300 counts.
    - If less than the specified range, test the signal circuit terminal 3 for a short to ground. If the circuit tests normal, replace the K39 liftgate module.
. Install a 3A fused jumper wire between the signal circuit terminal 3 and ground, verify the scan tool Liftgate Mode Switch parameter is less than 5 counts.
    - If greater than the specified range, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K39 liftgate module.
5. If all circuits test normal, test or replace the S 5B liftgate control switch-interior.

Open/Close Switch Circuit Test

1. Ignition OFF, disconnect the harness connector at the S 5B liftgate control switch-interior.
2. Test for less than 10 ohms between the ground circuit terminal 1 and ground.
    - If greater than the specified range, test the ground circuit for a open/high resistance.
3. Ignition ON, verify the scan tool Liftgate Front Control Switch parameter is Inactive.
    - If not the specified value, test the signal circuit terminal for a short to ground. If the circuit tests normal, replace the K39 liftgate control module.
. Install a 3 A fused jumper wire between the signal circuit terminal and ground. Verify the scan tool Liftgate Front Control Switch parameter is Active.
    - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K39 liftgate control module.
5. If all circuits test normal, test or replace the S 5B liftgate control switch-interior.

Component Testing

1. Ignition OFF, disconnect the harness connector at the S 5B liftgate control switch-interior.
2. Test for the values listed below between the signal terminal 3 and the ground terminal 1.
    - 600-650 ohms in the Off position
    - 125k-1 0k ohms in the 3/ position
    - 00k- 15k ohms in the Ma position
    - If not within the specified ranges, replace the S 5B liftgate control switch-interior.

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3. Test for infinite resistance between the signal terminal and the ground terminal 1 with the switch open.
   - If not the specified value, replace the S 5B liftgate control switch-interior.
. Test for less than 3 ohms between the signal terminal and the ground terminal 1 with the switch closed.
   - If greater than the specified range, replace the S 5B liftgate control switch-interior.

Repair Procedures

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

- **Liftgate Actuator Control Switch Replacement**
- **Control Module References** for the liftgate control module replacement, setup and programming

LIFTGATE LATCH RELEASE/CINCH MALFUNCTION - DTC B2495

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 B2495 01

Liftgate Latch Control Circuit Short to Battery

DTC B2495 02

Liftgate Latch Control Circuit Short to Ground

DTC B2495 04

Liftgate Latch Control Circuit Open

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Latch Control Terminal 1	B2 95 02	B2 95 0	B2 95 01	-
Latch Control Terminal 2	B2 95 02	B2 95 0	B2 95 01	-

Circuit/System Description

The latch motor is a bi-directional motor and cinch or unlatch operation is the result of the direction of the motor rotation. The liftgate control module controls the latch motor through the control circuits by supplying

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power and ground in the appropriate polarity. The motor control circuits are monitored by the liftgate control module prior to activation for a high or low condition and during motor operation for an insufficient current flow condition.

Conditions for Running the DTC

The system voltage is 9-16 V.

Conditions for Setting the DTC

B2495 01

The liftgate control module detects a short to voltage in the liftgate latch motor cinch control circuit or the liftgate latch motor release control circuit.

B2495 02

The liftgate control module detects a short to ground in the liftgate latch motor cinch control circuit or the liftgate latch motor release control circuit.

B2495 04

The liftgate control module detects an open/high resistance in the liftgate latch motor cinch control circuit or the liftgate latch motor release control circuit.

Action Taken When the DTC Sets

The liftgate will be inoperative in the power and manual modes.

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.

Diagnostic Aids

- If the liftgate will not release from the closed position, refer to **Opening the Liftgate Without Electrical Power** for the appropriate procedure
- Whenever the liftgate control module loses power or is disconnected, the ignition must be cycled OFF then ON in order to reactivate the liftgate control module.
- DTC B2495 01 may be set due to minor fluctuations in the system voltage. The power liftgate will continue to function normally and only requires that the DTC be cleared when encountered.

Reference Information

Schematic Reference

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Liftgate Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Liftgate 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 OFF, transmission in Park, using either the power door lock switches or the remote keyless entry transmitter, LOCK all doors and then UNLOCK all doors. This will set the liftgate module door lock status to unlock
2. Manually open the liftgate, the A23C liftgate latch assembly should release allowing the liftgate to be pulled open.

Circuit/System Testing

1. Ignition OFF, disconnect the X2 harness connector at the K39 liftgate control module.
2. Test for less than 15 ohms between the control circuit terminal 1 and the control circuit terminal 2.
    - If greater than the specified range, test either control circuit for a short to voltage or an open/high resistance. If circuits test normal, test or replace the M31 liftgate latch assembly.
3. Verify that a test lamp does not illuminate between the control circuit terminal 1 and B+.
    - If the test lamp illuminates, test the control circuit for a short to ground. If circuit tests normal, test or replace the A23C liftgate latch assembly.
4. Verify that a test lamp does not illuminate between the control circuit terminal 2 and B+.
    - If the test lamp illuminates, test the control circuit for a short to ground. If circuit tests normal, test or replace the A23C liftgate latch assembly.
5. If all circuits test normal, replace the K39 liftgate control module

Repair Procedures

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

- **Liftgate Latch Replacement**
- **Control Module References** for liftgate control module replacement, setup and programming

LIFTGATE LATCH SWITCHES MALFUNCTION - DTC B153A

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 B153A 08

Power Liftgate Latch Switches Signal Invalid

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Liftgate Latch Pawl Switch Signal	B153A 08	B153A 08	B153A 08	-
Liftgate Latch Ratchet Switch Signal	B153A 08	B153A 08	B153A 08	-
Liftgate Latch Sector Switch Signal	B153A 08	B153A 08	B153A 08	-
Liftgate Latch Low Reference	-	B153A 08	B153A 08	-

Circuit/System Description

The ratchet, pawl, and sector switches are part of the liftgate latch assembly and are used by the liftgate control module to determine the state of the latch during the process of cinching or unlatching. The ratchet and pawl switches will be inactive when the primary and secondary latches are latched, and the sector switch will be active during the power cinch function. Each of the latch switch signal circuits are supplied signal through a resistor and monitored within the liftgate control module. The latch switches share a common low reference circuit from the liftgate control module and when the switch contacts close the signal circuit goes low and the liftgate control module determines the switch to be active.

Conditions for Running the DTC

The system voltage is 9-16 V.

Conditions for Setting the DTC

When the liftgate control module detects an open/high resistance in the ratchet, pawl, and/or the sector signal circuit, an open/high resistance in the liftgate latch low reference circuit, or any incorrect combination of signals

from the following switch inputs:

- Ratchet switch
- Sector switch
- Pawl switch

Action Taken When the DTC Sets

- The liftgate may not power open or power close.
- The latch may be inoperative or not function normally.

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.

Diagnostic Aids

- If the liftgate will not release from the closed position, refer to **Opening the Liftgate Without Electrical Power** for the appropriate procedure
- Whenever the liftgate control module loses power or is disconnected, the ignition must be cycled OFF then ON in order to reactivate the liftgate control module.
- DTC B153A may be set when the vehicle is driven while the liftgate is open, as when the owner transports a large package in the rear of the vehicle. The DTC will become history after the liftgate is closed and does not affect normal liftgate operation

Reference Information

Schematic Reference

Liftgate Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Liftgate Description and Operation

Electrical Information Reference

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

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- **Wiring Repairs**
- **Connector Repairs**

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. With the liftgate closed, observe the scan tool Liftgate Latch Pawl, Ratchet, and Sector Switch parameters. Each parameter status should be as listed below:
   - Liftgate Latch Pawl Switch parameter - Closed
   - Liftgate Latch Ratchet Switch parameter - Closed
   - Liftgate Latch Sector Switch parameter - Inactive
2. With the liftgate open, observe the scan tool Liftgate Latch Pawl, Ratchet, and Sector Switch parameters. Each parameter status should be as listed below:
   - Liftgate Latch Pawl Switch parameter - Open
   - Liftgate Latch Ratchet Switch parameter - Open
   - Liftgate Latch Sector Switch parameter - Inactive
3. Sector Switch Test - Close the liftgate allowing the cinch motor to pull the liftgate closed. Observing the scan tool Liftgate Latch Sector Switch parameter while the liftgate is being automatically cinched closed the parameter should change from Inactive to Active then back to Inactive within 10 seconds.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the A23C liftgate latch assembly.
2. Test for less than 30 ohms between the low reference circuit terminal 2 and ground.
   - If greater than the specified range, test the low reference circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K39 liftgate control module.
3. Ignition ON, verify the scan tool Liftgate Latch Pawl Switch parameter is Closed.
   - If not the specified value, test the signal circuit terminal 5 for a short to ground. If the circuit tests normal, replace the K39 liftgate control module.
4. Install a 3 A fused jumper wire between the signal circuit terminal 5 and the low reference circuit terminal 2. Verify the scan tool Liftgate Latch Pawl Switch parameter is Open.
   - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K39 liftgate control module.
5. Verify the scan tool Liftgate Latch Ratchet Switch parameter is Closed.
   - If not the specified value, test the signal circuit terminal 6 for a short to ground. If the circuit tests normal, replace the K39 liftgate control module.
6. Install a 3 A fused jumper wire between the signal circuit terminal 6 and low reference circuit terminal 2. Verify the scan tool Liftgate Latch Ratchet Switch parameter is Open.
   - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K39 liftgate control module.

7. Verify the scan tool Liftgate Latch Sector Switch parameter is Inactive.
   - If not the specified value, test the signal circuit terminal 4 for a short to ground. If the circuit tests normal, replace the K39 liftgate control module.
8. Install a 3 A fused jumper wire between the signal circuit terminal 4 and low reference circuit terminal 2. Verify the scan tool Liftgate Latch Sector Switch parameter is Active.
   - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K39 liftgate control module.
9. If all circuits test normal, test or replace the A23C liftgate latch assembly.

Repair Procedures

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

- **Liftgate Latch Replacement**
- **Control Module References** for the liftgate control module replacement, setup and programming

LIFTGATE OBJECT SENSOR MALFUNCTION - DTC B F

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 B F

Liftgate Object Sensor Signal Circuit Short to Ground

DTC B F

Liftgate Object Sensor Signal Circuit Short to Battery or Open

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal	B153F 02	B153F 05	B153F 05	-
Left/Right Object Sensor Signal	B153F 02	B153F 05	B153F 05	-
Low Reference	-	B153F 05	B153F 05	-

Circuit/System Description

The liftgate object sensors are pressure sensitive touch tapes located on either side of the upper inside edge of

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the liftgate panel. The two tape switches are placed in series between the liftgate object sensor signal circuit and the liftgate object low reference circuit. Each object sensor has a resistor as well as a switch. The resistors enable the liftgate control module to perform diagnostic functions on the circuits. When both touch tape sensors are not pressed, the 5 volt reference voltage supplied by the liftgate control module passes through the resistors and the liftgate control module detects appro imately 3.3 volts. Pressing a touch tape will cause the voltage to drop to appro imately to 2.5 volts indicating an obstruction is present. If the liftgate is in the open position, the liftgate control module will prohibit liftgate movement. If the obstruction occurs during the power close function, the liftgate control module will command the liftgate to reverse direction.

Conditions for Running the DTC

The system voltage is 9-16 V.

Conditions for Setting the DTC

B F

The liftgate control module detects a short to ground in the liftgate tape switch signal circuit for greater than 10 minutes.

B F

The liftgate control module detects a short to voltage or an open/high resistance in the liftgate tape switch signal circuit or an open/high resistance in the low reference circuit for greater than 10 minutes.

Action Taken When the DTC Sets

The liftgate control module will prevent any movement of the liftgate while attempting to command the liftgate to power close.

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.

Diagnostic Aids

- If the liftgate will not release from the closed position, refer to **Opening the Liftgate Without Electrical Power** for the appropriate procedure
- Whenever the liftgate control module loses power or is disconnected, the ignition must be cycled OFF then ON in order to reactivate the liftgate control module.
- If the liftgate mode switch is in the Off position, the liftgate will only open and close manually. Before testing the liftgate for power open and power close functions, verify that the liftgate mode switch is in the 3/4 or MAX position.

Reference Information

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Schematic Reference

Liftgate Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Liftgate 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. DTC B153F should not be set as history.
    - If DTC B153F is set only as history, replace both B71 liftgate object sensors
2. Ignition ON, observe the scan tool Liftgate Secondary Obstacle Detection parameter. The reading should be between 3V-3.5V.
    - If not within the specified range, perform the Circuit/System Testing.
3. Observe the scan tool Liftgate Secondary Obstacle Detection parameter while pressing and releasing the B71R liftgate object sensor - right. The reading should change from 3V-3.5V to 2.25-2.75V as the sensor is pressed and released.
    - If the value does not change, test or replace the B71R liftgate object sensor - right.
4. Observe the scan tool Liftgate Secondary Obstacle Detection parameter while pressing and releasing the B71L liftgate object sensor - left. The reading should change from 3V-3.5V to 2.25-2.75V as the sensor is pressed and released.
    - If the value does not change, test or replace the B71L liftgate object sensor - left.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the B71L liftgate object sensor - left.
2. Test for less than 30 ohms between the low reference circuit terminal B and ground.
    - If greater than the specified range, test the low reference circuit for a short to voltage or an

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open/high resistance. If the circuit tests normal, replace the K39 liftgate control module.

3. Disconnect the harness connector at the B71R liftgate object sensor - right
4. Ignition ON, test for 4.75-5.25 V between the signal circuit terminal A and ground.
   - If less than the specified range, test the signal circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the K39 liftgate control module.
   - If greater than the specified range, test the signal circuit for a short to voltage. If the circuit tests normal, replace the K39 liftgate control module.
5. Test for less than 10 ohms between the signal circuit terminal B at the B71R liftgate object sensor - right and the signal circuit terminal A at the B71L liftgate object sensor - left.
   - If greater than the specified range, test the signal circuit between the two sensors for an open/high resistance.
6. If all circuits test normal, test or replace the B71L liftgate object sensors.

Component Testing

1. Ignition OFF, disconnect the harness connectors at the B71 liftgate object sensor.
2. Test for 8k-12k ohms between the signal terminal A and the low reference terminal B.
   - If not within the specified range, replace the B71 liftgate object sensor.

Repair Procedures

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

- **Liftgate Side Upper Sensor Replacement**
- **Control Module References** for liftgate control module replacement, setup and programming

LIFTGATE MOTOR POWER OPEN/CLOSE MALFUNCTION - DTC B A

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 B A

Liftgate Motor Control Circuit Short to Battery

DTC B A

Liftgate Motor Control Circuit Short to Ground

DTC B A

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Liftgate Motor Control Circuit Open

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
B Terminal 3	B396A 04	B396A 04	-	-
Motor Control Terminal A	B396A 02	B396A 04	B396A 01	-
Motor Control Terminal B	B396A 02	B396A 04	B396A 01	-

Circuit/System Description

The liftgate motor is a bi-directional motor and open or close operation is the result of the direction of the motor rotation. The liftgate control module controls the liftgate motor through the control circuits by supplying power and ground in the appropriate polarity. The motor control circuits are monitored by the liftgate control module prior to activation for a high or low condition and during motor operation for any irregular current flow conditions.

Conditions for Running the DTC

- The system voltage is 9-16 V.
- Power open or close function is initiated.

Conditions for Setting the DTC

B A

The liftgate control module detects a short to voltage in a liftgate motor control circuit.

B A

The liftgate control module detects a short to ground in a liftgate motor control circuit.

B A

The liftgate control module detects an open/high resistance in a liftgate motor control circuit or the liftgate control module B circuit. A short to ground in the liftgate control module B circuit.

Action Taken When the DTC Sets

The power liftgate may be inoperative in the power mode and in the manual mode.

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.

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Diagnostic Aids

- If the liftgate will not release from the closed position, refer to **Opening the Liftgate Without Electrical Power** for the appropriate procedure
- Whenever the liftgate control module loses power or is disconnected, the ignition must be cycled OFF then ON in order to reactivate the liftgate control module.
- DTC B396A 01 may set as current or history when the liftgate control module detects erratic voltage levels in the electrical system and does not affect the operation of the power liftgate. If this DTC is set and the liftgate functions normally, clear the DTC

Reference Information

Schematic Reference

Liftgate Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Liftgate 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. Using either the power door lock switches or the remote keyless transmitter, LOCK all doors then UNLOCK all doors. This will set the liftgate module door lock status to unlock.
2. With the liftgate closed, select either the 3/4 or Ma position on the S45B liftgate control switch-interior and activate the power open. The liftgate should power open
3. With the liftgate open, activate the power close. The liftgate should power close

Circuit/System Testing

1. Ignition OFF, disconnect the X2 harness connector at the K39 liftgate control module.

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2. Ignition ON, verify that a test lamp illuminates between the B circuit terminal 3 and ground.
    - If the test lamp does not illuminate, test the B circuit for a short to ground or an open/high resistance. If the circuit tests normal and the B fuse is open, test each of the circuits listed below for a short to ground or a faulty motor.
        - Control circuit terminal 1 X1 - A23C liftgate latch assembly
        - Control circuit terminal 2 X1 - A23C liftgate latch assembly
        - Control circuit terminal 1 X3 - M17 liftgate motor
        - Control circuit terminal 2 X3 - M17 liftgate motor
3. Ignition OFF, connect the X2 harness connector at the K39 liftgate control module and disconnect the harness connector at the M17 liftgate motor assembly.
4. Test for less than 30k ohms between the control circuit terminal A and ground.
    - If greater than the specified range, test the control circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K39 liftgate control module.
5. Test for less than 30k ohms between the control circuit terminal B and ground.
    - If greater than the specified range, test the control circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K39 liftgate control module.

NOTE: erify that the interior liftgate control s itch is in the or X osition

6. Connect a test lamp between the control circuit terminal A and control circuit terminal B.
7. Ignition ON, with the liftgate in the open position, command the liftgate to CLOSE by pressing the B70 liftgate close switch. The test lamp should illuminate during the CLOSE command.
    - If the test lamp does not illuminate, test control circuit terminal A for a short to ground. If the circuit tests normal, replace the K39 liftgate control module.
8. With the liftgate in the closed position, command the liftgate to OPEN by pressing the S46 liftgate handle switch. The test lamp should illuminate during the OPEN command.
    - If the test lamp does not illuminate, test control circuit terminal B for a short to ground. If the circuit tests normal, replace the K39 liftgate control module.
9. If all circuits test normal, test or replace the M17 liftgate motor assembly.

Repair Procedures

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

- **Liftgate Hydraulic Pump Replacement**
- **Control Module References** for liftgate control module replacement, programming and setup

LIFTGATE RELEASE MALFUNCTION (MANUAL)

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
Rear Closure Relay B	2	2	-	-
Liftgate Release Switch Signal	B2494 00	1	1	-
Rear Closure Relay Control	B324A 02	2	2	-
Rear Closure Relay 2 Control	2	2	2	-
Liftgate Latch Assembly Control	2	2	2	-
Rear Closure Relay 2 Ground	-	2	-	-
Liftgate Latch Assembly Ground	-	2	2	-
Liftgate Release Switch Ground	-	1	1	-
1. Liftgate Release Switch Malfunction 2. Liftgate Release Malfunction				

Circuit/System Description

The liftgate switch is an input to the body control module (BCM). The BCM supplies voltage to the signal circuit and when the liftgate switch is activated the signal circuit voltage goes low. The BCM controls the liftgate latch assembly through the liftgate release relay. When the liftgate switch signal is activated, the BCM enables the liftgate release relay by applying battery voltage to the liftgate relay circuit and the relay is energized when the BCM grounds the liftgate release relay control circuit. When the relay is energized battery voltage is supplied to the liftgate latch assembly through the liftgate latch control circuit.

Diagnostic Aids

Before testing can be performed, the liftgate must be opened. Refer to **Opening the Liftgate Without Electrical Power** for the appropriate procedure.

Reference Information

Schematic Reference

Liftgate Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Rear Hatch/Gate Description and Operation

Electrical Information Reference

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- **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, observe the scan tool Trunk Lid/Liftglass E terior Unlatch Switch parameter while pressing the S46B liftgate release switch. The reading should change between Active and Inactive.
   - If the parameter does not change, refer to **Liftgate Release Switch Malfunction**.
2. Command the endgate to UNLATCH with a scan tool. The M31 liftgate latch assembly should release the liftgate.
   - If the M31 liftgate latch assembly does not release the liftgate, refer to **Liftgate Latch Malfunction (Except UA2/UTC)**.
   - If the M31 liftgate latch assembly does not release the liftgate, refer to **Liftgate Latch Malfunction (With UA2/UTC)**.

Circuit/System Testing

Liftgate Release Switch Malfunction

1. Ignition OFF, disconnect the harness connector at the S46B liftgate release switch.
2. Test for less than 5 ohms between the ground circuit terminal 1 and ground.
   - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition ON, verify the scan tool Trunk Lid/Liftglass E terior Unlatch Switch parameter is Inactive.
   - If not the specified parameter, test the signal circuit terminal 2 for a short to ground. If the circuit tests normal, replace the K9 BCM.
4. Install a 3 A fused jumper wire between the signal circuit terminal 2 and ground. Verify the scan tool Trunk Lid/Liftglass E terior Unlatch Switch parameter is Active.
   - If not the specified parameter, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K9 BCM
5. If all circuits test normal, test or replace the S46B liftgate release switch.

Liftgate Latch Malfunction (Except UA2/UTC)

1. Ignition OFF, disconnect the RR CLOSURE relay.
2. Ignition ON, verify that a test lamp does not illuminate between the control circuit terminal 30 and ground.
   - If the test lamp illuminates, test the control circuit for a short to voltage.

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3. Verify that a test lamp illuminates between the B circuit terminal 87 and ground.
    - If the test lamp does not illuminate, test the B circuit for a short to ground or an open/high resistance. If the circuit tests normal and the B circuit fuse is open, test the control circuit terminal 30 for a short to ground. If the circuit tests normal, test or replace the RR CLOSURE relay.
4. Connect a test lamp between the control circuit terminal 86 and B .
5. Command the endgate to UNLATCH with a scan tool. The test lamp should turn ON during the UNLATCH command.
    - If the test lamp is always ON, test the control circuit for a short to ground. If the circuit tests normal, replace the K9 BCM.
    - If the test lamp is always OFF, test the control circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K9 BCM.
6. Connect a test lamp between the control circuit terminal 85 and ground.
7. Command the endgate to UNLATCH with a scan tool. The test lamp should turn ON during the UNLATCH command.
    - If the test lamp is always ON, test the control circuit for a short to B . If the circuit tests normal, replace the K9 BCM.
    - If the test lamp is always OFF, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the K9 BCM
8. Ignition OFF, disconnect the X1 harness connector at the M31 liftgate latch assembly.
9. Test for less than 5 ohms between the ground circuit terminal 3 and ground.
    - If greater than the specified range, test the ground circuit for an open/high resistance.
10. Connect the X1 harness connector at the M31 liftgate latch assembly.
11. Connect a 15A fused jumper wire between the B circuit terminal 87 and the control circuit terminal 30. Verify the M31 liftgate latch assembly is activated.
    - If the M31 liftgate latch assembly does not activate, test the control circuit for an open/high resistance. If the circuit tests normal, test or replace the M31 liftgate latch assembly.
12. If all circuits test normal, test or replace the RR CLOSURE relay.

Liftgate Latch Malfunction (With UA2/UTC)

1. Ignition OFF, disconnect the RR CLOSURE relay.
2. Ignition ON, verify that a test lamp does not illuminate between the control circuit terminal 30 and ground.
    - If the test lamp illuminates, test the control circuit for a short to voltage.
3. Verify that a test lamp illuminates between the B circuit terminal 87 and ground.
    - If the test lamp does not illuminate, test the B circuit for a short to ground or an open/high resistance. If the circuit tests normal and the B circuit fuse is open, test the control circuit terminal 30 for a short to ground. If the circuit tests normal, test or replace the RR CLOSURE relay.
4. Connect a test lamp between the control circuit terminal 86 and B .
5. Command the endgate to UNLATCH with a scan tool. The test lamp should turn ON during the UNLATCH command.
    - If the test lamp is always ON, test the control circuit for a short to ground. If the circuit tests

normal, replace the K9 BCM.
    - If the test lamp is always OFF, test the control circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K9 BCM.
6. Connect a test lamp between the control circuit terminal 85 and ground.
7. Command the endgate to UNLATCH with a scan tool. The test lamp should turn ON during the UNLATCH command.
    - If the test lamp is always ON, test the control circuit for a short to B+. If the circuit tests normal, replace the K9 BCM.
    - If the test lamp is always OFF, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the K9 BCM
8. Ignition OFF, disconnect the RR CLOSURE 2 relay.
9. Test for less than 5 ohms between the ground circuit terminal 86 and ground.
    - If greater than the specified range, test the ground circuit for an open/high resistance.

Component Testing

Liftgate Latch Assembly

1. Ignition OFF, disconnect the X1 harness connector at the M31 liftgate latch assembly.
2. Install a 15 A fused jumper wire between the control terminal 1 and 12 V. Momentarily install a jumper wire between the ground terminal 3 and ground. Verify the M31 liftgate latch assembly activates.
    - If the actuator does not perform as specified, replace the M31 liftgate latch assembly.

Liftgate Release Switch

1. Ignition OFF, disconnect the harness connector at the S46B liftgate release switch.
2. Test for infinite resistance between the signal terminal 2 and the ground terminal 1 with the switch in the open position.
    - If not the specified value, replace the S46B liftgate release switch.
3. Test for less than 2 ohms between the signal terminal 2 and the ground terminal 1 with the switch in the closed position.
    - If greater than the specified range, replace the S46B liftgate release switch.

Relay Test

1. Ignition OFF, disconnect the appropriate K609 Rear Closure relay.
2. Test for 60-180 ohms between terminals 85 and 86.
    - If not within the specified range, replace the K609 Rear Closure relay.
3. Test for infinite resistance between the following terminals:
    - 30 and 86
    - 30 and 87
    - 30 and 85
    - 85 and 87

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- If not the specified value, replace the K609 Rear Closure relay.

4. Install a 25A fused jumper wire between relay terminal 85 and 12V. Install a jumper wire between relay terminal 86 and ground. Test for less than 2 ohms between terminals 30 and 87.
   - If greater than the specified range, replace the K609 Rear Closure relay

Repair Procedures

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

- **Liftgate Release Switch Replacement**
- **Liftgate Latch Replacement**
- **Relay Replacement (Attached to Wire Harness)** or **Relay Replacement (Within an Electrical Center)**
- **Control Module References** for BCM replacement, setup and programming

LIFTGATE AJAR INDICATOR MALFUNCTION (MANUAL LIFTGATE)

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** provide an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Liftgate Ajar Switch Signal	1	2	2	-
Ground	-	2	-	-
1. Liftgate Ajar Indicator Always On 2. Liftgate Ajar Indicator Inoperative				

Circuit/System Description

The body control module (BCM) receives an input from the liftgate ajar assembly. The ajar assembly is normally open when the liftgate is fully closed. When the liftgate is opened, the ajar assembly contacts close providing a path to ground. The driver information center illuminates the rear access open message when the gate is open. The instrument panel cluster receives a serial data message from the BCM indicating the liftgate ajar status. If this message is displayed and the vehicle speed is greater than 8.1 km/h (5 mph), a chime will sound.

Diagnostic Aids

Before testing can be performed the liftgate must be opened. Refer to **Opening the Liftgate Without Electrical Power** for the procedure.

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Reference Information

Schematic Reference

Liftgate Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Liftgate 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

Ignition ON, observe the scan tool Rear Closure Ajar Switch parameter while opening and closing the liftgate. The parameter should change from Inactive to Active.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the liftgate latch assembly.
2. Test for less than 1 ohms between the ground circuit terminal 5 and ground.
   - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition ON, verify the scan tool Rear Closure Ajar Switch parameter is Inactive.
   - If not the specified value, test the signal circuit terminal 6 for a short to ground. If the circuit tests normal, replace the K9 BCM.
4. Install a 3 A fused jumper wire between the signal circuit terminal 6 and ground. Verify the scan tool Rear Closure Ajar Switch parameter is Active.
   - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal replace the K9 BCM.
5. If all circuits test normal, test or replace the liftgate latch assembly.

Component Testing

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1. Ignition OFF, disconnect the harness connector at the liftgate latch assembly.
2. Test for infinite resistance between the signal terminal 6 and the ground terminal 5 with the switch in the open position.
    - If not the specified value, replace the liftgate latch assembly.
3. Test for less than 1.0 ohms between the signal terminal 6 and the ground terminal 5 with the switch in the closed position.
    - If greater than the specified range, replace the liftgate latch assembly.

Repair Procedures

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

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

LIFTGATE AJAR INDICATOR MALFUNCTION (POWER LIFTGATE)

Diagnostic Instructions

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

Circuit/System Description

The driver information center (DIC) illuminates the Rear Access Open message when the liftgate module detects the liftgate ratchet and the liftgate sector switches are closed to ground indicating the liftgate is open. The instrument panel cluster receives a serial data message from the liftgate module indicating the liftgate ajar status.

Diagnostic Aids

For the Rear Access Open message to malfunction would require a fault in both the ratchet and sector signal circuits. This kind of failure would result in the liftgate to become inoperative in the manual mode and the power mode.

Reference Information

Schematic Reference

Liftgate Schematics

Connector End View Reference

Component Connector End Views

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Description and Operation

Liftgate 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

With the doors unlocked and the liftgate mode switch selected to Max, command the liftgate to OPEN by pressing the liftgate handle switch. The liftgate should perform the power OPEN function.

- If the liftgate does not perform as specified, refer to **Liftgate Release Malfunction (Manual)** Power

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
Left Front Door Ajar Switch Signal	1	2	2	-
Left Rear Door Ajar Switch Signal	1	2	2	-
Right Front Door Ajar Switch Signal	1	2	2	-
Right Rear Door Ajar Switch Signal	1	2	2	-
Driver Door Latch Ground	-	2	-	-
Passenger Door Latch Ground	-	2	-	-
Left Rear Door Latch Ground	-	2	-	-
Right Rear Door Latch Ground	-	2	-	-
1. Ajar Indicator Always Illuminated 2. Ajar Indicator Inoperative				

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Circuit/System Description

Each front window motor monitors the ajar signal circuit for the respective front door ajar switches, when a front door is open, contacts within the door latch closes causing the voltage within the ajar circuit to drop. The front window motor will detect the drop in voltage and will then send a serial data message to the body control module (BCM), the BCM in turn will then send a serial data message to the driver information center which will display the appropriate door ajar message.

Each rear window switch monitors the ajar signal circuit for the respective rear door ajar switches, when a rear door is open, contacts within the door latch closes causing the voltage within the ajar circuit to drop. The rear window switch will detect the drop in voltage and will then send a serial data message to the body control module (BCM), the BCM in turn will then send a serial data message to the driver information center which will display the appropriate door ajar message.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Door A ar Indicator 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, observe the scan tool Driver Door Ajar Switch parameter while opening and closing the driver door. The parameter should change between Active and Inactive.
    - If the value does not change, refer to **Driver Door A ar Switch Malfunction**.
2. Observe the scan tool Passenger Door Ajar Switch parameter while opening and closing the front passenger door. The parameter should change between Active and Inactive.

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- If the value does not change, refer to **Passenger Door A ar Switch Malfunction**.

3. Observe the scan tool Left Rear Door Ajar Switch and Right Rear Door Ajar Switch parameters while opening and closing the left and right rear doors. The parameters should change between Inactive and Active.
   - If the appropriate value does not change, refer to **Driver Door A ar Switch Malfunction**.

Circuit/System Testing

Driver Door A ar Switch Malfunction

1. Ignition OFF, disconnect the harness connector at the A23D door latch assembly-driver.
2. Test for less than 10 ohms between the ground circuit terminal listed below and ground
   - Left hand drive terminal
   - Right hand drive terminal 3
   - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition ON, verify the scan tool Driver Door Ajar Switch parameter is Inactive.
   - If not the specified value, test the signal circuit terminal listed below for a short to ground. If the circuit tests normal, replace the M7 D window motor - driver.
     - Left hand drive terminal 2
     - Right hand drive terminal 1
. Install a 3 A fused jumper wire between the signal circuit terminal listed below and ground. Verify the scan tool Driver Door Ajar Switch parameter is Active.
   - Left hand drive terminal 2
   - Right hand drive terminal 1
   - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the M7 D window motor - driver.
5. If all circuits test normal, test or replace the A23D door latch assembly - driver.

Passenger Door A ar Switch Malfunction

1. Ignition OFF, disconnect the harness connector at the A23P door latch assembly - passenger.
2. Test for less than 10 ohms between the ground circuit terminal listed below and ground.
   - Left hand drive terminal 3
   - Right hand drive terminal
   - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition ON, verify the scan tool Passenger Door Ajar Switch parameter is Inactive.
   - If not the specified value, test the signal circuit terminal listed below for a short to ground. If the circuit tests normal, replace the S79P window switch-passenger.
     - Left hand drive terminal 1
     - Right hand drive terminal 6
. Install a 3 A fused jumper wire between the appropriate signal circuit terminal listed below and ground.

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Verify the scan tool Passenger Door Ajar Switch parameter is Active.

- Left hand drive terminal 1
- Right hand drive terminal 6
  - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the S79P window switch - passenger.

5. If all circuits test normal, test or replace the A23P door latch assembly - passenger.

Rear Door A ar Switch Malfunction

1. Ignition OFF, disconnect the harness connector at the appropriate rear door latch.
2. Test for less than 10 ohms between the ground circuit terminal listed below and ground
   - Left rear door latch ground circuit terminal
   - Right rear door latch ground circuit terminal 3
   - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition ON, verify the appropriate scan tool Rear Door Ajar Switch parameter is Inactive.
   - If not the specified value, test the signal circuit terminal listed below for a short to ground. If the circuit tests normal, replace the appropriate rear window switch.
     - Left rear door ajar switch signal circuit terminal 6
     - Right rear door ajar switch signal circuit terminal 1
4. Install a 3 A fused jumper wire between the signal circuit terminal listed below and ground. Verify the scan tool Rear Door Ajar Switch parameter is Active.
   - Left rear door ajar switch signal circuit terminal 6
   - Right rear door ajar switch signal circuit terminal 1
   - If not the specified value, test the signal circuit for an open/high resistance. If the circuit tests normal, replace the rear window switch.
5. If all circuits tests normal, test or replace the rear door latch.

Component Testing

Static Test

1. Ignition OFF, disconnect the harness connector at the appropriate door latch.
2. With the switch in the open position, test for infinite resistance between the signal and the ground terminals listed below
   - Driver door latch signal terminal 6 and ground terminal
   - Left rear door latch signal terminal 6 and ground terminal
   - Right rear door latch signal terminal 1 and ground terminal 3
   - Passenger door latch signal terminal 1 and ground terminal 3
   - If not the specified value, replace the door latch.
3. With the switch in the closed position, test for less than 5 ohms between the signal and the ground terminals listed below

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- Driver door latch signal terminal 6 and ground terminal
- Left rear door latch signal terminal 6 and ground terminal
- Right rear door latch signal terminal 1 and ground terminal 3
- Passenger door latch signal terminal 1 and ground terminal 3
  - If greater than the specified range, replace the door latch.

Repair Procedures

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

- **Front Side Door Lock Replacement**
- **Rear Side Door Lock Replacement**
- **Rear Side Door Window Switch Replacement**
- **Control Module References** for window regulator motor replacement, setup and programming

POWER DOOR LATCH S STEM 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 Handle Switch Signal	B3 9 02	1	1	-
Driver Door Handle Lock Signal	B2516 02	1	1	-
Passenger Door Handle Switch Signal	B1 7 02	1	1	-
Passenger Door Handle Lock Signal	B3155 02	1	1	-
Left Rear Door Handle Switch Signal	B153 02	1	1	-
Right Rear Door Handle Switch Signal	B1535 02	1	1	-
Driver Door Latch Control	B250B 02 or B251B 02	2	B250B 01	-
Left Rear Door Latch Control	B251A 02 or B251D 02	2	B251A 01	-
Passenger Door Latch Control	B251A 02 or B251C 02	2	B251A 01	-
Right Rear Door Latch Control	B251A 02 or B251E 02	2	B251A 01	-
Driver Door Handle Switch Ground	-	1	-	-

Passenger Door Handle Switch Ground	-	1	-	-
Left Rear Door Handle Switch Ground	-	1	-	-
Right Rear Door Handle Switch Ground	-	1	-	-
1. Door Handle Switch Malfunction 2. Door nlatch Malfunction				

Circuit/System Description

The system is designed so that when the operator approaches a locked vehicle with the keyless entry transmitter, the passive entry passive start module will detect the keyless entry transmitter and when an e terior door handle is pulled the entry passive start module will command all doors to unlock and the door to unlatch allowing the door to be pulled open.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics

Remote Function Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Power Door Latch 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

Circuit/System Verification

1. Ignition ON, observe the scan tool keyless entry control module E terior Driver Door, E terior Passenger

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Door, E terior Left Rear Door and E terior Right Rear Door Handle Switch parameters while pulling and releasing each e terior door handle. The parameter should change between Active and Inactive.

- If a value for a e terior door handle is always Active or Inactive, refer to **Exterior Door Handle Malfunction**.

2. Ignition OFF, with the doors closed and locked, approach the vehicle with the keyless entry transmitter and pull the e terior driver door handle. The driver door should unlock and unlatch allowing the driver door to be pulled open.
   - If the driver door does not perform as specified, refer to **Driver Door Latch Malfunction**.
3. With the doors closed and locked, approach the vehicle with the keyless entry transmitter and pull the e terior passenger door handle or the e terior left rear door handle or the e terior right rear door handle. The appropriate door should unlock and unlatch allowing the door to be pulled open.
   - If all the doors do not perform as specified, refer to Passenger and Rear Door Release Command Inoperative below.
   - If a single door does not perform as specified, refer to Passenger or Rear Door Latch Malfunction below.
4. With the doors unlocked, verify that the door latches perform the LOCK function when pressing the lock button on the driver door handle.
   - If the doors do not LOCK, refer to Front Door Handle Lock Switch Malfunction below.
5. With the doors unlocked, verify that the door latches perform the LOCK function when pressing the lock button on the passenger door handle.
   - If the doors do not LOCK, refer to Front Door Handle Lock Switch Malfunction below.

Circuit/System Testing

Exterior Door Handle Malfunction

1. Ignition OFF, disconnect the harness connector at the appropriate B27 door handle switch.
2. Test for less than 30 ohms between the ground circuit terminal 1 and ground.
   - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition ON, verify the appropriate scan tool E terior Door Handle Switch parameter is Inactive.
   - If not the specified value, test the signal circuit terminal 2 for a short to ground. If the circuit tests normal, replace the K84 keyless entry control module.
4. Install a 3 A fused jumper wire between the signal circuit terminal 2 and the ground circuit terminal 1. Verify the scan tool E terior Door Handle Switch parameter is Active.
   - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K84 keyless entry control module
5. If all circuits test normal, test or replace the B27 door handle switch.

Driver Door Latch Malfunction

1. Ignition OFF, disconnect the X7 harness connector at the K9 BCM.
2. Test for less than 5 ohms between the signal circuit terminal 5 and ground.
   - If greater than the specified range, test the signal circuit for a short to voltage or an open/high

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resistance. If the circuit test normal, replace the K84 keyless entry control module.

3. Ignition OFF, connect the X7 harness connector at the K9 BCM and disconnect the X4 harness connector at the K84 keyless entry control module.
4. Test for infinite resistance between the signal circuit terminal 3 and ground.
   - If not the specified value, test the signal circuit for an open/high resistance. If the circuit tests normal, replace the K9 BCM.
5. Ignition OFF, connect the X4 harness connector at the K84 keyless entry control module and disconnect the harness connector at the A23D door latch assembly - driver.
6. Connect a test lamp between the control circuit terminal 5 and control circuit terminal 10
7. Ignition ON, pull and release the e terior driver door handle. The test lamp should briefly illuminate when pulling the e terior driver door handle.
   - If the test lamp is always ON, test either control circuit for a short to voltage. If the circuit tests normal, replace the K84 keyless entry control module.
   - If the test lamp is always OFF, test either control circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the K84 keyless entry control module.
8. If all circuits test normal, test or replace the A23D door latch assembly - driver.

Passenger or Rear Door Latch Malfunction

1. Ignition OFF, disconnect the X7 harness connector at the K9 BCM.
2. Test for less than 5 ohms between the signal circuit terminal 17 and ground.
   - If greater than the specified range, test the signal circuit for a short to voltage or an open/high resistance. If the circuit test normal, replace the K84 keyless entry control module.
3. Ignition OFF, connect the X7 harness connector at the K9 BCM and disconnect the X4 harness connector at the K84 keyless entry control module.
4. Test for infinite resistance between the signal circuit terminal 14 and ground.
   - If not the specified value, test the signal circuit for an open/high resistance. If the circuit tests normal, replace the K9 BCM.
5. Ignition OFF, connect the X4 harness connector at the K84 keyless entry control module and disconnect the harness connector at the appropriate A23 door latch assembly.
6. Connect a test lamp between the control circuit terminal 5 and control circuit terminal 10.
7. Ignition ON, pull and release the e terior door handle. The test lamp should briefly illuminate when pulling the e terior door handle.
   - If the test lamp is always ON, test either control circuit for a short to voltage. If the circuit tests normal, replace the K84 keyless entry control module.
   - If the test lamp does not illuminate, test either control circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the K84 keyless entry control module.
8. If all circuits test normal, test or replace the A23 door latch assembly.

Front Door Handle Lock Switch Malfunction

1. Ignition OFF, disconnect the harness connector at the appropriate B27 door handle switch.
2. Test for less than 5 ohms between the ground circuit terminal 4 and ground.

- If greater than the specified range, test the ground circuit for an open/high resistance.

3. Ignition ON, verify the scan tool All Doors Lock Command parameter is Inactive.
   - If not the specified value, test the signal circuit terminal 3 for a short to ground. If the circuit tests normal, replace the K84 keyless entry control module.
4. Connect a 3A fused jumper wire between the signal circuit terminal 3 and ground, verify the scan tool All Doors Lock Command parameter is Active.
   - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K84 keyless entry control module.
5. If all circuits test normal, test or replace the B27 door handle switch.

Component Testing

Exterior Door Handle Switch Test

1. Ignition OFF, disconnect the harness connector at the appropriate B27 door handle switch.
2. With the switch in the open position, test for infinite resistance between the signal terminal 2 and the ground terminal 1.
   - If not the specified value, replace the B27 door handle switch.
3. With the switch in the closed position, test for less than 5 ohms between the signal terminal 2 and the ground terminal 1
   - If greater than the specified range, replace the B27 door handle switch.

Door Latch

1. Ignition OFF, disconnect the harness connector at the appropriate A23 door latch assembly.
2. Install a 15A fused jumper wire between one of the control terminals and 12V. 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 functions.
   - If it does not perform as specified, replace the A23 door latch assembly.

Repair Procedures

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

- **Front Side Door Outside Handle Replacement**
- **Rear Side Door Lock Replacement**
- **Front Side Door Lock Replacement**
- **Rear Side Door Outside Handle Replacement**
- **Control Module References** for BCM and the keyless entry control module replacement, setup, and programming

POWER DOOR CHILD LOCK MALFUNCTION

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.

Diagnostic Fault Information

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	-
Left Rear Door Latch Lock Signal	1	1	1	-
Right Rear Door Latch Lock Signal	1	1	1	-
Child Security Door Lock Indicator Control	B252E 02	3	3	-
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	-
Rear 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 radio/HVAC display controls the child locks on the rear doors. The lockout switch is an input to the body control module (BCM) and the BCM controls the CHILD SECURIT relay. When the BCM receives a command from the child door lockout switch, it will apply voltage to the CHILD SECURIT 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.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics

Body Control System Schematics

Connector End View Reference

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Component Connector End Views

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. Operate the door locks to LOCK and UNLOCK by pressing the appropriate switch on the central door lock switch. Each interior door lock knob should move between LOCK and UNLOCK.
   - If one or more doors do not LOCK or UNLOCK, refer to **Power Door Locks Malfunction (Without Dead Locks)** or **Power Door Locks Malfunction (Dead Lock)**. (Without Dead Locks)
2. Ignition ON observe the scan tool child security lock motors command while pressing the child lockout switch. The value should change from Inactive to Lock and from Inactive to Unlock each time the switch is pressed.
   - If a value does not change, refer to Child Lockout Switch Malfunction below.
3. With all the doors locked, command the child security lockout by pressing the security lockout switch, the interior rear door handles should not open the doors when used and the lockout indicator should illuminate.
   - If both interior rear door handles continue to function, refer to Child Security Door Lockout Inoperative below.

- If the left or right interior rear door handles continue to function, refer to Child Security Door Lockout Malfunction below.

- If the lockout indicator flashes ON and OFF, refer to Child Security Door Lockout Inoperative or Child Security Door Lockout Malfunction below.

- If the lockout indicator is always ON or always OFF, refer to Lockout Indicator Malfunction below.

Circuit/System Testing

Child Lockout Switch Malfunction

1. Ignition OFF, disconnect the X1 harness connector at the A20 radio/HVAC control.

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2. Ignition ON, test for greater than 10V between the signal circuit terminal 5 and ground.
    - If less than the specified range, test the signal circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the K9 BCM.
3. If all circuits test normal, test or replace the A20 radio/HVAC control.

Child Security Door Lockout Inoperative

1. Ignition OFF, disconnect the X1 harness connector at the K9 BCM.
2. Ignition ON, verify that a test lamp illuminates between the B+ circuit terminal 2 and ground.
    - If the test lamp does not illuminate and the B+ circuit fuse is normal, test the B+ circuit for an open/high resistance.
    - If the test lamp does not illuminate and the B+ circuit fuse is open, test the B+ circuit for a short to ground.
3. Ignition OFF, connect the X1 harness connector and disconnect the X7 harness connector at the K9 BCM.
4. Connect a test lamp between the signal circuit terminal 12 and B+. Observe the test lamp while manually locking and unlocking the left rear door, the test lamp should turn ON and OFF while changing between the commanded states.
    - If the test lamp is always ON, test the signal circuit for a short to ground. If the circuit tests normal, test or replace the A23LR door latch assembly-left rear.
5. Connect a test lamp between the signal circuit terminal 18 and B+. Observe the test lamp while manually locking and unlocking the right rear door, the test lamp should turn ON and OFF while changing between the commanded states.
    - If the test lamp is always ON, test the signal circuit for a short to ground. If the circuit tests normal, test or replace the A23RR door latch assembly-right rear.
6. Ignition OFF, connect the X7 harness connector at the K9 BCM and disconnect the X2 harness connector at the X53 fuse block-rear
7. Test for less than 30 ohms between the ground circuit terminal 27 and ground.
    - If greater than the specified range, test the ground circuit for an open/high resistance.
8. Connect a test lamp between the control circuit terminal 19 and ground. Command the child lockout latches to LOCK and UNLOCK with a scan tool, the test lamp should briefly illuminate while changing between the commanded states.
    - If the test lamp is always OFF, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the K9 BCM.
    - If the test lamp is always ON, test the control circuit for a short to voltage. If the circuit tests normal, replace the K9 BCM.
9. Connect a test lamp between the control circuit terminal 28 and the control circuit terminal 35. Command the child lockout latches to LOCK and UNLOCK with a scan tool, the test lamp should briefly illuminate while changing between the commanded states.
    - If the test lamp is always OFF, test the control circuit terminal 28 for an open/high resistance.
10. If all circuits test normal, replace the X53 fuse block-rear.

Child Security Door Lockout Malfunction

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1. Ignition OFF, disconnect the harness connector at the appropriate A23R door latch assembly-rear.
2. Test for less than 30 ohms between the ground circuit terminal listed below and ground:
   - A23LR door latch assembly-left rear terminal 8
   - A23RR door latch assembly-right rear terminal 3
   - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition ON, test for greater than 10V between the signal circuit terminal listed below and ground.
   - A23LR door latch assembly-left rear terminal 9
   - A23RR door latch assembly-right rear terminal 4
   - If less than the specified range, test the signal circuit for an open/high resistance. If the circuit tests normal, replace the K9 BCM.
4. Connect a test lamp between the control circuit terminal 2 and the control circuit terminal 7.
5. Command the child lockout ON and OFF with a scan tool, the test lamp should briefly illuminate while changing between the commanded states.
   - If the test lamp is always OFF, test either control circuit for an open/high resistance.
6. If all circuits test normal, test or replace the A23R door latch assembly-rear.

Lockout Indicator Malfunction

1. Ignition OFF, disconnect the X2 harness connector at the K9 BCM.
2. Ignition ON, verify that the lockout indicator is OFF.
   - If the lockout indicator is ON, test the control circuit terminal 6 for a short to ground. If the circuit tests normal, replace the A20 radio/HVAC control.
3. Install a 3 A fused jumper wire between the control circuit terminal 6 and ground, verify that the lockout indicator is ON.
   - If the lockout indicator is OFF, test the control circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the A20 radio/HVAC control.
4. If all circuits test normal, replace the K9 BCM.

Component Testing

Rear Door Latch Assembly

1. Ignition OFF, disconnect the harness connector at the appropriate A23 door latch assembly - rear.
2. Install a 25A fused jumper wire between one of the control terminals and 12V. 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 as specified, replace the A23 door latch assembly - rear.

Repair Procedures

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

- **Rear Side Door Lock Replacement**

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- **Fuse Block Replacement**
- **Control Module References** BCM and radio/HVAC control replacement, setup and programming

POWER DOOR LOCK KE C LINDER SWITCHES 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 Key Switch Signal	1	1	1	-
Driver Door Latch Ground	-	1	-	-
1. Key Cylinder Switch Inoperative				

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.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Power Door Latch Description and Operation

Electrical Information Reference

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

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- **Wiring Repairs**
- **Connector Repairs**

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Ignition OFF, insert the key into the drivers door lock cylinder, turn the key Unlock position while observing the scan tool Driver Door Key Cylinder Unlock Switch parameter, the parameter should change between Inactive and Active.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the driver door latch.
2. Test for less than 1 ohms between the ground circuit terminal 8 and ground.
    - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition ON, verify the scan tool Driver Door Key Cylinder Unlock Switch parameter is Inactive.
    - If not the specified value, test the signal circuit terminal listed below for a short to ground. If the circuit tests normal, replace the driver door lock/window switch.
        - Right hand drive terminal 4
        - Left hand drive terminal 9
4. Install a 3 A fused jumper wire between the signal circuit terminal listed below and ground, verify the scan tool Driver Door Key Cylinder Unlock Switch parameter is Active.
    - Right hand drive terminal 4
    - Left hand drive terminal 9
    - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the driver door lock/window switch.
5. If all circuits tests normal, test or replace the driver door latch.

Component Testing

1. Ignition OFF, disconnect the harness connector at the driver door latch.
2. Test for infinite resistance between the terminals listed below with the switch in the open position.
    - Right hand drive signal terminal 4 and ground terminal 8
    - Left hand drive signal terminal 9 and ground terminal 8
    - If not the specified value, replace the driver door latch.
3. Test for less than 2 ohms between the terminals listed below with the switch in the Unlock position.
    - Right hand drive signal terminal 4 and ground terminal 8
    - Left hand drive signal terminal 9 and ground terminal 8
    - If greater than the specified range, replace the driver door latch.

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Repair Procedures

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

- **Front Side Door Lock Replacement**
- **Front Side Door Window and Multifunction Switch Replacement**

POWER DOOR LOCKS MALFUNCTION (WITHOUT DEAD LOCKS)

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
Central Door Lock Switch Lock Signal	B3150 00	1	1	-
Central Door Lock Switch Unlock Signal	B3140 00	1	1	-
Door Lock/Unlock Control	B3125 02, B3130 02, B3135 02	3, 4, 5	B3125 01, B3130 01, B3135 01	-
Driver Door Latch Lock Control	B3125 02, B3130 02, B3135 02	2	B3125 01, B3130 01, B3135 01	-
Driver Door Latch Unlock Control	B3125 02, B3130 02, B3135 02	2	B3125 01, B3130 01, B3135 01	-
Door Lock Control	B3125 02, B3130 02, B3135 02	2	B3125 01, B3130 01, B3135 01	-
Left Rear Door Latch Lock Control	B3125 02, B3130 02, B3135 02	4	B3125 01, B3130 01, B3135 01	-
Left Rear Door Latch Unlock Control	B3125 02, B3130 02, B3135 02	4	B3125 01, B3130 01, B3135 01	-
Passenger Door Latch Lock Control	B3125 02, B3130 02, B3135 02	3	B3125 01, B3130 01, B3135 01	-
	B3125 02,		B3125 01,	

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Passenger Door Latch Unlock Control	B3130 02, B3135 02	3	B3130 01, B3135 01	-
Right Rear Door Latch Lock Control	B3125 02, B3130 02, B3135 02	5	B3125 01, B3130 01, B3135 01	-
Right Rear Door Latch Unlock Control	B3125 02, B3130 02, B3135 02	5	B3125 01, B3130 01, B3135 01	-
1. Central Door Lock Switch Malfunction 2. Driver Door Latch Malfunction 3. Passenger Door Latch Malfunction 4. Left Rear Door Latch Malfunction 5. Right Rear Door Latch Malfunction				

Circuit/System Description

The body control module (BCM) monitors the voltage level of the door lock and door unlock signal circuits. When the central door lock switch is in the open position, the voltage level in the signal circuit will be near 0 V. When the central door lock switch is pressed to the lock or unlock position, a signal will be sent to the BCM requesting a lock or unlock command.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics

Connector End View Reference

Component Connector End Views

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

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Circuit/System Verification

1. Ignition ON, observe the scan tool BCM Central Door Lock Switch on Console parameter. The reading should be Inactive and change to Lock and Unlock when pushing the appropriate switch.
    - If the reading does not change, refer to Central Door Lock Switch Malfunction below.
2. Command the doors to LOCK and UNLOCK by using the central door lock switch, the doors should LOCK and UNLOCK when changing between the commanded states.
    - If a door does not LOCK or UNLOCK, refer to Door Lock Malfunction below.
    - If all doors do not LOCK or UNLOCK, refer to All Door Locks inoperative below.

Circuit/System Testing

Central Door Lock Switch Malfunction

1. Ignition OFF, disconnect the harness connector at the A20 radio/HVAC control.
2. Ignition ON, verify the scan tool Central Door Lock Switch on Center Console parameter is Inactive.
    - If the value is Lock, test the signal circuit terminal 12 for a short to ground. If the circuit tests normal, replace the K9 BCM.
    - If the value is Unlock, test the signal circuit terminal 13 for a short to ground. If the circuit tests normal, replace the K9 BCM.
3. Install a 3 A fused jumper wire between the signal circuit terminal 12 and ground. Verify the scan tool Central Door Lock Switch on Center Console parameter is Lock.
    - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K9 BCM.
4. Install a 3 A fused jumper wire between the signal circuit terminal 13 and ground. Verify the scan tool Central Door Lock Switch on Center Console parameter is Unlock.
    - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the K9 BCM.
5. If all circuits test normal, replace the A20 radio/HVAC control.

Door Lock Malfunction

1. Ignition OFF, disconnect the harness connector at the appropriate A23 door latch assembly.
2. Connect a test lamp between the control circuit terminals listed below:
    - A23D door latch assembly-driver terminal 2 and terminal 3
    - A23P door latch assembly-passenger terminal 7 and terminal 8
    - A23LR door latch assembly-left rear terminal 7 and terminal 3
    - A23RR door latch assembly-right rear terminal 9 and terminal 8
3. Ignition ON, command the door to LOCK and UNLOCK by using the central door lock switch. The test lamp should briefly illuminate when commanding the LOCK and UNLOCK states.
    - If the test lamp is always OFF for either the LOCK or UNLOCK command, test the control circuit for an open/high resistance between the connector and the circuit splice.
4. If all circuits test normal, test or replace the A23 door latch assembly.

All Door Locks Inoperative

1. Ignition OFF, disconnect the X2 harness connector at the A53 fuse block-rear.
2. Connect a test lamp between the control circuit terminal 35 and ground.
3. Ignition ON, command the All Doors Lock with a scan tool, the test lamp should turn ON while commanding the LOCK state.
    - If the test lamp is always OFF, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the K9 BCM.
    - If the test lamp is always ON, test the control circuit for a short to voltage. If the circuit tests normal, replace the K9 BCM.
4. Ignition OFF, connect the X2 harness connector and disconnect the X3 harness connector at the A53 fuse block-rear.
5. Connect a test lamp between the control circuit terminal 20 and ground.
6. Ignition ON, command the All Doors Lock with a scan tool, the test lamp should turn ON while commanding the LOCK state.
    - If the test lamp is always OFF, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the K9 BCM.
    - If the test lamp is always ON, test the control circuit for a short to voltage. If the circuit tests normal, replace the K9 BCM.
7. Ignition OFF, connect the X3 harness connector at the A53 fuse block-rear and disconnect the harness connector at the appropriate A23 door latch assembly.
8. Test for infinite resistance between the control circuit terminal listed below and ground:
    - A23D door latch assembly-driver terminal 3
    - A23P door latch assembly-passenger terminal 8
    - A23LR door latch assembly-left rear terminal 3
    - A23RR door latch assembly-right rear terminal 8
    - If not the specified value, test the control circuit for a short to ground. If the circuit tests normal, replace the A53 fuse block-rear.
9. Test for infinite resistance between the control circuit terminal listed below and ground:
    - A23D door latch assembly-driver terminal 2
    - A23P door latch assembly-passenger terminal 7
    - A23LR door latch assembly-left rear terminal 7
    - A23RR door latch assembly-right rear terminal 9
    - If not the specified value, test the control circuit for a short to ground. If the circuit tests normal, replace the K9 BCM.
10. If all circuits test normal, test or replace the A23 door latch assembly.

Component Testing

Door Latch

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 functions.
    - If it does not perform as specified, replace the A23 door latch assembly.

Repair Procedures

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

- **Accessory Wiring Junction Block Replacement**
- **Radio Control Assembly Replacement**
- **Front Side Door Lock Replacement**
- **Rear Side Door Lock Replacement**
- **Control Module References** BCM replacement, setup and programming

POWER DOOR LOCKS MALFUNCTION (DEAD LOCK)

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 Latch Unlock Control	B3125 02, B3130 02, B3135 02	1	B3125 01, B3130 01, B3135 01	-
Driver Door Global Door Lock Control	B3125 02, B3130 02, B3135 02	1	B3125 01, B3130 01, B3135 01	-
Global Door Lock Relay Control	B3797 02	1, 2, 3, 4	1, 2, 3, 4	-
Left Rear Door Latch Unlock Control	B3125 02, B3130 02, B3135 02	3	B3125 01, B3130 01, B3135 01	-
Left Rear Door Global Door Lock Control	B3125 02, B3130 02, B3135 02	3	B3125 01, B3130 01, B3135 01	-
Passenger Door Latch Unlock Control	B3125 02, B3130 02, B3135 02	2	B3125 01, B3130 01, B3135 01	-
Passenger Door Global Door Lock	B3125 02,		B3125 01,	

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Control	B3130 02, B3135 02	2	B3130 01, B3135 01	-
Right Rear Door Latch Unlock Control	B3125 02, B3130 02, B3135 02	4	B3125 01, B3130 01, B3135 01	-
Right Rear Door Global Door Lock Control	B3125 02, B3130 02, B3135 02	4	B3125 01, B3130 01, B3135 01	-
Rear Fuse Block Ground	-	1, 2, 3, 4	-	-
1. Driver Door Latch Dead Lock Malfunction 2. Passenger Door Latch Dead Lock Malfunction 3. Left Rear Door Latch Dead Lock Malfunction 4. Right Rear Door Latch Dead Lock Malfunction				

Circuit/System Description

Vehicles equipped with the AF8 option contain a reversible dead lock motor contained within each door latch assembly. Each dead lock motor is controlled by 2 circuits; the dead lock control circuit and the dead lock unlock control circuit. To dead lock a door, the body control module (BCM) locks the door by momentarily energizing the door lock relay. To complete the dead locking, the BCM momentarily applies voltage to the dead lock control circuit and ground to the door lock relay control circuit and the door latches will then dead lock.

To un-dead lock the door, the BCM uses the same circuit as the normal door unlocking system and the dead locks will unlatch with the rest of the door locks.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics

Connector End View Reference

Component Connector End Views

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 erification

1. Operate the door locks to LOCK and UNLOCK by pressing the appropriate central door lock switch, each interior door lock knob should move between LOCK and UNLOCK.
   - If one or more doors do not LOCK or UNLOCK, refer to **Po er Door Locks Malfunction it out Dead Locks** or **Po er Door Locks Malfunction Dead Lock** (Without Dead Locks)
2. Command the doors to LOCK with a scan tool and manually unlock each door, attempt to open the door by using the e terior door handles. The e terior door handles should be inoperative.
   - If one or more doors open but not all, refer to Single Door Dead Lock Malfunction below.
   - If all doors open, refer to All Door Dead Lock Malfunction below.
3. Command the doors to UNLOCK with a scan tool and attempt to open the door by using the e terior door handles. The e terior door handles should open the doors.
   - If one or more doors open but not all, refer to Single Door Dead Lock Malfunction below.
   - If all doors do not open, refer to All Door Dead Lock Malfunction below.

Circuit System Testing

Single Rear Door Lock Malfunction

NOTE: The dead lock diagnostic assumes the door latches function normally

1. Ignition OFF, disconnect the harness connector at the appropriate A23 door latch assembly.
2. Connect a test lamp between control circuit terminals listed below:
   - A23D door latch assembly - driver control terminal 6 and control terminal 2 (Right hand drive)
   - A23D door latch assembly - driver control terminal 1 and control terminal 2 (Left hand drive)
   - A23P door latch assembly - passenger control terminal 1 and control terminal 7 (Right hand drive)
   - A23P door latch assembly - passenger control terminal 6 and control terminal 7 (Left hand drive)
   - A23LR door latch assembly - left rear control terminal 1 and control terminal
   - A23RR door latch assembly - right rear control terminal 6 and control terminal
3. Command the doors to LOCK and UNLOCK with a scan tool, the test lamp should briefly illuminate while commanding the LOCK and UNLOCK states.
   - If the test lamp is always OFF, test either control circuit for an open/high resistance between the connector and the circuit splice.
4. If all circuits test normal, test or replace the A23 door latch assembly.

All Door Dead Lock Malfunction

NOTE: The dead lock diagnostic assumes the door latches function normally

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1. Ignition OFF, disconnect the 2 harness connector at the 53 fuse block-rear.
2. Test for less than 3 ohms between the ground circuit terminal 27 and ground.
   - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Connect a test lamp between the control circuit terminal 32 and the ground circuit terminal 27.
4. Ignition ON, command the door dead locks to LOCK and UNLOCK with a scan tool, the test lamp should briefly illuminate when changing between the commanded states.
   - If the test lamp is always OFF, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the K BCM.
5. Ignition OFF, disconnect the 3 harness connector at the 53 fuse block-rear.
6. Ignition ON, verify that a test lamp does not illuminate between the control circuit terminal 17 and ground.
   - If the test lamp illuminates, test the control circuit for a short to voltage.
7. Test for infinite resistance between the control circuit terminal 17 and ground.
   - If not the specified value, test the control circuit for a short to ground. If the circuit tests normal, test for a shorted A23 door latch assembly.
8. If all circuits test normal, replace the 53 fuse block-rear.

Component Testing

Door Latc

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 volts. Momentarily install a jumper wire between the other control terminal and ground. Reverse the jumper wires at least two times, the door latch should perform the LOCK and UNLOCK functions.
   - If it does not perform as specified, replace the A23 door latch assembly.

Repair Procedures

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

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

DOOR ILL NOT OPEN CLOSE DOOR BINDING OR LOCKS HANDLES OR CYLINDERS DO NOT F NCTION

Door Latc System Diagnosis

Step	Action	Yes	No
D FINITION: 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.			
	Did you perform the Diagnostic System Check -		Go to **Diagnostic**

1	Vehicle?	Go to **Step 2**	**System C eck e icle**
2	Were you sent here from a Vehicle Access Symptom Table?	Go to **Step 3**	Go to **Symptoms e icle Access**
3	Does the door open with the outside handle?	Go to **Step**	Go to **Step 1**
4	Does the door open with the inside handle?	Go to **Step 5**	Go to **Step 11**
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 1**
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**	Go to **Step 16**
	Does the door bind, does it take e cessive effort to open, or is it misaligned?	Go to **Step 17**	Go to **Step 18**
1	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		

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	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**
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		

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	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 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?	Go to **Step 18**	Go to **Step 1**
	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.		

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14	• 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**
	The outside key cylinder will not latch and unlatch the latch and function smoothly without binding: 1. For cold weather freezing, thaw as necessary		

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16	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 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		

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	○ Door switches • Door opening/closing effort Is the condition still present?	Go to **Step 1**	System OK

REPAIR INSTRUCTIONS

FRONT SIDE DOOR INSIDE HANDLE CABLE REPLACEMENT

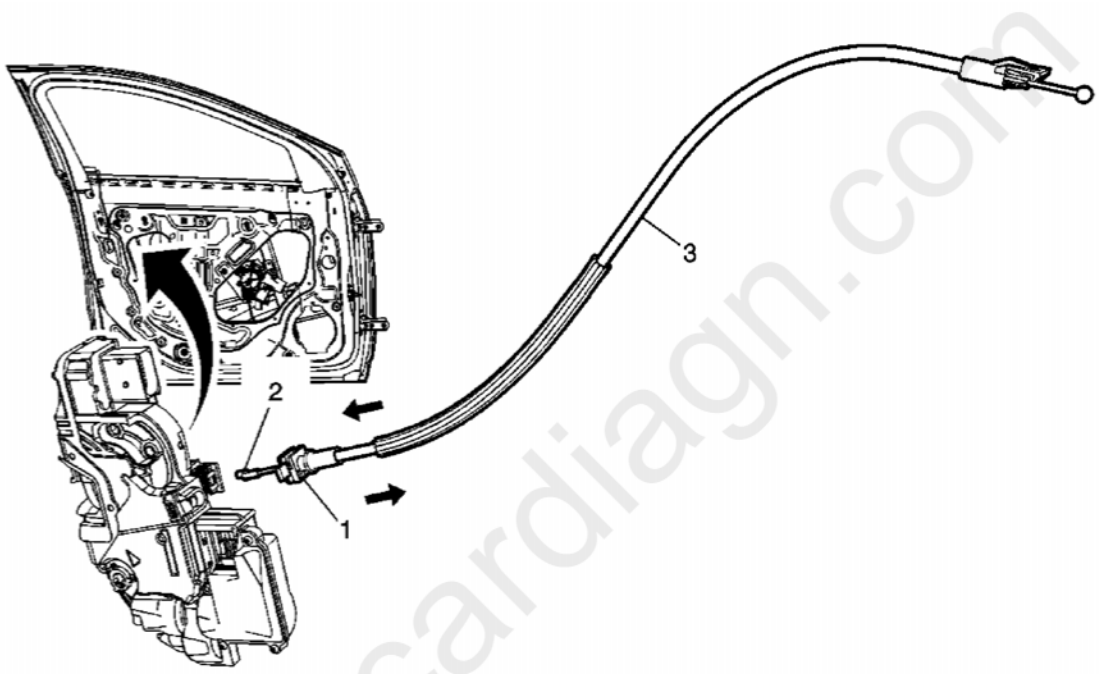


Fig. 11: Identifying Front Side Door Inside Handle Cable
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures 1. Remove the front side door trim panel. Refer to **Front Side Door Trim Replacement** . 2. Remove the front side door lock. Refer to **Front Side Door Lock Replacement**	
1	Front Side Door Inside Handle Cable Retainer **Procedure** 1. Release the cable retainer to open access door on the lock. 2. Release the cable retainer and slide cable out of the lock.
2	Front Side Door Inside Handle Cable to Lock Retainer

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3	Front Side Door Inside Handle Cable **Procedure:** Inspect the door for properly alignment, if needed refer to **Front Side Door Lock Striker Adjustment**.

REAR SIDE DOOR INSIDE HANDLE CABLE REPLACEMENT

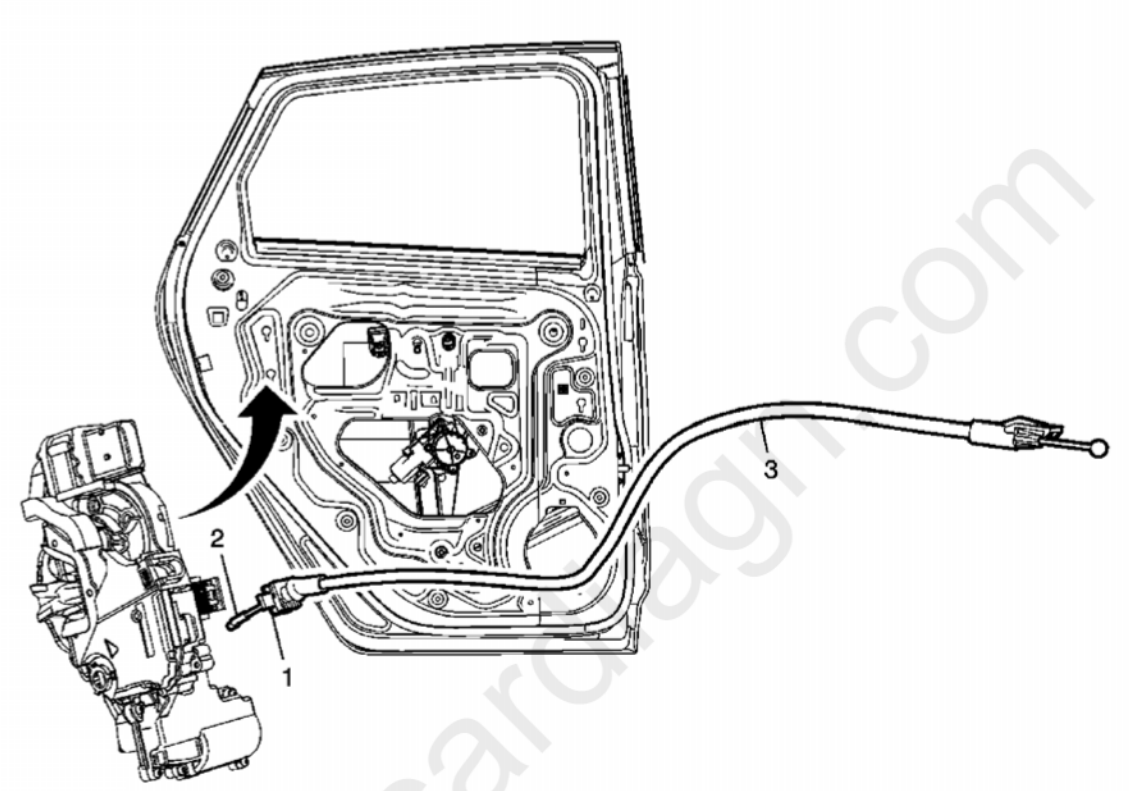


Fig. 12: Identifying Rear Side Door Inside Handle Cable
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures 1. Remove the rear side door trim panel. Refer to **Rear Side Door Trim Replacement** . 2. Remove the rear side door lock. Refer to **Rear Side Door Lock Replacement**.	
1	Rear Side Door Inside Handle Cable Retainer **Procedures** 1. Release the cable retainer to open access door on the lock. 2. Release the cable retainer and slide cable out of the lock.
2	Rear Side Door Inside Handle Cable to Lock Retainer
	Rear Side Door Inside Handle Cable

3	**Procedure:** Inspect the door for properly alignment, if needed refer to **Rear Side Door Lock Striker Adjustment**.

FRONT SIDE DOOR LOCK CYLINDER REPLACEMENT

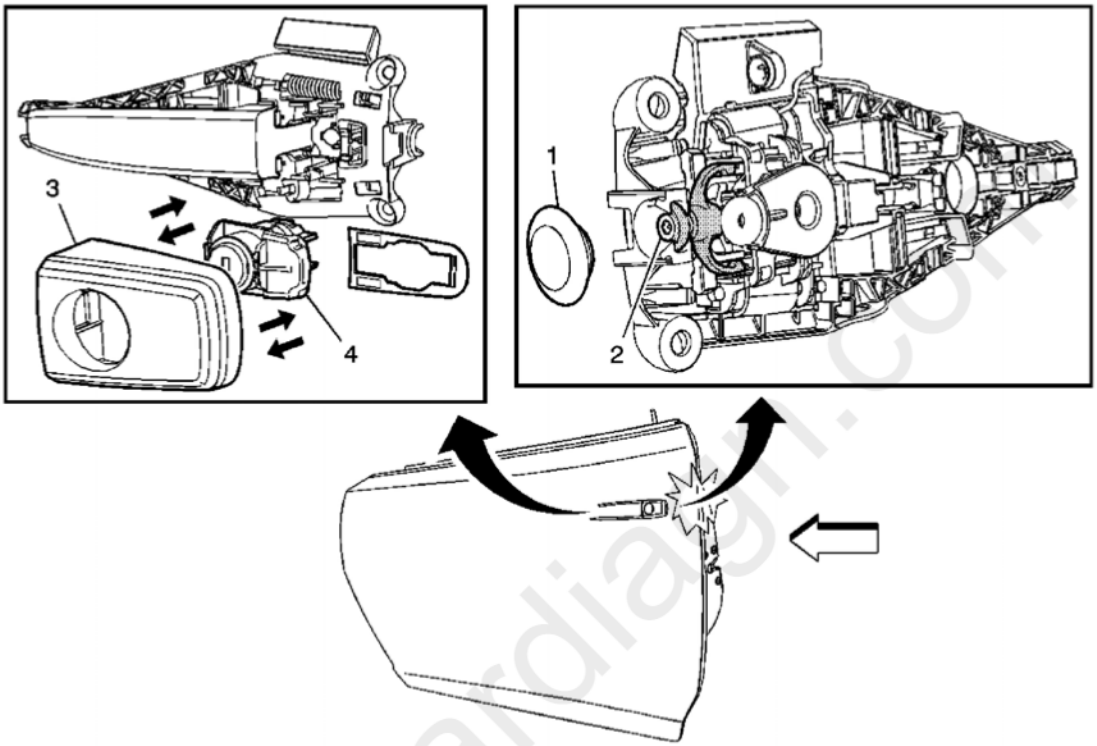


Fig. 13: Locating Front Side Door Lock Cylinder
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
1	Front Side Door Access Hole Plug **Procedures** 1. Do Not remove the front inside door trim panel to access door lock cylinder clamp screw. 2. Use a suitable tool, remove the access hole plug located on the inside opening of the door that conceals the screw for the lock cylinder clamp.
	Front Side Door Lock Cylinder Clamp Screw **CAUTION:** **Refer to Fastener Caution .**

2	**Procedure** 1. The screw for the lock cylinder clamp will not come out completely. 2. The lock cylinder clamp screw must be unscrewed to a hard stop before the lock cylinder and opening cover can be removed. **Tighten:** 5 N.m (44 lb in)
3	Front Side Door Lock Cylinder Opening Cover **Procedure:** Pull the lock cylinder out of the handle to remove the lock cylinder opening cover. **Tip:** The door lock cylinder opening cover clips over the lock cylinder.
4	Front Side Door Lock Cylinder **Procedure:** Inspect the door lock system for proper operation. **Tip:** When reinstalling the lock cylinder ensure the gasket is in align with the cylinder.

LIFTGATE CALIBRATION

NOTE: **To ensure ro er cali ration of t e liftgate t e liftgate assem ly must e at room tem erature during cali ration.**

NOTE: **TC 101 00 ill set automatically as an indicator t at t e system is in learn mode and not as a fault indicator. Once t e tra el limits are learned y t e liftgate module t e liftgate module ill e it cali ration mode and TC 101 00 ecome a istory code.**

Conditions

se this procedure after replacing, repairing, or disassembling any portion of the power liftgate assembly.

1. Connect the scan tool to the vehicle.
2. Select odule Diagnosis.
3. Select Liftgate Control odule.
4. Select Liftgate a imum Open Position Learn.
5. Press Launch and follow the on screen instructions.

OPENING THE LIFTGATE ITHOUT ELECTRICAL PO ER

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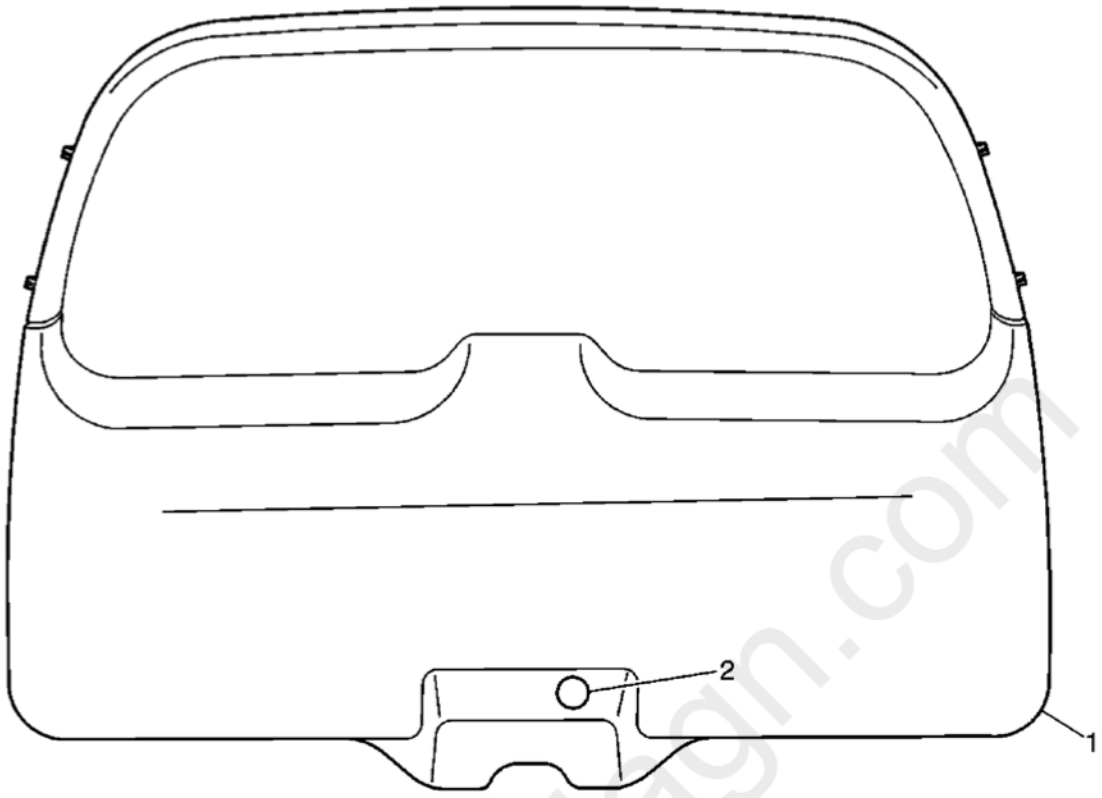


Fig. 1 : View Of Liftgate Trim Panel Plug
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove the rear compartment courtesy lamp liftgate. Refer to **Rear Compartment Courtesy Lamp Replacement Liftgate** .	
1	Liftgate
2	Liftgate Trim Panel **Procedure** 1. sing a flat bladed tool push down on the black bellcrank lever, through the access hole, to unlock the liftgate. 2. Push open the liftgate from the inside. 3. Install the access cover.

FRONT SIDE DOOR INSIDE HANDLE REPLACEMENT

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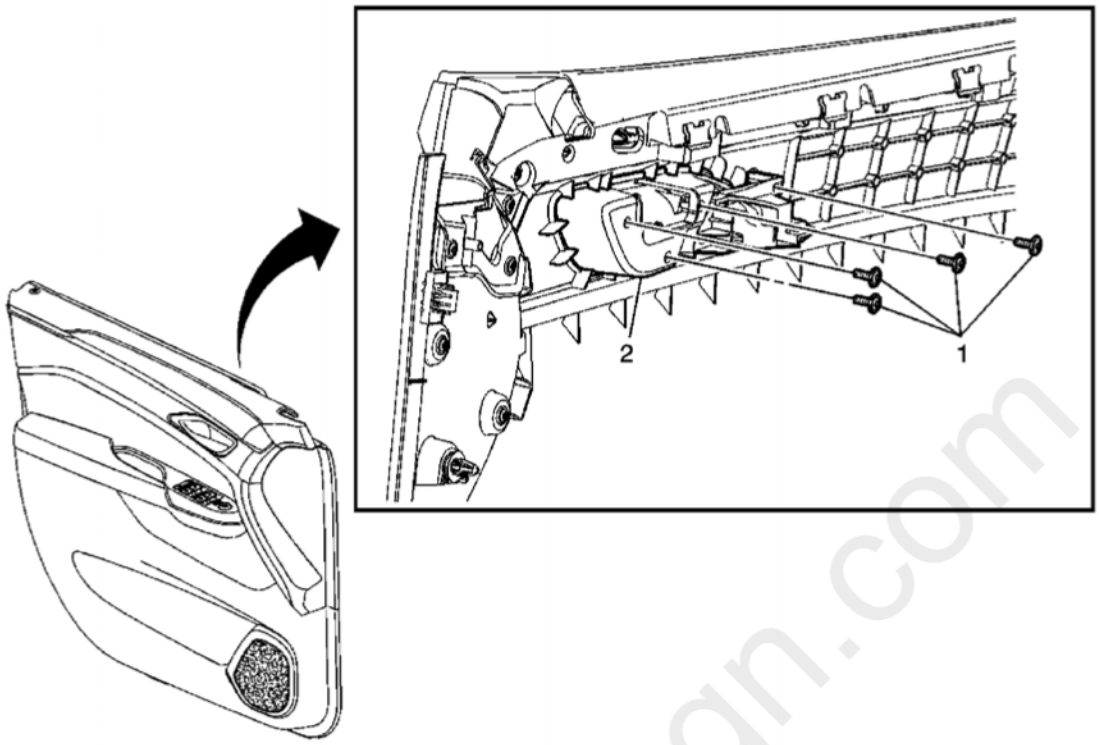


Fig. 1 : View Of Front Side Door Inside Handle
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove front door trim panel. Refer to **Front Side Door Trim Replacement** .	
1	Front Side Door Inside Handle Screw (Qty: 4) **CAUTION:** **Refer to Fastener Caution .** **Tighten:** 2 N.m (18 lb in)
2	Front Side Door Inside Handle Assembly

FRONT SIDE DOOR OUTSIDE HANDLE REPLACEMENT

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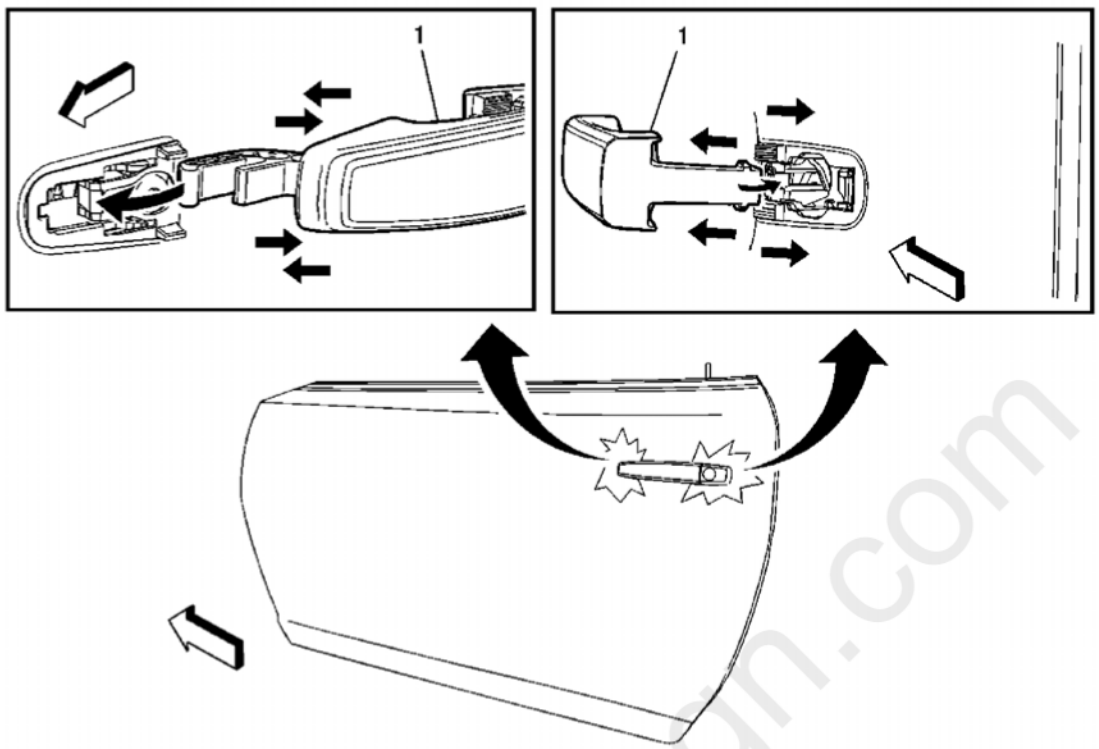


Fig. 1 : View Of Front Side Door Outside Handle
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures 1. Remove the front inside door trim panel. Refer to **Front Side Door Trim Replacement** . 2. Remove the front side door lock cylinder. Refer to **Front Side Door Lock Cylinder Replacement**.	
1	Front Side Door Outside Handle **Procedures** 1. Remove the front side door water deflector. 2. Disconnect the electrical connector. 3. Remove the access hole plug located on the inside opening of the door that conceals the screw for the lock cylinder clamp. 4. Pull and hold the door handle in the open position. 5. While holding the door handle, unscrew the lock cylinder clamp screw until it comes to a hard stop. 6. Release the handle, by now the handle should stay in the open position. 7. Remove the lock cylinder, gently pull it straight out. 8. Remove the outside door handle by sliding rearwards and then out in a swinging

	motion. 9. Inspect the door locking system for proper operation before installing the trim panel. **Tip:** While screwing in the screw for the lock cylinder hold the handle in the open position, this will avoid the door handle from snapping once the spring pressure is relieved and the door handle returns to the close position.

FRONT SIDE DOOR OUTSIDE HANDLE BRACKET REPLACEMENT

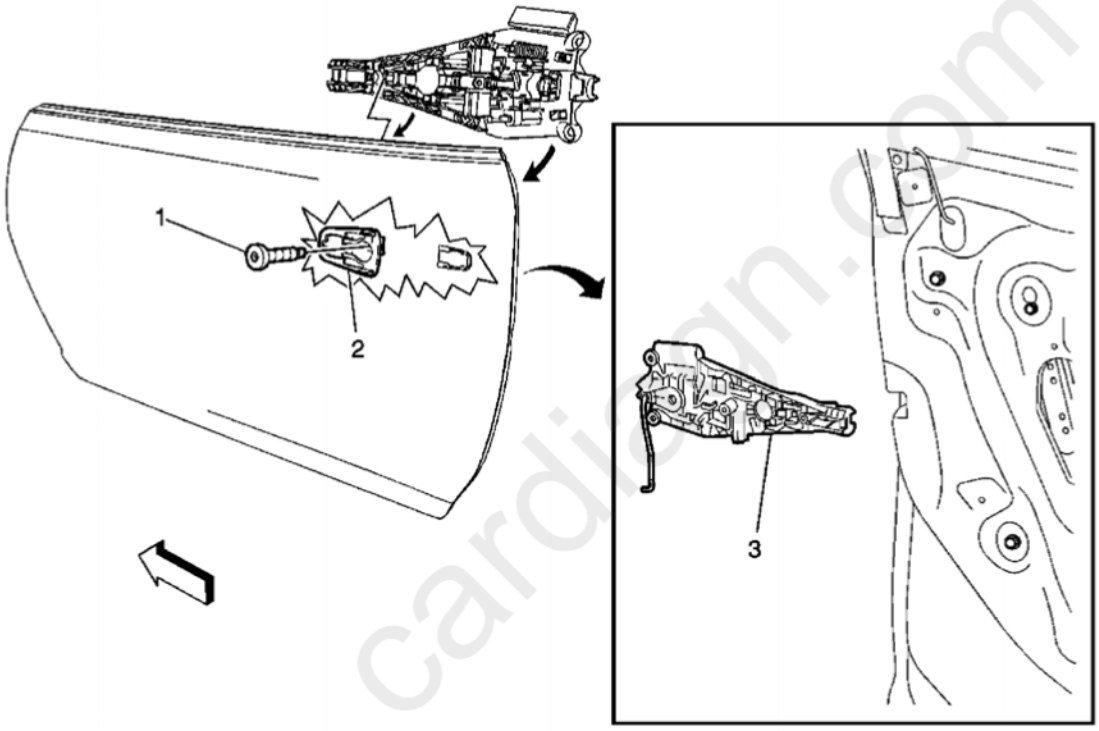


Fig. 1 : Identifying Front Side Door Outside Handle Bracket
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures 1. Remove the front side door trim panel. Refer to **Front Side Door Trim Replacement** . 2. Remove the front side door outside handle. Refer to **Front Side Door Outside Handle Replacement**.	
	Front Side Door Outside Handle Bracket Fastener **CAUTION:** **Refer to Fastener Caution .**

1	**Procedure** 1. Remove the front side door water deflector. 2. Disconnect the electrical connectors. 3. Release the front side door outside handle rod clip. 4. Release the front side door lock cylinder rod from the door lock. **Tighten:** 4.5 N.m (39 lb in)
2	Front Side Door Outside Handle Insulator
3	Front Side Door Outside Handle Bracket **Procedure** 1. Transfer components as necessary. 2. Inspect the door locking system for proper operation before installing the trim panel.

REAR SIDE DOOR OUTSIDE HANDLE BRACKET REPLACEMENT

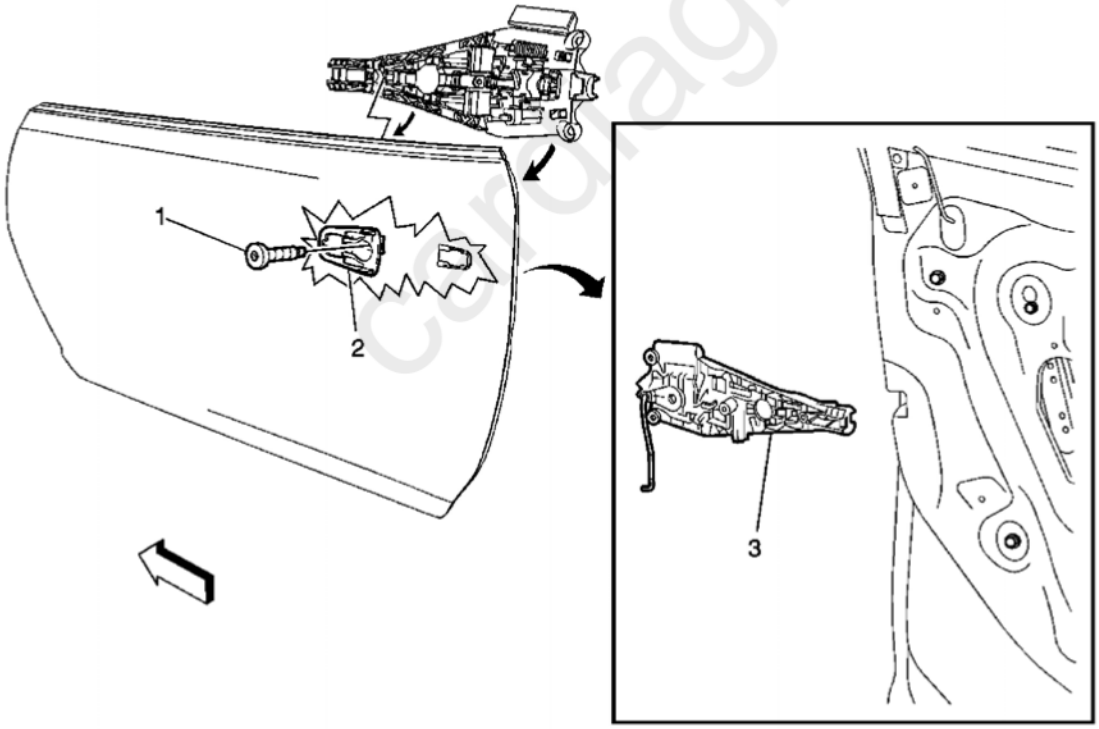


Fig. 18: Identifying Front Side Door Outside Handle Bracket
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures	

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

1	Rear Side Door Outside Handle Bracket Fastener **CAUTION:** **Refer to Fastener Caution .** **Procedures** 1. Remove the rear side door water deflector. 2. Disconnect the electrical connector. 3. Release the rear side door outside handle rod clip. **Tighten:** 4.5 N.m (39 lb in)
2	Rear Side Door Outside Handle Insulator
3	Rear Side Door Outside Handle Bracket **Procedures** 1. Transfer components as necessary. 2. Inspect the door locking system for proper operation before installing the trim panel.

LIFTGATE LATCH REPLACEMENT

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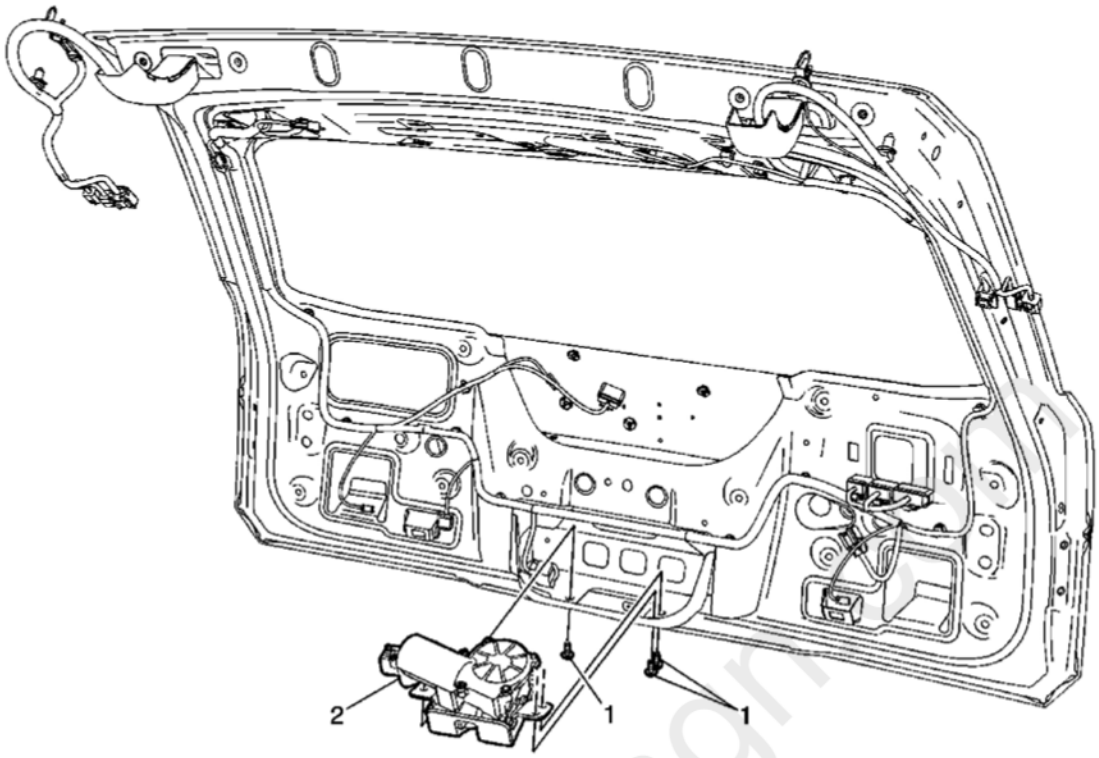


Fig. 19: Identifying Liftgate Latch
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove the liftgate lower trim panel. Refer to **Liftgate Lower Trim Finish Panel Replacement** .	
1	Liftgate Latch Screw (Qty: 3) **CAUTION:** **Refer to Fastener Caution .** **Tighten:** 9 N.m (80 lb in)
2	Liftgate Latch Assembly **Procedure** 1. Disconnect the electrical connector. 2. Remove the plastic tether before installing the liftgate latch. 3. Calibrate the liftgate. Refer to **Liftgate Calibration**.

REAR SIDE DOOR INSIDE HANDLE REPLACEMENT

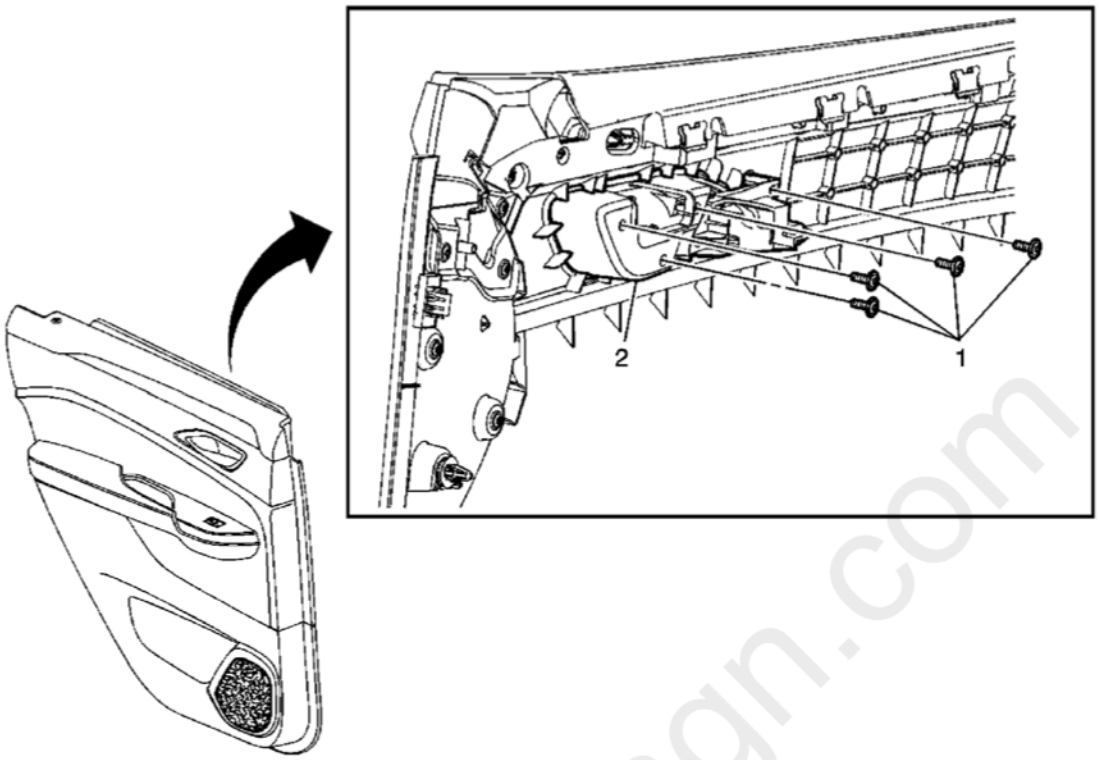


Fig. 20: Identifying Rear Side Door Inside Handle
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove rear door trim panel. Refer to **Rear Side Door Trim Replacement** .	
1	Rear Side Door Inside Handle Screw (Qty: 4) **CAUTION:** **Refer to Fastener Caution .** **Tighten:** 2 N.m (18 lb in)
2	Rear Side Door Inside Handle Assembly

REAR SIDE DOOR OUTSIDE HANDLE REPLACEMENT

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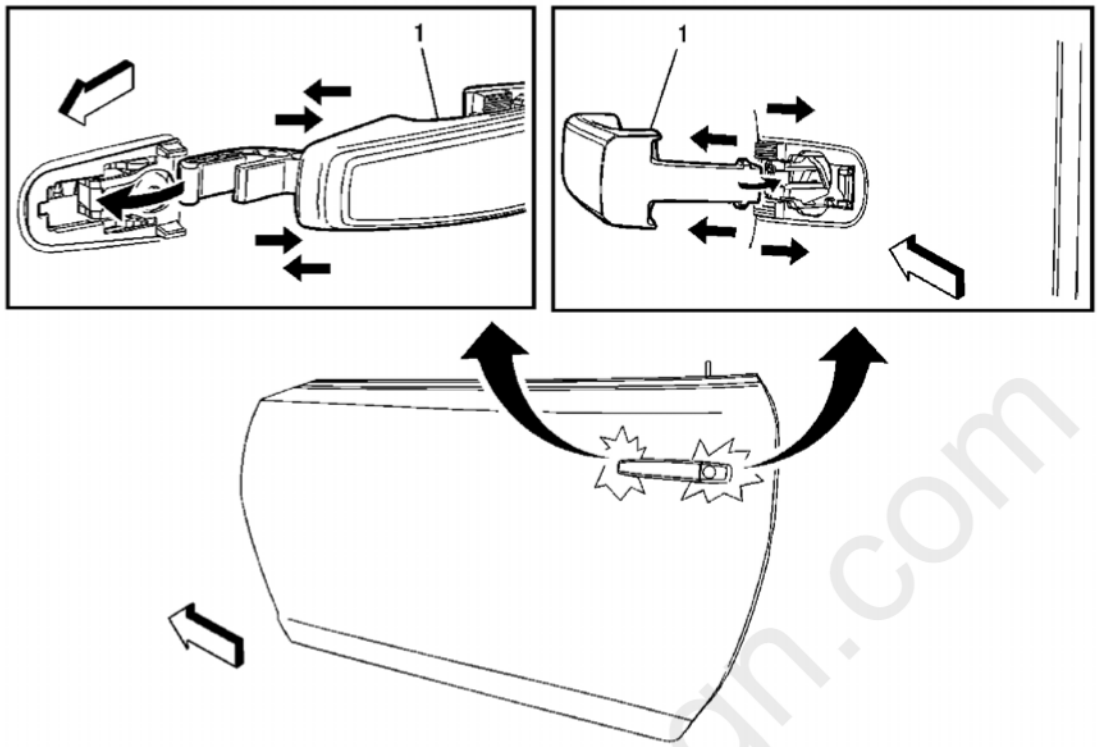


Fig. 21: View Of Front Side Door Outside Handle
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures 1. Remove the rear inside door trim panel. Refer to **Rear Side Door Trim Replacement** . 2. Remove the rear side door lock cylinder opening cover. Refer to **Rear Side Door Lock Cylinder Opening Cover Replacement**.	
1	Rear Side Door Outside Handle **Procedures** 1. Remove the rear side door water deflector. 2. Remove the access hole plug located on the inside opening of the door that conceals the screw for the lock cylinder clamp. 3. Pull and hold the door handle in the open position. 4. While holding the door handle, unscrew the lock cylinder clamp screw until it comes to a hard stop. 5. Release the handle, by now the handle should stay in the open position. 6. Remove the lock cylinder, gently pull it straight out. 7. Remove the outside door handle by sliding rearwards and then out in a swinging

	motion. . Inspect the door locking system for proper operation before installing the trim panel. **Tip:** While screwing in the screw for the lock cylinder hold the handle in the open position, this will avoid the door handle from snapping once the spring pressure is relieved and the door handle returns to the close position.

FRONT SIDE DOOR LOCK CO ER REPLACEMENT

Removal Procedure

1. Place the window in the full up position.
2. Remove the front side door trim panel. Refer to **Front Side Door Trim Replacement** .
3. Remove the front side door water deflector.

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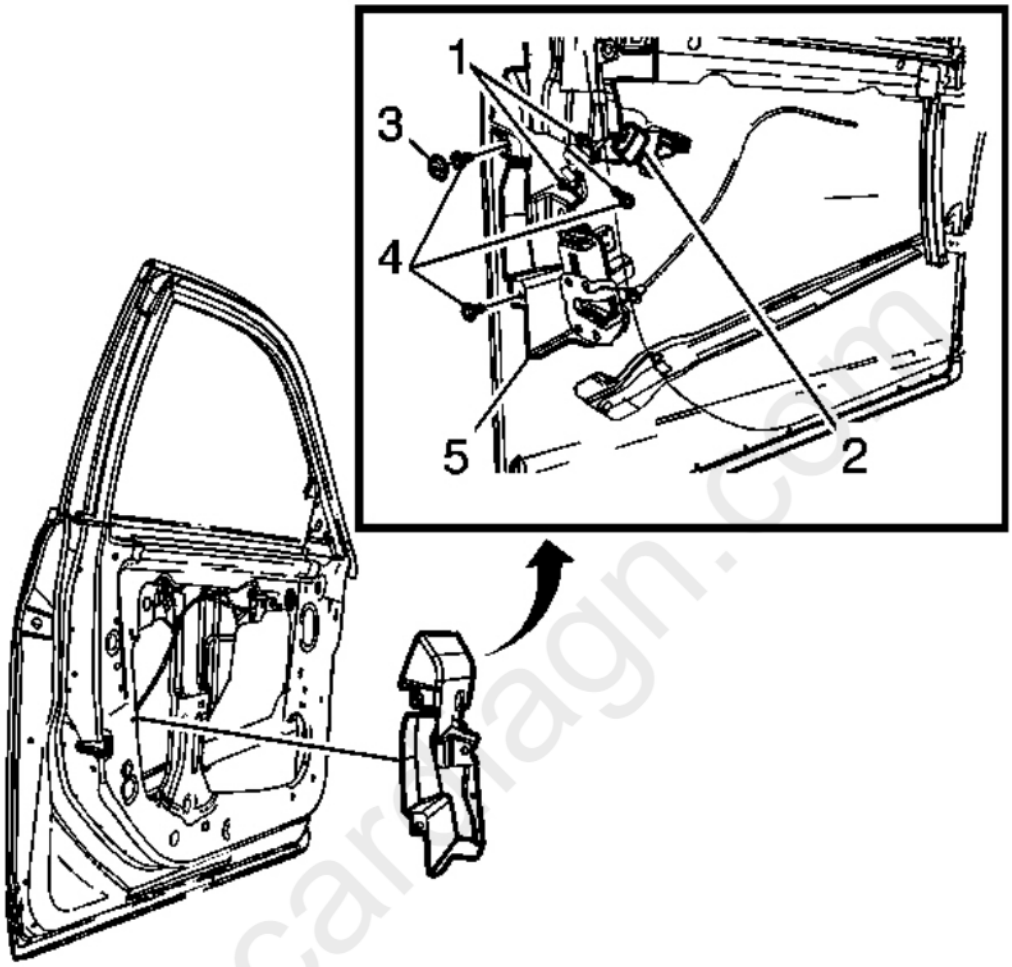


Fig. 22: iew of Door and Wiring Harness Assembly
Courtesy of GENERAL MOTORS CORP.

. Remove the wiring harness from the retainers (1).
5. Disconnect the electrical connector (2).
6. Remove the screw cover (3).
7. Remove the screws ( ) from the outer edge of the door and from the inside.
. Remove the front side door lock cover (5) from inside the door.

Installation Procedure

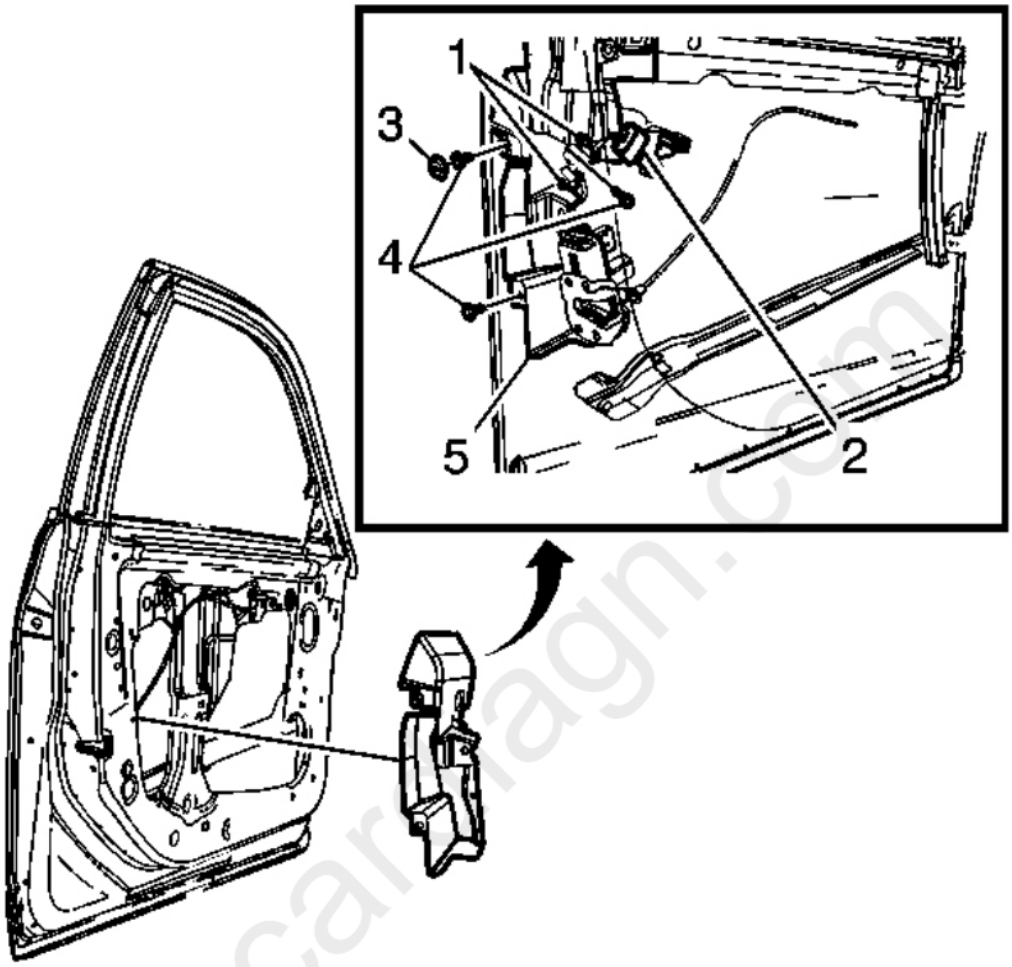


Fig. 2 : iew of Door and Wiring Harness Assembly
Courtesy of GENERAL MOTORS CORP.

1. Install the front side door lock cover (5) to cover the lock.

CAUTION: Refer to Fastener Caution .

2. Install the screws ( ) to the outer edge of the door and to the inside and tighten to 5 N.m (lb in).
3. Install the screw cover (3).
. Connect the electrical connector (2).
5. Install the wiring harness to the retainers (1).

6. Inspect the door locking system for proper operation before installing the trim panel.
7. Install the front side door water deflector.
. Install the front side door trim panel. Refer to **Front Side Door Trim Replacement** .

FRONT SIDE DOOR LOCK CYLINDER OPENING CO ER REPLACEMENT

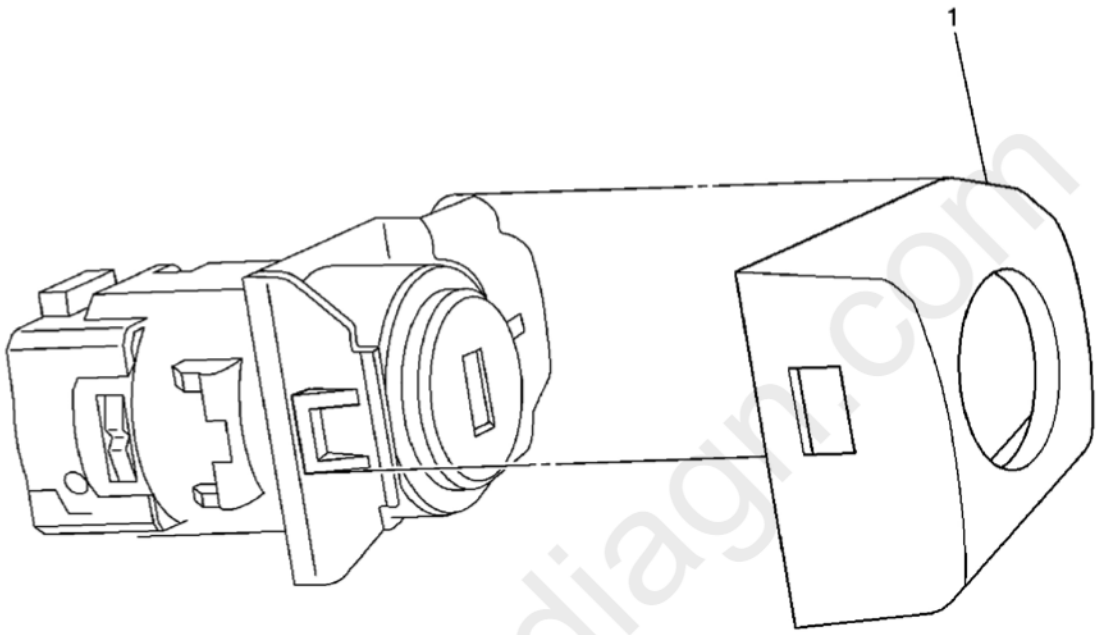


Fig. 2 : iew Of Front Side Door Lock Cylinder Opening Cover
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove the front side door lock cylinder. Refer to **Front Side Door Lock Cylinder Replacement**.	
1	Front Side Door Lock Cylinder Opening Cover **Procedures** 1. se a small flat-bladed tool to release the opening cover from the cylinder. 2. Inspect the door locking system for proper operation.

REAR SIDE DOOR LOCK CYLINDER OPENING CO ER REPLACEMENT

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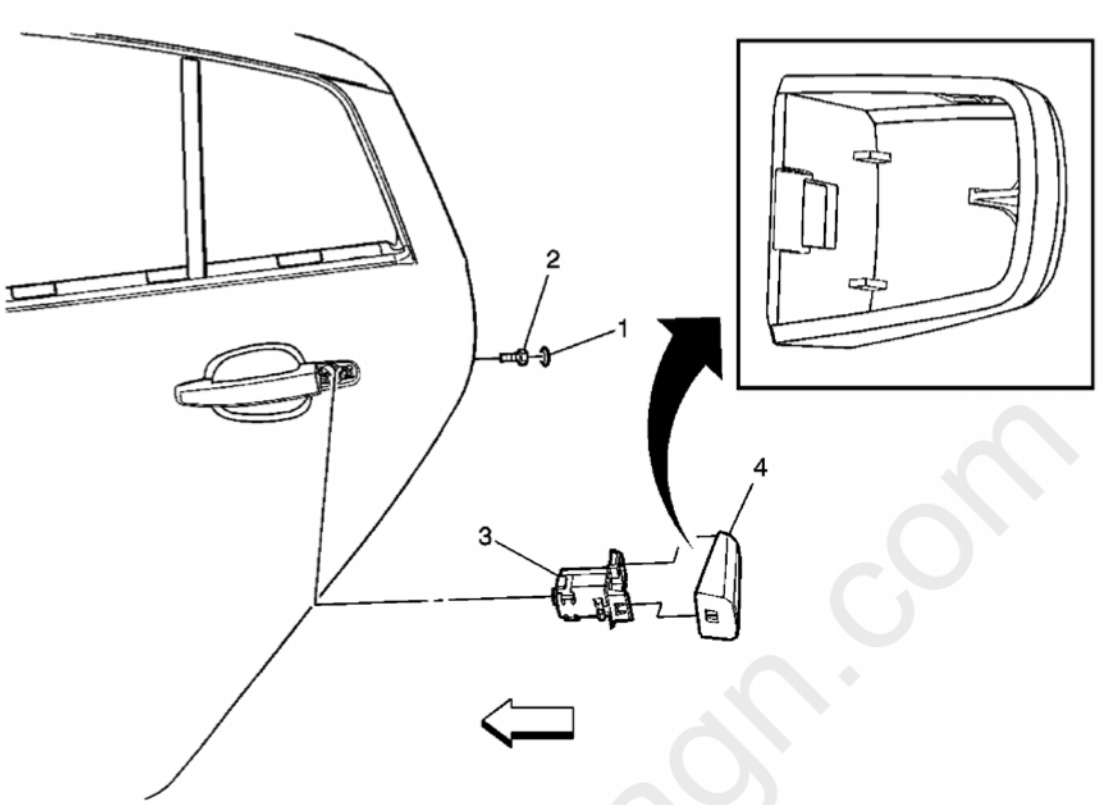


Fig. 2 : Identifying Rear Side Door Lock Cylinder Opening Cover
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
1	Rear Side Door Lock Cylinder Opening Cover Screw Access Plug **Tip:** se a flat-bladed tool to remove the cover.
2	Rear Side Door Lock Cylinder Opening Cover Screw **CAUTION:** **Refer to Fastener Caution .** **Procedure:** Do Not remove the cylinder screw completely from the housing. nscrew the screw to a hard stop, remove the cylinder cover. **Tip:** It is not necessary to remove the outside door handle or housing to replace the cylinder cover. **Tighten:** 5 N.m (lb in)
3	Rear Side Door Lock Cylinder
	Rear Side Door Lock Cylinder Opening Cover **Procedure:** Inspect the door locking system for proper operation before installing the trim panel.

	Tip: Use a small flat-bladed tool to release the rear side door lock cylinder cover.

FRONT SIDE DOOR LOCK REPLACEMENT

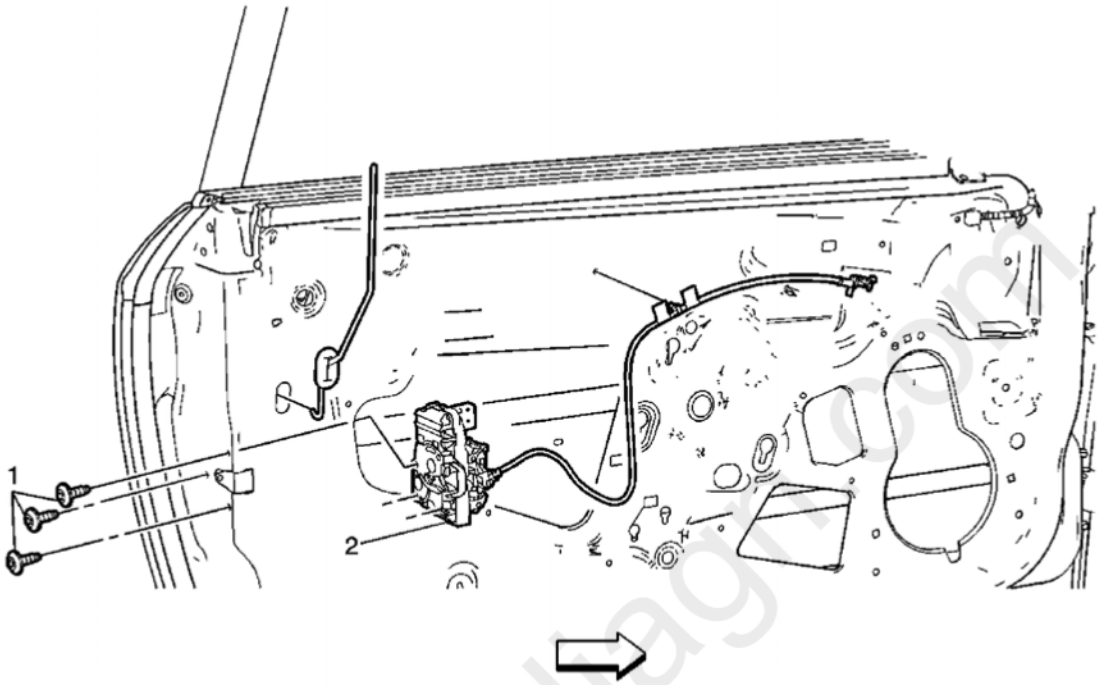


Fig. 26: Identifying Front Side Door Latch
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures 1. Remove the front side door trim panel. Refer to **Front Side Door Trim Replacement** 2. Remove the front side door lock cover. Refer to **Front Side Door Lock Cover Replacement**.	
1	Front Side Door Lock Screws (Qty: 3) **CAUTION:** **Refer to Fastener Caution .** **Procedures** 1. Unbolt and reposition the front side door rear run channel to access lock. 2. Unbolt and reposition the rear regulator rail to remove the lock. Refer to **Front Side Door Window Regulator Replacement** . 3. Remove the water deflector. 4. Release the front inside door handle cable retainers from the door panel.

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	Tighten: 10 N.m (89 lb in)
2	Front Side Door Lock **Procedures** 1. Disconnect electrical connector. 2. Transfer the front side door lock rods. 3. Inspect the door locking system for proper operation before installing the trim panel.

REAR SIDE DOOR LOCK REPLACEMENT

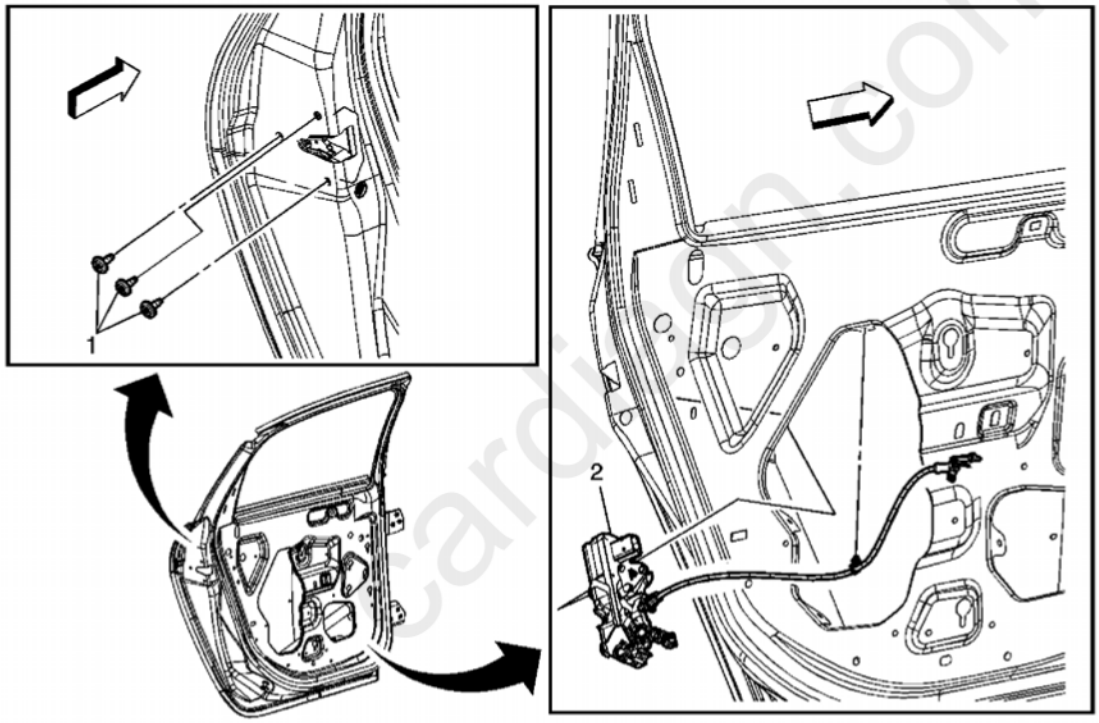


Fig. 27: Identifying Rear Side Door Latch
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove the rear side door trim panel. Refer to **Rear Side Door Trim Replacement** .	
	Rear Side Door Lock Screws (Qty: 3) **CAUTION:** **Refer to Fastener Caution .** **Procedures**

1	1. Remove the water deflector. 2. Release the inside door handle cable retainers before removing the rear side door lock. **Tighten:** 10 N.m (89 lb in)
2	Rear Side Door Lock **Procedures** 1. Disconnect the electrical connector. 2. Transfer the rear side door lock rods. 3. Inspect the door locking system for proper operation before installing the trim panel.

ACCESSORY AND LIFTGATE CONTROL MODULE REPLACEMENT

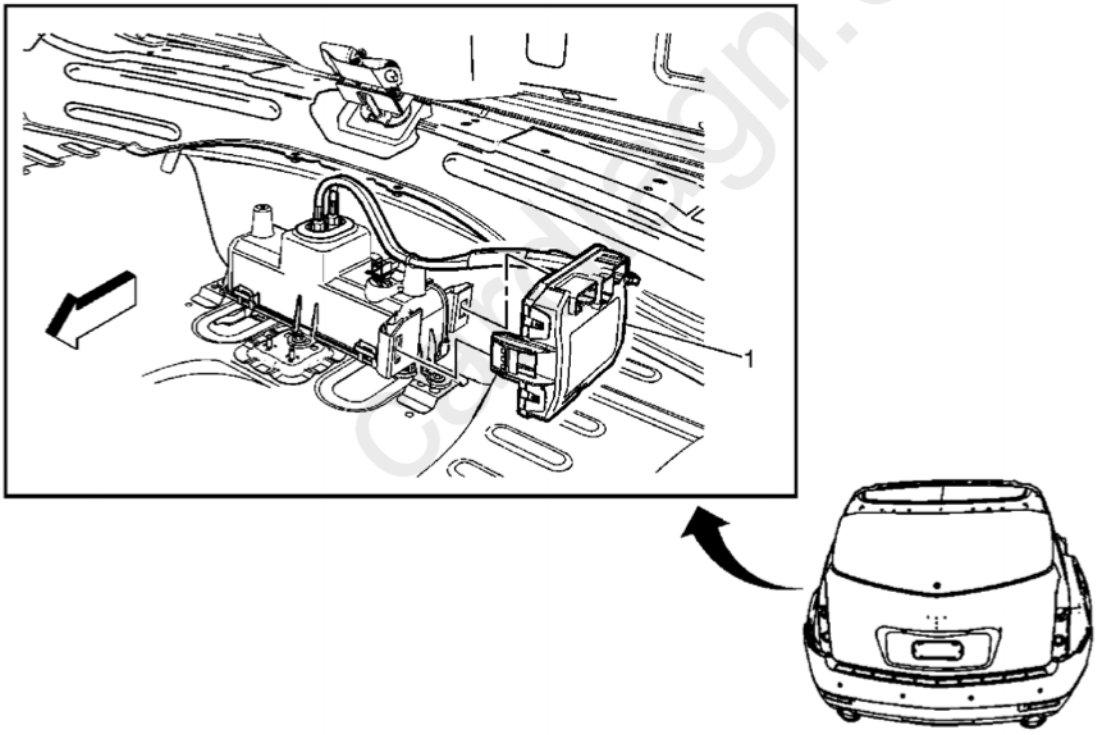


Fig. 28: Locating Accessory and Liftgate Control Module
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove the rear compartment floor stowage compartment. Refer to **Rear Compartment Floor Stowage Compartment Tray Replacement** .	

1	Accessory and Liftgate Control Module **Procedure** 1. Disconnect the electrical connectors. 2. Push in tabs to release module from the liftgate pump assembly. 3. Reprogram the control module if replaced. Refer to **Control Module References** .

LIFTGATE HYDRAULIC PUMP REPLACEMENT

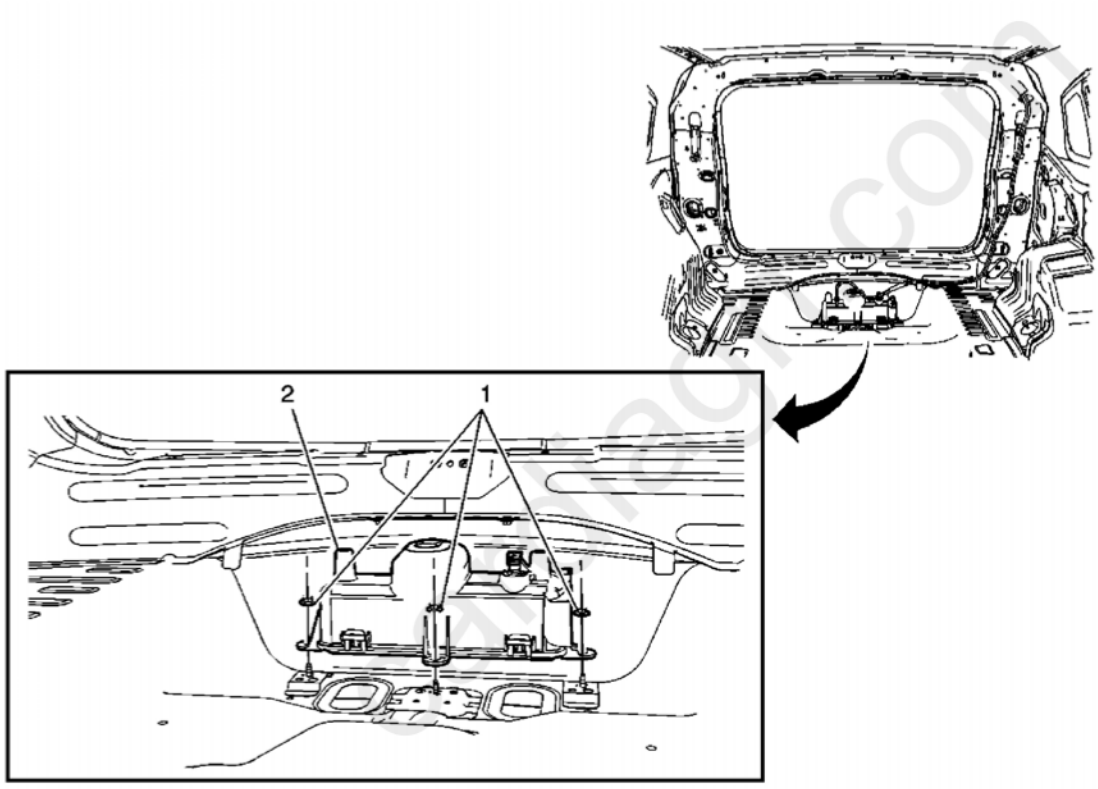


Fig. 29: Identifying Liftgate Hydraulic Pump
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
WARNING: Refer to Eye Protection Warning . **WARNING:** Refer to Liftgate Hydraulic System Warning . **Preliminary Procedures**	

1. Open and support the liftgate.
2. Disconnect the battery. Refer to **Battery Negative Cable Disconnection and Connection** .
3. Remove the accessory and liftgate control module. Refer to **Accessory and Liftgate Control Module Replacement**.
4. Position a clean protective covering over the interior and adjacent panels.

1	Liftgate Hydraulic Pump Nut (Qty: 3) **CAUTION:** **Refer to Fastener Caution .** **Procedure:** Reposition the hydraulic pump to access the hydraulic pump hoses. **Tighten:** 12 N.m (106 lb in)
2	Liftgate Hydraulic Pump **Procedure** 1. Disconnect the hydraulic pump hoses. Refer to **Liftgate Hydraulic Actuator Hose Disconnection and Connection**. 2. Inspect the liftgate hydraulic system for proper operation before final assembly of the trim panels. Refer to **Liftgate Hydraulic System Refilling** and **Liftgate Hydraulic System Bleeding**.

LIFTGATE HYDRAULIC PUMP INSULATOR REPLACEMENT

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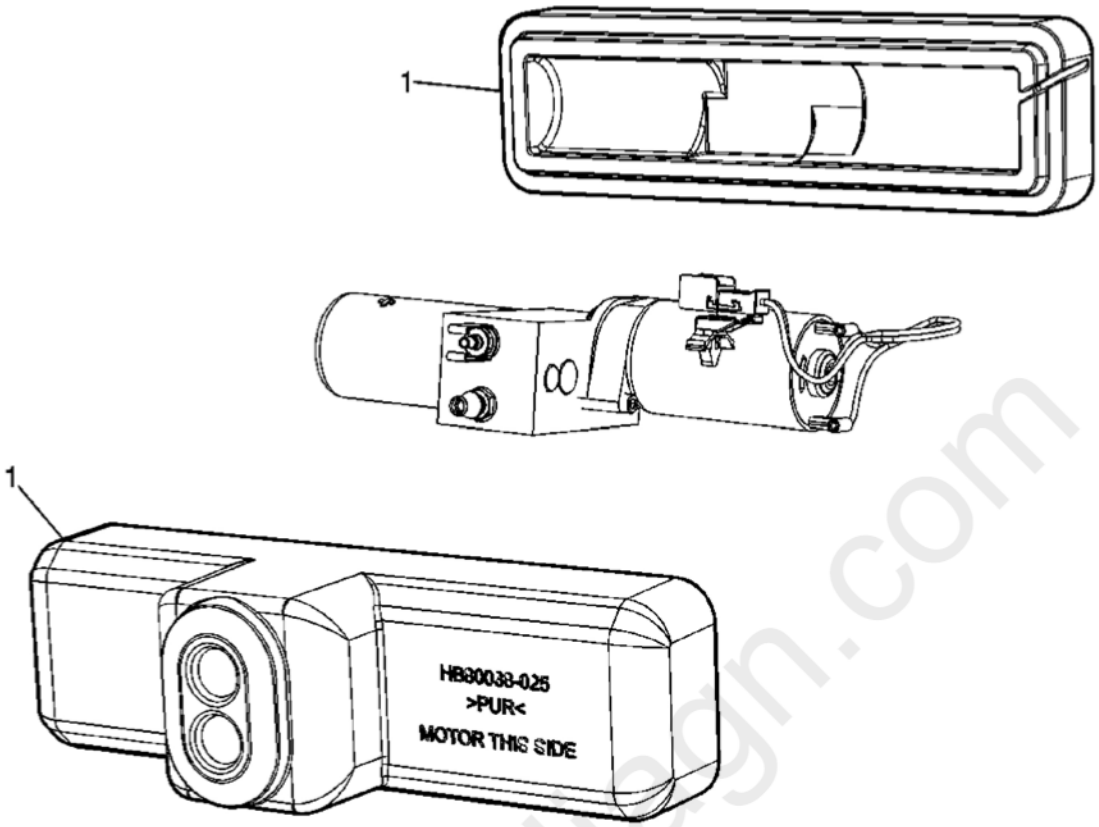


Fig. 30: View Of Liftgate Hydraulic Pump Insulator
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
WARNING: **Refer to Eye Protection Warning .** **WARNING:** **Refer to Liftgate Hydraulic System Warning .** **Preliminary Procedures** 1. Remove the liftgate hydraulic pump. Refer to **Liftgate Hydraulic Pump Replacement**. 2. Remove the liftgate hydraulic pump cover. Refer to **Liftgate Hydraulic Pump Cover Replacement**.	
1	Liftgate Hydraulic Pump Insulator **Procedure:** Separate the foam insulator halves from the liftgate hydraulic pump motor.

LIFTGATE HYDRAULIC PUMP COVER REPLACEMENT

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