ACCESSORIES & EQUIPMENT

Frame and Underbody - Escalade, Suburban, Tahoe, Yukon

SPECIFICATIONS

FASTENER SPECIFICATIONS

Application	Specification	
	Metric	English
Assist Step Assembly Fasteners (BRS)	20 N.m	15 lb ft
Assist Step Bracket Bolt	25 N.m	18 lb ft
Assist Step Bracket Nuts	9 N.m	80 lb in
Assist Step Control Module Fasteners	6 N.m	53 lb in
Assist Step Motor Fasteners	12 N.m	106 lb in
Assist Step Pad Fasteners	12 N.m	106 lb in
Body Mounting Bolt- Except Front	165 N.m	122 lb ft
Body Mounting Bolt- Front	70 N.m	52 lb ft
Drivetrain and Front Suspension Frame Front Crossmember Nuts		
• First Pass	70 N.m	52 lb ft
• Final Pass	Plus 110 degrees	
Front Frame Heat Shield Fasteners	12 N.m	106 lb in
Spare Wheel Heat Shield Fasteners	12 N.m	106 lb in
Steering Gear Skid Shield to Frame Bolts	20 N.m	15 lb ft
Steering Gear Skid Shield to Bracket Bolts	9 N.m	80 lb in
Tow Hook to Frame Rail Bolts	85 N.m	63 lb ft
Trailer Hitch Bolts (Lower)	112 N.m	83 lb ft
Trailer Hitch Bolts (Side)	70 N.m	52 lb ft
Transfer Case Skid Shield Fasteners	28 N.m	21 lb ft
Transmission Mount to Crossmember Nut	55 N.m	41 lb ft

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Application	Specification	
	Metric	English
Transmission Support Crossmember Nuts	95 N.m	70 lb ft
Underbody Side Rail Splash Shield Fasteners	12 N.m	106 lb in
Underbody Skid Shield Fasteners	20 N.m	15 lb ft
Wheelhouse Liner Fasteners	2.5 N.m	22 lb in
Wheelhouse Liner Screws- Without QST	2 N.m	18 lb in

ADHESIVES, FLUIDS, LUBRICANTS, AND SEALERS

Application	Type of Material	GM Part Number	
		United States	Canada
Trailer Hitch Mounting Bolt	Blue LoctiteÂ® 242	12345382	10953489
Transmission Crossmember Bolt	Threadlocker	12345493	10953488

SCHEMATIC WIRING DIAGRAMS

STEP/RUNNING BOARD WIRING SCHEMATICS

Step/Running Board

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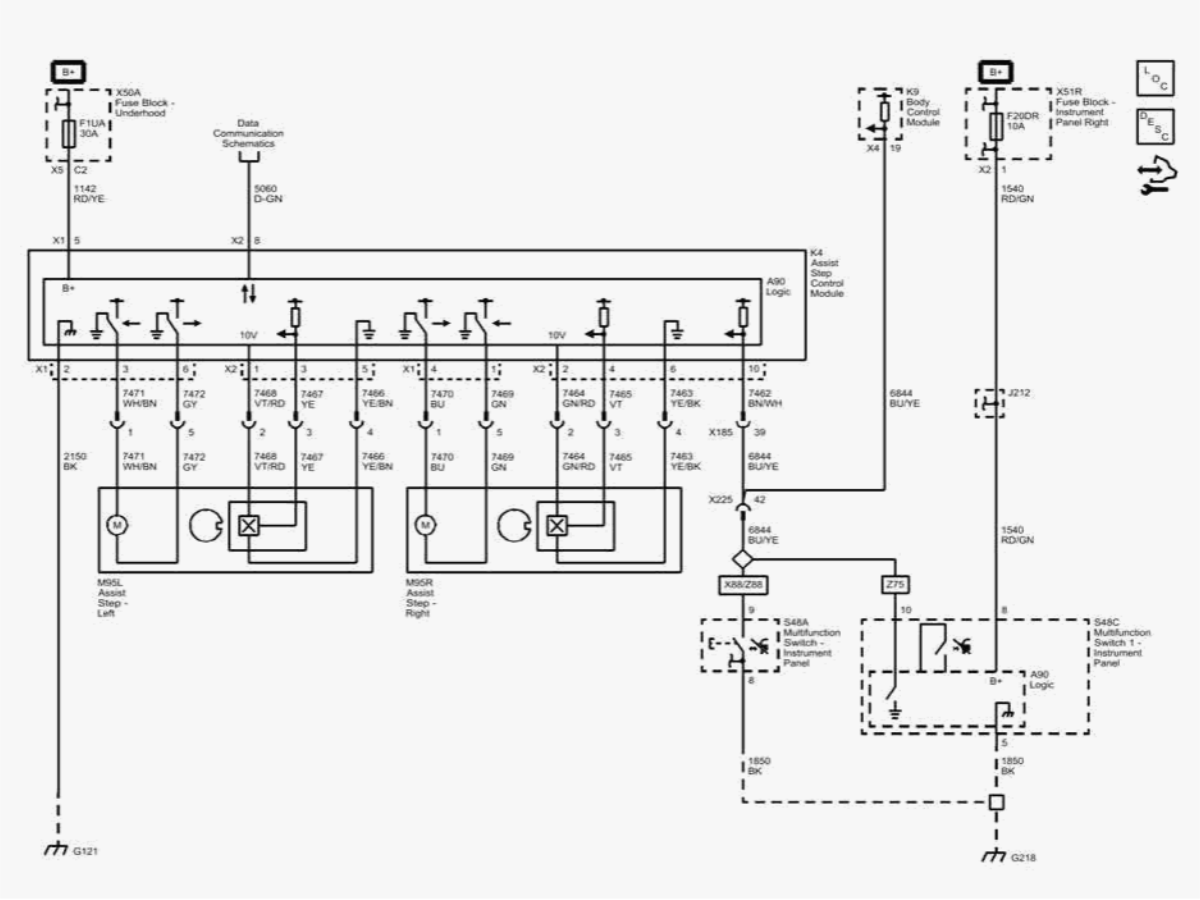


Fig. 1: Step/Running Board
Courtesy of GENERAL MOTORS COMPANY

DIAGNOSTIC INFORMATION AND PROCEDURES

DTC B051A OR B051B: ASSIST STEP MOTOR CONTROL

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 B051A

Left Side Assist Step Motor Control Circuit

DTC B051B

Right Side Assist Step Motor Control Circuit

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

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Left Motor Control Terminal 3 X1	B051A 02	B051A 04	B051A 01	-
Left Motor Control Terminal 6 X1	B051A 02	B051A 04	B051A 01	-
Right Motor Control Terminal 4 X1	B051B 02	B051B 04	B051B 01	-
Right Motor Control Terminal 1 X1	B051B 02	B051B 04	B051B 01	-

Circuit/System Description

The assist step control module controls the running board actuators to extend or retract the running boards. The assist step control module supplies the actuator motor with a 12 V control circuit and a ground control circuit. The assist step control module controls the direction of the actuator by changing the polarity of the control circuit.

Conditions for Running the DTC

- The ignition is ON.
- Ignition voltage is between 9-16 V.
- The assist step disable switch is not pressed.

Conditions for Setting the DTC

B051A 0B, B051B 0B

The motor control circuits are shorted together.

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B051A 01, B051B 01

A motor control circuit is shorted to battery voltage.

B051A 02, B051B 02

A motor control circuit is shorted to ground.

B051A 04, B051B 04

A motor control circuit is open.

Action Taken When the DTC Sets

The motor drive circuits are deactivated for the appropriate actuator.

Conditions for Clearing the DTC

- The DTC becomes history when the assist step control module no longer detects the condition that set the DTC.
- The history DTC will clear after 50 fault free ignition cycles.

Reference Information

Schematic Reference

Step/Running Board Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Running Board Description

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.
2. Verify the scan tool Assist Step System Status parameter is Enabled.
    - **If the parameter is Disabled**

      Press and hold running board switch for 4 s to enable boards.

    - **If the parameter is Enabled**
3. Verify the left and right side running boards extend and retract when opening and closing the left and right side doors.
    - **If either or both running boards do not extend or retract**

      Perform Circuit/System Testing.

    - **If the running boards extend and retract**
4. All OK.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the appropriate M95 Assist Step.
2. Ignition ON, verify that a test lamp does not illuminate between the control circuits listed below and ground.
    - M95 Assist Step - Control circuit terminal 1
    - M95 Assist Step - Control circuit terminal 5
    - **If the test lamp illuminates**
    1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K4 Assist Step Control Module, Ignition ON.
    2. Test for less than 1 V between each control circuit and ground.
        - If 1 V or greater, repair the short to voltage on the circuit.

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- If less than 1 V, replace the K5 Assist Step Control Module.

- **If the test lamp does not illuminate**

3. Connect a test lamp between control circuit terminal 1 and the control circuit terminal 5.
4. Verify the test lamp turns on and off momentarily while commanding the appropriate board to Extend and Retract with a scan tool.

NOTE: **The test lamp will momentarily light while toggling back and forth between Extend and Retract with a scan tool. After 4 tries, you must wait at least 10 s to repeat.**

- **If the test lamp does not turn ON and OFF**

1. Ignition OFF, disconnect the harness connector at the K4 Assist Step Control Module, ignition ON.
2. Remove the test lamp, test for infinite resistance between the control circuits.
   - If less than infinite resistance, repair the short between the circuits.
   - If infinite resistance
3. Test for infinite resistance between each control circuit and ground.
   - If less than infinite resistance, repair the short to ground on the circuit.
   - If infinite resistance
4. Test for less than 2 Ω in the control circuit end to end.
   - If 2 Ω or greater, repair the open/high resistance in the circuit.
   - If less than 2 Ω, replace the K4 Assist Step Control Module.

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

5. Test or replace the appropriate M95 Assist Step motor.

Component Testing

1. Ignition OFF, disconnect the harness connector at the appropriate M95 Assist Step.
2. Test for 0.8-1.45 Ω between the control terminal 1 and the control circuit terminal 5.
   - **If not between 0.8-1.45 Ω**

     Replace the M95 Assist Step motor.

   - **If between 0.8-1.45 Ω**
3. Test for infinite resistance between each terminal and the sensor housing/case.

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- **If less than infinite resistance**

  Replace the M95 Assist Step motor.

- **If infinite resistance**

4. All OK

Repair Instructions

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

- **Assist Step Motor Replacement (Retractable Power Assist)**
- **Control Module References** for appropriate control module replacement, programming and setup.

DTC B051C OR B051D: ASSIST STEP POSITION SENSOR

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 B051C

Left Assist Step Position Sensor Circuit

DTC B051D

Right Assist Step Position Sensor Circuit

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

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance

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Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Left Side Step 10-Volt Reference	B052B 02	B051C 29	B052B 01	-
Right Side Step 10-Volt Reference	B052B 02	B051D 29	B052B 01	-
Left Position Sensor Signal	B051C 29	B051C 29	B051C 29, B052B 01	-
Right Position Sensor Signal	B051D 29	B051D 29	B051D 29, B052B 01	-
Left Position Sensor Low Reference	-	B051C 29	-	-
Right Position Sensor Low Reference	-	B051D 29	-	-

Circuit/System Description

The assist step control module controls the running board actuators to extend or retract the running boards. Each actuator consists of an electric motor and a hall-effect switch. The module supplies a low reference and 10 V reference source voltage to the hall-effect switch. The assist step control module monitors the signal from the hall effect switch on the signal circuit. When the actuator shaft rotates, the hall-effect switch provides pulses to the assist step control module which uses the pulses as counts to determine the location of the assist steps. The assist step control module supplies the actuator motor with a 12 V control circuit and a ground control circuit. The assist step control module controls the direction of the actuator by changing the polarity of the control circuits.

Conditions for Running the DTC

- The ignition is ON.
- Ignition voltage is between 9-16 V.
- The assist step disable switch is not pressed.

Conditions for Setting the DTC

B051C 2A, B051D 2A

The hall sensor counts are greater than what is required to extend or stow the running board.

B051C 22, B051D 22

The hall sensor signal is noisy.

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B051C 29, B051D 29

No hall sensor counts are detected while the motor is active.

B051C 62, B051D 62

The running board stow time is greater than 4 s.

B051C 63, B051D 63

The running board extend time is greater than 4 s.

Action Taken When the DTC Sets

The motor drive circuits are deactivated for the appropriate actuator.

Conditions for Clearing the DTC

- The DTC becomes history when the K4 Assist Step Control Module no longer detects the condition that set the DTC.
- The history DTC will clear after 50 fault free ignition cycles.

Reference Information

Schematic Reference

Step/Running Board Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Running Board Description

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.
2. Verify the scan tool Assist Step System Status parameter is Enabled.
   - **If the parameter is Disabled**

     Press and hold running board switch for 4 s to enable boards.

   - **If the parameter is Enabled**
3. Verify DTC B051C and/or B051D with symptom bytes 62, 63, or 2A are not set.
   - **If DTCs are set**

     Verify that the assist step motor wedge is present and the assist step motor wedge bolt is tight. Refer to **Assist Step Motor Replacement (Retractable Power Assist)** for part location and tightening specifications.

   - **If DTCs are not set**
4. Verify the left and right side running boards extend and retract when opening and closing the left and right side doors.
   - **If one or both running boards do not extend or retract**

     Perform Circuit/System Testing.

   - **If both running boards extend and retract**
5. All OK.

Circuit/System Testing

1. Ignition OFF and all vehicle systems OFF. It may take up to 2 min for all vehicle systems to power down. Disconnect the harness connectors at the M95L Assist Step - Left and M95R Assist Step - Right.

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NOTE: **When disconnecting a running board step, B051A or B051B will set for the running board disconnected.**

2. Test for less than 10 Ω between the low reference circuits listed below ground.
   - M95L Assist Step - Left - Low reference circuit terminal 4
   - M95R Assist Step - Right - Low reference circuit terminal 4
   - **If 10 Ω or greater**
   1. Ignition OFF, disconnect the harness connector at the K4 Assist Step Control Module.
   2. Test for less than 2 Ω in the low reference circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance in the circuit.
      - If less than 2 Ω, replace the K4 Assist Step Control Module.
   - **If less than 10 Ω**
3. Ignition ON.
4. Test for 9 - 11 V between the 10 V reference circuit terminals listed below and ground while commanding the appropriate Assist Step Motor to Extend and Retract with the scan tool.

NOTE: **The voltage reading will appear momentarily while toggling back and forth between Extend and Retract with a scan tool. After 4 tries, you must wait at least 10 s to repeat.**

   - M95L Assist Step - Left - 10 V reference circuit terminal 2
   - M95R Assist Step - Right - 10 V reference circuit terminal 2
   - **If less than 9 V**
   1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K4 Assist Step Control Module.
   2. Test for infinite resistance between the 10 V reference circuit terminal and ground.
      - If less than infinite resistance, repair the short to ground on the circuit.
      - If infinite resistance
   3. Test for less than 2 Ω in the 10 V reference circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance in the circuit.
      - If less than 2 Ω replace the K4 Assist Step Control Module.
   - **If greater than 11 V**
   1. Ignition OFF, disconnect the harness connector at the K4 Assist Step Control Module control module, ignition ON.

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2. Test for less than 1 V between 10 V reference circuit and ground.
    - If 1 V or greater, repair the short to voltage on the appropriate circuit.
    - If less than 1 V, replace the K4 Assist Step Control Module.
- **If between 9-11 V**

5. Ignition OFF, connect the harness connector at the M95L Assist Step - Left, ignition ON.
6. Test for 9 - 11 V between the M95R Assist Step - Right 10 V reference circuit terminal 2 and ground while commanding the Right Assist Step Motor to Extend and Retract with the scan tool.

NOTE: **The voltage reading will appear momentarily while toggling back and forth between Extend and Retract with a scan tool. After 4 tries, you must wait at least 10 s to repeat.**

- **If not between 9-11 V**

  Test or replace the M95L Assist Step - Left.

- **If between 9-11 V**

7. Ignition OFF. Disconnect the harness connector at the M95L Assist Step - Left, connect the harness connector at the M95R Assist Step - Right. Ignition ON.
8. Test for 9 - 11 V between the 10 V reference circuit terminal 2 at the left side and ground while commanding the Left Assist Step Motor to Extend and Retract with the scan tool.

NOTE: **The voltage reading will appear momentarily while toggling back and forth between Extend and Retract with a scan tool. After 4 tries, you must wait at least 10 s to repeat.**

- **If not between 9-11 V**

  Test or replace M95R Assist Step - Right.

- **If between 9-11 V**

9. Test for 9 - 11 V between the appropriate signal circuit terminal listed below and ground while commanding the Assist Step Motor to Extend and Retract with the scan tool.

NOTE: **The voltage reading will appear momentarily while toggling back and forth between Extend and Retract with a scan tool. After 4 tries, you must wait at least 10 s to repeat.**

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- M95L Assist Step - Left - Signal circuit terminal 3
- M95R Assist Step - Right - Signal circuit terminal 3
- **If less than 9 V**

1. Ignition OFF, disconnect the X2 harness connector at the K4 Assist Step Control Module.
2. Test for infinite resistance between the signal circuit terminals and ground.
    - If less than infinite resistance, repair the short to ground on the appropriate circuit.
    - If infinite resistance
3. Test for less than 2 Ω in the signal circuits end to end.
    - If 2 Ω or greater, repair the open/high resistance in the circuit.
    - If less than 2 Ω replace the K4 Assist Step Control Module.

- **If greater than 11 V**

1. Test for less than 1 V signal circuit ground.
    - If 1 V or greater, repair the short to voltage on the appropriate circuit.
    - If less than 1 V, replace the K4 Assist Step Control Module.

- **If between 9-11 V**

10. Test or replace the appropriate M95L Assist Step - Left or M95R Assist Step - Right.

Repair Instructions

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

- **Assist Step Motor Replacement (Retractable Power Assist)**
- **Control Module References** for control module replacement, programming and setup.

DTC B051E: ASSIST STEP DISABLE SWITCH CIRCUIT SHORT TO GROUND

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 B051E 02

Assist Step Disable Switch Circuit Short to Ground

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
F20DR Fuse B+ (Z75)	1	1	-	-
Signal	B051E 02	1	1	-
Ground	-	1	1	-
1. Disable switch inoperative.				

Circuit/System Description

The assist step control module monitors a signal circuit to the assist step disable switch. When the switch is pressed, a ground path is provided to the signal circuit. Pressing the switch with the doors closed while in Park or Neutral will extend the boards for washing. Pressing and holding the switch for 4 s will disable/enable running boards by putting them in "Locked" mode.

Conditions for Running the DTC

- The ignition is ON.
- Ignition voltage is between 9-16V.

Conditions for Setting the DTC

- The signal circuit is shorted to ground for longer than 1 min.
- The switch was pressed for longer than 1 min.

Action Taken When the DTC Sets

Assist steps are disabled.

Conditions for Clearing the DTC

- The DTC becomes history when the assist step control module no longer detects the condition that set the DTC.
- The history DTC will clear after 50 fault free ignition cycles.

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Diagnostic Aids

Pressing the switch longer than 1 min will set this DTC.

Reference Information

Schematic Reference

- **Step/Running Board Schematics**
- **Adjustable Pedal Schematics**

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Running Board Description

Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition ON.
2. Verify the scan tool Assist Step Disable Switch parameter changes between Active and Inactive when pressing and releasing the Step Disable Switch.
    - **If the parameter does not change**

      Refer to Circuit/System Testing.

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- **If the parameter changes**

3. All OK.

Circuit/System Testing

RPO Z75

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the S48C Multifunction Switch 1 - Instrument Panel. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 5 and ground:
   - **If 10 Ω or greater**
   1. Ignition OFF.
   2. Test for less than 2 Ω in the ground circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance in the circuit.
      - If less than 2 Ω, repair the open/high resistance in the ground connection.
   - **If less than 10 Ω**
3. Ignition ON.
4. Verify a test lamp illuminates between the B+ circuit terminal 8 and ground.
   - **If the test lamp does not illuminate and the circuit fuse is good**
   1. Ignition OFF, remove the test lamp.
   2. Test for less than 2 Ω in the B+ circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance in the circuit.
      - If less than 2 Ω, verify the fuse is good and there is voltage at the fuse.
   - **If the test lamp does not illuminate and the circuit fuse is open**
   1. Ignition OFF, remove the test lamp.
   2. Test for infinite resistance between the ignition circuit and ground.
      - If less than infinite resistance, repair the short to ground on the circuit.
      - If infinite resistance, replace the S48C Multifunction Switch 1 - Instrument Panel.
   - **If the test lamp illuminates**
5. Verify the scan tool Assist Step Disable Switch parameter is Inactive.
   - **If not Inactive**

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1. Ignition OFF, disconnect the X2 harness connector at the Assist Step Control Module.
2. Test for infinite resistance between the K4 Assist Step Control Module signal circuit terminal 10 and ground.
    - If less than infinite resistance, repair the short to ground on the circuit.
    - If infinite resistance, replace the K4 Assist Step Control Module.

- **If Inactive**

6. Install a 3 A fused jumper wire between the signal circuit terminal 10 and ground:
7. Verify the scan tool Assist Step Disable Switch parameter is Active.

NOTE: **DTC B051E will set after approximately 1 min.**

- **If not Active**

1. Ignition OFF, remove the jumper wire, disconnect the X2 harness connector at the K4 Assist Step Control Module, ignition ON.
2. Test for less than 1 V between the signal circuit and ground.
    - If 1 V or greater, repair the short to voltage on the circuit.
    - If less than 1 V
3. Test for less than 2 Ω in the signal circuit end to end.
    - If 2 Ω or greater, repair the open/high resistance in the circuit.
    - If less than 2 Ω, replace the K4 Assist Step Control Module.

- **If Active**

8. Test or replace the S48C Multifunction Switch 1 - Instrument Panel.

RPO X88/Z88

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the S48A Multifunction Switch - Instrument Panel. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 8 and ground:
    - **If 10 Ω or greater**

    1. Ignition OFF.
    2. Test for less than 2 Ω in the ground circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, repair the open/high resistance in the ground connection.

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- **If less than 10 Ω**

3. Ignition ON.
4. Verify the scan tool Assist Step Disable Switch parameter is Inactive.
    - **If not Inactive**
    1. Ignition OFF, disconnect the X2 harness connector at the Assist Step Control Module.
    2. Test for infinite resistance between the K4 Assist Step Control Module signal circuit terminal 10 and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the K4 Assist Step Control Module.
    - **If Inactive**
5. Install a 3 A fused jumper wire between the signal circuit terminal 9 and ground:
6. Verify the scan tool Assist Step Disable Switch parameter is Active.

NOTE: **DTC B051E will set after approximately 1 min.**

- **If not Active**

1. Ignition OFF, remove the jumper wire, disconnect the X2 harness connector at the K4 Assist Step Control Module, ignition ON.
2. Test for less than 1 V between the signal circuit and ground.
    - If 1 V or greater, repair the short to voltage on the circuit.
    - If less than 1 V
3. Test for less than 2 Ω in the signal circuit end to end.
    - If 2 Ω or greater, repair the open/high resistance in the circuit.
    - If less than 2 Ω, replace the K4 Assist Step Control Module.

- **If Active**

7. Test or replace the S48A Multifunction Switch - Instrument Panel.

Component Testing

1. Ignition OFF, disconnect the harness connector at the S48A Multifunction Switch - Instrument Panel or S48C Multifunction Switch 1 - Instrument Panel.
2. Test for infinite resistance between the terminals shown below with the switch in the open position:
    - S48A Multifunction Switch - Instrument Panel - signal circuit terminal 9 and ground circuit terminal 8

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- S48C Multifunction Switch 1 - Instrument Panel - signal circuit terminal 10 and ground circuit terminal 5
- **If less than infinite resistance**

  Replace the appropriate S48A Multifunction Switch - Instrument Panel or S48C Multifunction Switch 1 - Instrument Panel.

- **If infinite resistance**

3. Test for less than 10 Ω between the signal terminal the terminals shown below with the switch in the closed position:
   - S48A Multifunction Switch - Instrument Panel - signal circuit terminal 9 and ground circuit terminal 8
   - S48C Multifunction Switch 1 - Instrument Panel - signal circuit terminal 10 and ground circuit terminal 5
   - **If 10 Ω or greater**

     Replace the appropriate S48A Multifunction Switch - Instrument Panel or S48C Multifunction Switch 1 - Instrument Panel.

   - **If less than 10 Ω**
4. All OK

Repair Instructions

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

- **Brake and Accelerator Pedal Adjuster Switch Replacement (Cadillac)** **Brake and Accelerator Pedal Adjuster Switch Replacement (Chevrolet, GMC)** for assist step switch replacement.
- **Control Module References** for control module replacement, programming and setup.

DTC B052B: ASSIST STEP POSITION SENSOR SUPPLY

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 B052B 01

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Assist Step Position Sensor Supply Circuit short to battery

DTC B052B 02

Assist Step Position Sensor Supply Circuit short to ground

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Left Side Step 10-Volt Reference	B052B 02	B051C 29	B052B 01	-
Right Side Step 10-Volt Reference	B052B 02	B051D 29	B052B 01	-
Left Position Sensor Signal	B051C 29	B051C 29	B051C 29, B052B 01	-
Right Position Sensor Signal	B051D 29	B051D 29	B051D 29, B052B 01	-
Left Position Sensor Low Reference	-	B051C 29	-	-
Right Position Sensor Low Reference	-	B051D 29	-	-

Circuit/System Description

The assist step control module controls the running board actuators to extend or retract the running boards. Each actuator consists of an electric motor and a hall-effect switch. The module supplies a low reference and 10 V reference source voltage to the hall-effect switch. The assist step control module monitors the signal from the hall effect switch on the signal circuit. When the actuator shaft rotates, the hall-effect switch provides pulses to the assist step control module which uses the pulses as counts to determine the location of the assist steps. The assist step control module supplies the actuator motor with a 12 V control circuit and a ground control circuit. The assist step control module controls the direction of the actuator by changing the polarity of the control circuits.

Conditions for Running the DTC

- The ignition is ON.
- Ignition voltage is between 9-16 V.

Conditions for Setting the DTC

B052B 01

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The position sensor circuit is shorted to battery voltage.

B052B 02

The position sensor circuit is shorted to ground.

Action Taken When the DTC Sets

The motor drive circuits are deactivated for the appropriate running board step.

Conditions for Clearing the DTC

- The DTC becomes history when the assist step control module no longer detects the condition that set the DTC.
- The history DTC will clear after 50 fault free ignition cycles.

Reference Information

Schematic Reference

Step/Running Board Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Running Board Description

Electrical Information Reference

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

Scan Tool Reference

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Control Module References for scan tool information

Circuit/System Verification

1. Ignition ON.
2. Verify the scan tool Assist Step System Status parameter is Enabled.
   - **If the parameter is Disabled**

     Press and hold running board switch for 4 s to enable boards.

   - **If the parameter is Enabled**
3. Verify the left and right side running boards extend and retract when opening and closing the left and right side doors.
   - **If the both running boards do not extend or retract**

     Perform Circuit/System Testing

   - **If the running boards extend and retract**
4. All OK.

Circuit/System Testing

1. Ignition OFF and all vehicle systems OFF. It may take up to 2 min for all vehicle systems to power down. Disconnect the harness connectors at the M95L Assist Step - Left and M95R Assist Step - Right.

   NOTE: When disconnecting a running board step, B051A or B051B will set for the running board disconnected.

2. Test for less than 10 Ω between the following circuit terminals and ground.
   - M95L Assist Step - Left - low reference circuit terminal 4
   - M95R Assist Step - Right - low reference circuit terminal 4
   - **If 10 Ω or greater**
   1. Ignition OFF, disconnect the harness connector at the K4 Assist Step Control Module.
   2. Test for less than 2 Ω in the low reference circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance in the circuit.
      - If less than 2 Ω, replace the K4 Assist Step Control Module.

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- **If less than 10 Ω**

3. Ignition ON.
4. Test for 9 - 11 V between the 10 V reference circuit terminals listed below and ground while commanding the appropriate Assist Step Motor to Extend and Retract with the scan tool.

NOTE: **The voltage reading will appear momentarily while toggling back and forth between Extend and Retract with a scan tool. After 4 tries, you must wait at least 10 s to repeat.**

- M95L Assist Step - Left - 10 V reference circuit terminal 2
- M95R Assist Step - Right - 10 V reference circuit terminal 2
- **If less than 9 V**

1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K4 Assist Step Control Module.
2. Test for infinite resistance between the 10 V reference circuit terminal and ground.
    - If less than infinite resistance, repair the short to ground on the circuit.
    - If infinite resistance
3. Test for less than 2 Ω in the 10 V reference circuit end to end.
    - If 2 Ω or greater, repair the open/high resistance in the circuit.
    - If less than 2 Ω replace the K4 Assist Step Control Module.

- **If greater than 11 V**

1. Ignition OFF, disconnect the harness connector at the K4 Assist Step Control Module control module, ignition ON.
2. Test for less than 1 V between 10 V reference circuit and ground.
    - If 1 V or greater, repair the short to voltage on the appropriate circuit.
    - If less than 1 V, replace the K4 Assist Step Control Module.

- **If between 9-11 V**

5. Ignition OFF, connect the harness connector at the M95L Assist Step - Left, ignition ON.
6. Test for 9 - 11 V between the M95R Assist Step - Right 10 V reference circuit terminal 2 and ground while commanding the Right Assist Step Motor to Extend and Retract with the scan tool.

NOTE: **The voltage reading will appear momentarily while toggling back and forth between Extend and Retract with a scan tool. After 4 tries, you must wait at least 10 s to repeat.**

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- **If not between 9-11 V**

  Test or replace the M95L Assist Step - Left.

- **If between 9-11 V**

7. Ignition OFF. Disconnect the harness connector at the M48L Running Board Step - Left, connect the harness connector at the M48R Running Board Step - Right. Ignition ON.
8. Test for 9 - 11 V between the 10 V reference circuit terminal 2 at the left side and ground while commanding the Left Assist Step Motor to Extend and Retract with the scan tool.

NOTE: **The voltage reading will appear momentarily while toggling back and forth between Extend and Retract with a scan tool. After 4 tries, you must wait at least 10 s to repeat.**

- **If not between 9-11 V**

  Test or replace M95R Assist Step - Right.

- **If between 9-11 V**

9. Replace the K4 Assist Step Control Module.

Repair Instructions

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

- **Assist Step Motor Replacement (Retractable Power Assist)**
- **Control Module References** for control module replacement, programming and setup.

SYMPTOMS - POWER ASSIST STEPS

NOTE: **The following steps must be completed before using the symptom tables.**

1. Perform **Diagnostic System Check - Vehicle** in order to verify that all of the following are true:
   - There are no DTCs set.
   - The control modules can communicate via the serial data link.
2. Review the system operation in order to familiarize yourself with the system functions. Refer to the following **Running Board Description**.

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Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the assist step 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:

Power Assist Step Malfunction

POWER ASSIST STEP 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
B+	1	1	-	-
Left Side Step 10-Volt Reference	B052B 02	B051C 29	B052B 01	-
Right Side Step 10-Volt Reference	B052B 02	B051D 29	B052B 01	-
Left Position Sensor Signal	B051C 29	B051C 29	B051C 29, B052B 01	-
Right Position Sensor Signal	B051D 29	B051D 29	B051D 29, B052B 01	-
Disable Switch Signal	B051E 02	2	2	-
Left Motor Extend Control	B051A 02	B051A 04	B051A 01	-

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Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Left Motor Retract Control	B051A 02	B051A 04	B051A 01	-
Right Motor Extend Control	B051B 02	B051B 04	B051B 01	-
Right Motor Retract Control	B051B 02	B051B 04	B051B 01	-
Left Position Sensor Low Reference	-	B051C 29	-	-
Right Position Sensor Low Reference	-	B051D 29	-	-
Ground	-	1	-	-
1. Assist Steps Inoperative 2. Disable Switch Inoperative				

Circuit/System Description

The assist step control module controls the assist step actuators to extend or retract the assist steps. Each actuator consists of an electric motor and a potentiometer. The module supplies a low reference and 10 V reference source voltage to the potentiometer. The module monitors the voltage drop across the potentiometer on the position signal circuit. When the actuator shaft rotates, the voltage on the position signal circuit changes. The module supplies the actuator motor with a 12 V control circuit and a ground control circuit. The module controls the direction of the actuator by changing the polarity of the control circuits.

Diagnostic Aids

- The running boards can be manually deployed by pressing the assist step switch while the transmission is in park or neutral. The assist steps will be retracted with a second push of the disable switch, if the transmission is switched out of park or neutral, or if vehicle speed exceeds 8 kph (5 mph).
- If a door is ajar, the boards may retract and extend as vehicle speed goes above and below 3 kph (2 mph). Verify proper operation of door ajar switches and that all doors are tightly shut.
- If boards are stuck in extended or retracted position, verify there is nothing that can prohibit normal operation such as physical damage, or a build up of mud, snow, or ice on boards and mechanical linkages.

Reference Information

Schematic Reference

Step/Running Board Schematics

Connector End View Reference

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COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Running Board Description

Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition ON.
2. Verify scan tool can communicate with K4 Assist Step Control Module.
   - **If scan tool does not communication with module**

     Refer to **Scan Tool Does Not Communicate with Low Speed GMLAN Device** .

   - **If scan tool communicates with module**
3. Verify the scan tool Assist Step System Status parameter is Enabled.
   - **If the parameter is Disabled**

     Press and hold running board switch for 4 s to enable boards.

   - **If the parameter is Enabled**
4. Verify all scan tool Door Ajar Switch parameters change between Active and Inactive when opening and closing the appropriate doors.
   - **If one or more parameters do not change**

     Refer to **DTC B297B or B297C** .

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- **If all parameters change**

5. Verify Right Assist Step Command and Left Assist Step Command parameters are not Object Detected while commanding the running boards to Extend and Retract using the scan tool.
   - **If one or both boards are Object Detected**

     Check for mechanical binding of running board. Refer to **Assist Step Replacement (Step Pad - BRS)Assist Step Replacement (Assembly - BRS)Assist Step Replacement (BVE-Short Wheel Base)Assist Step Replacement (BVE-Long Wheel Base)** for how to manually move boards.

   - **If parameters are not Object Detected**
6. Verify the scan tool Assist Step Disable Switch parameter changes between Active and Inactive pressing and releasing the Assist Step Disable Switch.
   - **If the parameter does not change**

     Refer to **DTC B051E**.

   - **If the parameter changes**
7. Verify the assist steps extend when each vehicle door is opened and retract when the door is closed.
   - **If the assist steps do not properly extend and retract**

     Refer to Diagnostic Aids.

   - **If the assist steps properly extend and retract**
8. All OK.

REPAIR INSTRUCTIONS

FRONT TOW HOOK REPLACEMENT

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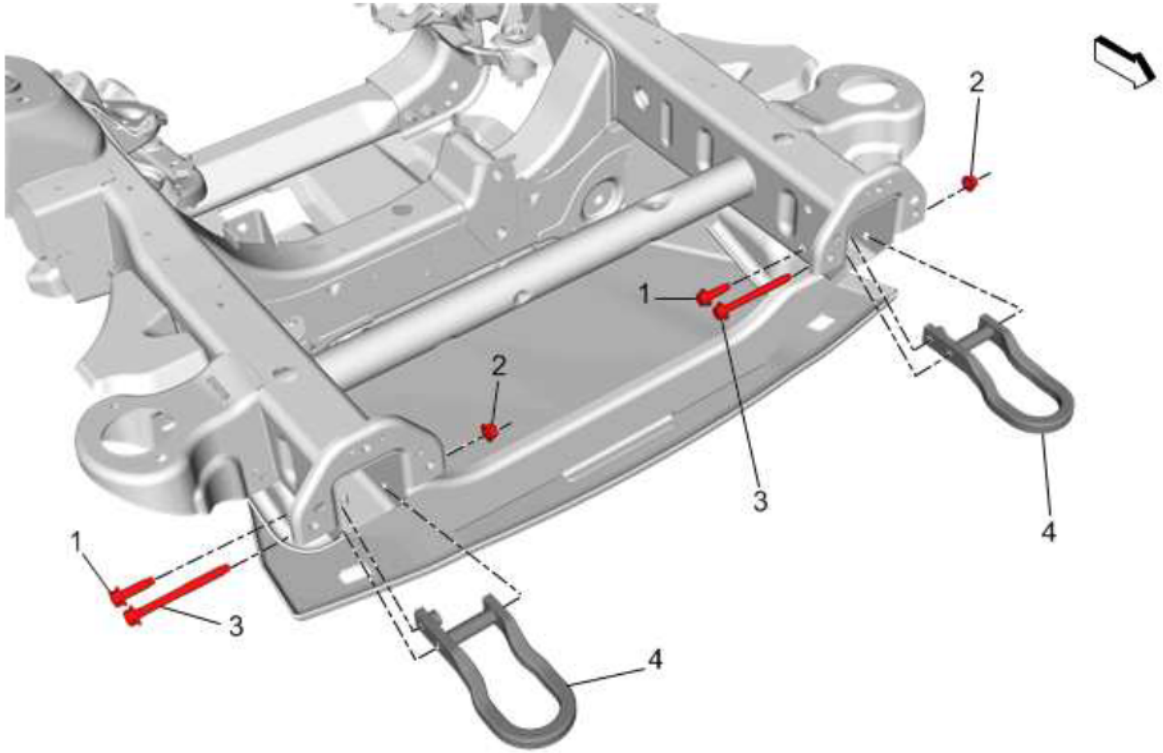


Fig. 2: Front Tow Hook
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Tow Hook Bolt (Qty: 2) **CAUTION:** **Refer to** **Fastener Caution** . **Tighten** 85 N.m (63 lb ft)

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Callout	Component Name
2	Tow Hook Nut (Qty: 2) **Procedure** Hold the nut (2), and tighten the tow hook bolt (3) to 85 N.m (63 lb ft)
3	Tow Hook Bolt (Qty: 2) **Tighten** 85 N.m (63 lb ft)
4	Tow Hook (Qty: 2)

STEERING GEAR SKID SHIELD REPLACEMENT

Removal Procedure

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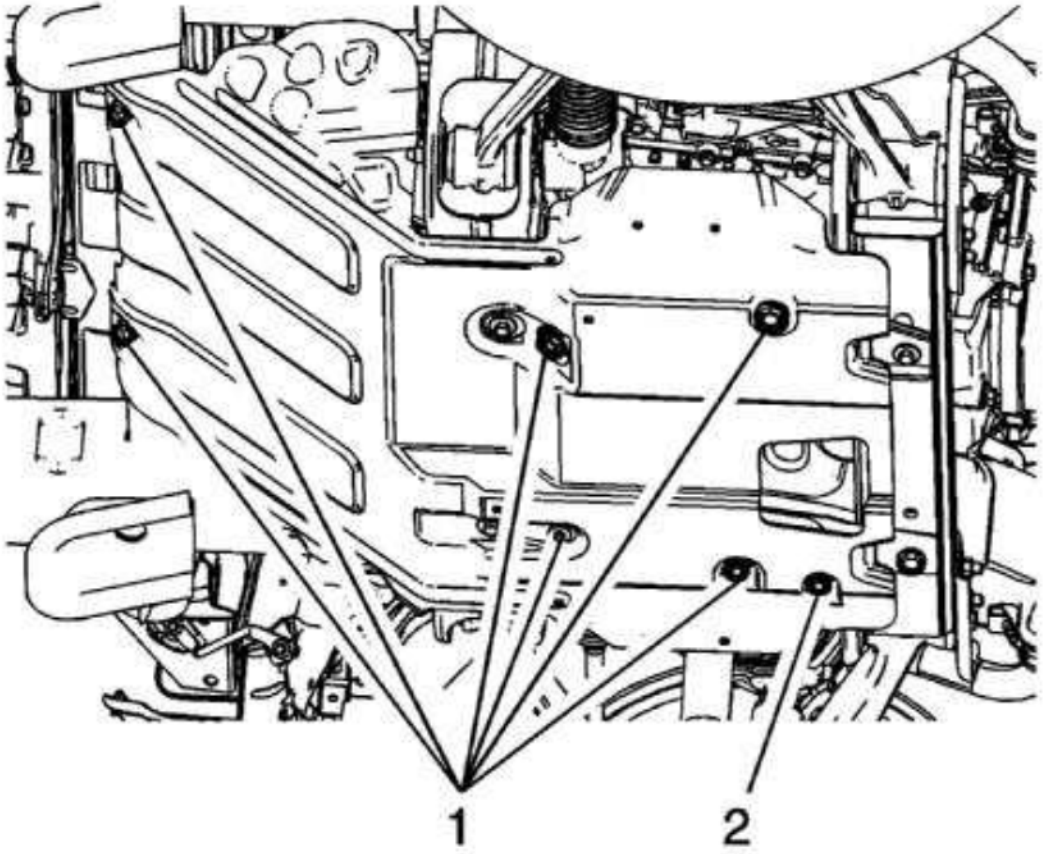


Fig. 3: Steering Gear Skid Shield Mounting Fasteners
Courtesy of GENERAL MOTORS COMPANY

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
2. Remove the steering gear skid shield mounting fasteners (1).
3. Remove the steering gear skid shield (2).

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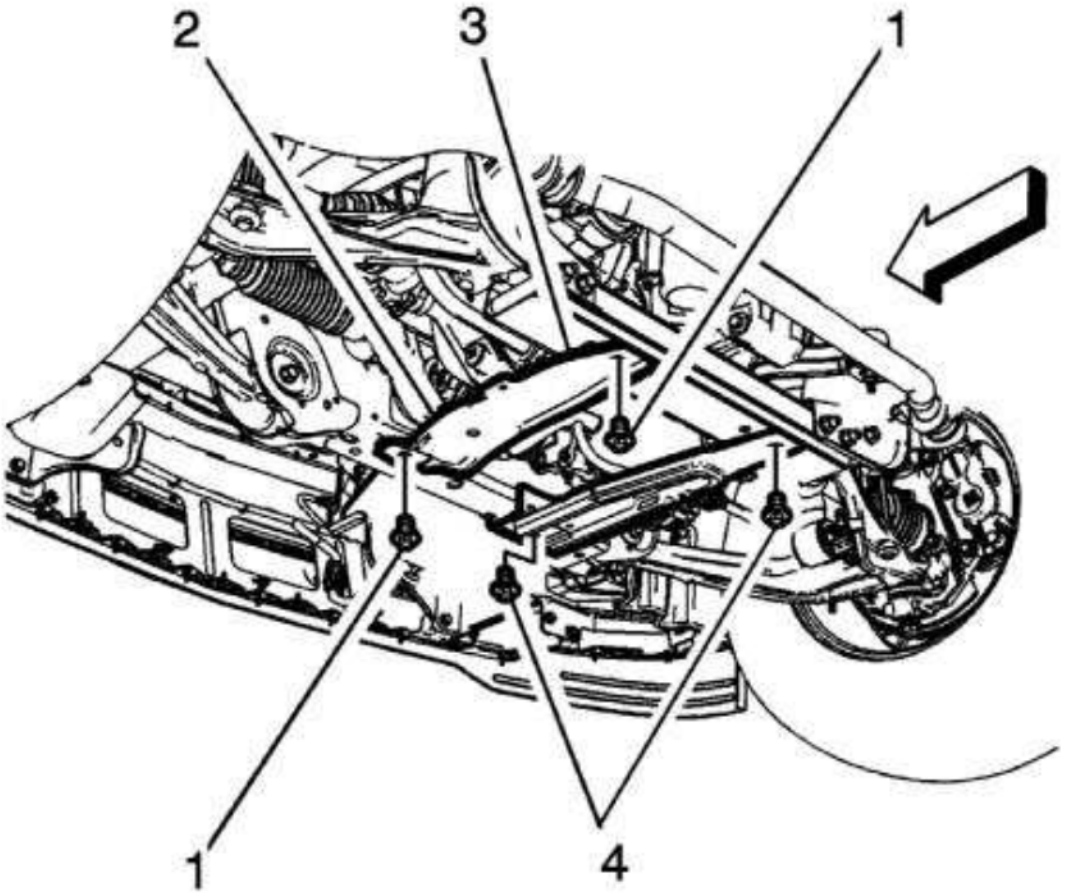


Fig. 4: Left Steering Gear Skid Shield Bracket Fasteners
Courtesy of GENERAL MOTORS COMPANY

NOTE: **If not servicing the steering gear skid shield, remove the steering gear skid shield brackets as required.**

4. Remove the left steering gear skid shield bracket fasteners (1) and remove the left steering gear shield bracket (2).
5. Remove the right steering gear skid shield bracket fasteners (4) and remove the right steering gear skid shield bracket (3).

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Installation Procedure

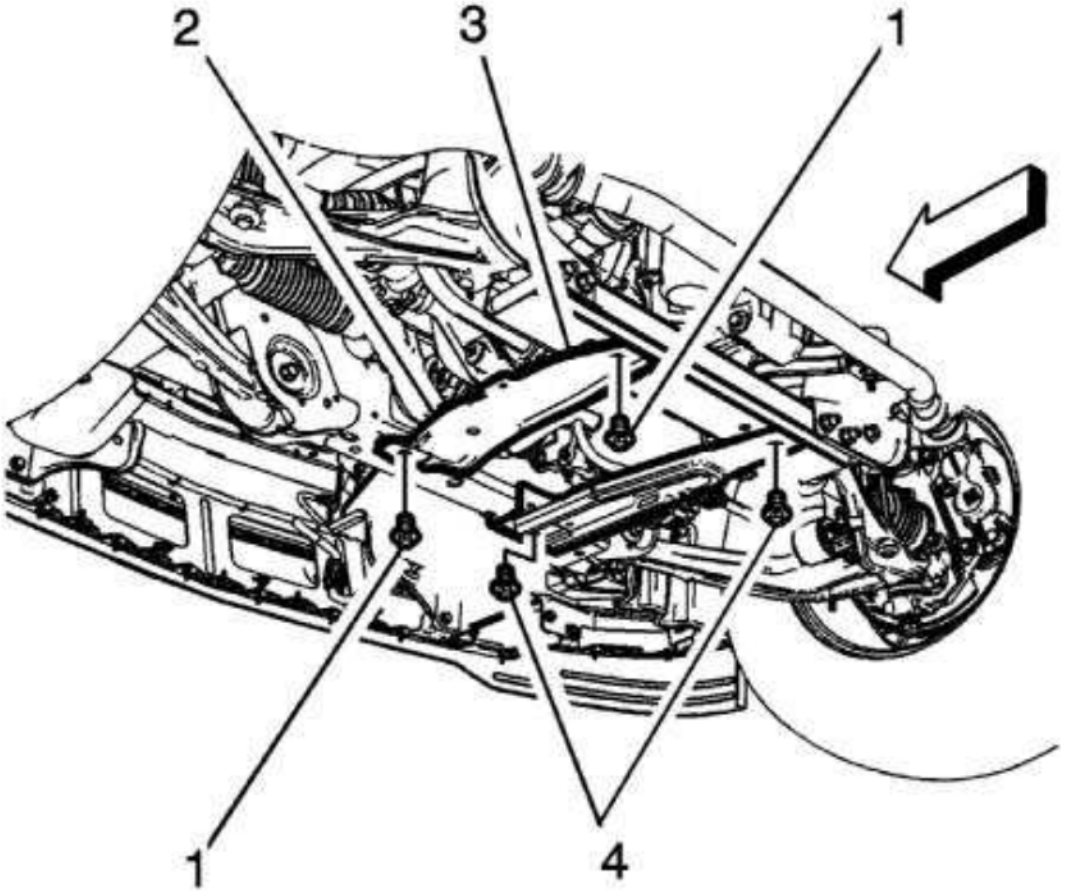


Fig. 5: Left Steering Gear Skid Shield Bracket Fasteners
Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to Fastener Caution .

1. Install the right steering gear skid shield bracket (3) and tighten the fasteners (4) to 20 N.m (15 lb ft).

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2. Install the left steering gear skid shield bracket (2) and tighten the fasteners (1) to 20 N.m (15 lb ft).

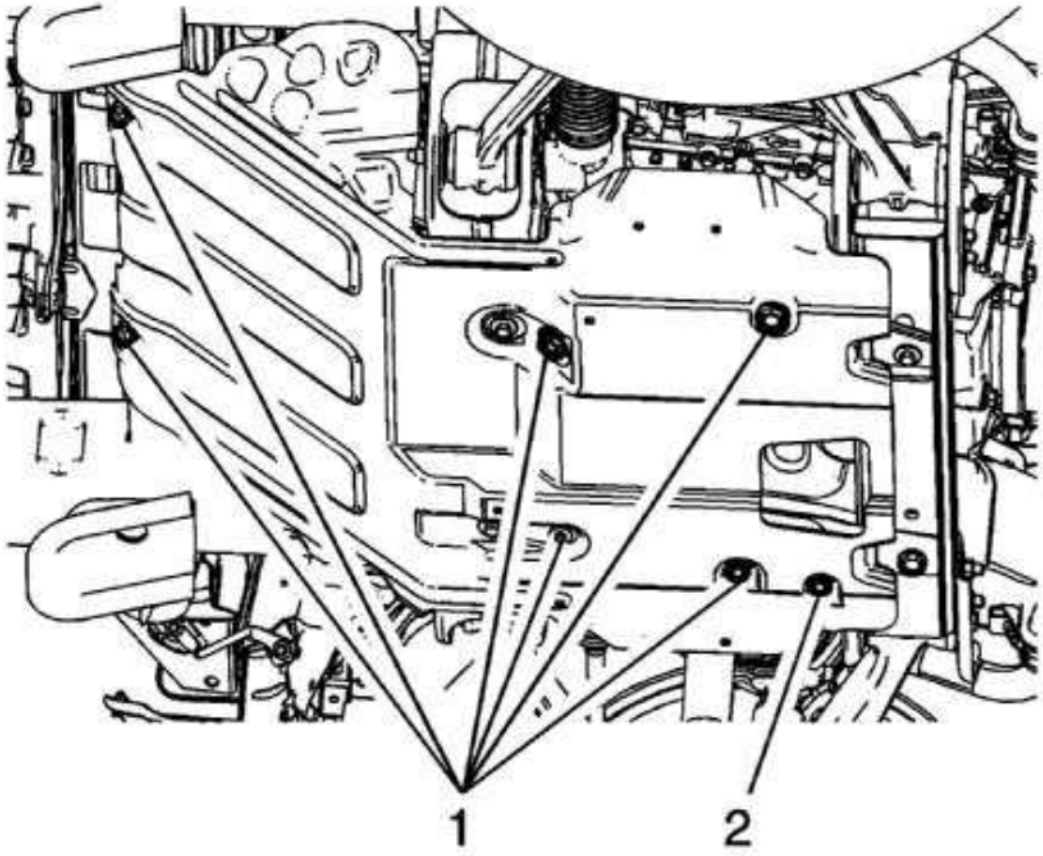


Fig. 6: Steering Gear Skid Shield Mounting Fasteners
Courtesy of GENERAL MOTORS COMPANY

3. Position the steering gear skid shield (2) on the frame.
4. Install the steering gear skid shield mounting fasteners (1) and tighten to:
    - Tighten the steering gear skid shield to frame bolts to 20 N.m (15 lb ft).

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- Tighten the steering gear skid shield to steering gear skid shield bracket bolts to 9 N.m (80 lb in).

FRONT FRAME HEAT SHIELD REPLACEMENT

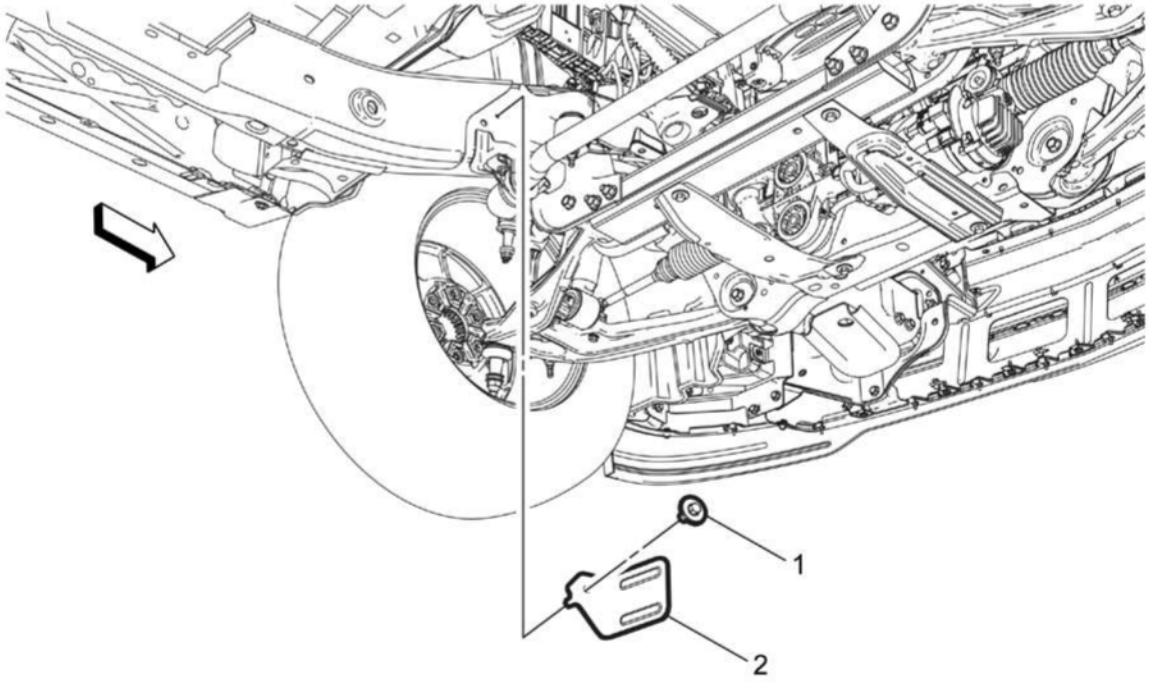


Fig. 7: Front Frame Heat Shield (Front Axle Bushing)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .	
1	Front Frame Heat Shield Fastener **CAUTION:**

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Callout	Component Name
	Refer to Fastener Caution . **Tighten:** 12 N.m (106 lb in)
2	Front Frame Heat Shield - Front Axle Bushing

UNDERBODY SIDE RAIL SPLASH SHIELD REPLACEMENT

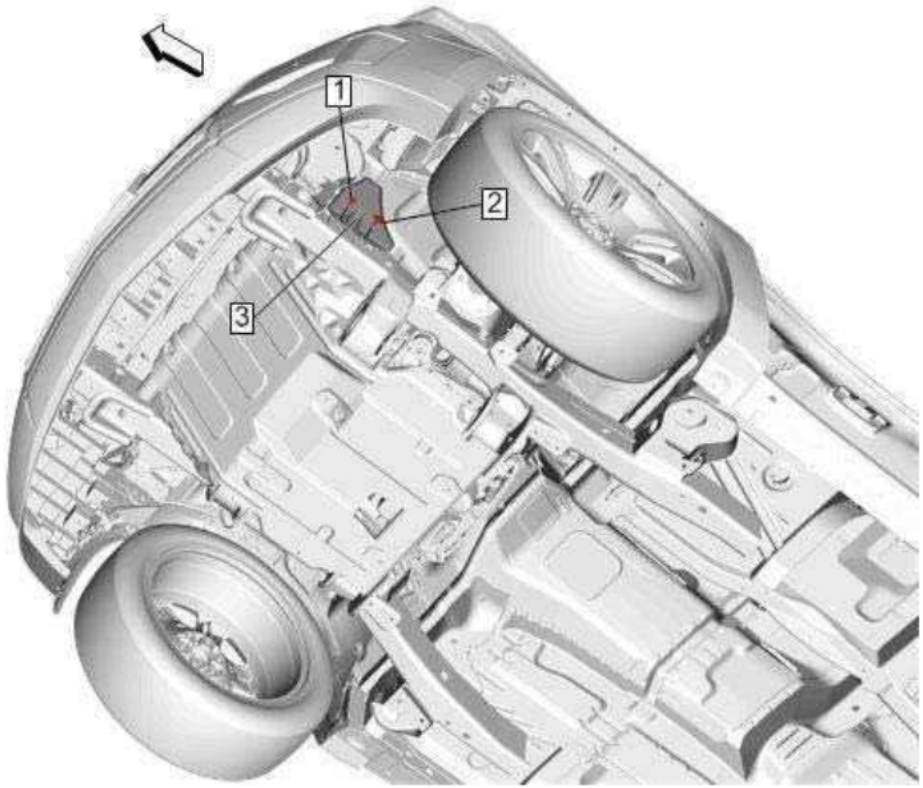


Fig. 8: Side Rail Splash Shield
Courtesy of GENERAL MOTORS COMPANY

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Callout	Component Name
Preliminary Procedure Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .	
1	Side Rail Splash Shield Push-Pin Fastener
2	Side Rail Splash Shield Fastener **CAUTION:** **Refer to** **Fastener** **Caution** . **Tighten** 12 N.m (106 lb in)
3	Side Rail Splash Shield

TRANSFER CASE SKID SHIELD REPLACEMENT

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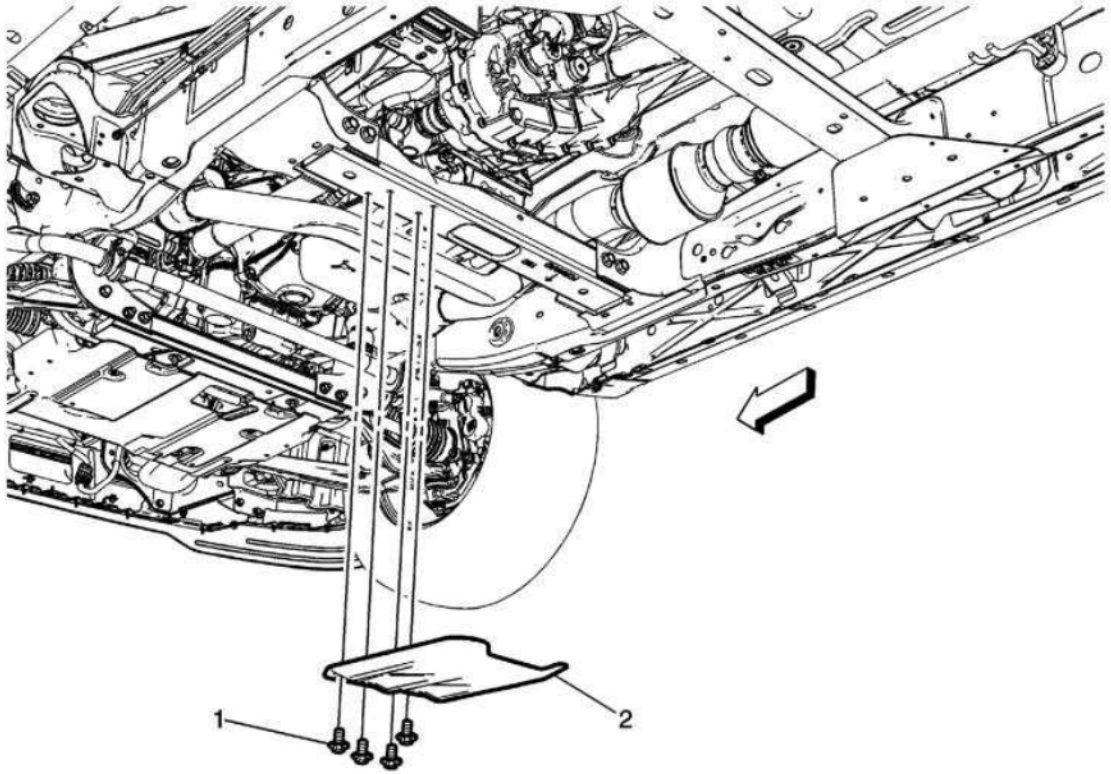


Fig. 9: Transfer Case Skid Shield (4WD)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .	
1	Transfer Case Skid Shield Fasteners (Qty 4) **CAUTION:** **Refer to Fastener Caution .**

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Callout	Component Name
	Tighten 28 N.m (21 lb ft)
2	Transfer Case Skid Shield

UNDERBODY SKID SHIELD REPLACEMENT

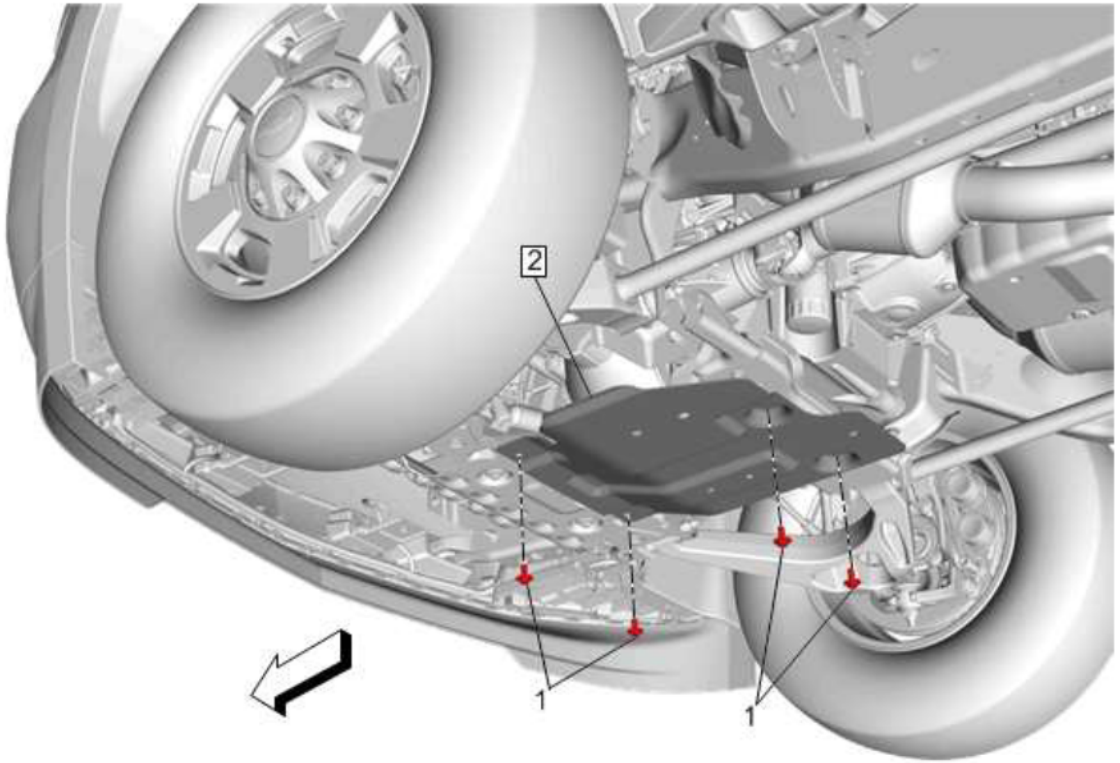


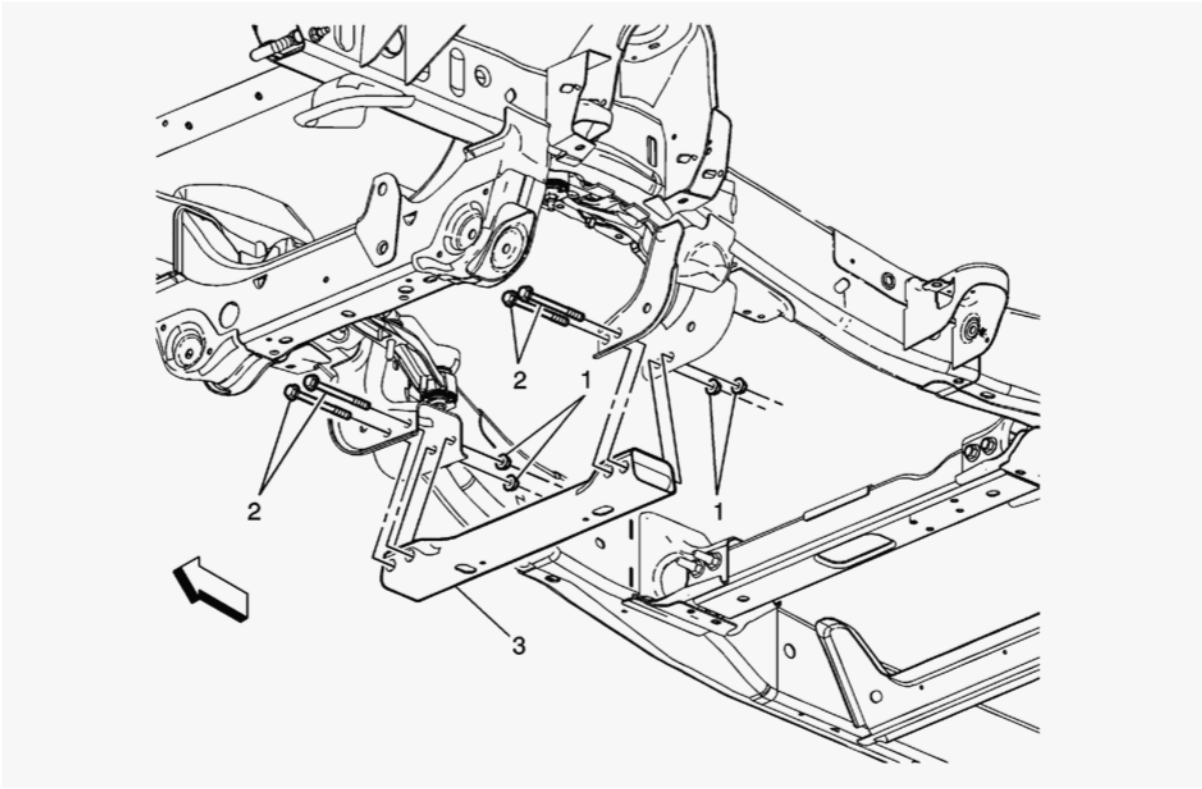
Fig. 10: Underbody Skid Shield
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Raise and support the vehicle. **Lifting and Jacking the Vehicle**	

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Callout	Component Name
1	Underbody Skid Shield Fastener (Qty: 4) **CAUTION:** **Refer to** **Fastener Caution** **Tighten** 28 N.m (21 lb ft)
2	Underbody Skid Shield

DRIVETRAIN AND FRONT SUSPENSION FRAME FRONT CROSSMEMBER REPLACEMENT



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Fig. 11: Drivetrain and Front Suspension Frame Front Crossmember
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the steering gear skid shield and the left and the right steering gear skid shield bracket. Refer to **Steering Gear Skid Shield Replacement**	
1	Drivetrain and Front Suspension Frame Front Crossmember Nut (Qty: 4) **CAUTION:** **Refer to** **Fastener** **Caution** **Tighten** 1. First Pass: 70 N.m (52 lb ft) 2. Final Pass: 110 degrees
2	Drivetrain and Front Suspension Frame Front Crossmember Bolt (Qty: 4)
3	Drivetrain and Front Suspension Frame Front Crossmember

TRANSMISSION SUPPORT CROSSMEMBER REPLACEMENT (2WD)

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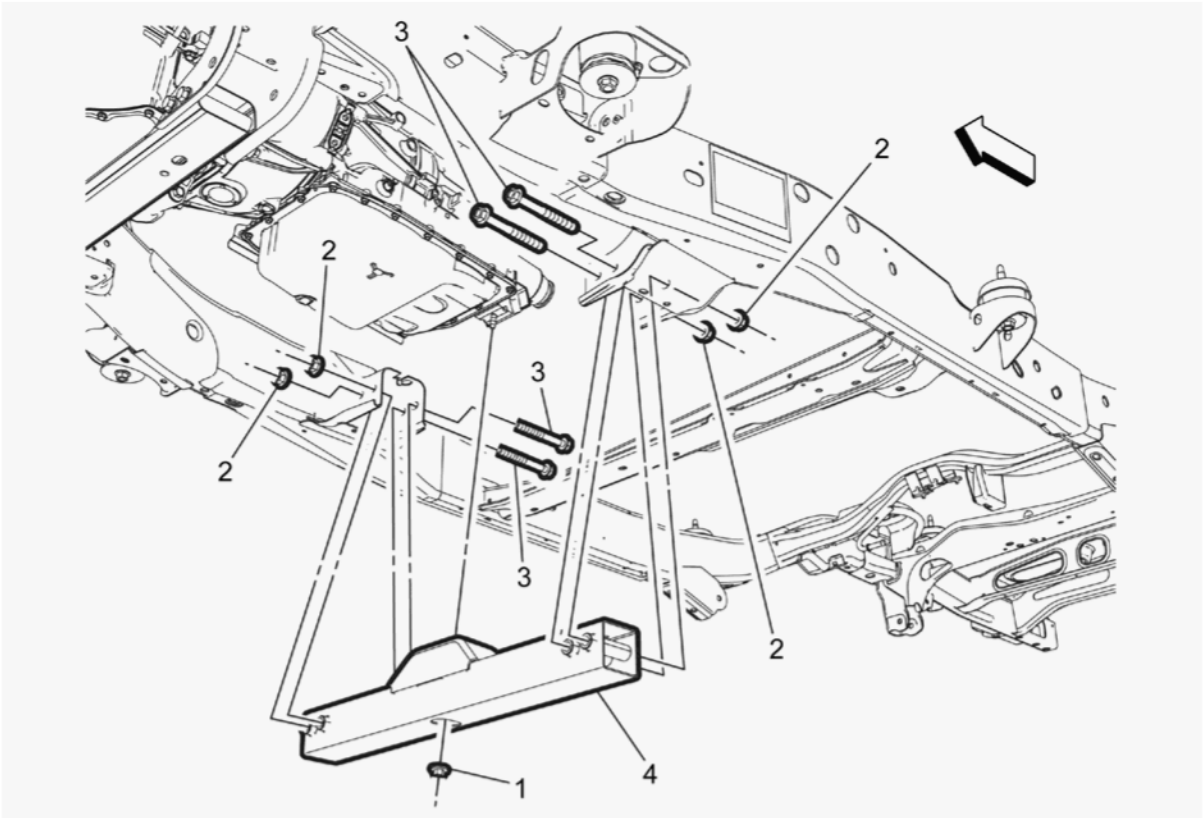


Fig. 12: Transmission Support Crossmember (2WD - Light Duty)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Raise and support the vehicle. **Lifting and Jacking the Vehicle** 2. Support the transmission with a suitable jack. 3. Remove the transfer case skid shield, if equipped. Refer to **Transfer Case Skid Shield Replacement**	
1	Transmission Mount Nut **CAUTION:**

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Callout	Component Name
	Refer to **Fastener** **Caution** **Tighten** 55 N.m (41 lb ft)
2	Transmission Crossmember Nut (Qty: 4) **Tighten** 95 N.m (70 lb ft)
3	Transmission Crossmember Bolt (Qty: 4)
4	Transmission Crossmember

TRANSMISSION SUPPORT CROSSMEMBER REPLACEMENT (4WD)

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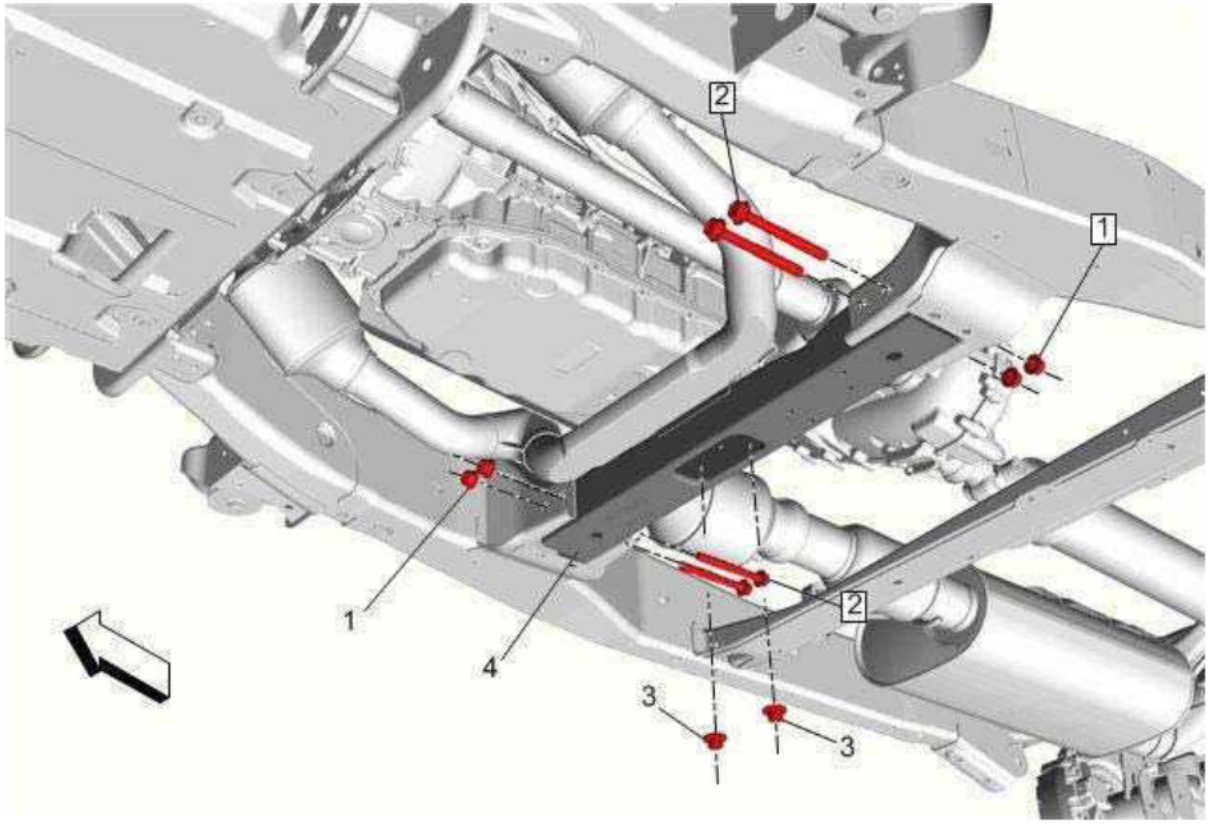


Fig. 13: Transmission Support Crossmember (4WD - Light Duty)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** . 2. Support the transmission with a transmission jack. 3. Remove the transfer case skid shield, if equipped. Refer to **Transfer Case Skid Shield Replacement**.	
1	Transmission Crossmember Nut (Qty: 4) **CAUTION:**

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Callout	Component Name
	Refer to Fastener Caution . **Tighten** 95 N.m (70 lb ft)
2	Transmission Crossmember Bolt (Qty: 4) **Procedure** 1. Remove all traces of the original adhesive patch. 2. Clean the threads of the bolt with denatured alcohol or equivalent and allow to dry. 3. Apply threadlocker. Refer to **Adhesives, Fluids, Lubricants, and Sealers**.
3	Transmission Mount to Crossmember Nut (Qty: 2) **Tighten** 55 N.m (41 lb ft)
4	Transmission Crossmember

SPARE WHEEL HEAT SHIELD REPLACEMENT

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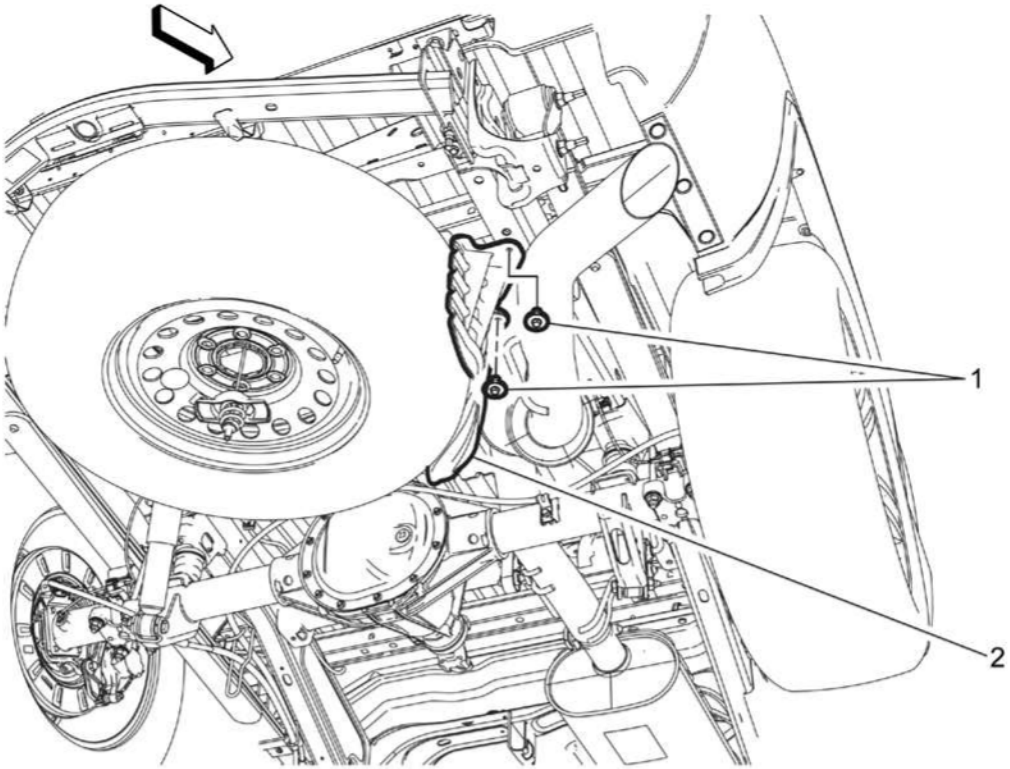


Fig. 14: Spare Wheel Heat Shield
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .	
1	Spare Tire Heat Shield Fastener (Qty: 2) **CAUTION:** **Refer to** **Fastener** **Caution** .

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Callout	Component Name
	Tighten 12 N.m (106 lb in)
2	Spare Tire Heat Shield

BODY MOUNT UPPER AND LOWER CUSHION REPLACEMENT

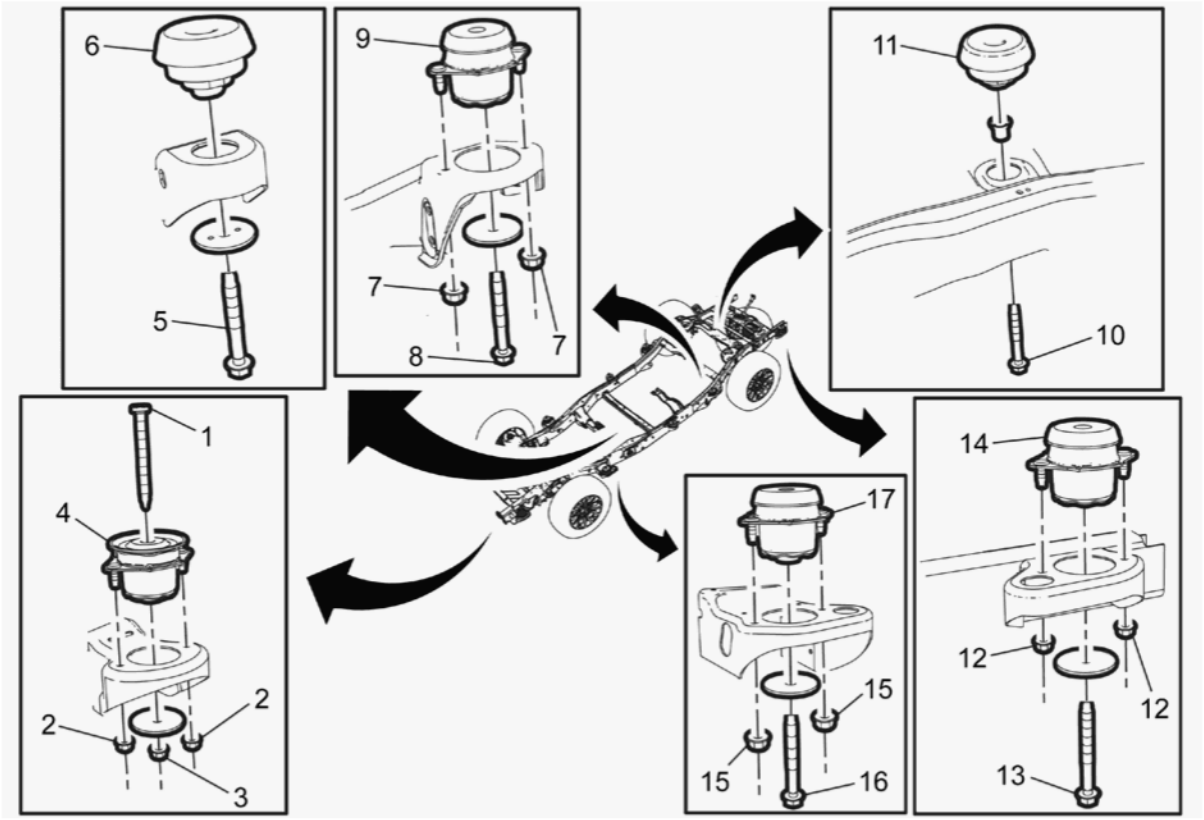


Fig. 15: Body Mount Upper and Lower Cushion
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure **WARNING:**	

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Callout	Component Name
When you remove the body cushions, do NOT separate the frame from the body more than is necessary. Possible personal injury and damage to multiple parts may result if you do not follow the guides outlined below: • Intermediate steering shaft-Do not allow the shaft to extend more than 25 mm (1 in). • Fuel tank filler hose-Do not stretch the hose excessively. • Tail/Turn signal lamp wiring/rear lamps junction	

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Callout	Component Name
	block-Leave slack in the wires. • **Park brake cable-Leave slack in the cable.** • **Body ground straps-Leave slack in the wire.**

NOTE:
Ensure that the vehicle is unloaded prior to body removal.

1. Remove the master brake cylinder. Refer to **Master Cylinder Replacement** .
2. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
3. Remove the front bumper fascia. **Front Bumper Fascia Replacement (GMC)** **Front Bumper Fascia Replacement (Chevrolet)** **Front Bumper Fascia Replacement (Cadillac)**
4. Remove the nut from the park brake equalizer intermediate cable to provide slack for body movement. Refer to **Parking Brake Intermediate Cable Replacement (J95)** **Parking Brake Intermediate Cable Replacement (JD9)** .

NOTE:
It is critical to properly support the body while lowering the

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Callout	Component Name
frame/chassis and related parts evenly. 5. Properly support the body in the area that the mounts will be replaced.	
1	Body Mount Bolt
2	Body Mount Nuts (Qty: 2) **CAUTION:** **Refer to Fastener Caution .** **Tighten** 43 N.m (32 lb ft)
3	Body Mount Nut **Tighten** 70 N.m (52 lb ft)
4	Body Mount Cushion 1
5	Body Mount Bolt **Tighten** 165 N.m (122 lb ft)
6	Body Mount Cushion 2
7	Body Mount Nuts (Qty: 2) **Tighten** 43 N.m (32 lb ft)
8	Body Mount Bolt **Tighten** 165 N.m (122 lb ft)
9	Body Mount Cushion 3

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Callout	Component Name
10	Body Mount Bolt **Tighten** 165 N.m (122 lb ft)
11	Body Mount Cushion 4
12	Body Mount Nuts (Qty: 2) **Tighten** 43 N.m (32 lb ft)
13	Body Mount Bolt **Tighten** 165 N.m (122 lb ft)
14	Body Mount Cushion 5
15	Body Mount Nuts (Qty: 2) **Tighten** 43 N.m (32 lb ft)
16	Body Mount Bolt **Tighten** 165 N.m (122 lb ft)
17	Body Mount Cushion 6

FRONT WHEELHOUSE LINER REPLACEMENT - RIGHT SIDE (CADILLAC)

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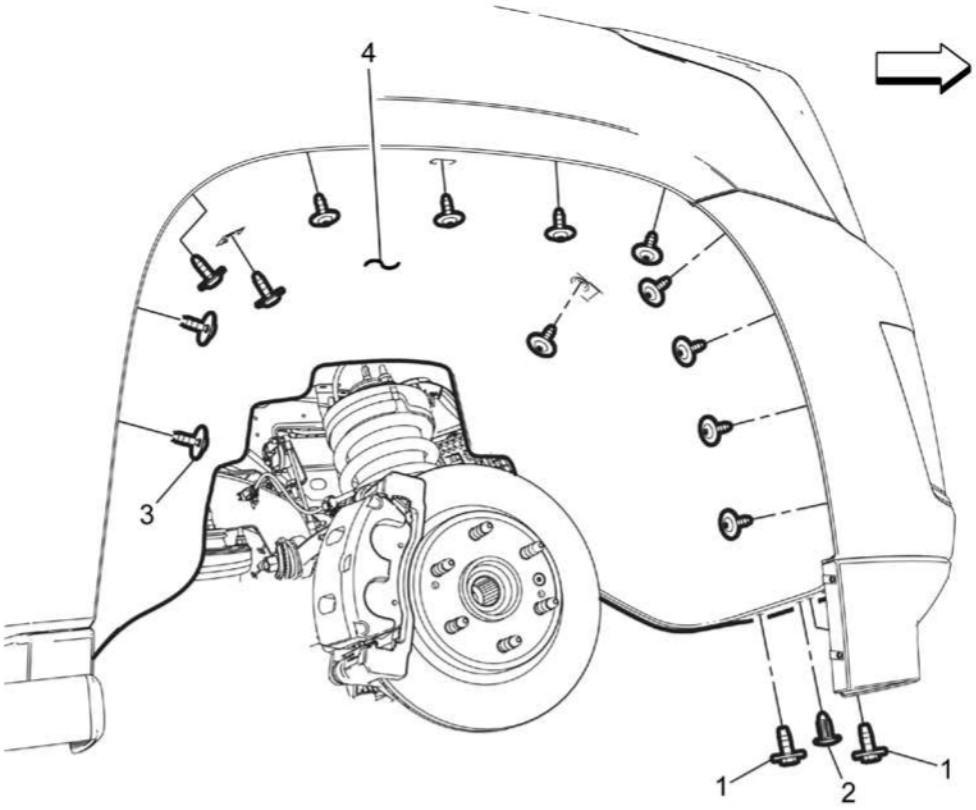


Fig. 16: Front Wheelhouse Liner - Right Side (Cadillac)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation (6-Lug Wheel)** **Tire and Wheel Removal and Installation (8-Lug Wheel)** . 2. Remove the front fender paint protector. Refer to **Front Fender Paint Protector Replacement** . 3. Remove the front wheel opening rear molding, if equipped. Refer to **Front Wheel Opening Rear Molding Replacement** 4. Remove the front wheel opening front molding, if equipped. Refer to **Front Wheel Opening Front Molding Replacement**	
1	Front Wheelhouse Liner Bolt (Qty: 2)

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Callout	Component Name
	CAUTION: **Refer to Fastener Caution .** Tighten 7 N.m (62 lb in)
2	Front Wheelhouse Liner Plastic Retainer
3	Front Wheelhouse Liner Fasteners (Qty: 13) **Tighten** 2.5 N.m (22 lb in)
4	Front Wheelhouse Liner - Right **NOTE:** **Disconnect any electrical harnesses/connectors and attached parts from the right side front wheelhouse liner as needed.**

FRONT WHEELHOUSE LINER REPLACEMENT - RIGHT SIDE (CHEVROLET)

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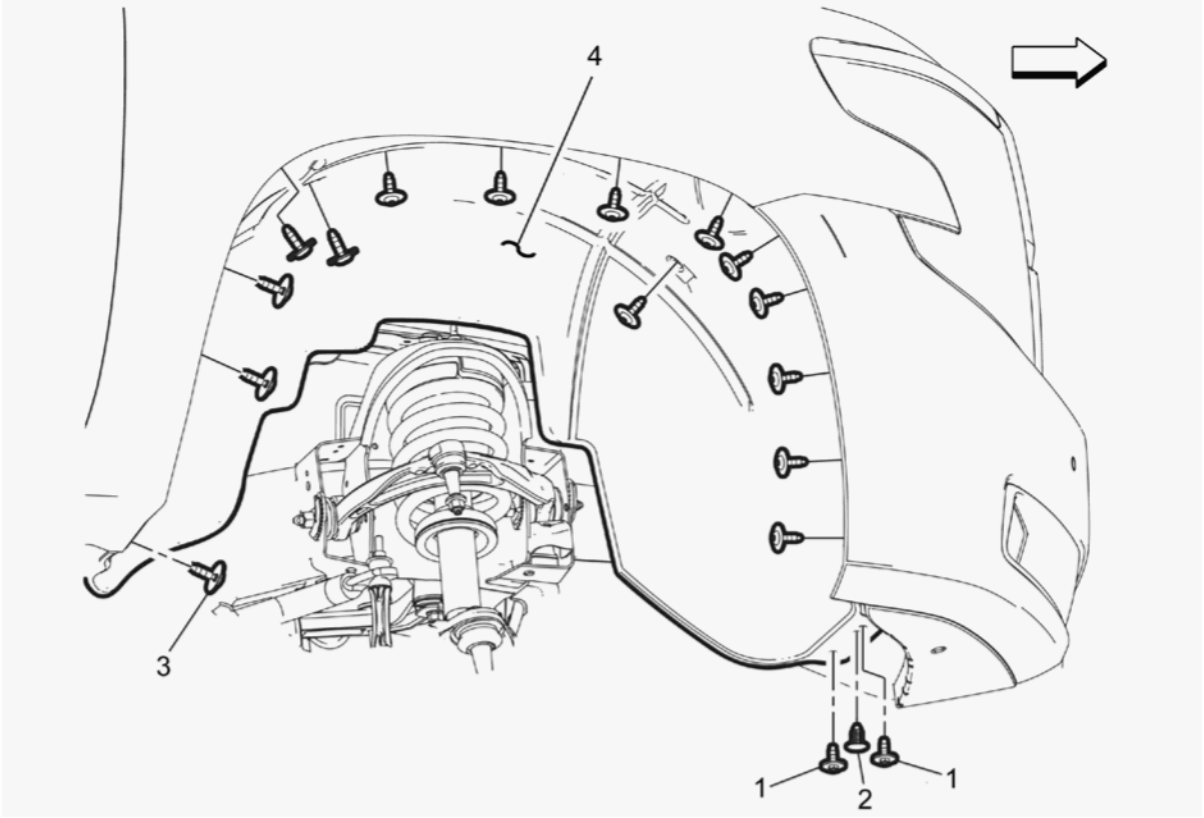


Fig. 17: Front Wheelhouse Liner - Right Side (Chevrolet)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation (6-Lug Wheel)** **Tire and Wheel Removal and Installation (8-Lug Wheel)** . 2. Remove the front wheel opening rear molding, if equipped. Refer to **Front Wheel Opening Rear Molding Replacement**	
1	Front Wheelhouse Liner Bolt (Qty: 2) **CAUTION:**

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Callout	Component Name
	Refer to Fastener Caution . **Tighten** 7 N.m (62 lb in)
2	Front Wheelhouse Liner Plastic Retainer
3	Front Wheelhouse Liner Fasteners (Qty: 17) **Tighten** 2.5 N.m (22 lb in)
4	Front Wheelhouse Liner - Right **NOTE:** **Disconnect any electrical harnesses/connectors and attached parts from the right side front wheelhouse liner as needed.**

FRONT WHEELHOUSE LINER REPLACEMENT - RIGHT SIDE (GMC)

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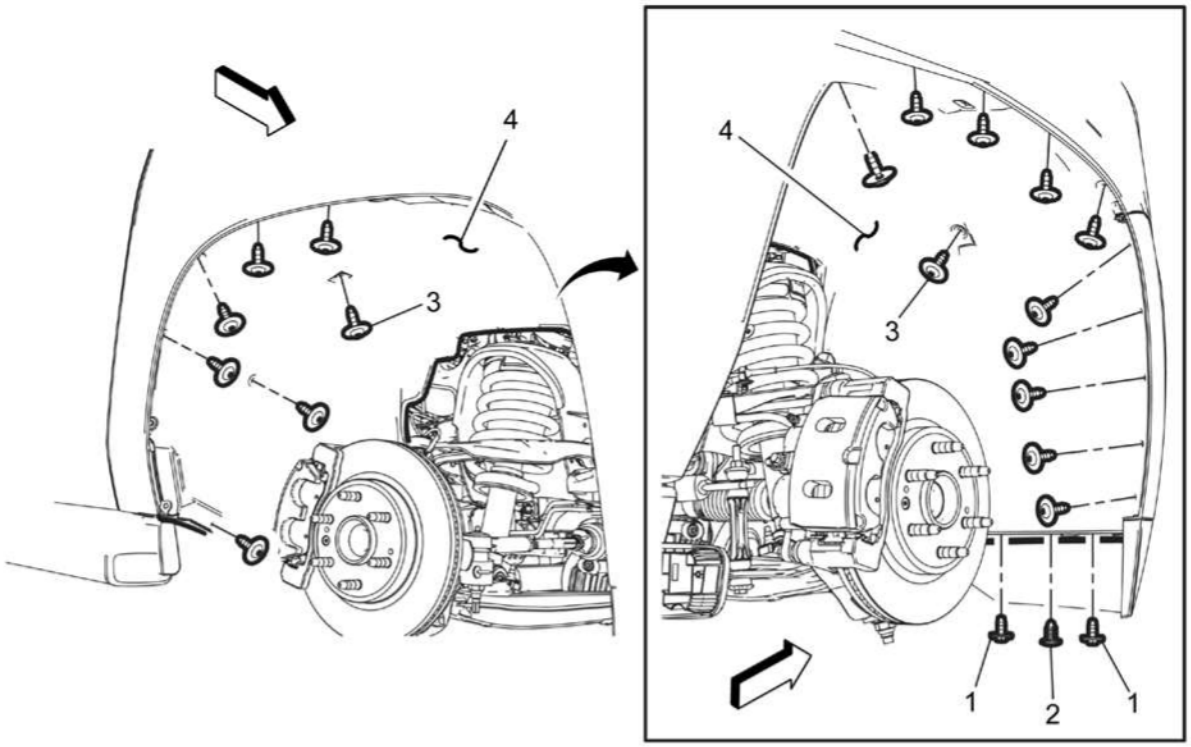


Fig. 18: Front Wheelhouse Liner - Right Side (GMC)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation (6-Lug Wheel)** **Tire and Wheel Removal and Installation (8-Lug Wheel)** .	
1	Front Wheelhouse Liner Bolt (Qty: 2) **CAUTION:** **Refer to** **Fastener** **Caution** .

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Callout	Component Name
	Tighten 7 N.m (62 lb in)
2	Front Wheelhouse Liner Plastic Retainer
3	Front Wheelhouse Liner Fasteners (Qty: 17) **Tighten** 2.5 N.m (22 lb in)
4	Front Wheelhouse Liner - Right **NOTE:** **Disconnect any electrical harnesses/connectors and attached parts from the right side front wheelhouse liner as needed.**

FRONT WHEELHOUSE LINER REPLACEMENT - LEFT SIDE (CADILLAC)

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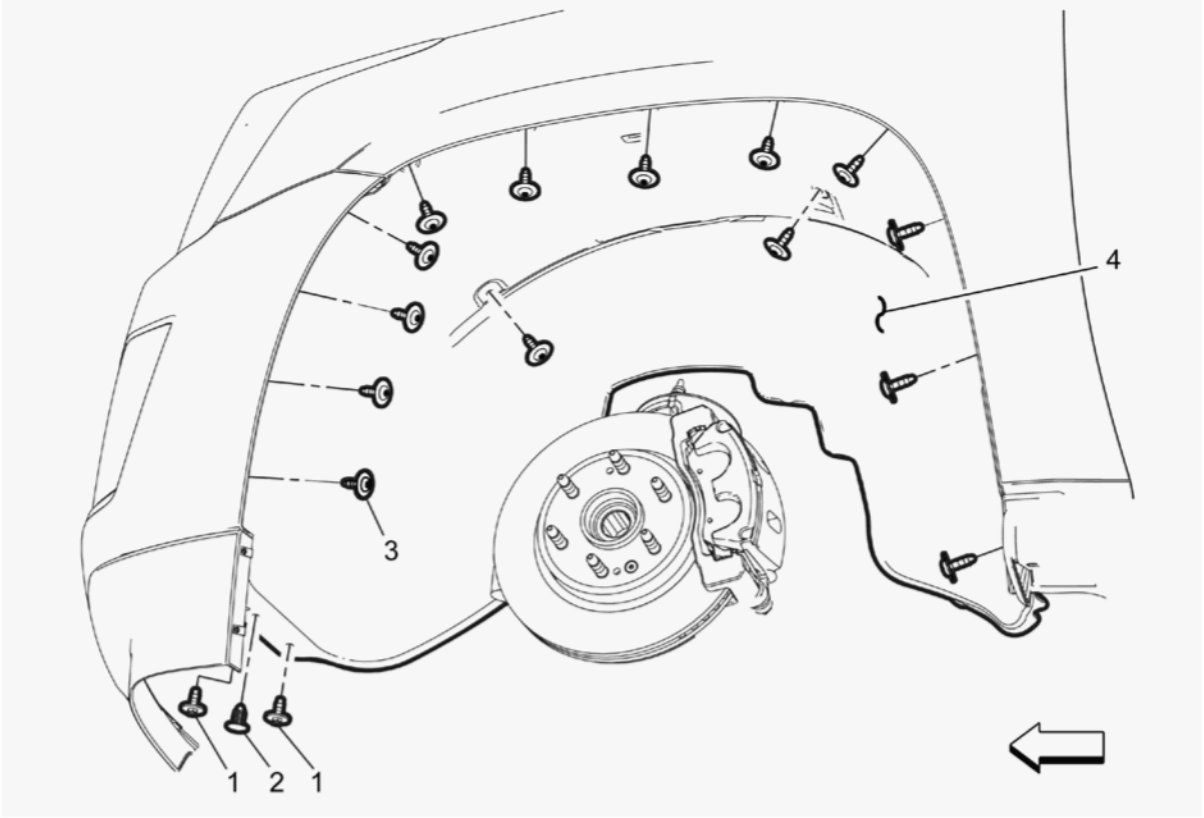


Fig. 19: Front Wheelhouse Liner - Left Side (Cadillac)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation (6-Lug Wheel)** **Tire and Wheel Removal and Installation (8-Lug Wheel)** . 2. Remove the front fender paint protector. Refer to **Front Fender Paint Protector Replacement** . 3. Remove the front wheel opening rear molding, if equipped. Refer to **Front Wheel Opening Rear Molding Replacement** 4. Remove the front wheel opening front molding, if equipped. Refer to **Front Wheel Opening Front Molding Replacement**	
1	Front Wheelhouse Liner Bolt (Qty: 2)

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Callout	Component Name
	CAUTION: **Refer to Fastener Caution .** Tighten 7 N.m (62 lb in)
2	Front Wheelhouse Liner Plastic Retainer
3	Front Wheelhouse Liner Fasteners (Qty: 14) **Tighten** 2.5 N.m (22 lb in)
4	Front Wheelhouse Liner - Left **NOTE:** **Disconnect any electrical harnesses/connectors and attached parts from the right side front wheelhouse liner as needed.**

FRONT WHEELHOUSE LINER REPLACEMENT - LEFT SIDE (GMC)

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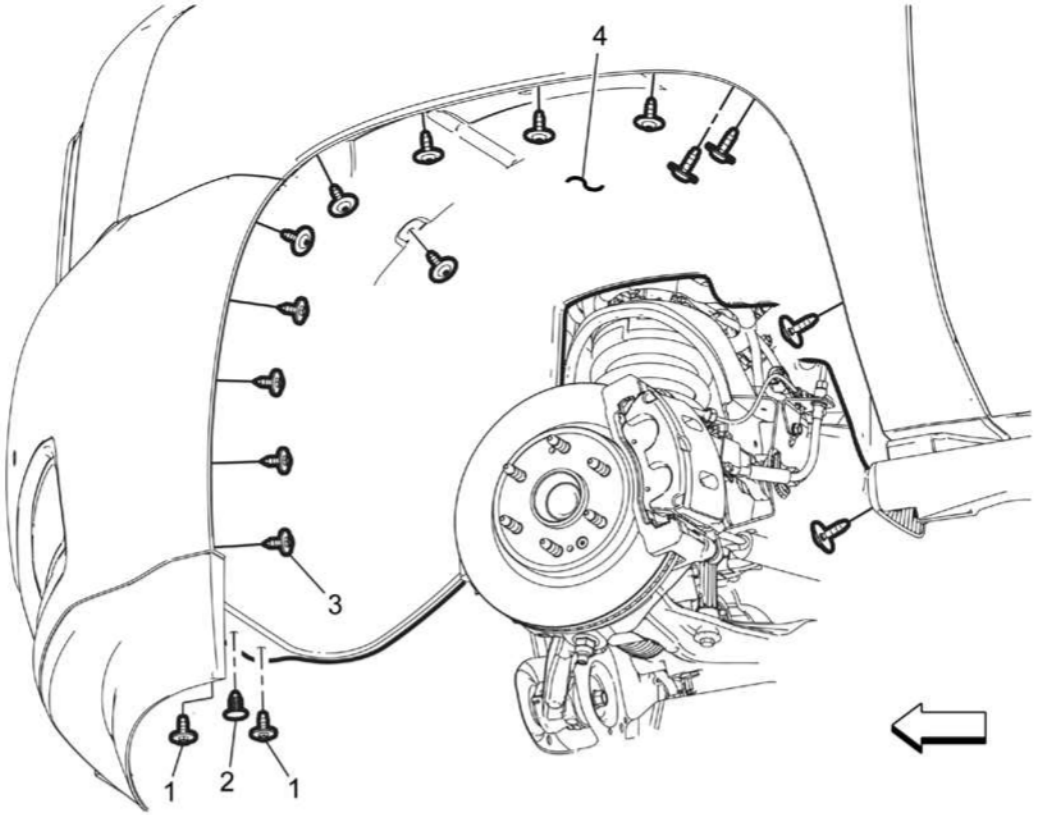


Fig. 20: Front Wheelhouse Liner - Left Side (GMC)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation (6-Lug Wheel)** **Tire and Wheel Removal and Installation (8-Lug Wheel)** .	
1	Front Wheelhouse Liner Bolt (Qty: 2) **CAUTION:** **Refer to** **Fastener** **Caution** .

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Callout	Component Name
	Tighten 7 N.m (62 lb in)
2	Front Wheelhouse Liner Plastic Retainer
3	Front Wheelhouse Liner Fasteners (Qty: 17) **Tighten** 2.5 N.m (22 lb in)
4	Front Wheelhouse Liner - Left **NOTE:** **Disconnect any electrical harnesses/connectors and attached parts from the left side front wheelhouse liner as needed.**

FRONT WHEELHOUSE LINER REPLACEMENT - LEFT SIDE (CHEVROLET)

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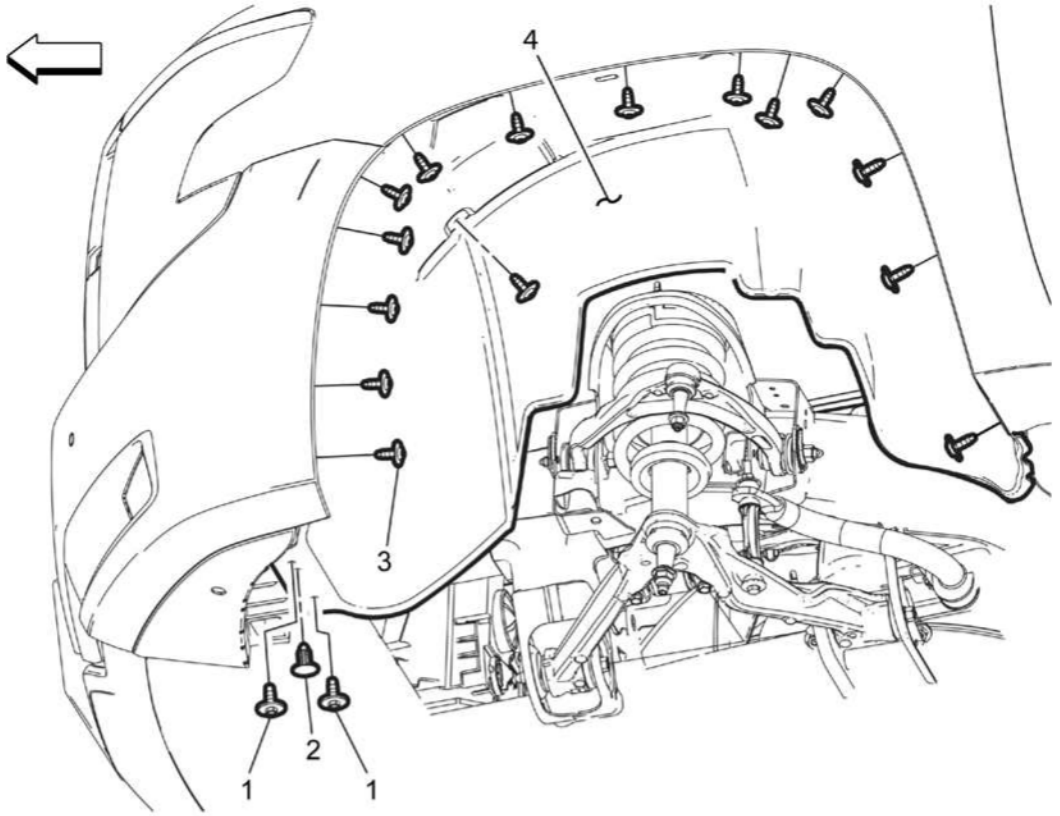


Fig. 21: Front Wheelhouse Liner - Left Side (Chevrolet)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Remove the tire and wheel assembly. **Tire and Wheel Removal and Installation (6-Lug Wheel)** **Tire and Wheel Removal and Installation (8-Lug Wheel)** . 2. Remove the front wheel opening rear molding, if equipped. **Front Wheel Opening Rear Molding Replacement** 3. **Front Fender Paint Protector Replacement**	
1	Front Wheelhouse Liner Bolt (Qty: 2) **CAUTION:**

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Callout	Component Name
	Refer to Fastener Caution . **Tighten** 7 N.m (62 lb in)
2	Front Wheelhouse Liner Plastic Retainer
3	Front Wheelhouse Liner Fasteners (Qty: 17) **Tighten** 2.5 N.m (22 lb in)
4	Front Wheelhouse Liner - Left **NOTE:** **Disconnect any electrical harnesses/connectors and attached parts from the left side front wheelhouse liner as needed.**

REAR WHEELHOUSE LINER REPLACEMENT (LWB)

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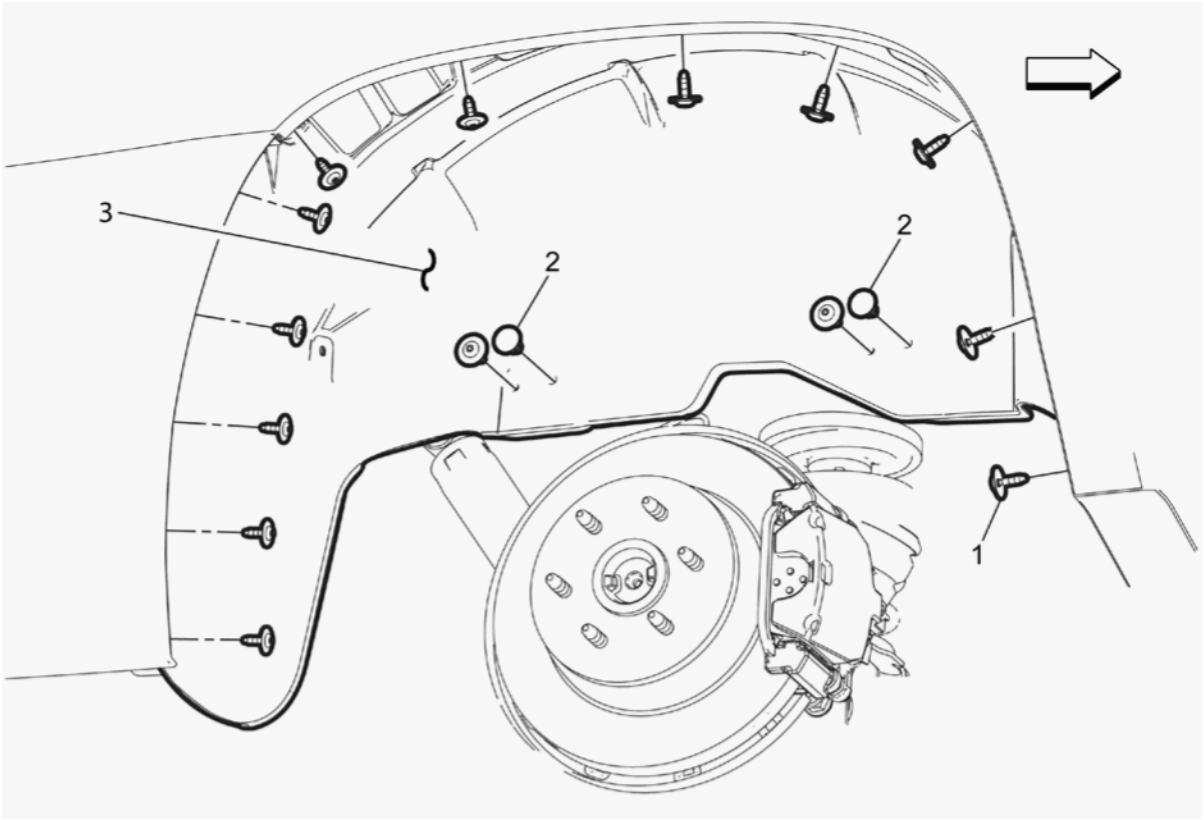


Fig. 22: Rear Wheelhouse Liner (LWB)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation (6-Lug Wheel)** **Tire and Wheel Removal and Installation (8-Lug Wheel)** .	
1	Rear Wheelhouse Liner Fasteners (Qty: 14) **CAUTION:** **Refer to** **Fastener** **Caution** .

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Callout	Component Name
	Tighten 2.5 N.m (22 lb in)
2	Rear Wheelhouse Liner Plastic Retainer (Qty: 2)
3	Rear Wheelhouse Liner **NOTE:** **Disconnect any electrical harnesses/connectors and attached parts from the right side wheelhouse liner as needed.**

REAR WHEELHOUSE LINER REPLACEMENT (LWB Z75)

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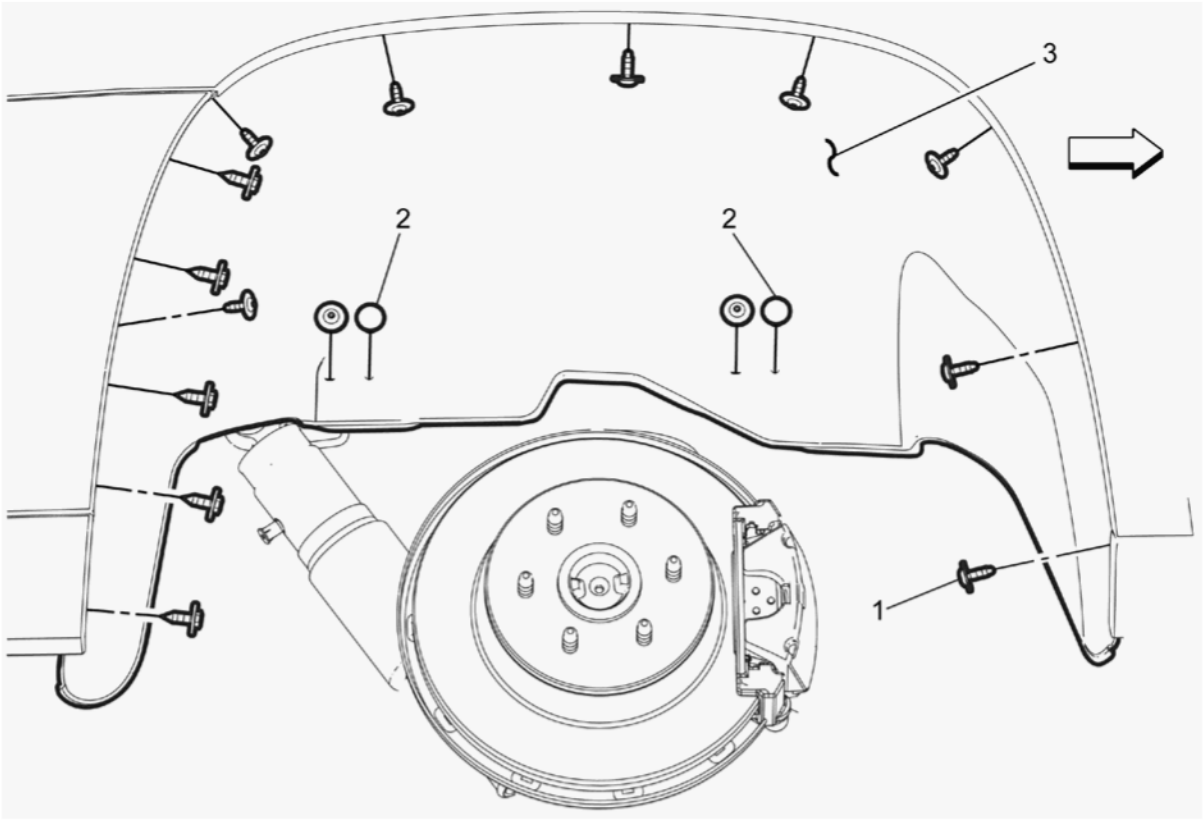


Fig. 23: Rear Wheelhouse Liner (LWB Z75)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation (6-Lug Wheel)** **Tire and Wheel Removal and Installation (8-Lug Wheel)** .	
1	Rear Wheelhouse Liner Fasteners (Qty: 15) **CAUTION:** **Refer to** **Fastener** **Caution** .

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Callout	Component Name
	Tighten 2.5 N.m (22 lb in)
2	Rear Wheelhouse Liner Plastic Retainer (Qty: 2)
3	Rear Wheelhouse Liner **NOTE:** **Disconnect any electrical harnesses/connectors and attached parts from the right side wheelhouse liner as needed.**

REAR WHEELHOUSE LINER REPLACEMENT (SWB Z75)

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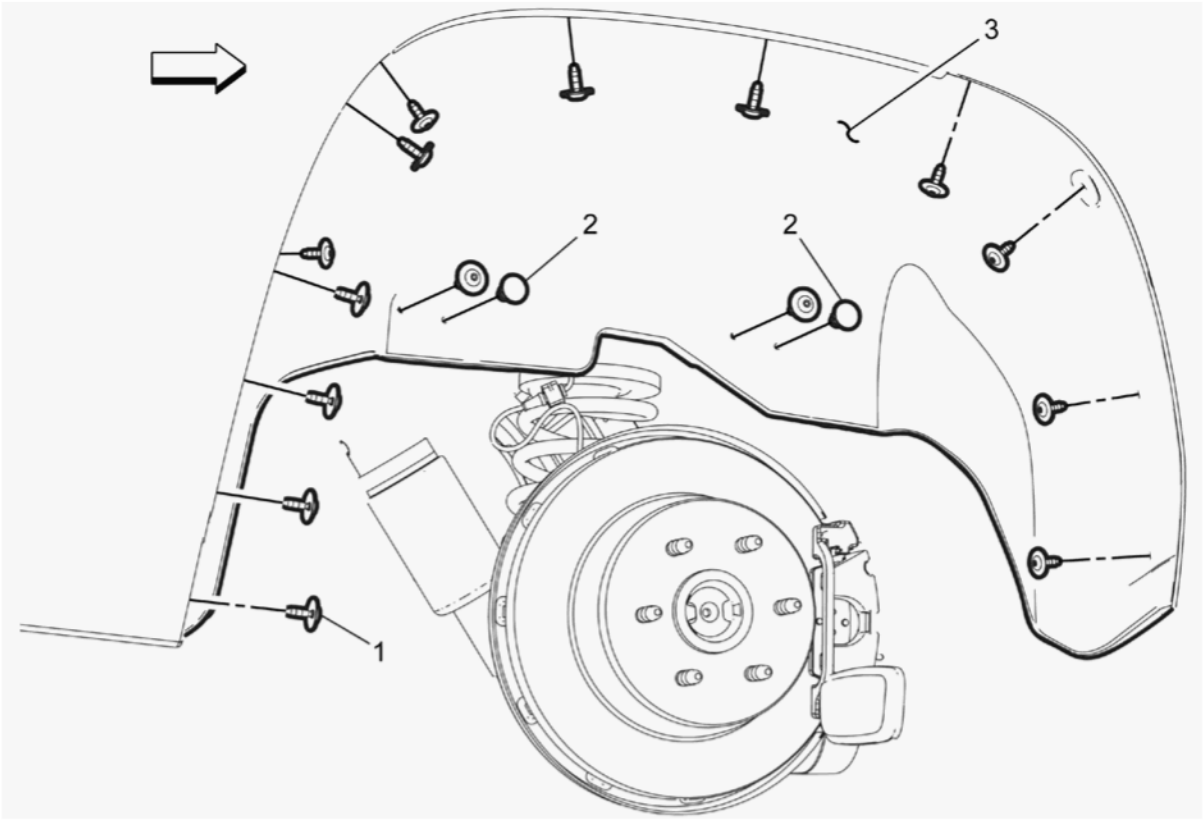


Fig. 24: Rear Wheelhouse Liner (SWB Z75)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures Remove the tire and wheel assembly. Refer to Tire and Wheel Removal and Installation (6-Lug Wheel) Tire and Wheel Removal and Installation (8-Lug Wheel) .	
1	Rear Wheelhouse Liner Fasteners (Qty: 15) **CAUTION:** **Refer to** **Fastener** **Caution** .

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Callout	Component Name
	Tighten 2.5 N.m (22 lb in)
2	Rear Wheelhouse Liner Plastic Retainer (Qty: 2)
3	Rear Wheelhouse Liner **NOTE:** **Disconnect any electrical harnesses/connectors and attached parts from the right side wheelhouse liner as needed.**

REAR WHEELHOUSE LINER REPLACEMENT (SWB)

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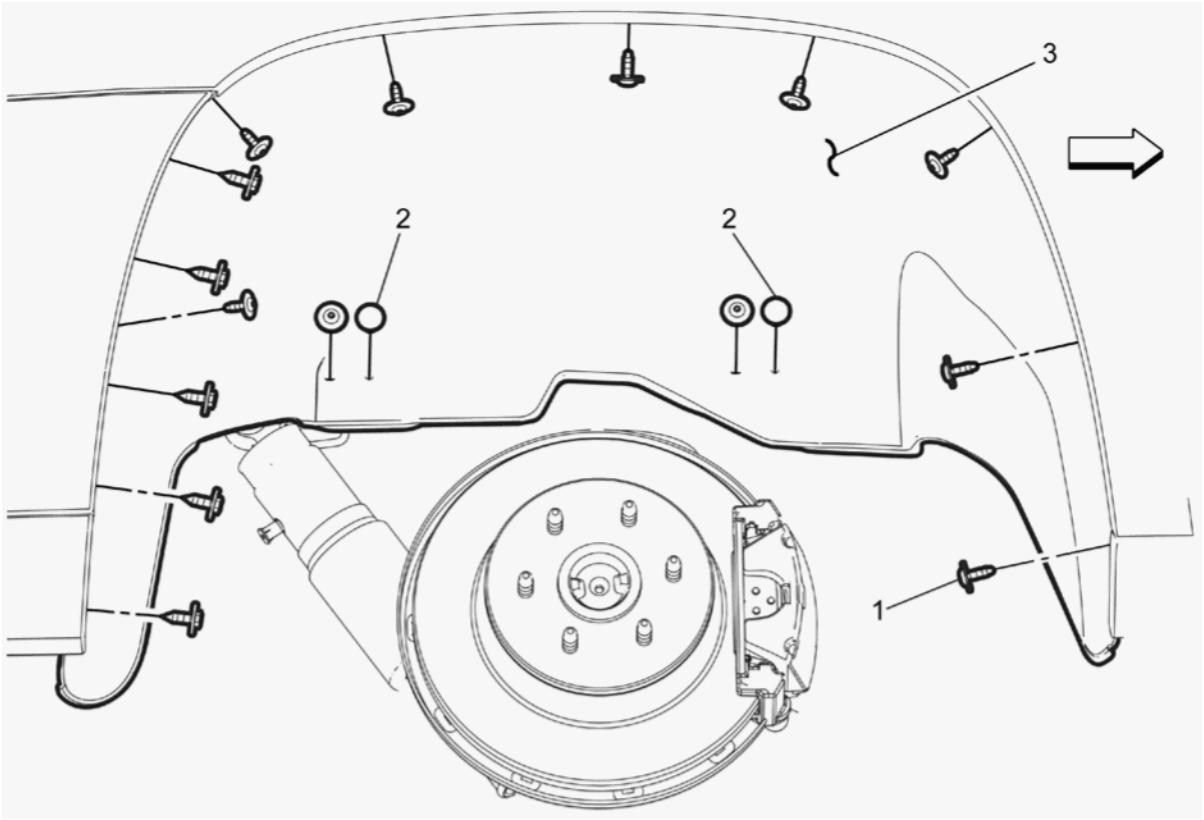


Fig. 25: Rear Wheelhouse Liner (SWB)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation (6-Lug Wheel)** **Tire and Wheel Removal and Installation (8-Lug Wheel)** .	
1	Rear Wheelhouse Liner Fasteners (Qty: 15) **CAUTION:** **Refer to** **Fastener** **Caution** .

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Callout	Component Name
	Tighten 2.5 N.m (22 lb in)
2	Rear Wheelhouse Liner Plastic Retainer (Qty: 2)
3	Rear Wheelhouse Liner **NOTE:** **Disconnect any electrical harnesses/connectors and attached parts from the right side wheelhouse liner as needed.**

ASSIST STEP REPLACEMENT (STEP PAD - BRS)

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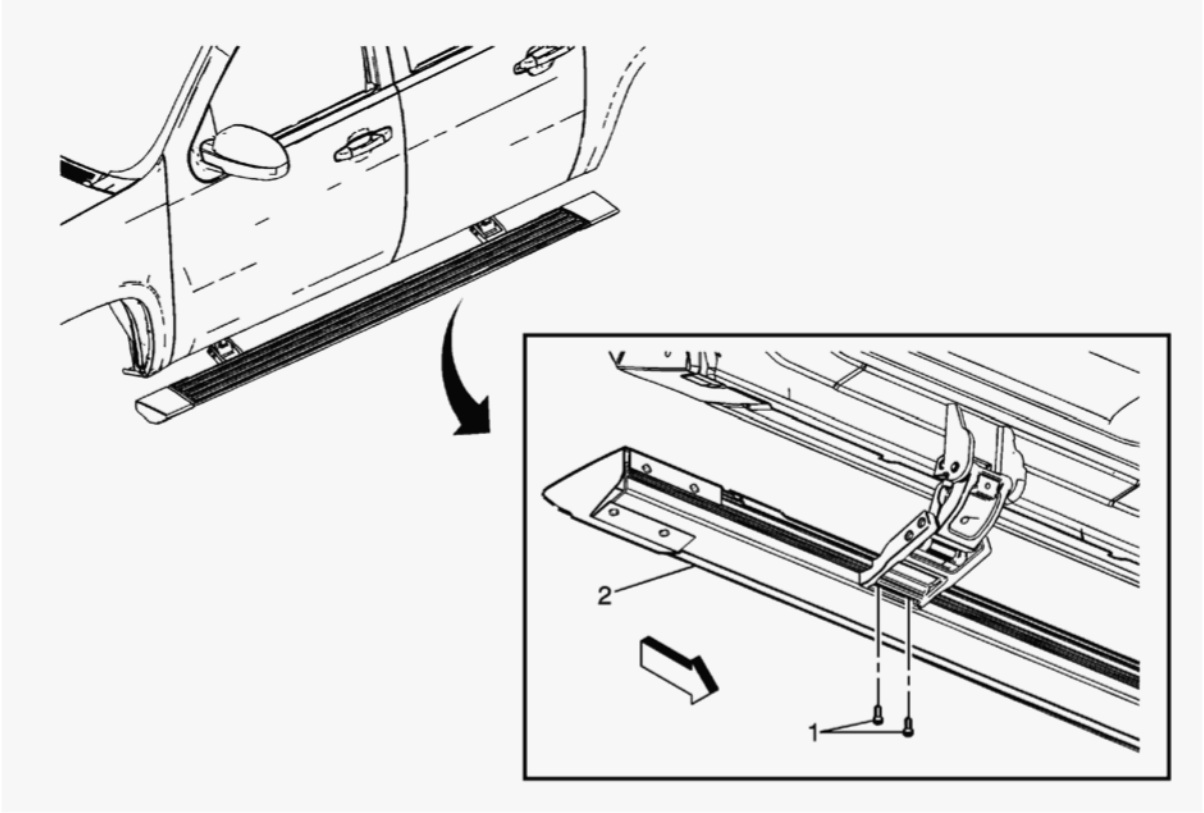


Fig. 26: Assist Step (Step Pad - BRS)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures	
1. Deploy the power assist step. If the motor fails to deploy perform the following. Remove the two plastic shield cover screws and cover on the side of the motor assembly. Remove the motor housing screws and housing cover from the motor assembly. Rotate the armature by hand to fully extend the assist step. 2. Disconnect the battery negative cable. Refer to **Battery Negative Cable Disconnection and Connection (Dual Battery) Battery**	

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Callout	Component Name
	Negative Cable Disconnection and Connection (Single Battery) . 3. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** . 4. Mark the location of the front T-slotted bracket and measure to the front of the assist step with a grease pencil and tape measure. 5. Transfer the measurement to the new assist step with the grease pencil and tape measure. 6. Disconnect the lighted assist step harness connector and remove the two fasteners holding the harness to the assist step bracket. 7. Mark the location of the rear T-slotted bracket and measure to the rear of the assist step with a grease pencil and tape measure. 8. Transfer the measurement to the new assist step with the grease pencil and tape measure.
1	Power Assist Step Bolt (Qty: 4) **CAUTION:** **Refer to Fastener Caution** . **Tighten** 12 N.m (106 lb in)
2	Power Assist Step IMPORTANT: It is essential to make the measurements in the preliminary procedures or the power assist steps may not be aligned to the body properly. **TIP:** Transfer any parts as needed.

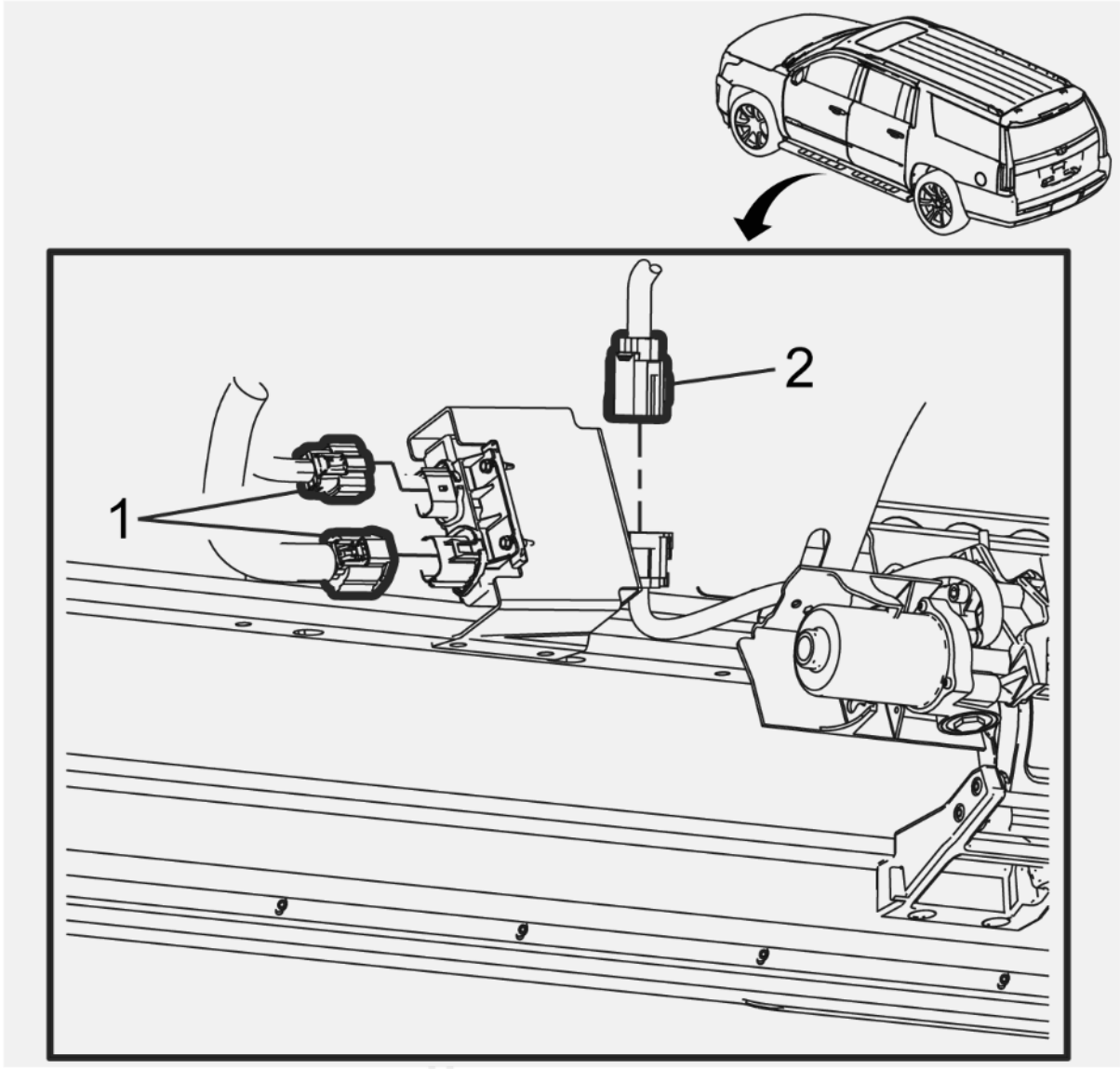
ASSIST STEP REPLACEMENT (ASSEMBLY - BRS)

Removal Procedure

1. Disconnect the negative battery cable. Refer to **Battery Negative Cable Disconnection and Connection (Dual Battery)** **Battery Negative Cable Disconnection and Connection (Single Battery)** .

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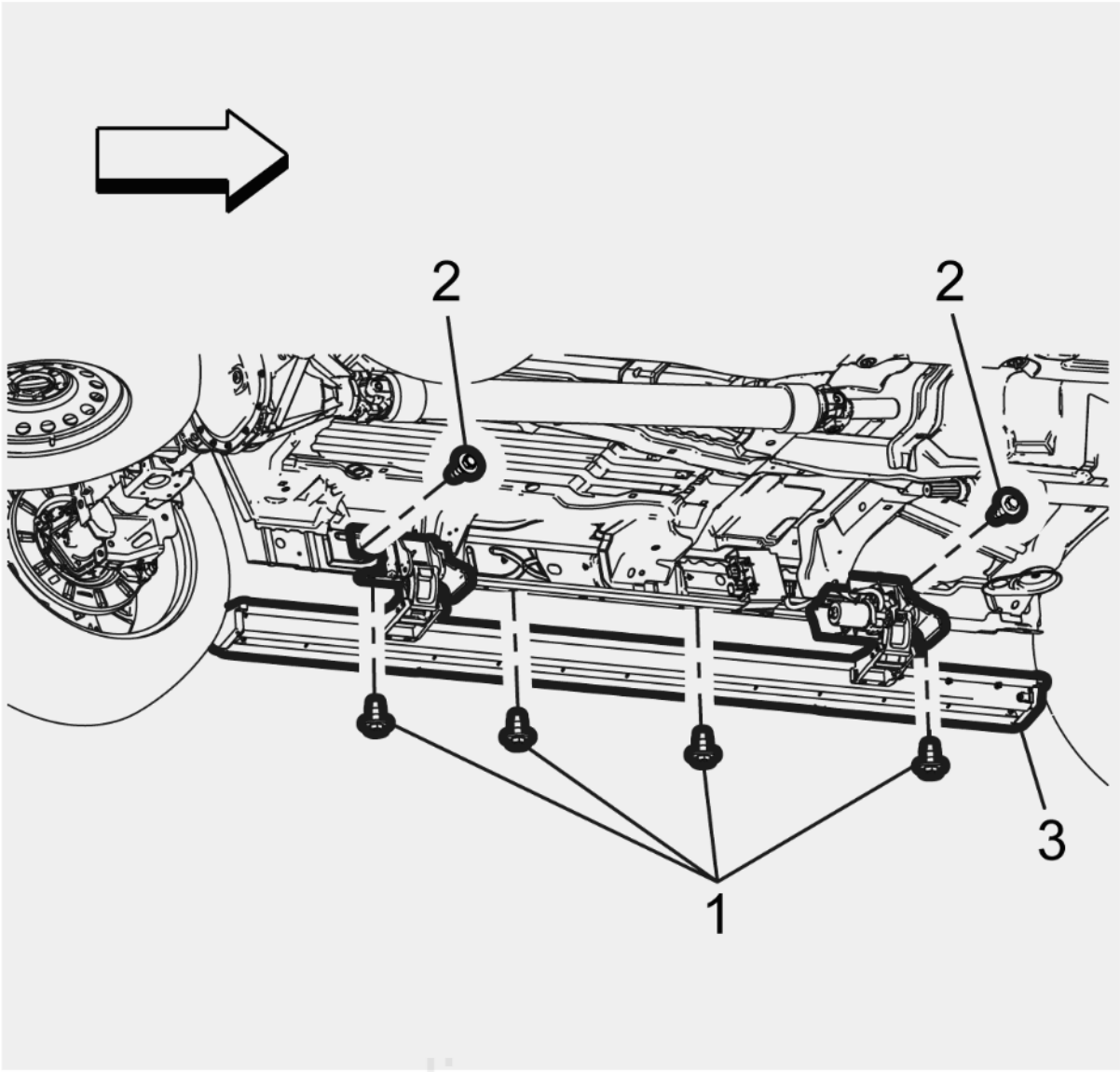
2. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
3. Deploy the power assist step. If the motor fails to deploy, perform the following:
    - Remove the two plastic shield cover screws and cover on the side of the motor assembly.
    - Remove the motor housing screws and housing cover from the motor assembly.
    - Rotate the armature by hand to fully extend the assist step.



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Fig. 27: Assist Step Control Module Connectors
Courtesy of GENERAL MOTORS COMPANY

4. If replacing the left side assist step, disconnect the assist step control module connectors (1).
5. Disconnect the assist step motor connector (2).
6. Disconnect the lighted assist step harness connector.



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Fig. 28: Assist Step Fasteners
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7. Remove the assist step fasteners (1).
8. Remove the assist step fasteners (2) and remove the assist step assembly (3) from the underbody.

Installation Procedure

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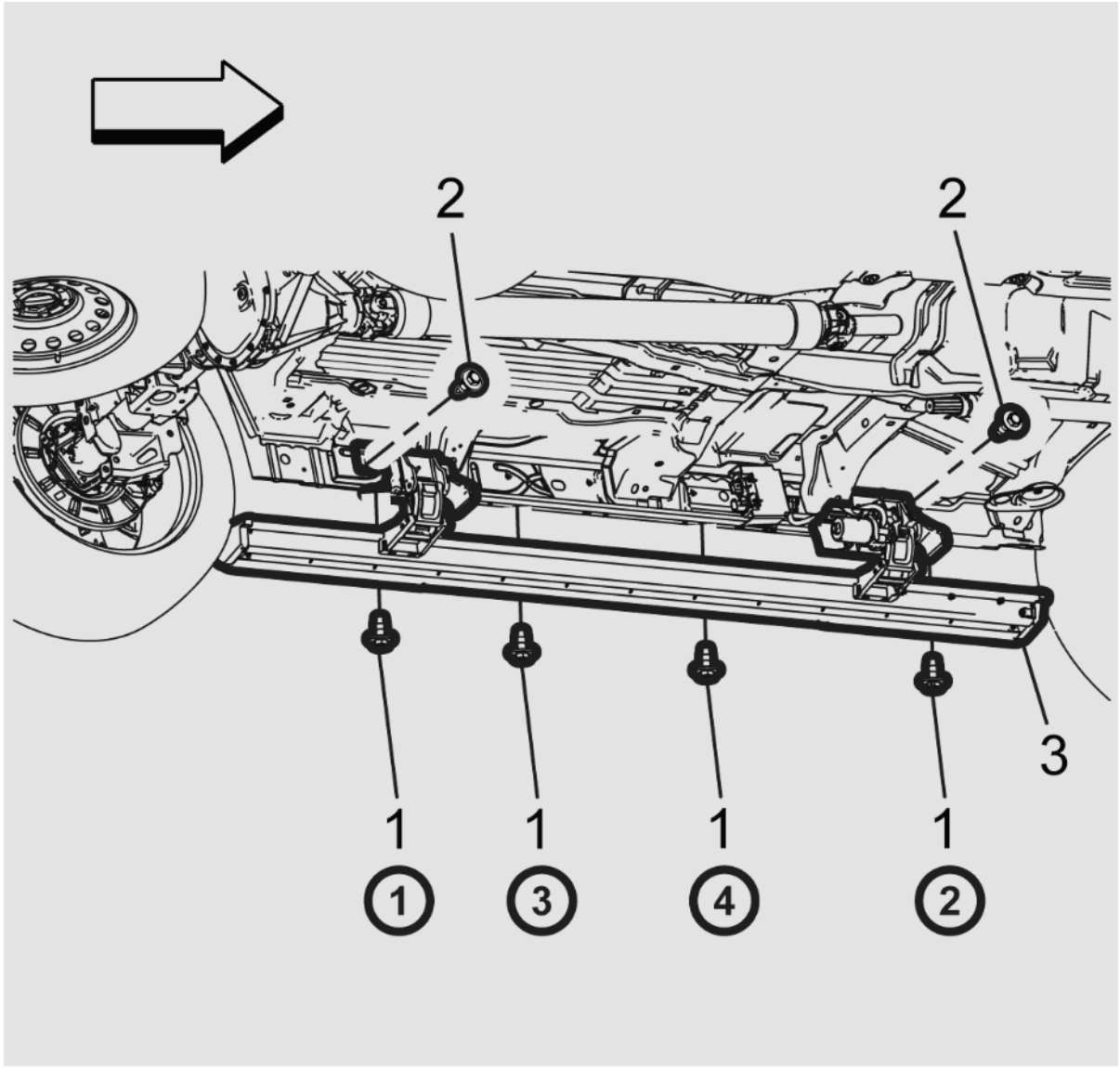


Fig. 29: Assist Step Assembly
Courtesy of GENERAL MOTORS COMPANY

1. Install the assist step assembly (3) to the underbody and loosely tighten the fasteners (2).

CAUTION: **Refer to Fastener Caution .**

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2. Install the fasteners (1) and tighten in the sequence shown to 20 N.m (15 lb ft).
3. Tighten the fasteners (2) to 20 N.m (15 lb ft).

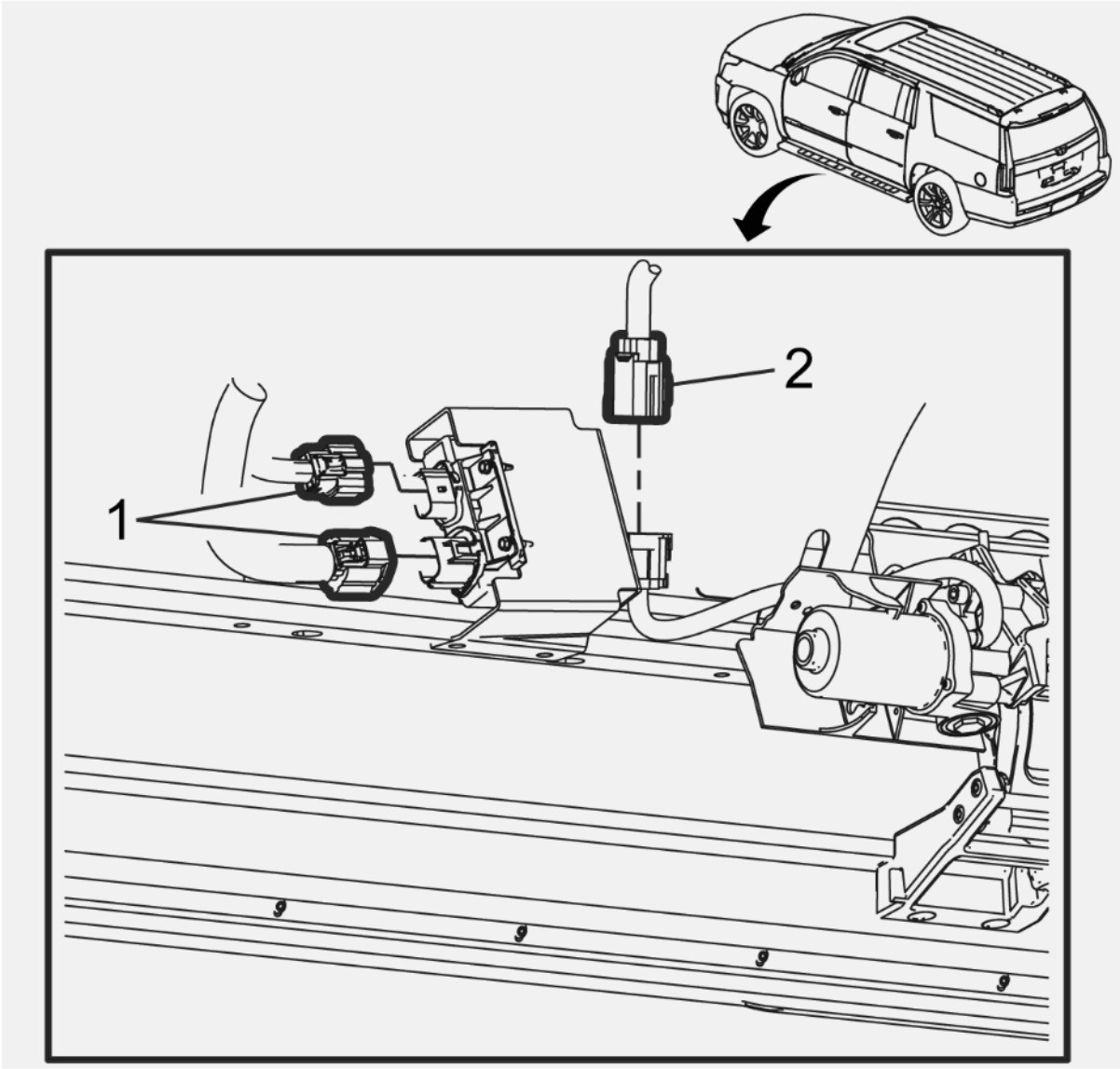


Fig. 30: Assist Step Control Module Connectors
Courtesy of GENERAL MOTORS COMPANY

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4. If replacing the left side assist step assembly, connect the assist step control module connectors (1) then connect the assist step motor connector (2).
5. Connect the lighted assist step harness connector.
6. Lower the vehicle.
7. Connect the negative battery cable. Refer to **Battery Negative Cable Disconnection and Connection (Dual Battery)** **Battery Negative Cable Disconnection and Connection (Single Battery)** .

ASSIST STEP REPLACEMENT (BVE-SHORT WHEEL BASE)

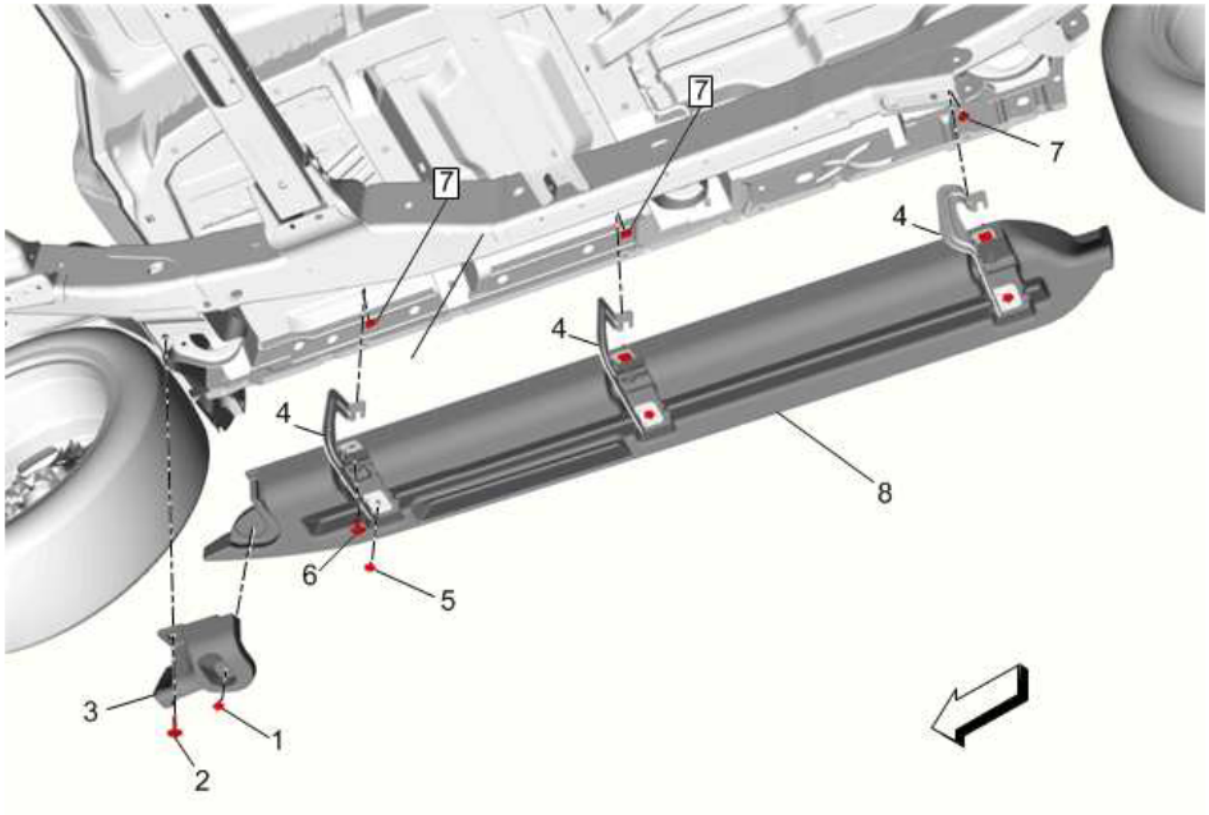


Fig. 31: Assist Step (BVE-Short Wheel Base)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Assist Step Front (RH) Extension Bolt with Compression Limiter

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Callout	Component Name
	CAUTION: **Refer to Fastener Caution .** **Tighten** 6 N.m (53 lb in)
2	Assist Step Front (RH) Extension Bolt **Tighten** 25 N.m (18 lb ft)
3	Assist Step Front (RH) Extension **NOTE:** **Position the extension to the assist step prior to securing the fasteners.**
4	Assist Step Bracket (Qty: 3) **NOTE:** **Assemble all of the brackets to the assist step prior to hanging the assist step brackets to the lower rocker panel mounting**

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Callout	Component Name
	holes.
5	Assist Step Support Bracket Bolt (Qty: 3) **Tighten** 6 N.m (53 lb in)
6	Assist Step Support Bracket Bolt (Qty: 3) **Tighten** 20 N.m (15 lb ft)
7	Rocker Panel Bolt (Qty: 3) **Tighten** 6 N.m (53 lb in)
8	Assist (RH) Step **NOTE:** **Loosen the rocker panel bolts and slide the assist step support brackets away from the rocker panel.**

ASSIST STEP REPLACEMENT (BVE-LONG WHEEL BASE)

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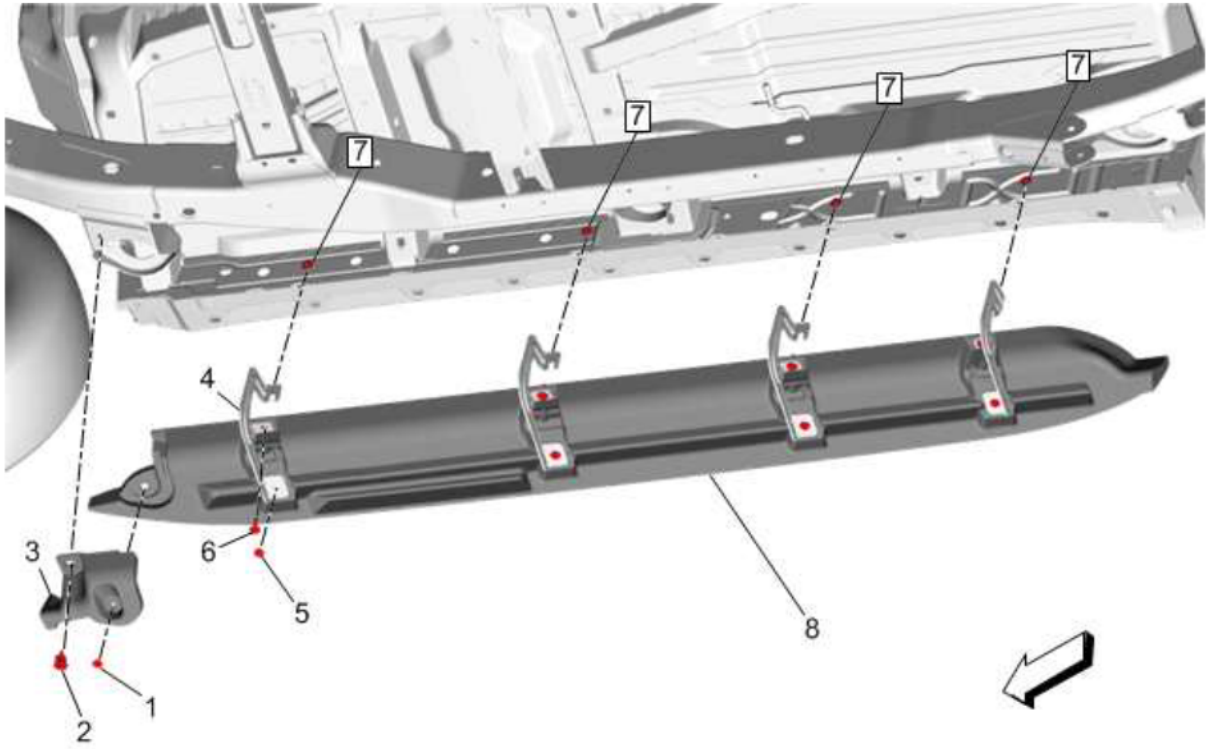


Fig. 32: Assist Step (BVE-Long Wheel Base)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Assist Step Front (RH) Extension Bolt with Compression Limiter **CAUTION:** **Refer to** **Fastener Caution** . **Tighten** 6 N.m (53 lb in)

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Callout	Component Name
2	Assist Step Front (RH) Extension Bolt **Tighten** 25 N.m (18 lb ft)
3	Assist Step Front (RH) Extension **NOTE:** **Position the extension to the assist step prior to securing the nuts and bolts.**
4	Assist Step Bracket (Qty: 4) **NOTE:** **Assemble all of the brackets to the assist step prior to hanging the assist step brackets to the lower rocker panel mounting holes.**
5	Assist Step Support Bracket Bolt (Qty: 4) **Tighten** 6 N.m (53 lb in)
6	Assist Step Support Bracket Bolt (Qty: 4) **Tighten** 20 N.m (15 lb ft)

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Callout	Component Name
7	Rocker Panel Bolt (Qty: 4) **Tighten** 6 N.m (53 lb in)
8	Assist (RH) Step **NOTE:** **Loosen the rocker panel bolts and slide the assist step support brackets away from the rocker panel.**

ASSIST STEP FRONT BRACKET REPLACEMENT (RETRACTABLE POWER ASSIST)

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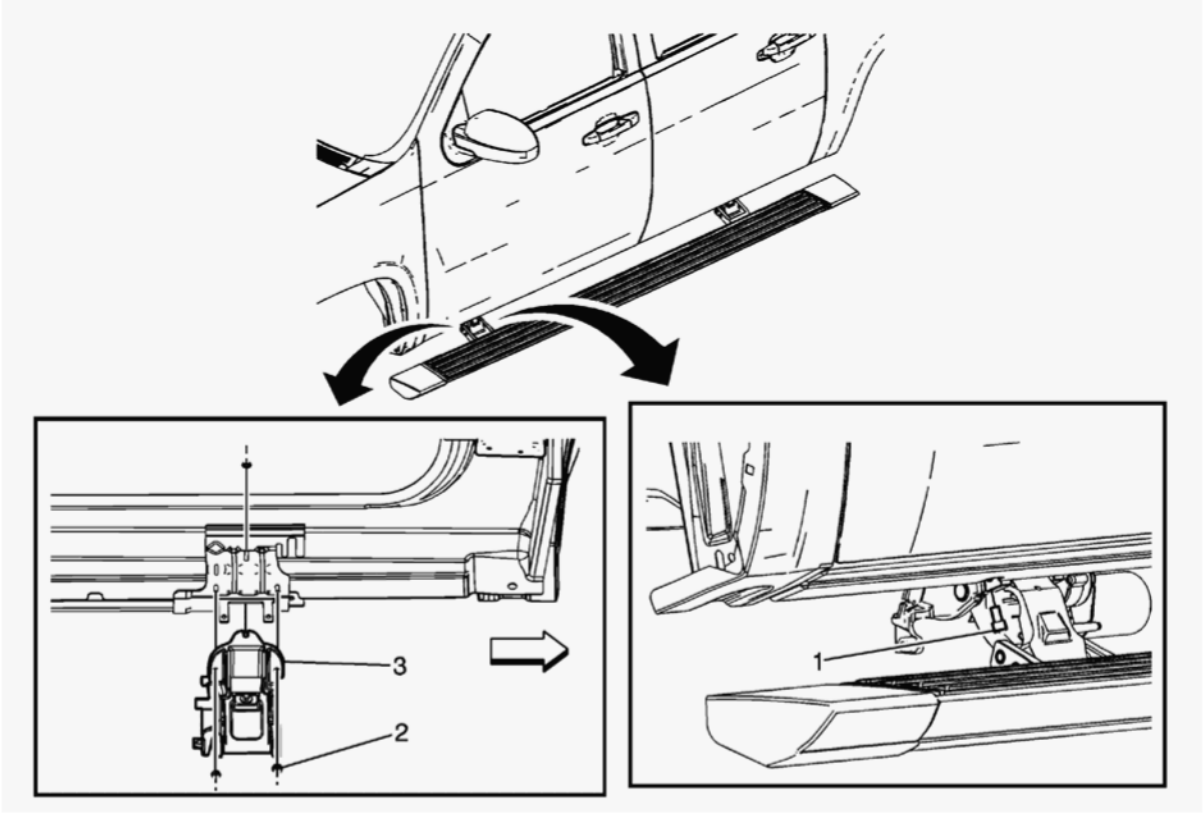


Fig. 33: Assist Step Front Bracket
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures	

1. Deploy and support the power assist step.
2. Disconnect the battery negative cable. Refer to **Battery Negative Cable Disconnection and Connection (Dual Battery)** **Battery Negative Cable Disconnection and Connection (Single Battery)** .
3. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
4. Use a grease pencil to outline the location of the power assist step front bracket location on the power assist step.
5. Remove the power assist front bracket to power assist step bolts. Refer to **Assist Step Replacement (Step Pad - BRS)Assist Step Replacement (Assembly - BRS)Assist Step Replacement (BVE-Short Wheel Base)Assist Step Replacement (BVE-Long Wheel**

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Callout	Component Name
Base) 6. Remove the power assist step motor. Refer to **Assist Step Motor Replacement (Retractable Power Assist)**. 7. Disconnect the lighted assist step harness and support the assist step with a suitable jack.	
1	Power Assist Step Front Bracket Bolts (Qty: 2) **CAUTION:** **Refer to Fastener Caution .** **Tighten** 6 N.m (53 lb in)
2	Power Assist Step Front Bracket Nuts (Qty: 3) **Tighten** 10 N.m (89 lb in)
3	Power Assist Step Front Bracket

ASSIST STEP CENTER BRACKET REPLACEMENT (RETRACTABLE ASSIST STEP)

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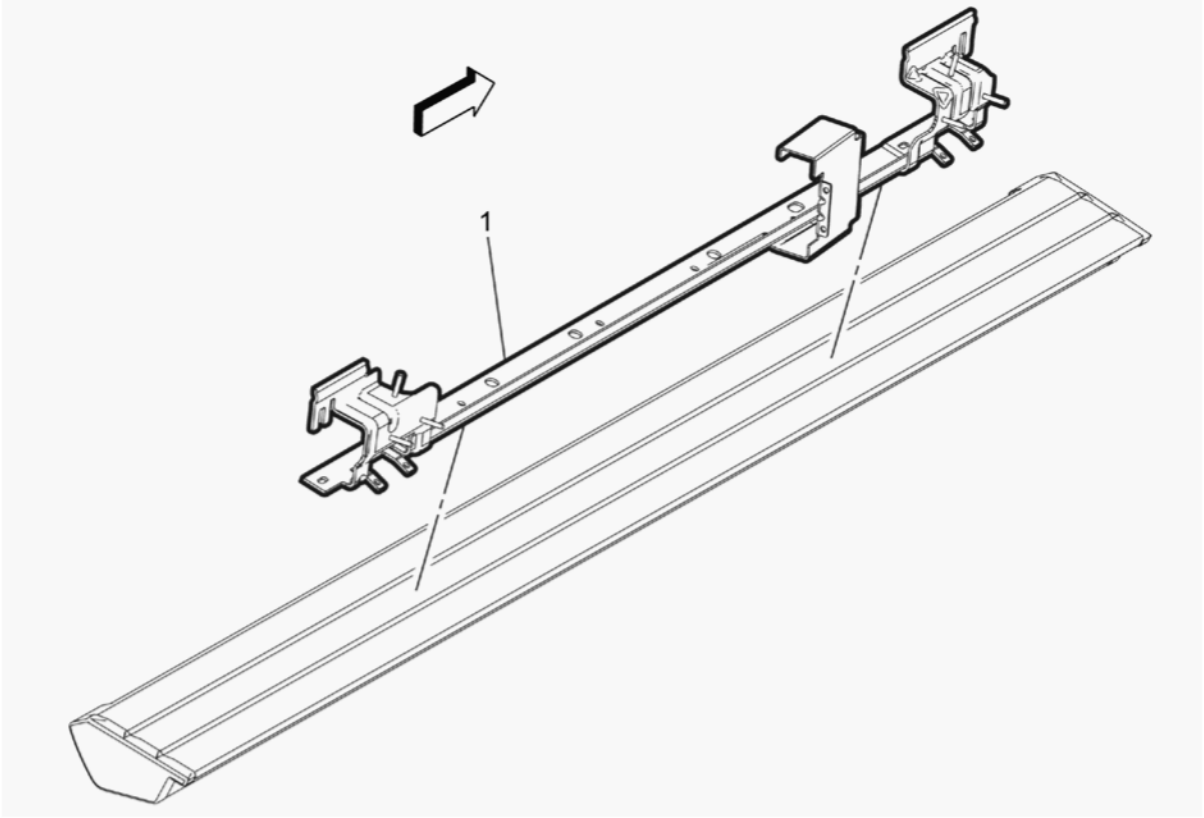


Fig. 34: Assist Step Center Bracket (Retractable Assist Step)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Deploy and support the power assist step. 2. Remove the assist step assembly. Refer to **Assist Step Replacement (Step Pad - BRS)Assist Step Replacement (Assembly - BRS)Assist Step Replacement (BVE-Short Wheel Base)Assist Step Replacement (BVE-Long Wheel Base)**.	
1	Assist Step Center Bracket **Procedure** Transfer parts as necessary.

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ASSIST STEP REAR BRACKET REPLACEMENT (RETRACTABLE POWER ASSIST)

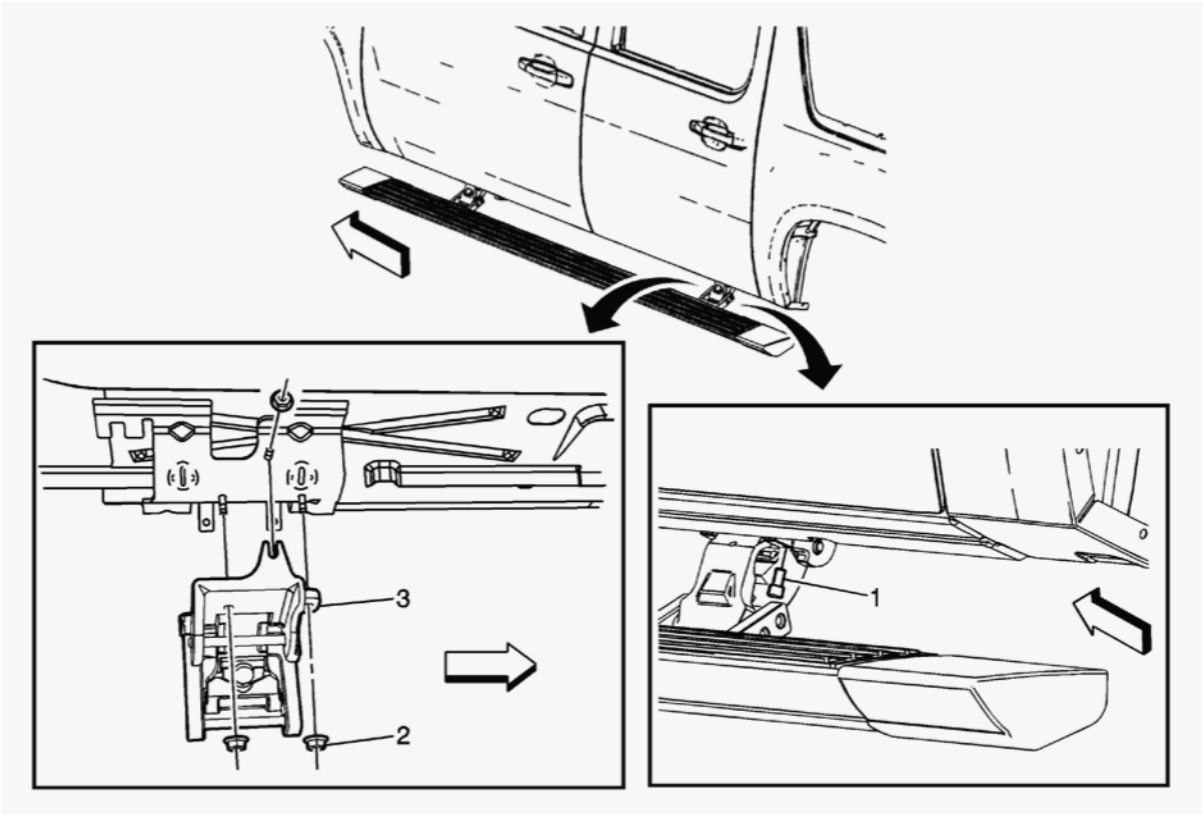


Fig. 35: View Of Power Assist Step Rear Bracket, Rear Bracket Nuts & Bolts
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures	

1. Deploy the power assist step.
2. Disconnect the negative battery cable. Refer to **Battery Negative Cable Disconnection and Connection (Dual Battery)** **Battery Negative Cable Disconnection and Connection (Single Battery)** .
3. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
4. Use a grease pencil to outline the location of the power assist step rear bracket location on the power assist step.
5. Remove the power assist rear bracket to power assist step bolts and support the assist step with a suitable jack. Refer to **Assist Step**

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Callout	Component Name
Replacement (Step Pad - BRS)Assist Step Replacement (Assembly - BRS)Assist Step Replacement (BVE-Short Wheel Base)Assist Step Replacement (BVE-Long Wheel Base)	
1	Power Assist Step Rear Bracket Bolts (Qty: 2) **CAUTION:** **Refer to Fastener Caution .** **Tighten** 6 N.m (53 lb in)
2	Power Assist Step Rear Bracket Nuts (Qty: 3) **Tighten** 10 N.m (89 lb in)
3	Power Assist Step Rear Bracket

ASSIST STEP CONTROL MODULE REPLACEMENT (RETRACTABLE POWER ASSIST)

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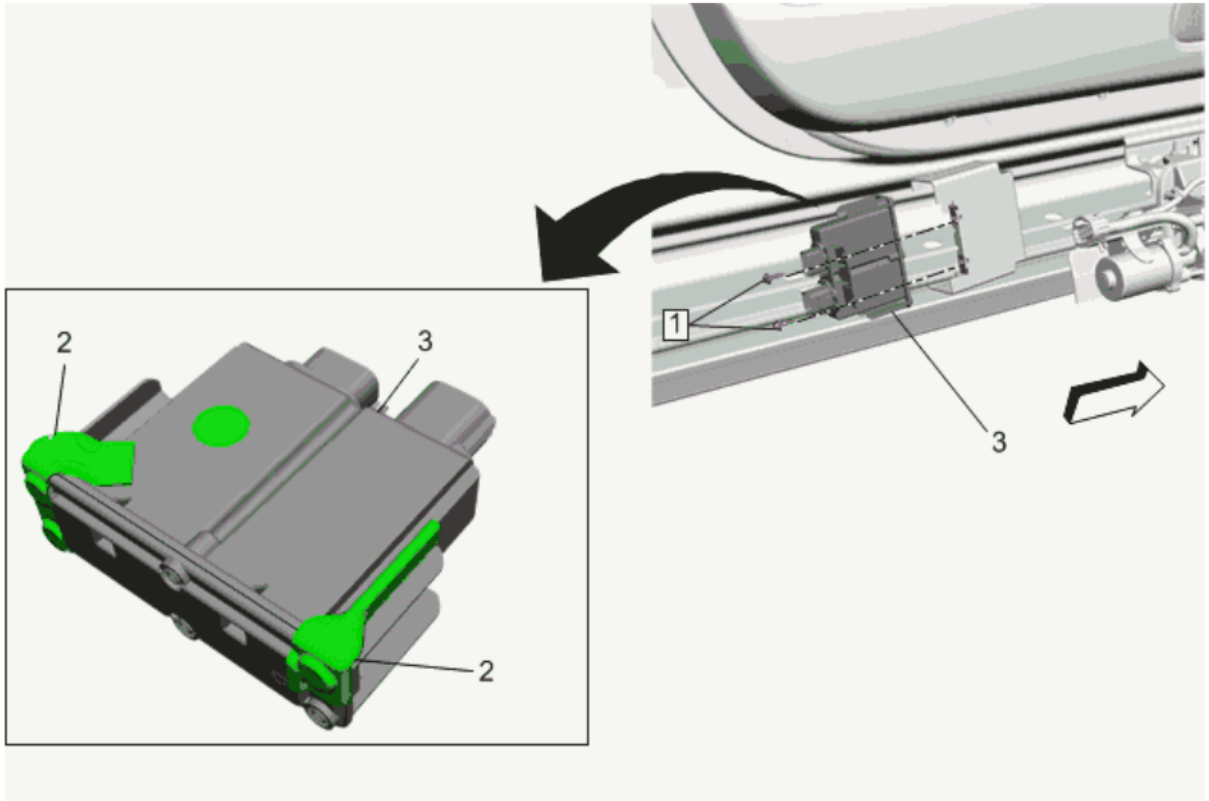


Fig. 36: Assist Step Control Module (Retractable Power Assist)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .	
1	Power Assist Step Controller Bolt (Qty: 2) **CAUTION:** **Refer to** **Fastener** **Caution** .

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Callout	Component Name
	Tighten 6 N.m (53 lb in)
2	Insulating Foam Tape **NOTE:** **Do not apply foam tape to the label side of the module.**
3	Power Assist Step Controller **Procedure** 1. Disconnect any electrical connectors. 2. Reprogram the new controller if necessary. Refer to **Control Module References** .

ASSIST STEP MOTOR REPLACEMENT (RETRACTABLE POWER ASSIST)

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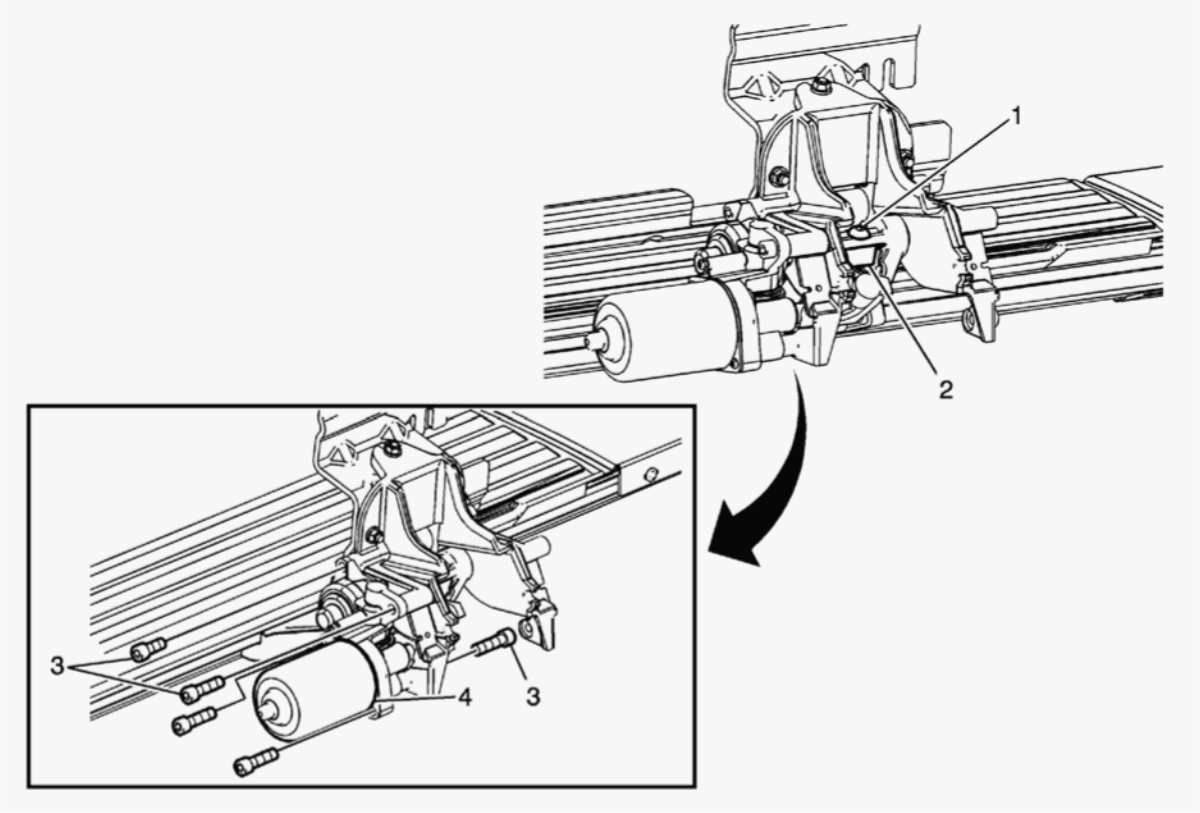


Fig. 37: Assist Step Motor (Retractable Power Assist)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures	
1. Deploy the power assist step. If the motor fails to deploy perform the following. 1. Remove the two plastic shield cover screws and cover on the side of the motor assembly. 2. Remove the motor housing screws and housing cover from the motor assembly. 3. Rotate the armature by hand to fully extend the assist step. 2. Remove the two motor cover bolts. 3. Disconnect any electrical connectors. 4. Remove the three motor bolts.	

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Callout	Component Name
5. Remove the wedge bolt and wedge. 6. Loosen the link nuts, but Do Not Remove. 7. Pull the motor inboard and rearward in order to clear the weld joint. 8. Remove the motor.	
1	Assist Step Motor Wedge Bolt **CAUTION:** **Refer to Fastener Caution .** **Tighten** 8 N.m (71 lb in)
2	Assist Step Motor Wedge
3	Assist Step Motor Bolt (Qty: 3) **Tighten** 12 N.m (9 lb ft)
4	Assist Step Motor **Procedure** 1. Pull the motor inboard and wiggle forward to position and install the motor in place. 2. Install the two link bolts. 3. Tighten the three link nuts. 4. Install the motor bolts. 5. Install the wedge and wedge bolt. The wedge shape should point upward and outward to position correctly. 6. Install the cover and two motor cover bolts. • Make sure the flat on the motor is parallel to the floor before installing. All new motors should be shipped with motor flat in the correct position. As the motor is installed shake the board up and down gently to make sure the wedge and

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Callout	Component Name
	flat seat together correctly or unwanted noise could result. • Once the installation of the new motor is completed the assist step must be cycled once for the module to learn the positioning.

TRAILER HITCH REPLACEMENT

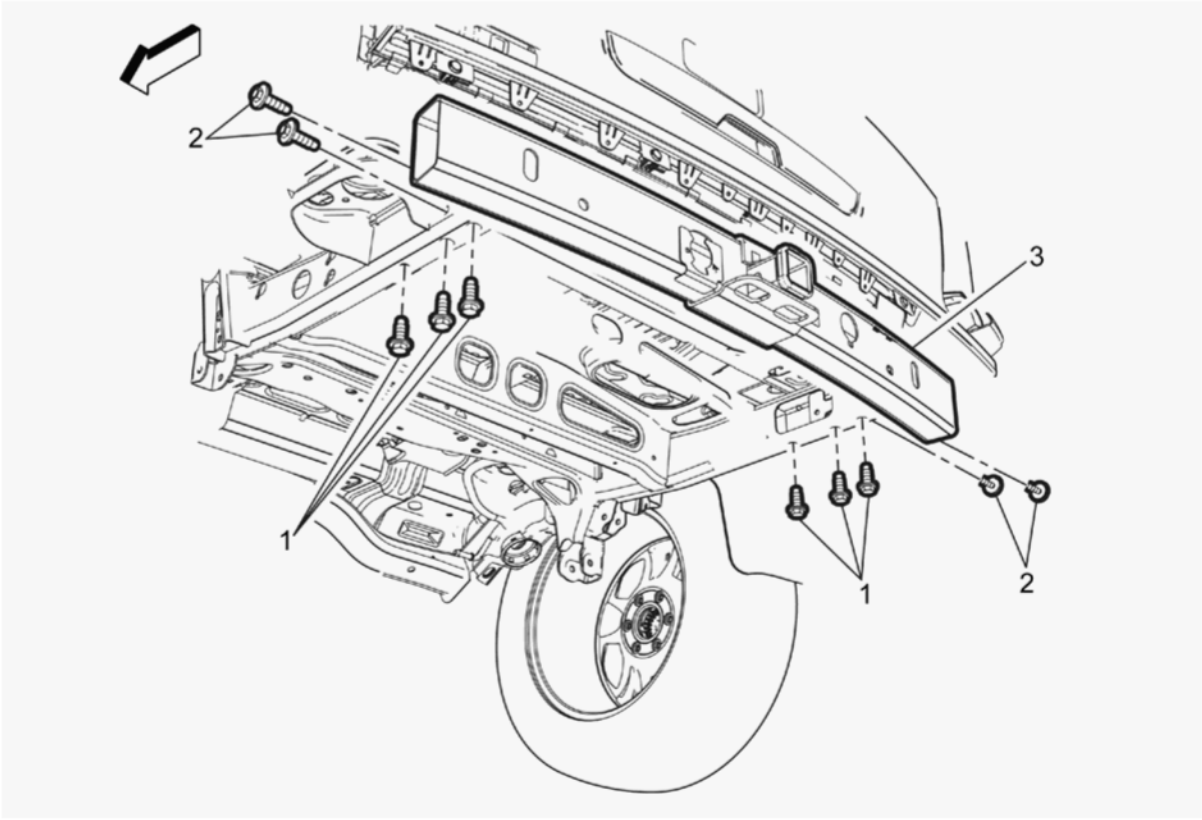


Fig. 38: Trailer Hitch
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the rear bumper fascia. Refer to **Rear Bumper Fascia Replacement (Chevrolet, GMC)** **Rear Bumper Fascia Replacement**	

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Callout	Component Name
(Cadillac) .	
1	Rear Impact Bar Fasteners (Qty: 6) **CAUTION:** **Refer to** **Fastener Caution** . **Tighten** 112 N.m (83 lb ft)
2	Rear Impact Bar Fasteners (Qty: 4) **Tighten** 70 N.m (52 lb ft)
3	Trailer Hitch

DESCRIPTION AND OPERATION

RUNNING BOARD DESCRIPTION

Assist Step Controller System Components

The assist step controller system consists of the following components:

- Assist step switch
- M48L Running Board Step - Left
- M48R Running Board Step - Right
- K4 Assist Step Control Module

Operation

Each assist step has a bi-directional motor and a hall-effect sensor to detect the position of the assist step. The hall-effect sensors are included with the motor assembly. The polarity on each motor is switched to reverse the direction of assist step travel.

In normal mode, a power extend operation will occur with the opening of either the front or rear doors on the assist step on that side of the vehicle. A

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power retract operation will occur with the closing of both doors on the assist step on that side of the vehicle. A door ajar status input is received by the assist step control module through the serial data line from the body control module. The gear position and vehicle speed inputs are is also received by the assist step controller through the serial data line.

The assist steps will be extended when the disable switch is pushed once if the transmission is in park or neutral. The assist steps will be retracted with a second push of the disable switch, if the transmission is switched out of park or neutral, or if vehicle speed exceeds 8 kph (5 mph).

If the switch is pushed and held down for 4 s, the boards will be disabled. Pressing and holding the switch another 4 s will enable the running boards again.

Object Detection

Each assist step will reverse direction of travel when an object is detected in the travel path. If an assist step is moving in the retract direction, the assist step will move to the full extend position if an object is detected. If a door on the same side as the extended assist step is opened and then closed, the assist step will move to the retract position. The assist steps will stop and hold if an object is detected.

Learn Procedure

When the assist step controller is replaced, or loses battery power, the assist step controller must learn the position of both assist steps. At least one door must be opened and closed on each side of the vehicle for both assist steps to go to a learn procedure. Each assist step will extend and then retract after a door is opened and closed on that assist steps side of the vehicle. Each assist step will learn its own position with the learn procedure

Assist Step Switch

The switch input is normally pulled to B+ through a resistor in the assist step controller. The switch grounds the signal with a switch closure. The switch is used to enable and disable the assist steps. The switch can also be used to manually deploy both assist steps to aid in cleaning. To Enable or disable the assist steps, press and hold the switch for 4 seconds. The driver information center will display a message noting the status of the assist steps. The Assist Step must first be in the Enabled mode before it can be manually deployed. With the vehicle in Park or Neutral press and release the Assist Step Controller Switch to extend the assist steps. To retract the assist steps, returning it to the Enabled mode, press and release the switch.

Shipping Mode Unlock Procedure

Vehicles equipped with the power running boards are shipped from the assembly plant in a disabled mode. The boards are disabled in a retracted position during shipping. To enable the boards for normal operation, perform the following steps:

1. Ignition ON, all doors closed.
2. Press and hold the assist step switch for 4 seconds. After releasing the switch the driver information center should display "Running Boards Enabled".

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3. Open and close a driver and passenger door to verify running boards extend and retract.

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