

2010 Cadillac SRX

2010 BRAKES Park Brake - SRX

2010 RA ES

Park rake SRX

SPECI ICATIONS

ASTE ER TI TE I SPECI ICATIO S

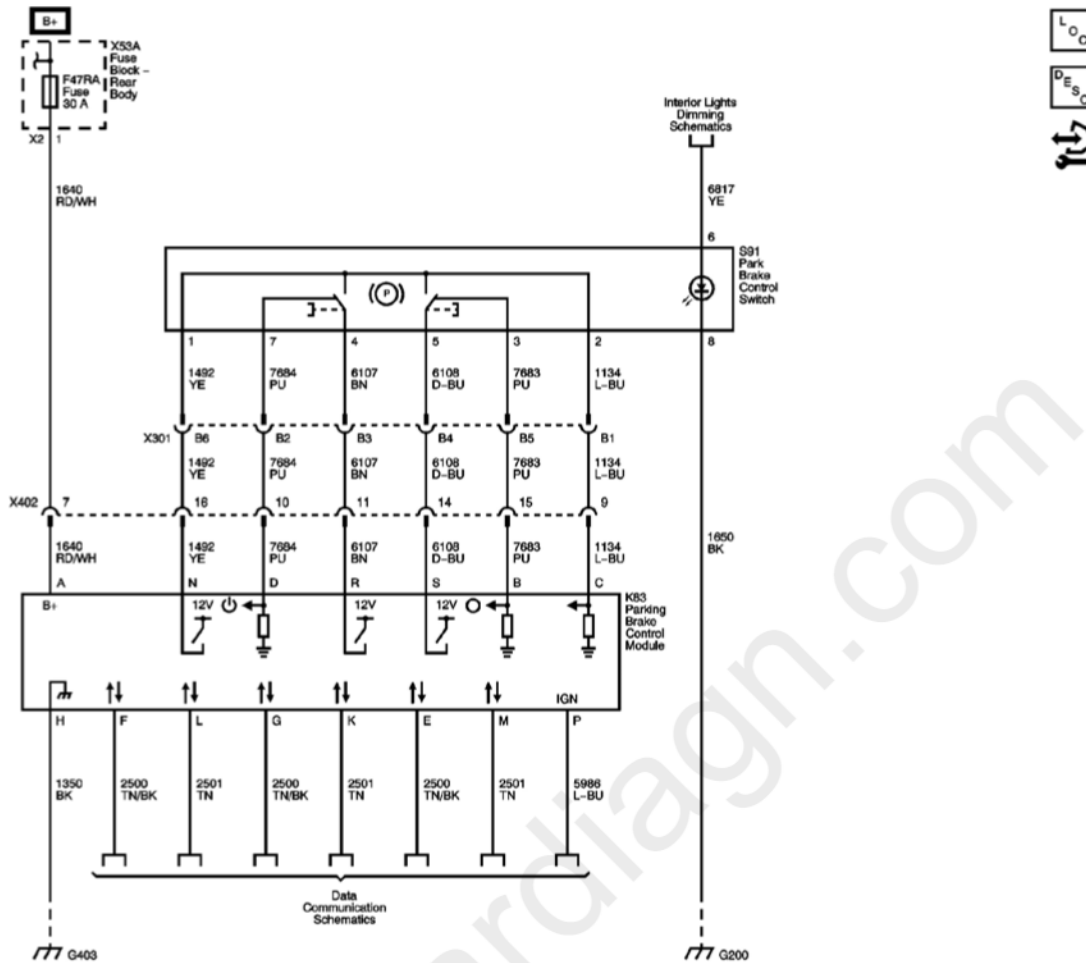
Application	Specification	
	Metric	English
Electronic Parking Brake Control Module Bolt	25 N.m	18 lb ft
Electronic Parking Brake Control Module Bracket Bolt	9 N.m	80 lb in
Parking Brake Intermediate Cable Clip Bolt	17 N.m	13 lb ft
Parking Brake Intermediate Cable Nut	6 N.m	53 lb in
Parking Brake Switch Bolt	3 N.m	27 lb in

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PAR BRA ES STEM SC EMATICS

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ig 1 Park Brake System Circuit Schematic
Courtesy of E ERA MOTORS CORP

DIA NOSTIC IN ORMATION AND PROCEDURES

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DTC	Description
DTC C02 A	C028A 01: Park Brake Motor Circuit Short to Battery C028A 02: Park Brake Motor Circuit Short to Ground C028A 04: Park Brake Motor Circuit Open Circuit C028A 08: Park Brake Motor Circuit Performance-Signal Invalid C028A 28: Park Brake Motor Circuit Performance-Incorrect Frequency
DTC C02 B	C028B 08: Park Brake Motor Position Sensor Signal Performance-Signal Invalid C028B 26: Park Brake Motor Position Sensor Signal Low Frequency C028B 29: Park Brake Motor Position Sensor Signal Too Few Pulses

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	C028B 2A: Park Brake Motor Position Sensor Signal Too Many Pulses
<u>DTC C02 D</u>	C028D 00: Replace Park Brake Pad Malfunction
<u>DTC C02</u>	C028F 01: Park Brake Solenoid Actuator Circuit Short to Battery C028F 02: Park Brake Solenoid Actuator Circuit Short to Ground C028F 08: Park Brake Solenoid Actuator Circuit Performance-Signal Invalid
<u>DTC C0293</u>	C0293 01: Park Brake Switch Control Short to Battery C0293 06: Park Brake Switch Control Low Voltage/Open C0293 08: Park Brake Switch Control Performance-Signal Invalid
<u>DTC C029</u>	C0298 00: Park Brake Unlatch Switch Circuit Malfunction
<u>DTC C055</u>	C0558 55: Calibration Data Too Few Transitions C0558 5A: Calibration Data Not Plausible
<u>DTC C0561</u>	C0561 71: System Disabled Information Stored-Invalid Serial Data Received
<u>DTC C056D</u>	C056D 34: ECU Hardware Performance RAM Failure C056D 35: ECU Hardware Performance ROM Failure C056D 36: ECU Hardware Performance EEPROM Failure C056D 37: ECU Hardware Performance watchdog/safety uC Failure C056D 39: ECU Hardware Performance Internal Electronic Failure C056D 3C: ECU Hardware Performance Internal Communications Failure
<u>DTC C056E</u>	C056E 41: Electronic Control Unit Software Not Programmed C056E 42: Electronic Control Unit Software Calibration Not Programmed C056E 5A: Electronic Control Unit Software Not Plausible
<u>DTC C0574</u>	C0574 01: Circuit Board Temperature Sensor Short to Battery C0574 02: Circuit Board Temperature Sensor Short to Ground C0574 54: Circuit Board Temperature Sensor High

DTC C02 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** provide an overview of each diagnostic category.

DTC Descriptors**DTC C02 A 01**

Park Brake Motor Circuit Short to Battery

DTC C02 A 02

Park Brake Motor Circuit Short to Ground

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DTC C02 A 04

Park Brake Motor Circuit Open Circuit

DTC C02 A 0

Park Brake Motor Circuit Performance-Signal Invalid

DTC C02 A 2

Park Brake Motor Circuit Performance-Incorrect Frequency

Circuit/System Description

The parking brake control module has an internal motor, apply actuator, release actuator, and temperature sensor. The parking brake control module also contains the logic for applying and releasing the parking brake when commanded by the park brake switch. When the parking brake control module receives a signal from the switch the internal circuit board temperature is checked to verify it is within operating range before the control module performs the requested operation. The parking brake control module will also diagnose the internal park brake motor circuit to verify it is functioning properly. The park brake motor circuit is used to command motor operation, apply and release tension on the parking brake cable, which will apply and release the parking brake.

The park brake will self diagnose the internal Park Brake Motor Circuit. This circuit is used to drive the motor, which pulls on the park brake cable, ultimately applying and releasing the park brake.

Conditions for Running the DTC

- Ignition OFF, ACCESSORY, or RUN mode.
- Battery voltage is between 9 -16V

Conditions for Setting the DTC

The parking brake control module detects an internal motor malfunction.

Action Taken When the DTC Sets

- The electric parking brake is disabled.
- A message and/or a warning indicator may be displayed.

Conditions for Clearing the DTC

- The parking brake control module clears the history DTC when a current DTC is not detected in 40 ignition cycles.
- The condition for the DTC is no longer present.

Reference Information

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Schematic Reference

Park Brake System Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Electronic Parking Brake Control Module 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

Verify that DTC C028A is not set.

- If DTC is set, program the parking brake control module. If the DTC resets, replace the K83 Parking Brake Control Module.

Repair Procedures

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

Control Module References for parking brake control module replacement, setup, and programming.

DTC C02 B

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.

DTC Descriptors

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DTC C02 B 0

Park Brake Motor Position Sensor Signal Performance-Signal Invalid

DTC C02 B 26

Park Brake Motor Position Sensor Signal Low Frequency

DTC C02 B 29

Park Brake Motor Position Sensor Signal Too Few Pulses

DTC C02 B 2A

Park Brake Motor Position Sensor Signal Too Many Pulses

Circuit/System Description

The parking brake control module has an internal motor, apply actuator, release actuator, and temperature sensor. The parking brake control module also contains the logic for applying and releasing the parking brake when commanded by the park brake switch. When the parking brake control module receives a signal from the switch the internal circuit board temperature is checked to verify it is within operating range before the control module performs the requested operation. The parking brake control module also contains an internal park brake motor position sensor which monitors the park brake motor position.

The Park Brake Motor Position Sensor is an internal sensor to the park brake control module, this sensor is used to monitor the park brake motor position.

Conditions for Running the DTC

Ignition OFF, ACCESSORY, or RUN mode.

Conditions for Setting the DTC

The parking brake control module detects an internal motor position sensor signal malfunction.

Action Taken When the DTC Sets

- The electric parking brake is disabled, one release allowed.
- A message and/or a warning indicator may be displayed.

Conditions for Clearing the DTC

- The parking brake control module clears the history DTC when a current DTC is not detected in 40 ignition cycles.
- Calibrate the parking brake control module.

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Reference Information

Schematic Reference

Park Brake System Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Electronic Parking Brake Control Module 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

Verify DTC C028B is not set.

- If DTC is set, perform the Parking Brake Calibration procedure in Configuration/Reset Functions. If the DTC resets replace the K83 Parking Brake Control Module.

Repair Procedures

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

Control Module References for parking brake control module replacement, setup, and programming.

DTC C02 D

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.

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DTC Descriptors

DTC C02 D 00

Replace Park Brake Pad Malfunction

Circuit/System Description

The parking brake control module has an internal motor, apply actuator, release actuator, and temperature sensor. The parking brake control module also contains the logic for applying and releasing the park brake when commanded by the park brake control switch. When the parking brake control module receives a signal from the switch, the internal circuit board temperature is checked to verify it is within operating range before the control module performs the requested operation.

Conditions for Running the DTC

Ignition OFF, ACCESSORY, or RUN mode.

Conditions for Setting the DTC

The parking brake control module has an internal counter which keeps track of dynamic applies. When the counter reaches the threshold value this DTC will set.

Action Taken When the DTC Sets

A message and/or a warning indicator may be displayed.

Conditions for Clearing the DTC

- The parking brake control module clears the history DTC when a current DTC is not detected in 100 consecutive drive cycles.
- Adjust or replace the park brake pads.

Reference Information

Schematic Reference

Park Brake System Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Electronic Parking Brake Control Module Description

Electrical Information Reference

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- 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

Verify DTC C028D is not set.

- If DTC is set, replace the rear brake pads and perform the Parking Brake Calibration procedure.

Repair Procedures

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

Control Module References for parking brake control module replacement, setup, and programming.

DTC C02

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.

DTC Descriptors

DTC C02 01

Park Brake Solenoid Actuator Circuit Short to Battery

DTC C02 02

Park Brake Solenoid Actuator Circuit Short to Ground

DTC C02 0

Park Brake Solenoid Actuator Circuit Performance-Signal Invalid

Circuit/System Description

The parking brake control module has an internal motor, apply actuator, release actuator, and temperature

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sensor. The parking brake control module also contains the logic for applying and releasing the parking brake when commanded by the park brake control switch. When the parking brake control module receives a signal from the switch the internal circuit board temperature is checked to verify it is within operating range before the control module performs the requested operation. The parking brake control module contains an internal park brake solenoid actuator, and performs diagnostics on the solenoid actuator circuitry to verify it is functioning properly

Conditions for Running the DTC

Ignition OFF, ACCESSORY, or RUN mode.

Conditions for Setting the DTC

The parking brake control module detects an internal park brake solenoid malfunction.

Action Taken When the DTC Sets

- The electric parking brake is disabled, one release allowed.
- A message and/or a warning indicator may be displayed.

Conditions for Clearing the DTC

- The parking brake control module clears the history DTC when a current DTC is not detected in 40 ignition cycles.
- The condition for the DTC is no longer present.

Reference Information

Schematic Reference

Park Brake System Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Electronic Parking Brake Control Module Description

Electrical Information Reference

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

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Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Verify that DTC C028F is not set.

- If DTC is set, program the parking brake control module. If the DTC resets, replace the K83 Parking Brake Control Module.

Repair Procedures

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

Control Module References for parking brake control module replacement, setup, and programming

DTC C0293

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.

DTC Descriptors

DTC C0293 01

Park Brake Switch Control Short to Battery

DTC C0293 06

Park Brake Switch Control Low Voltage/Open

DTC C0293 0

Park Brake Switch Control Performance-Signal Invalid

Circuit/System Description

The electric parking brake control module has an internal motor, apply actuator, release actuator, and temperature sensor. The electric parking brake control module also contains the logic for applying and releasing the parking brake when commanded by the electric parking brake switch. The electric parking brake module will perform diagnostics on the electric parking brake switch and its wiring harness to verify it is functioning properly. When the electric parking brake control module receives a signal from the switch the internal circuit board temperature is checked to verify it is within operating range before the control module performs the

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requested operation.

The electric park brake switch control diagnostic checks for failure conditions in the electric park brake switch and associated wiring into the electric park brake module.

Conditions for Running the DTC

Ignition OFF, ACCESSORY, or RUN mode.

Conditions for Setting the DTC

The electric parking brake module detects a short to battery, short to ground, open circuit, or an internal parking brake switch control malfunction.

Action Taken When the DTC Sets

- The electric parking brake is disabled.
- A DIC message and/or a warning indicator may be displayed.

Conditions for Clearing the DTC

- The electric parking brake module clears the history DTC when a current DTC is not detected in 40 ignition cycles.
- The condition for the DTC is no longer present.

Reference Information

Schematic Reference

Park Brake System Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Electronic Parking Brake Control Module 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 Test

C0293 01 or C0293 06

1. Ignition OFF, disconnect the harness at the S91 Electric Parking Brake Switch.
2. Test for B₊ between the B₊ circuit terminal listed below and ground:
 - Terminal 4
 - Terminal 5
 - If less than the specified range, test the B₊ circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the K83 Electric Parking Brake Control Module.
 - If greater than the specified range, test the B₊ circuit for a short to voltage. If the circuit tests normal, replace the K83 Electric Parking Brake Control Module.
3. Disconnect the harness at the K83 Electric Parking Brake Control Module.
4. Ignition ON, test for less than 1 V between the following signal circuit terminals at the electric parking brake switch harness connector and ground:
 - Terminal 1
 - Terminal 2
 - Terminal 3
 - Terminal 7
 - If greater than the specified range, test the signal circuit for a short to voltage.
5. Test for infinite resistance between the signal circuits listed below and ground:
 - Terminal 1
 - Terminal 2
 - Terminal 3
 - Terminal 7
 - If less than the specified value, test the park brake signal circuit for a short to ground.
6. Test for less than 5 ohms between the following signal circuit terminals:
 - Electric parking brake switch harness terminal 1 and the electric parking brake control module terminal N
 - Electric parking brake switch harness terminal 2 and the electric parking brake control module terminal C
 - Electric parking brake switch harness terminal 3 and the electric parking brake control module terminal B
 - Electric parking brake switch harness terminal 7 and the electric parking brake control module terminal D
 - If greater than the specified range, test the signal circuit for an open/high resistance.
7. If all circuits test normal, test or replace the S91 Electric Parking Brake Switch. If DTC resets, replace the

K83 Electric Parking Brake Control Module.

C0293 0

Remove the EPB fuse and reinstall. Verify DTC C0293 08 is not set.

- If DTC C0293 08 is set replace the electric parking brake switch.

Component Testing

1. Ignition OFF, disconnect the harness connector at the electric parking brake switch.
2. Test for infinite resistance between the terminals listed below with the switch in the inactive state:
 - B terminal 4 and the park brake switch signal terminal 1
 - B terminal 4 and the park brake switch signal terminal 2
 - B terminal 5 and the park brake switch signal terminal 1
 - B terminal 5 and the park brake switch signal terminal 2
 - Park brake switch signal terminal 3 and the park brake switch signal terminal 1
 - Park brake switch signal terminal 3 and the park brake switch signal terminal 2
 - Park brake switch signal terminal 7 and the park brake switch signal terminal 1
 - Park brake switch signal terminal 7 and the park brake switch signal terminal 2
 - If less than the specified range, replace the electric parking brake switch.
3. Test for less than 5 ohms between the terminals listed below with the switch in the inactive state:
 - Park brake switch signal terminal 1 and terminal 2
 - B terminal 4 and park brake switch signal terminal 7
 - B terminal 5 and park brake switch signal terminal 3
 - If greater than the specified range, replace the electric parking brake switch.
4. Test for less than 5 ohms between the terminals listed below with the switch in the apply position:
 - Park brake switch signal terminal 1 and terminal 2
 - B terminal 4 and park brake switch signal terminal 1
 - B terminal 4 and park brake switch signal terminal 2
 - B terminal 5 and park brake switch signal terminal 3
 - If greater than the specified range, replace the electric parking brake switch.
5. Test for less than 5 ohms between the terminals listed below with the switch in the release position:
 - Park brake switch signal terminal 1 and terminal 2
 - B terminal 5 and park brake switch signal terminal 1
 - B terminal 5 and park brake switch signal terminal 2
 - B terminal 4 and park brake switch signal terminal 7
 - If greater than the specified range, replace the electric parking brake switch.

Repair Procedures

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

- **Parking Brake Switch Replacement**
- **Electronic Parking Brake Control Module Replacement**
- **Control Module References** for electric parking brake module replacement, setup, and programming

DTC C029

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.

DTC Descriptors

DTC C029 00

Park Brake Unlatch Switch Circuit Malfunction

Circuit/System Description

The parking brake control module has an internal motor, apply actuator, release actuator, and temperature sensor. The parking brake control module also contains the logic for applying and releasing the parking brake when commanded by the park brake control switch. When the parking brake control module receives a signal from the switch, the internal circuit board temperature is checked to verify it is within operating range before the control module performs the requested operation.

Conditions for Running the DTC

Ignition OFF, ACCESSORY, or RUN mode.

Conditions for Setting the DTC

The parking brake control module detects the apply or release button was activated for more than 90 seconds.

Action Taken When the DTC Sets

A message and/or a warning indicator may be displayed.

Conditions for Clearing the DTC

- The parking brake control module clears the history DTC when a current DTC is not detected in 40 ignition cycles.
- The condition for the DTC is no longer present.
- The park brake control switch button is released using the scan tool.

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Diagnostic Aids

Check if the park brake control switch is stuck in the apply or release position which may cause the DTC to set.

Reference Information

Schematic Reference

Park Brake System Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Electronic Parking Brake Control Module 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. Verify DTC C0293 is not set.
 - If DTC C0293 is set, refer to **DTC C0293**.
2. Command the Parking Brake Cable Service Release to Released with a scan tool. The BRAKE light should turn off and the Park Brake Status on the scan tool should display Released.
 - If the BRAKE light does not turn off or the Park Brake Status does not display Released replace the K83 Parking Brake Control Module.

Repair Procedures

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

Control Module References for parking brake control module replacement, setup, and programming

DTC C055

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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.

DTC Descriptors

DTC C055 55

Calibration Data Too Few Transitions

DTC C055 5A

Calibration Data Not Plausible

Circuit/System Description

The parking brake control module has an internal motor, apply actuator, release actuator, and temperature sensor. The parking brake control module also contains the logic for applying and releasing the parking brake when commanded by the park brake control switch. When the parking brake control module receives a signal from the switch the internal circuit board temperature is checked to verify it is within operating range before the control module performs the requested operation.

Conditions for Running the DTC

Ignition OFF, ACCESSORY, or RUN mode.

Conditions for Setting the DTC

C055 55

The parking brake control module detects a calibration malfunction.

C055 5A

The parking brake control module detects mechanical problems with the parking brake system.

Action Taken When the DTC Sets

C055 55

- The electric parking brake is disabled, switch command will not be accepted.
- A message and/or a warning indicator may be displayed.

C055 5A

- The electric parking brake is disabled, one release allowed.

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- A message and/or a warning indicator may be displayed.

Conditions for Clearing the DTC

- The parking brake control module clears the history DTC when a current DTC is not detected in 40 ignition cycles.
- Calibrate the parking brake control module.

Diagnostic Aids

- Verify the parking brake control module software and calibrations are the newest available versions.
- Verify the parking brake cable is not broken or pinched.

Reference Information

Schematic Reference

Park Brake System Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Electronic Parking Brake Control Module 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, command the Park Brake Cable Service Apply ON with a scan tool. Verify the Park Brake Cable Position parameter is below 1250 counts.
 - If greater than the specified value, make sure the park brake cable is connected properly and check park brake linings for excessive wear, and ensure proper clearance to drum.
2. Verify DTC C0558 is not set.

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- If DTC is set, perform the Park Brake Calibration procedure in Configuration/Reset Functions.

Repair Procedures

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

Control Module References for parking brake control module replacement, setup, and programming

DTC C0561

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.

DTC Descriptors

DTC C0561 71

System Disabled Information Stored-Invalid Serial Data Received

Circuit/System Description

The parking brake control module has an internal motor, apply actuator, release actuator, and temperature sensor. The parking brake control module also contains the logic for applying and releasing the parking brake when commanded by the park brake control switch. When the parking brake control module receives a signal from the switch the internal circuit board temperature is checked to verify it is within operating range before the control module performs the requested operation. The parking brake module will verify it has a valid signal from other modules before it performs the requested operation.

Conditions for Running the DTC

- Ignition OFF, ACCESSORY, or RUN mode.
- Battery voltage is between 9-16V

Conditions for Setting the DTC

The parking brake control module receives an invalid serial data message or does not receive a serial data message from another module.

Action Taken When the DTC Sets

- A message and/or a warning indicator may be displayed.
- The electric parking brake functionality is degraded.

Conditions for Clearing the DTC

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- The parking brake control module clears the history DTC when a current DTC is not detected in 40 ignition cycles.
- The parking brake control module receives Valid signals from other modules.

Reference Information

Schematic Reference

Park Brake System Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Electronic Parking Brake Control Module 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. Using the scan tool, locate the Invalid parameter in the Data Display.
2. Refer to the appropriate module to diagnose the invalid data signal. Do not replace the electric parking brake control module.

Repair Procedures

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

DTC C056D

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.

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DTC Descriptors

DTC C056D 34

ECU Hardware Performance RAM Failure

DTC C056D 35

ECU Hardware Performance ROM Failure

DTC C056D 36

ECU Hardware Performance EEPROM Failure

DTC C056D 37

ECU Hardware Performance watchdog/safety uC Failure

DTC C056D 39

ECU Hardware Performance Internal Electronic Failure

DTC C056D 3C

ECU Hardware Performance Internal Communications Failure

Circuit/System Description

The parking brake control module has an internal motor, apply actuator, release actuator, and temperature sensor. The parking brake control module also contains the logic for applying and releasing the parking brake when commanded by the park brake control switch. When the parking brake control module receives a signal from the switch the internal circuit board temperature is checked to verify it is within operating range before the control module performs the requested operation. The parking brake module will perform diagnostics on the modules internal hardware to verify it is functioning properly

Conditions for Running the DTC

Ignition OFF, ACCESSORY, or RUN mode.

Conditions for Setting the DTC

The parking brake control module detects an internal hardware malfunction.

Action Taken When the DTC Sets

- The electric parking brake is disabled.
- A message and/or a warning indicator may be displayed.

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Conditions for Clearing the DTC

- The parking brake control module clears the history DTC when a current DTC is not detected in 40 ignition cycles.
- The condition for the DTC is no longer present.
- The latest software and calibrations are programmed into the parking brake control module.

Reference Information

Schematic Reference

Park Brake System Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Electronic Parking Brake Control Module 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. Verify DTC C056D 36 is not set.
 - If DTC is set, perform the Electronic Parking Brake Control Module Programming and Setup.
2. With a scan tool, perform the Parking Brake Actuator DTC Reset procedure. Verify DTC C056D is not set.
 - If the DTC is set, replace the K83 Parking Brake Control Module.

Repair Procedures

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

Control Module References for parking brake control module replacement, setup, and programming.

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DTC C056E

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.

DTC Descriptors

DTC C056E 41

Electronic Control Unit Software Not Programmed

DTC C056E 42

Electronic Control Unit Software Calibration Not Programmed

DTC C056E 5A

Electronic Control Unit Software Not Plausible

Circuit/System Description

The parking brake control module has an internal motor, apply actuator, release actuator, and temperature sensor. The parking brake control module also contains the logic for applying and releasing the parking brake when commanded by the park brake control switch. When the parking brake control module receives a signal from the switch the internal circuit board temperature is checked to verify it is within operating range before the control module performs the requested operation.

Conditions for Running the DTC

Ignition OFF, ACCESSORY, or RUN mode.

Conditions for Setting the DTC

The parking brake control module has detected an internal software malfunction.

Actions Taken When DTC Sets

C056E 41, C056E 5A

- The electric parking brake is disabled.
- A message and/or a warning indicator may be displayed.

C056E 42

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- The electric parking brake functionality is degraded.
- A message and/or a warning indicator may be displayed.

Conditions for Clearing the DTC

- The parking brake control module clears the history DTC when a current DTC is not detected in 40 ignition cycles.
- The condition for the DTC is no longer present.
- The latest software and calibrations are programmed into the parking brake control module.

Reference Information

Schematic Reference

Park Brake System Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Electronic Parking Brake Control Module 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

Verify DTC C056E is not set.

- If the DTC is set, perform the Electronic Parking Brake Control Module Programming and Setup . If the DTC resets, replace the K83 Parking Brake Control Module.

Repair Procedures

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

Control Module References for parking brake control module replacement, setup, and programming

DTC C0574**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.

DTC Descriptors**DTC C0574 01**

Circuit Board Temperature Sensor Short to Battery

DTC C0574 02

Circuit Board Temperature Sensor Short to Ground

DTC C0574 54

Circuit Board Temperature Sensor High

Circuit/System Description

The parking brake control module has an internal motor, apply actuator, release actuator, and temperature sensor. The parking brake control module also contains the logic for applying and releasing the parking brake when commanded by the park brake control switch. When the parking brake control module receives a signal from the switch the internal circuit board temperature is checked to verify it is within operating range before the control module performs the requested operation.

Conditions for Running the DTC

Ignition OFF, ACCESSORY, or RUN mode.

Conditions for Setting the DTC

C0574 01, C0574 02

The parking brake control module detects a short to battery or a short to ground.

C0574 54

The parking brake control module has detected an internal temperature that is above the allowed value.

Action Taken When the DTC Sets

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- A message and/or a warning indicator may be displayed.
- The electric parking brake is disabled, one release allowed.

Conditions for Clearing the DTC

- The parking brake control module clears the history DTC when a current DTC is not detected in 40 ignition cycles.
- The parking brake control module is replaced or the internal temperature drops below the allowed temperature.

Diagnostic Aids

Check for debris on the parking brake control module which may cause the module to overheat.

Reference Information

Schematic Reference

Park Brake System Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Electronic Parking Brake Control Module 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

C 4 or C 4 2

Remove the EPB fuse and reinstall. Verify DTC C0574 is not set.

- If DTC is set, replace the K83 Parking Brake Control Module.

C 4 4

NOTE: Diagnose all other parking brake control module system related faults before performing this diagnostic. Other faults may cause the circuit board to overheat. Do not attempt to apply the electric parking brake.

1. Allow the parking brake control module to cool down for 15 minutes.
2. Verify DTC C0574 54 is not set.
 - o If DTC is set, replace the K83 Parking Brake Control Module.

Repair Procedures

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

Control Module References for parking brake control module replacement, setup, and programming

S MPTOMS PARK BRAKE

IMPORTANT: Review the system operation in order to familiarize yourself with the system functions.

Refer to **Park Brake System Description and Operation**.

Visual Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the park brake system.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

Park Brake Will Not Hold or Release

PARK BRAKE WILL NOT HOLD OR RELEASE

Step	Action	es	No
1	Were you sent here from the Park Brake Symptom table?	Go to Step 2	Go to <u>Diagnostic Starting Point Vehicle</u>
2	Inspect the park brake system for proper operation. Refer to <u>Park Brake System Diagnosis</u> . Did you find and correct a condition?	Go to Step	Go to Step 3
	Inspect the disc brake system for proper operation.		

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3	Refer to <u>Disc Brake System Diagnosis</u> . Did you find and correct a condition?	Go to Step	Go to Step 4
4	Inspect the hydraulic brake system for proper operation. Refer to <u>Hydraulic Brake System Diagnosis</u> . Did you find and correct a condition?	Go to Step	Go to <u>Diagnostic Starting Point Vehicle</u>
5	Road test the vehicle in order to confirm proper operation. Refer to <u>Brake System Vehicle Road Test</u> . Is the condition still present?	Go to Step 2	System OK

PARK BRAKE SYSTEM DIAGNOSIS

Step	Action	Yes	No
DEFINITION: This diagnostic table is designed to diagnose ONLY the components of the PARK brake system in order to determine if the PARK brake system is operating properly. You will be directed by the appropriate Symptom Table to go to other brake system diagnostic tables as appropriate.			
1	Were you sent here from a Hydraulic Brake Symptom Table?	Go to Step 3	Go to Step 2
2	Were you sent here from a Park Brake Symptom Table?	Go to Step 3	Go to <u>Diagnostic Starting Point Vehicle</u>
3	1. Raise and support the vehicle with the rear axle supported by jack stands. Refer to <u>Lifting and Jacking the Vehicle</u> . 2. Shift the transmission into NEUTRAL. 3. With the park brake RELEASED, attempt to rotate the rear wheels to check the rear brakes for a significant amount of drag. Do the rear brakes have a significant amount of drag?	Go to Step	Go to Step 4
4	1. Shift the transmission into NEUTRAL. 2. Apply the park brake. 3. Attempt to rotate the rear wheels to check the rear brakes for a significant amount of drag. Do the rear brakes have a significant amount of drag?	Go to Step	Go to Step
5	Visually check the park brake cable connections and the cables that are accessible on the UNDERSIDE of the vehicle for disconnections and/or damage. Were any or the park brake cables disconnected and/or damaged?	Go to Step	Go to Step
	Reconnect or replace the park brake cables as necessary. Refer to the following procedures as necessary:		

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6	• <u>Parking Brake Intermediate Cable Replacement</u> • <u>Parking Brake Rear Cable Replacement Left Side FWD</u> or <u>Parking Brake Rear Cable Replacement Left Side AWD</u> • <u>Parking Brake Rear Cable Replacement Right Side FWD</u> or <u>Parking Brake Rear Cable Replacement Right Side AWD</u>		
	Did you complete the repair and/or replacement?	Go to Step	-
7	Check the adjustment of the park brake and adjust as necessary. Refer to <u>Parking Brake Adjustment</u> . Did you find and correct the condition?	Go to Step	Go to Step
8	CAUTION: Do not depress the brake pedal with the brake rotors and/or the brake drums removed, or with the brake calipers repositioned away from the brake rotors, or damage to the brake system may result. 1. Remove the rear brake rotors. Refer to <u>Rear Brake Rotor Replacement</u>. 2. Inspect the park brake shoe hardware for looseness, damaged, broken or missing components. 3. Check the park brake actuators for a seized condition. Does the park brake hardware and/or the park brake actuators require replacement?		
9	1. Replace park brake hardware components as necessary. Refer to <u>Parking Brake Shoe Replacement</u>. 2. Replace the park brake actuators as necessary. Refer to <u>Parking Brake Actuator Replacement</u>. Did you complete the replacement?	Go to Step	-
10	With the aid of an assistant, apply and release the parking brake while observing the cables for free movement. Do the park brake cables move freely?	Go to Step	Go to Step 3
11	Check the adjustment of the park brake and adjust as necessary. Refer to <u>Parking Brake Adjustment</u> . Did you find and correct the condition?	Go to Step	Go to Step 2

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12	1. With the transmission still in NEUTRAL, apply the park brake. 2. Attempt to rotate the rear wheels to check the rear brakes for a significant amount of drag. 3. Release the park brake. 4. Rotate the rear wheels to check the rear brakes for a significant reduction of drag. Did the park brake apply and release properly?	Go to Step	Go to Symptoms Park Brake
13	Disconnect the park brake cable connections that are accessible on the UNDERSIDE of the vehicle one at a time and check each cable for free movement. Do any of the park brake cables accessible on the underside of the vehicle require replacement?	Go to Step 4	Go to Step
14	Replace any of the park brake cables that do not have free movement (not releasing properly). Refer to the following procedures as necessary: • <u>Parking Brake Intermediate Cable Replacement</u> • <u>Parking Brake Rear Cable Replacement Left Side FWD</u> or <u>Parking Brake Rear Cable Replacement Left Side AWD</u> • <u>Parking Brake Rear Cable Replacement Right Side FWD</u> or <u>Parking Brake Rear Cable Replacement Right Side AWD</u> Did you complete the replacement?	Go to Step	-
15	Inspect the electronic parking brake control module for proper operation and replace as necessary. Refer to <u>Electronic Parking Brake Control Module Replacement</u>. Did you find and correct the condition?	Go to Step	Go to Step
16	1. Replace the component that is used to adjust the park brake system. Refer to <u>Electronic Parking Brake Control Module Replacement</u>. 2. Adjust the park brake. Refer to <u>Parking Brake Adjustment</u>. Did you complete the replacement and adjustment?	Go to Step	Go to Symptoms Park Brake
17	Install or connect any components that were removed or disconnected during diagnosis. Did you complete the operation?	Park Brake System OK	Go to Symptoms Park Brake

PARK BRAKE HARDWARE INSPECTION

WARNIN : Refer to Brake Adjust Warning .

1. With the brake rotors removed, visually inspect the upper return/adjuster actuator spring and the lower return spring for the following:
 - Excessive corrosion
 - Excessive stretching
 - Broken hook ends
 - Twisting or binding
2. If any of the conditions listed were found, which could lead to improper park brake apply and/or release, the adjuster hardware and/or return springs require replacement.
3. Visually inspect the adjuster and the adjuster actuator lever for the following:
 - Misalignment with the park brake lever
 - Misalignment with the park brake shoes
 - Broken or bent adjuster actuator lever
 - Bent adjuster actuator lever pivot pin
4. If any of the conditions listed were found, which could lead to improper park brake apply and/or release, the adjuster hardware requires repair or replacement.
5. Inspect the park brake lever for the following:
 - Bent
 - Broken pivot pin
 - Seized at the pivot pin
 - Broken at park brake cable attachment
 - Improper contact with the adjuster
6. If any of the conditions listed were found, which could lead to improper park brake apply and/or release, the park brake lever requires repair or replacement.
7. Visually inspect the park brake cable for the following:
 - Improper mounting to the backing plate
 - Improper mounting at the park brake lever
 - Broken or missing cable end lug
8. If any of the conditions listed were found, which could lead to improper park brake apply and/or release, the park brake cable requires repair or replacement.
9. Apply the park brake lever/pedal three clicks.
10. Visually inspect the park brake cable for the following:
 - Unequal travel between the left and the right park brake systems
 - No travel on one or both of the park brake systems
11. If any of the conditions listed were found, which could lead to improper park brake apply and/or release, the park brake cable requires replacement and/or adjustment.

12. Release the park brake lever/pedal.
13. Visually inspect the park brake cable for the following:
 - Unequal release between the left and the right park brake systems
 - No release at one or both of the park brake systems
14. If any of the conditions listed were found, which could lead to improper park brake apply and/or release, the park brake cable requires replacement and/or adjustment.

PARKING BRAKE SHOE INSPECTION

WARNING : Refer to **Park Brake Adjust Warning** .

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
2. Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
3. Remove the rear brake caliper bracket with the rear brake caliper. Refer to **Rear Brake Caliper Bracket Replacement** .

NOTE: **DO NOT** apply the park brake pedal with the rotors removed.

4. Remove the rear brake rotor. Refer to **Rear Brake Rotor Replacement** .
5. Inspect and replace the park brake shoe and lining if any of the following conditions are found:
 - Excessive wear indicated by the park brake lining being worn down to the shoe
 - Park brake lining cracking
 - Oil or fluid contamination of the park brake lining
6. Adjust the park brake shoe. Refer to **Parking Brake Adjustment**.
7. Install the rear brake rotor. Refer to **Rear Brake Rotor Replacement** .
8. Install the rear brake caliper with the rear brake caliper bracket. Refer to **Rear Brake Caliper Bracket Replacement** .
9. Install the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
10. Lower the vehicle.

RE AIR INSTRUCTIONS

ELECTRONIC PARKING BRAKE CONTROL MODULE REPLACEMENT

Removal Procedure

1. Block the rear wheels.
2. Disable the parking brake cable adjuster. Refer to **Parking Brake Cable Adjuster Disabling**.
3. Turn the ignition to the OFF position.
4. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .

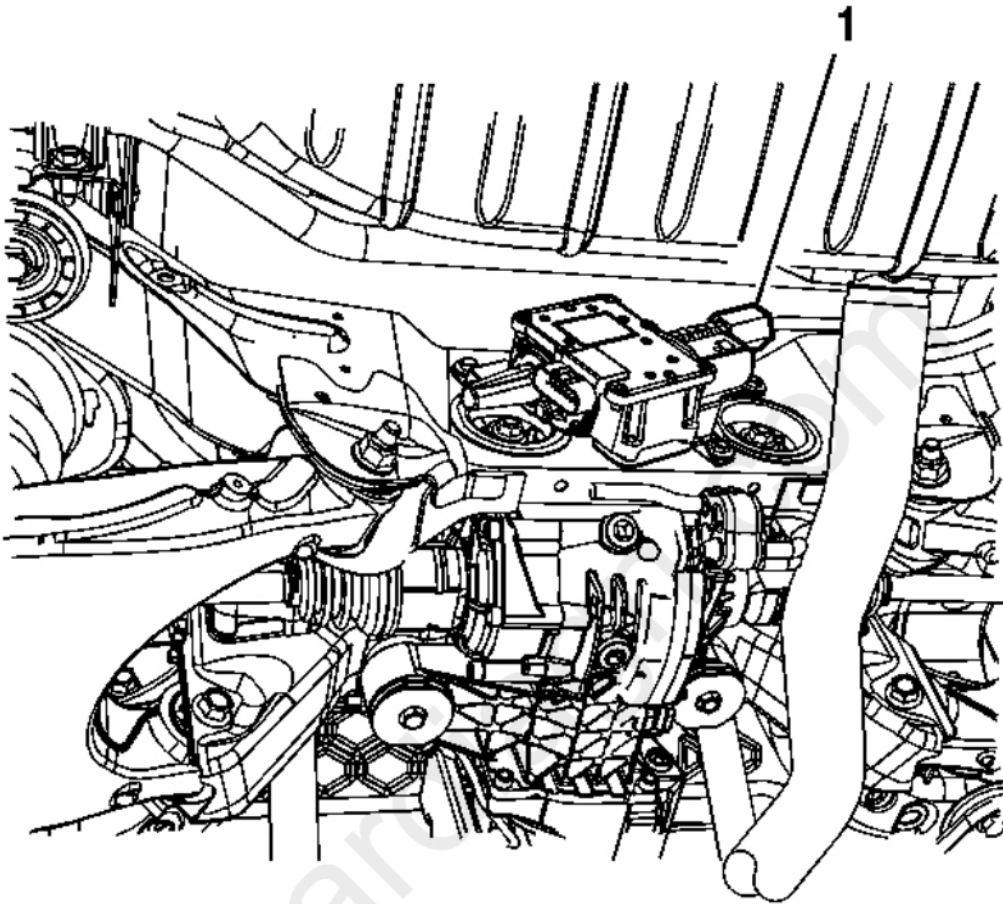


Fig. 2: Identifying Parking Brake Intermediate Cable Nut
Courtesy of GENERAL MOTORS CORP.

5. Disconnect the electronic parking brake control module electrical connector.
6. Disconnect the parking brake intermediate cable nut (1) from the electronic parking brake control module spindle by rotating the nut counterclockwise.
7. Disconnect the parking brake intermediate cable and position the cable aside.

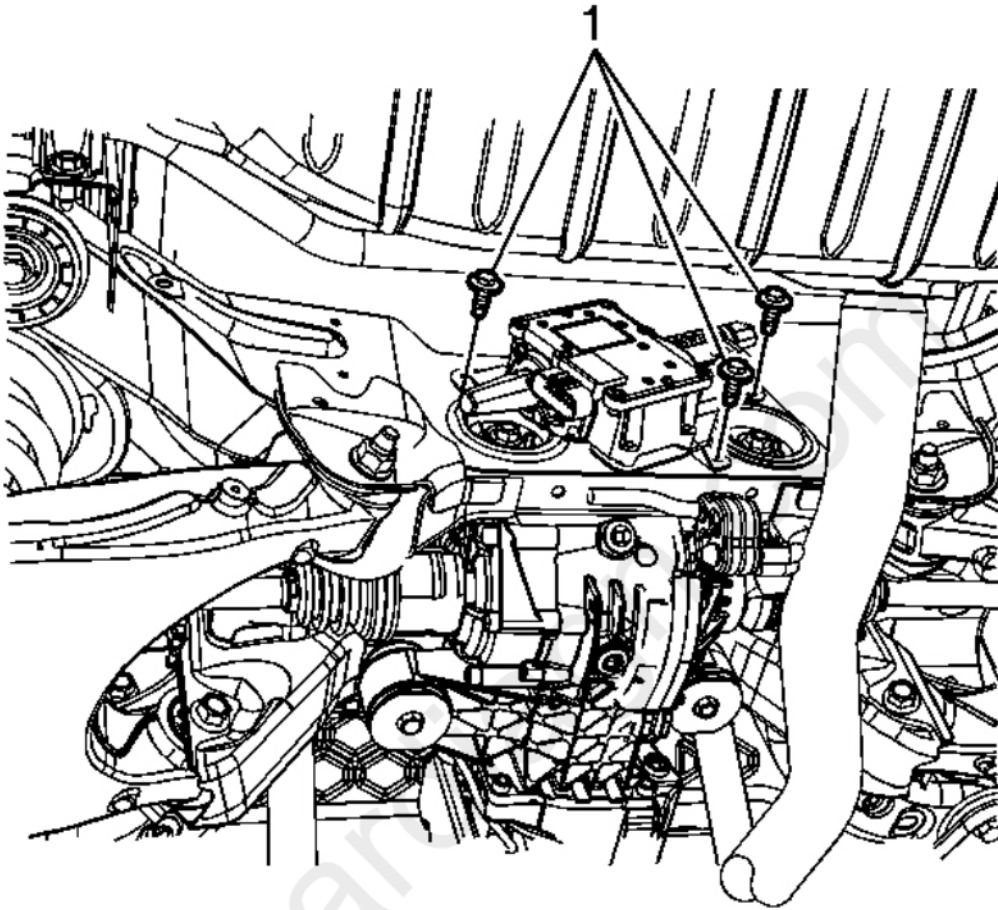


Fig. 3: Identifying Electronic Parking Brake Control Module & Bolts
Courtesy of GENERAL MOTORS CORP.

8. Remove the electronic parking brake control module bolts (1).
9. Remove the electronic parking brake control module assembly.

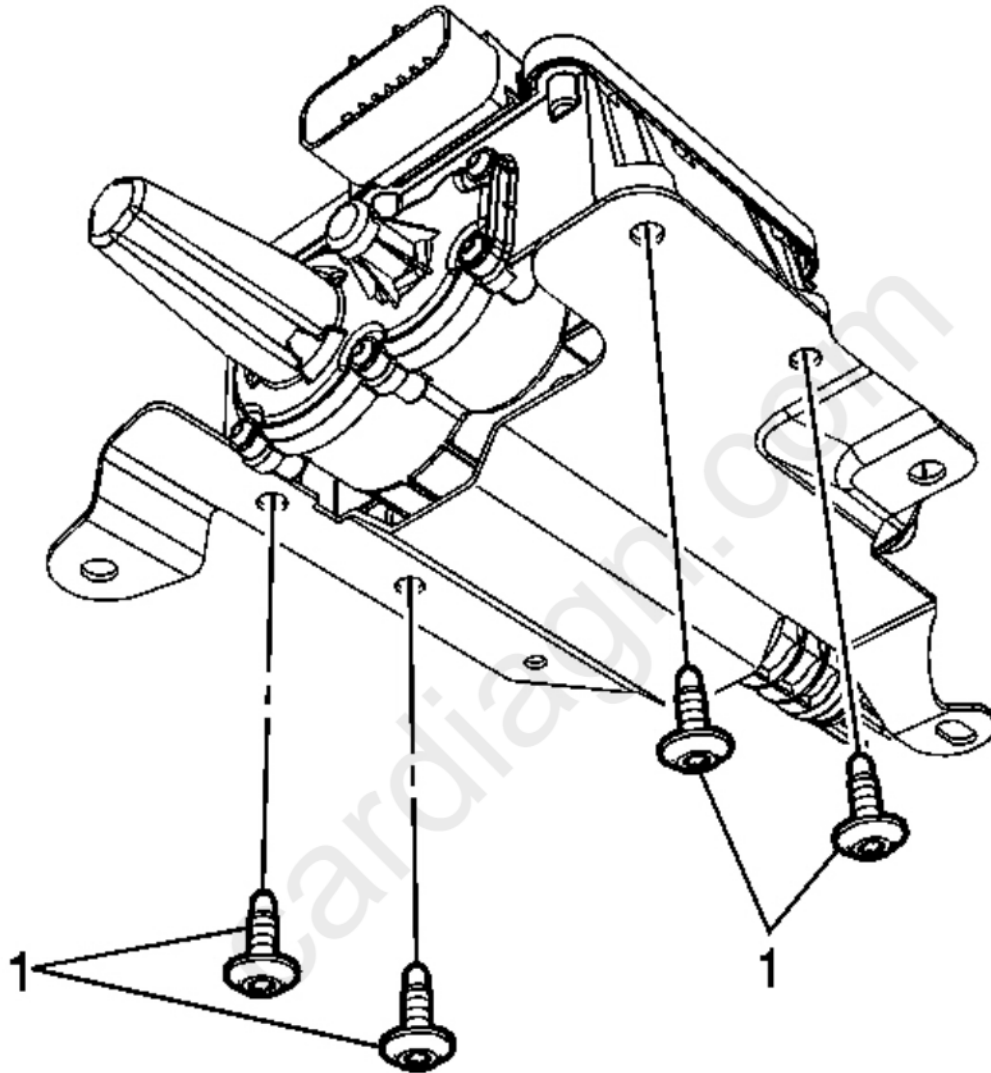


Fig. 4: View Of Parking Bake Control Module Bracket Bolts
Courtesy of GENERAL MOTORS CORP.

10. If removing the electronic parking brake control module bracket, remove the electronic parking bake control module bracket bolts (1).

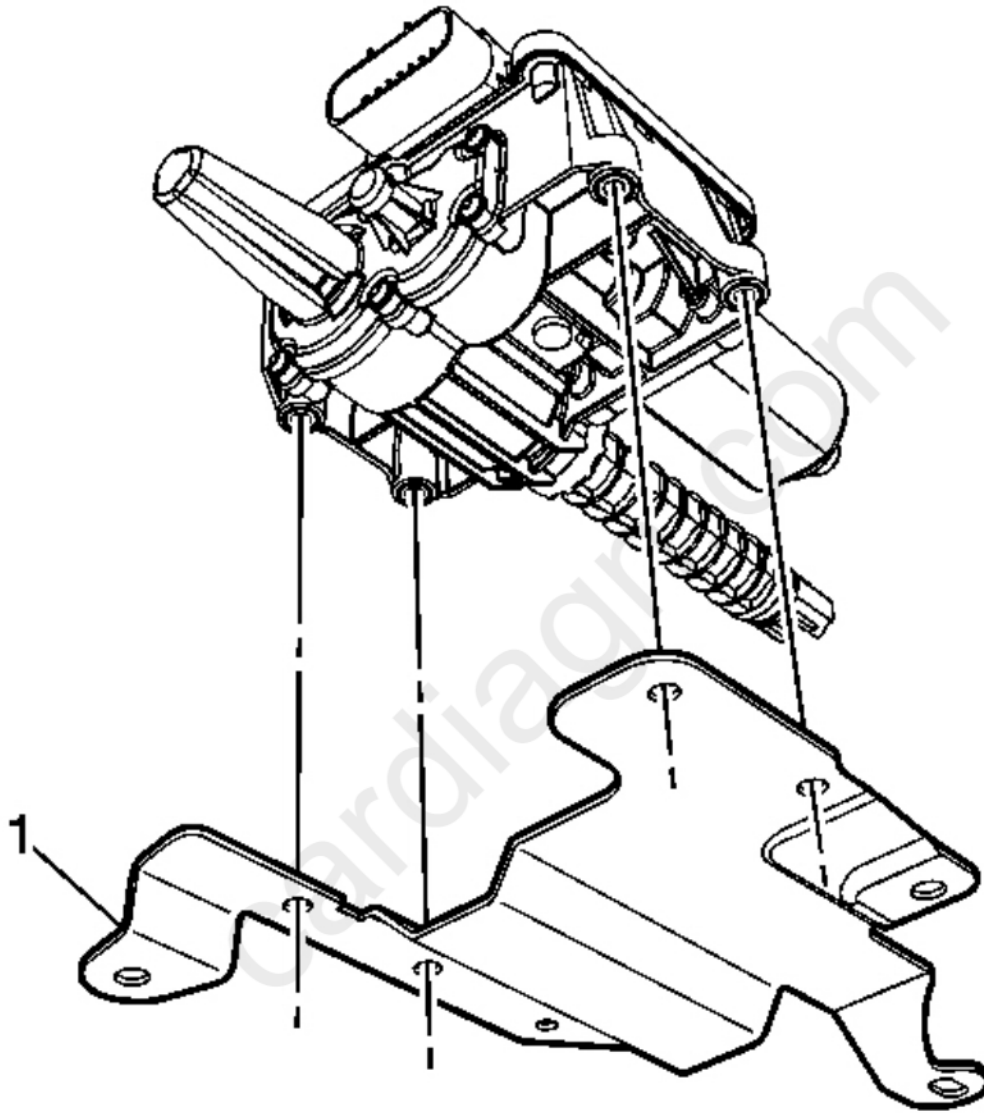


Fig. 5: View Of Parking Brake Control Module Bracket
Courtesy of GENERAL MOTORS CORP.

11. Remove the electronic parking brake control module bracket (1).

Installation Procedure

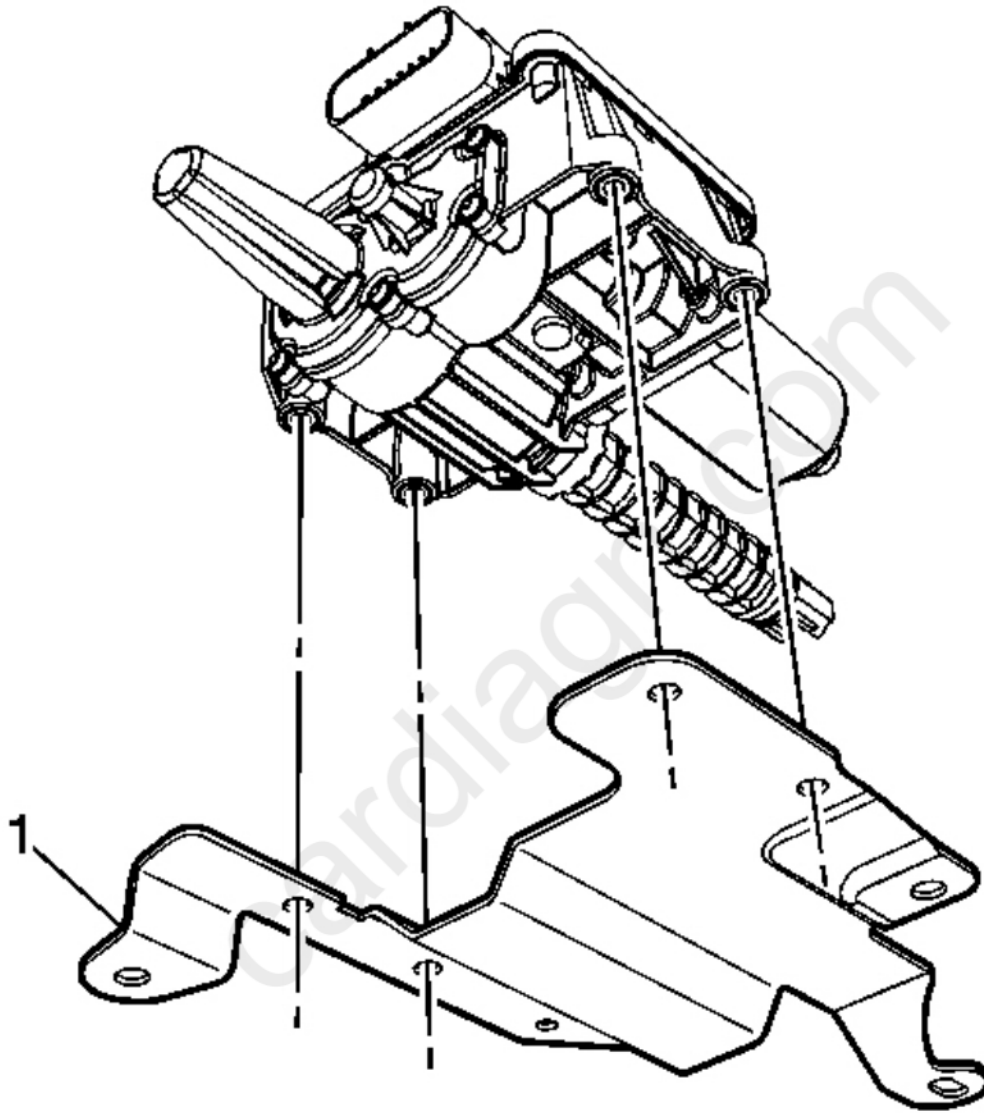


Fig. 6: View Of Parking Bake Control Module Bracket
Courtesy of GENERAL MOTORS CORP.

1. If removed, install the electronic parking brake control module bracket (1).

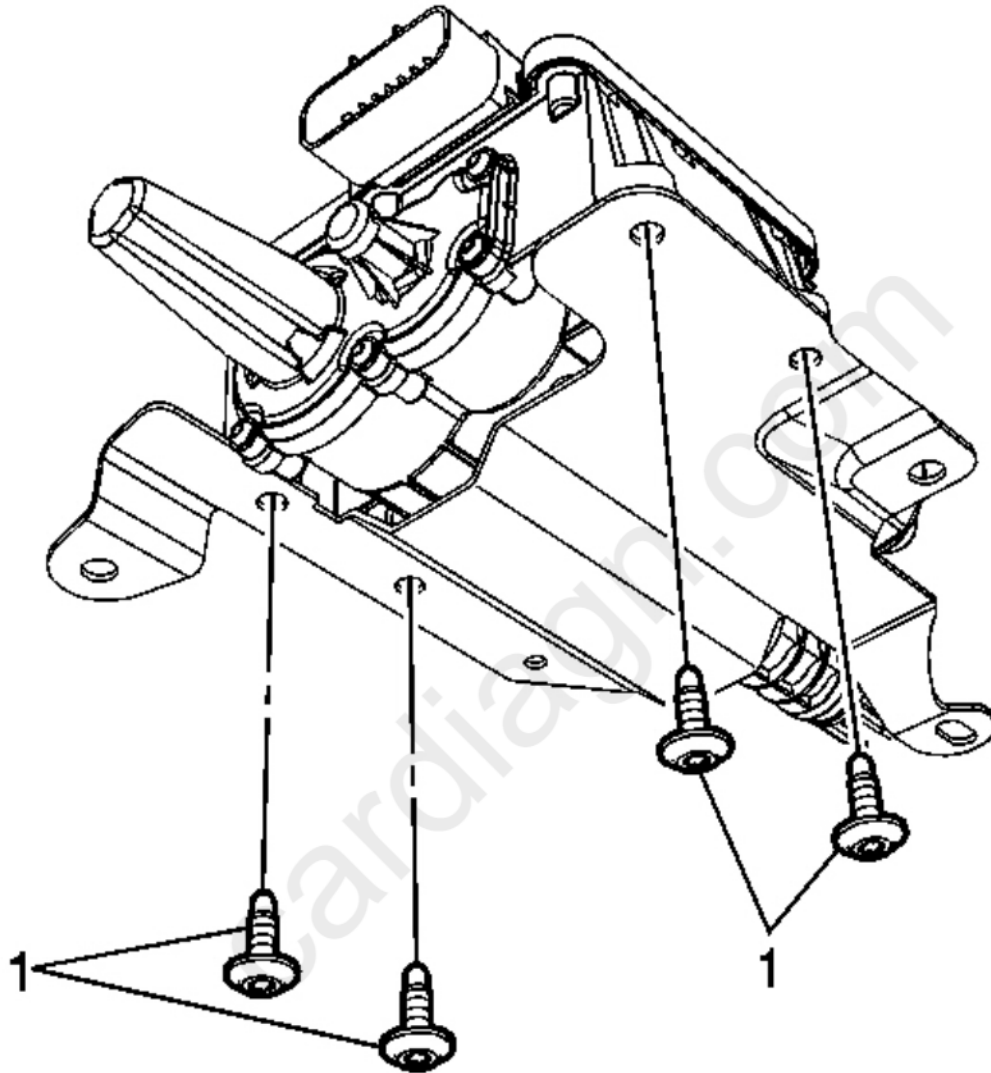


Fig. 7: View Of Parking Bake Control Module Bracket Bolts
Courtesy of GENERAL MOTORS CORP.

CAUTION: Refer to Fastener Caution .

2. Install the electronic parking brake control module bracket bolts (1) and tighten to 9 N.m (80 lb in).

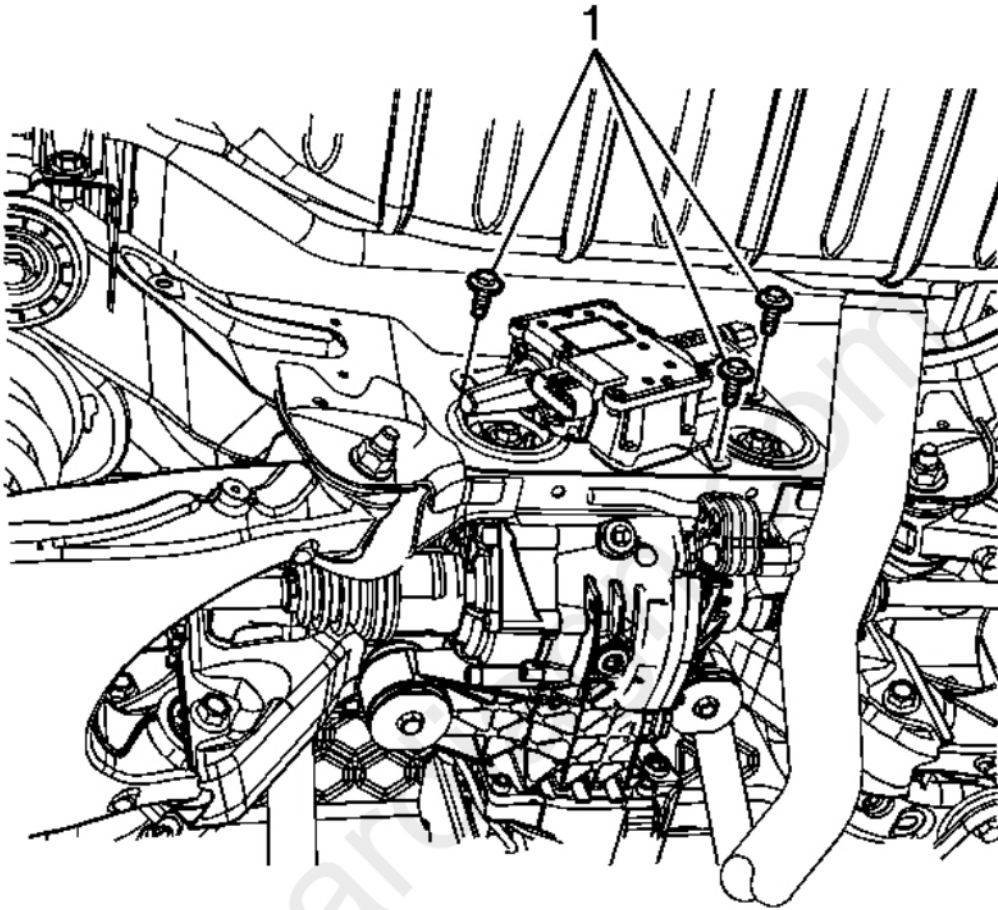


Fig. 8: Identifying Electronic Parking Brake Control Module Bolts
Courtesy of GENERAL MOTORS CORP.

3. Install the electronic parking brake control module assembly.
4. Install the electronic parking brake control module bolts (1) and tighten to 25 N.m (18 lb ft).

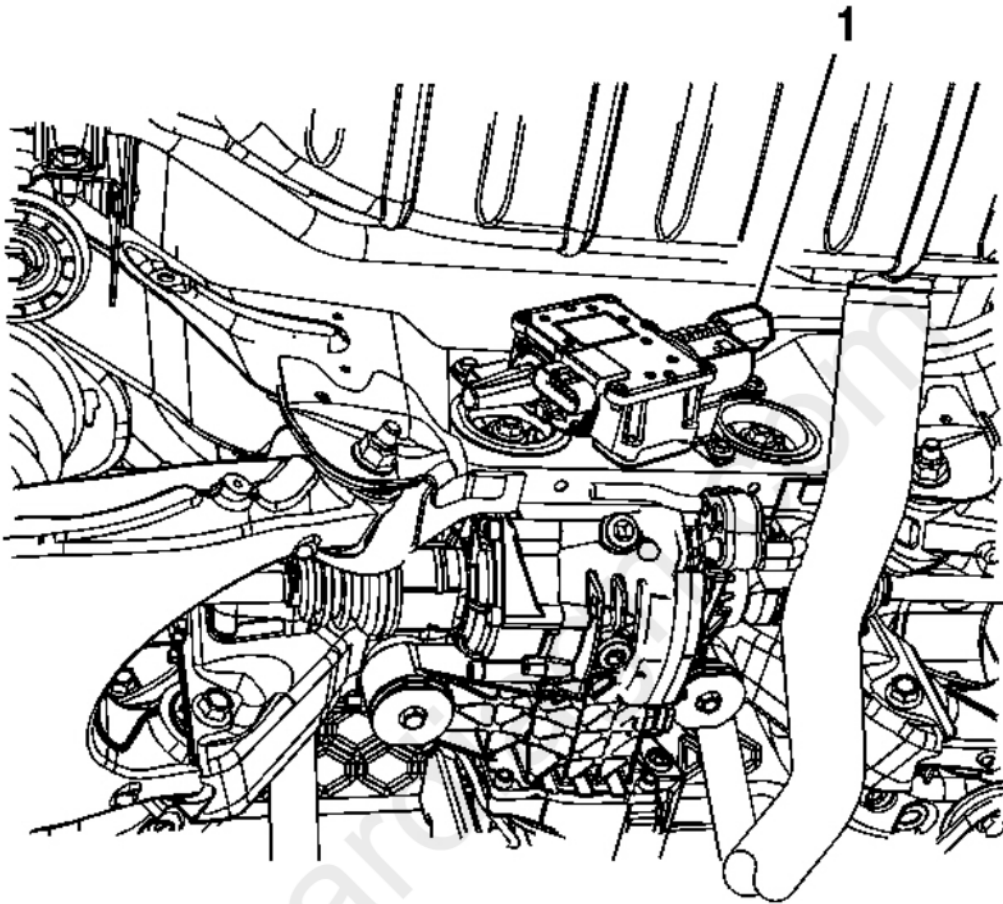


Fig. 9: Identifying Parking Brake Intermediate Cable Nut
Courtesy of GENERAL MOTORS CORP.

5. Inspect the O-ring seals on the electronic parking brake control module spindle and the parking brake intermediate cable for damage and correct positioning and replace, if necessary.

NOTE: Ensure the park brake intermediate cable fitting is engaged in the actuator in the spindle.

6. Install the parking brake intermediate cable fitting to the spindle.

NOTE: When installing the parking brake intermediate cable nut to the electronic park brake module spindle, hold the spindle housing securely to avoid distorting the housing.

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7. Install the parking brake intermediate cable nut (1) to the electronic parking brake control module spindle by rotating the nut clockwise and tighten to 6 N.m (53 lb in).
8. Connect the electronic parking brake control module electrical connector.
9. Enable the parking brake cable adjuster. Refer to **Parking Brake Cable Adjuster Enabling**.
10. Calibrate the electronic parking brake control module. Refer to **Electronic Parking Brake Control Module Programming and Setup**.

PARKING BRAKE SHOE REPLACEMENT

Removal Procedure

WARNING : Refer to **Brake Dust Warning**.

1. Disable the parking brake cable adjuster. Refer to **Parking Brake Cable Adjuster Disabling**.
2. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle**.
3. Remove the rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation**.
4. Remove the rear disc brake rotor. Refer to **Rear Brake Rotor Replacement**.

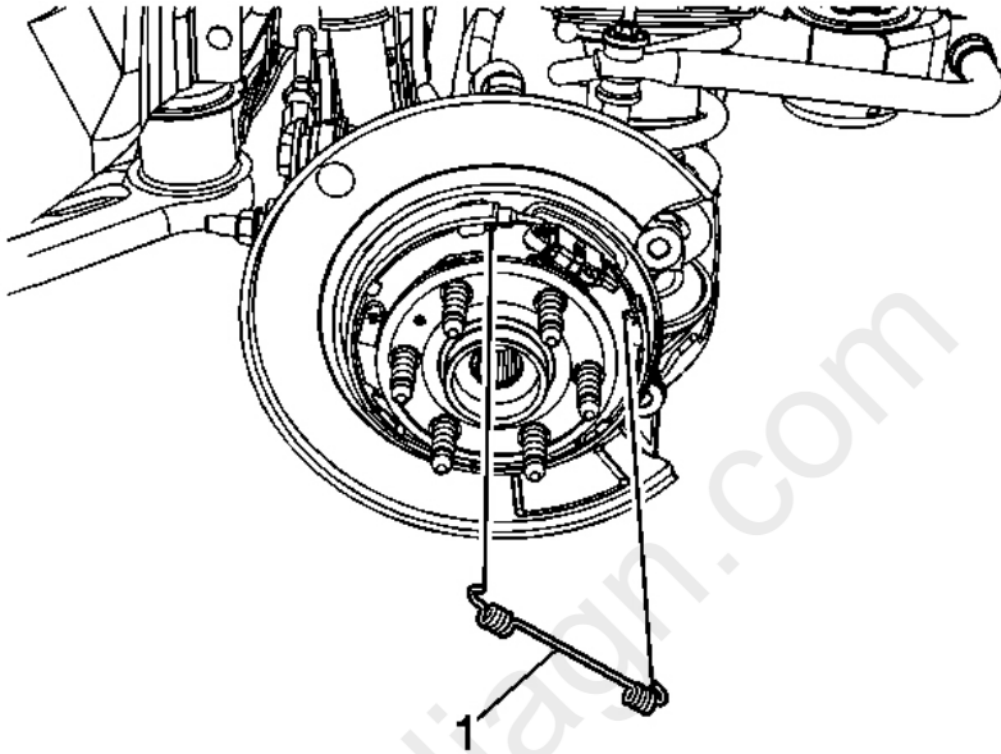


Fig. 1 : Identifying Park Brake Shoe Upper Return Spring
Courtesy of GENERAL MOTORS CORP.

5. Remove the park brake shoe upper return spring (1).

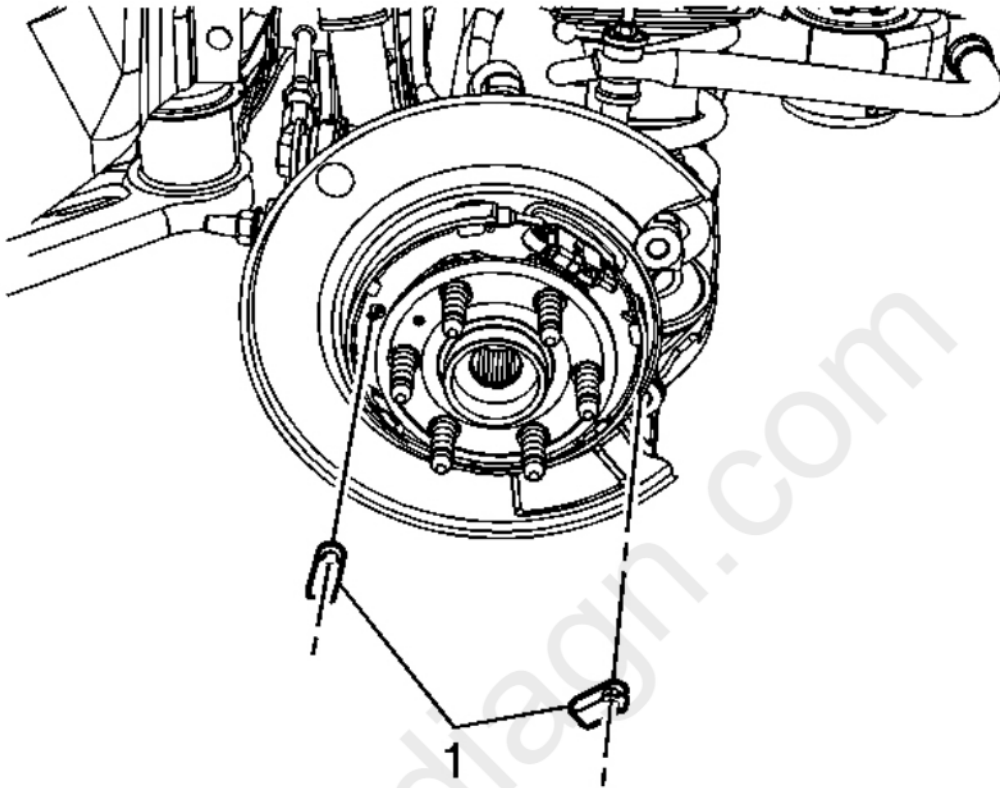


Fig. 1 : Identifying Park Brake Shoe Hold Down Springs
Courtesy of GENERAL MOTORS CORP.

6. Compress the park brake shoe hold down springs (1) and rotate the pins 1/4 turn to remove the hold down springs.

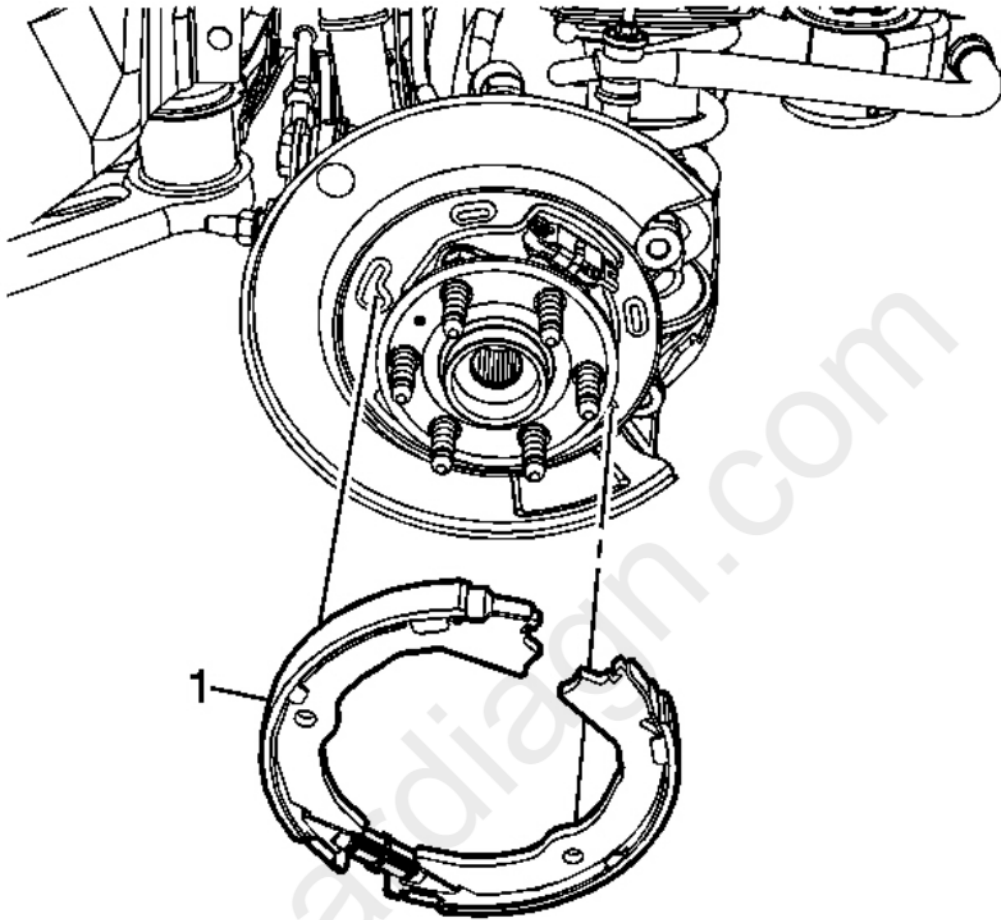


Fig. 2: ie Of Park Brake Shoes

Courtesy of GENERAL MOTORS CORP.

7. Remove the park brake shoes (1) by grasping the shoes near the park brake shoe actuator, spread the park brake shoes apart and lift around the wheel hub and bearing assembly.

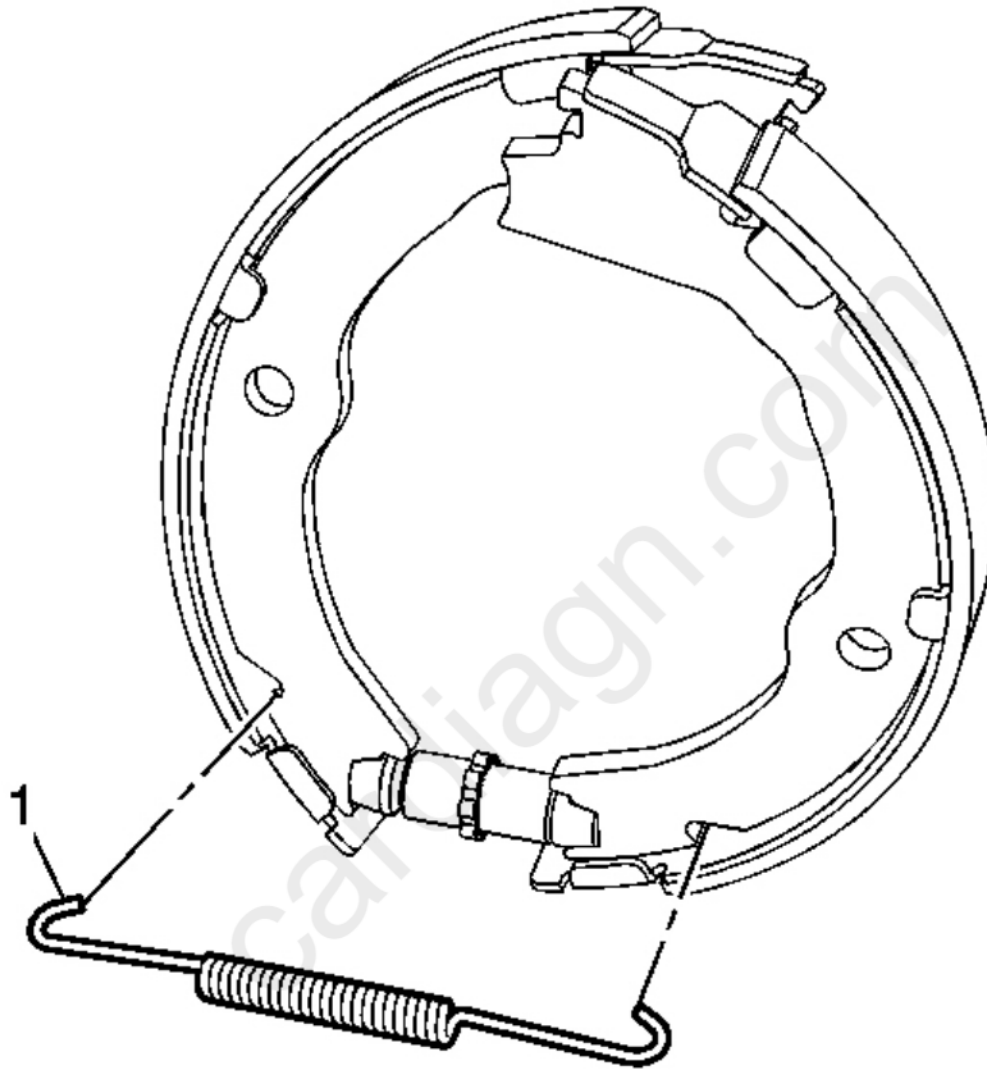


Fig. : ie Of Park Brake S oe Lo er Return Spring
Courtesy of GENERAL MOTORS CORP.

8. Cross the top of one of the park brake shoes over the opposite park brake shoe.
9. Remove the park brake shoe lower return spring (1).

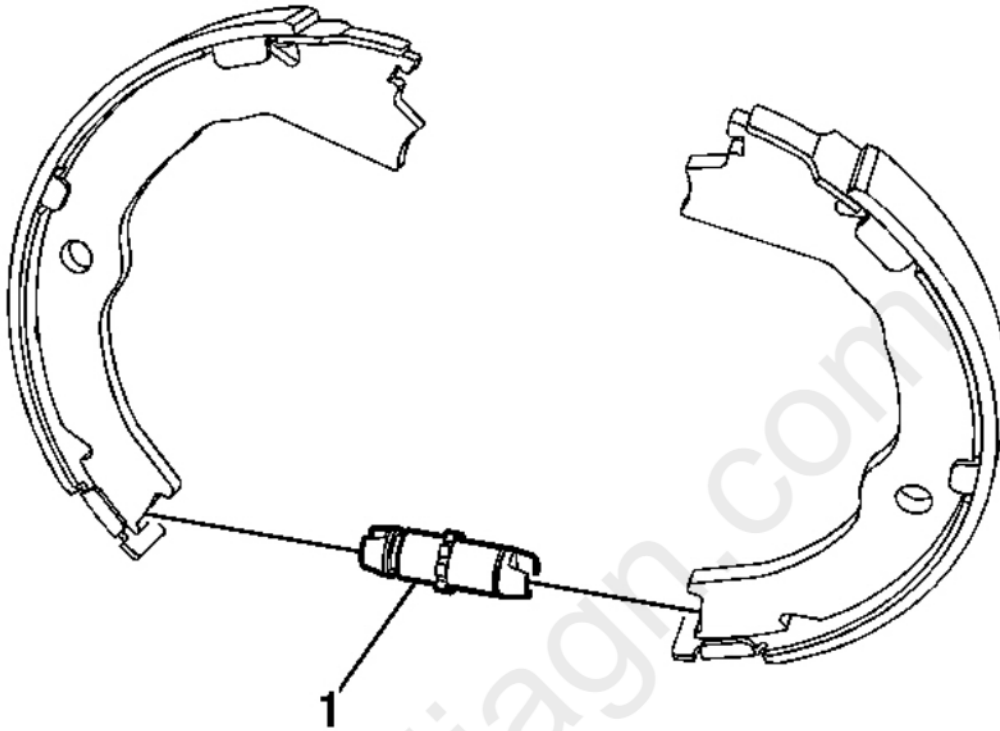


Fig. 14: Identifying Park Brake Shoe Adjuster
Courtesy of GENERAL MOTORS CORP.

10. Remove the park brake shoe adjuster (1).

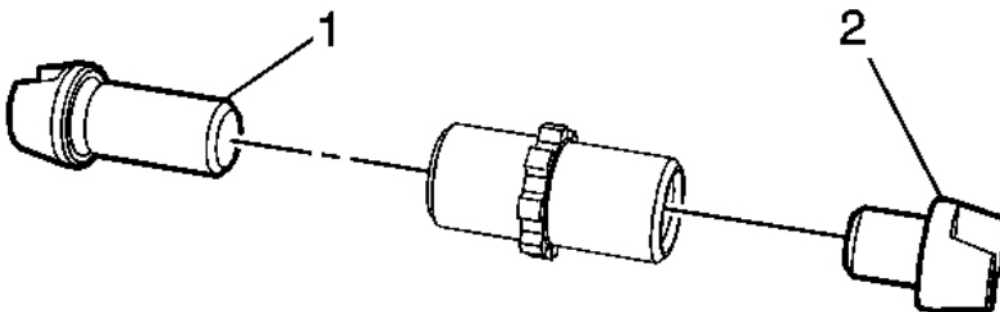


Fig. 15: Disassembled View Of Park Brake Shoe Adjuster
Courtesy of GENERAL MOTORS CORP.

11. Disassemble the park brake shoe adjuster.
12. Clean the park brake shoe adjuster components of any corrosion or debris.
13. Lubricate the park brake shoe adjuster threads (1) with high temperature brake lubricant.
14. Lubricate the park brake shoe adjuster clevis (2) with high temperature brake lubricant.
15. Assemble the park brake shoe adjuster to the fully retracted position.

Installation Procedure

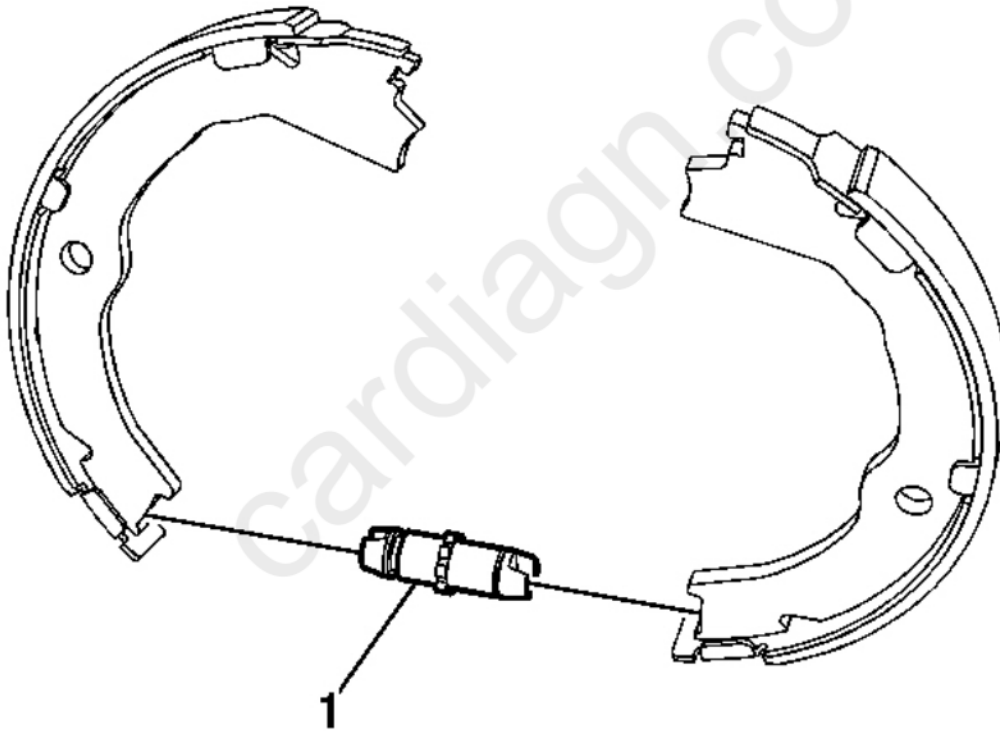


Fig. 16: Identifying Park Brake Shoe Adjuster
Courtesy of GENERAL MOTORS CORP.

1. Install the park brake shoe adjuster (1) to the park brake shoes.

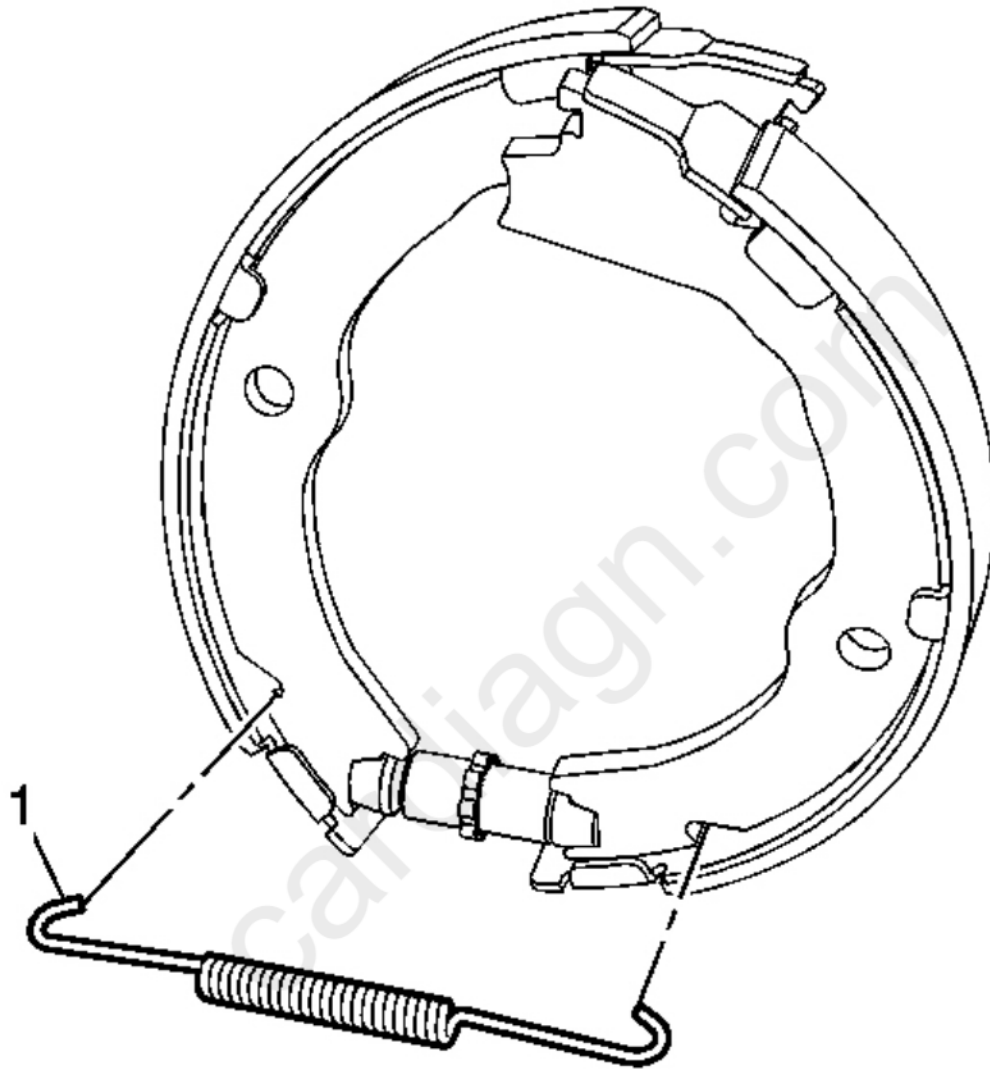


Fig. 17: View Of Park Brake Shoe Lower Return Spring
Courtesy of GENERAL MOTORS CORP.

2. Cross the top of one of the park brake shoe over the opposite park brake shoe.
3. Install the park brake shoe return spring (1).
4. Clean the park brake shoe mounting plate.
5. Apply high temperature brake lubricant to the park brake shoe mounting plate contact points.

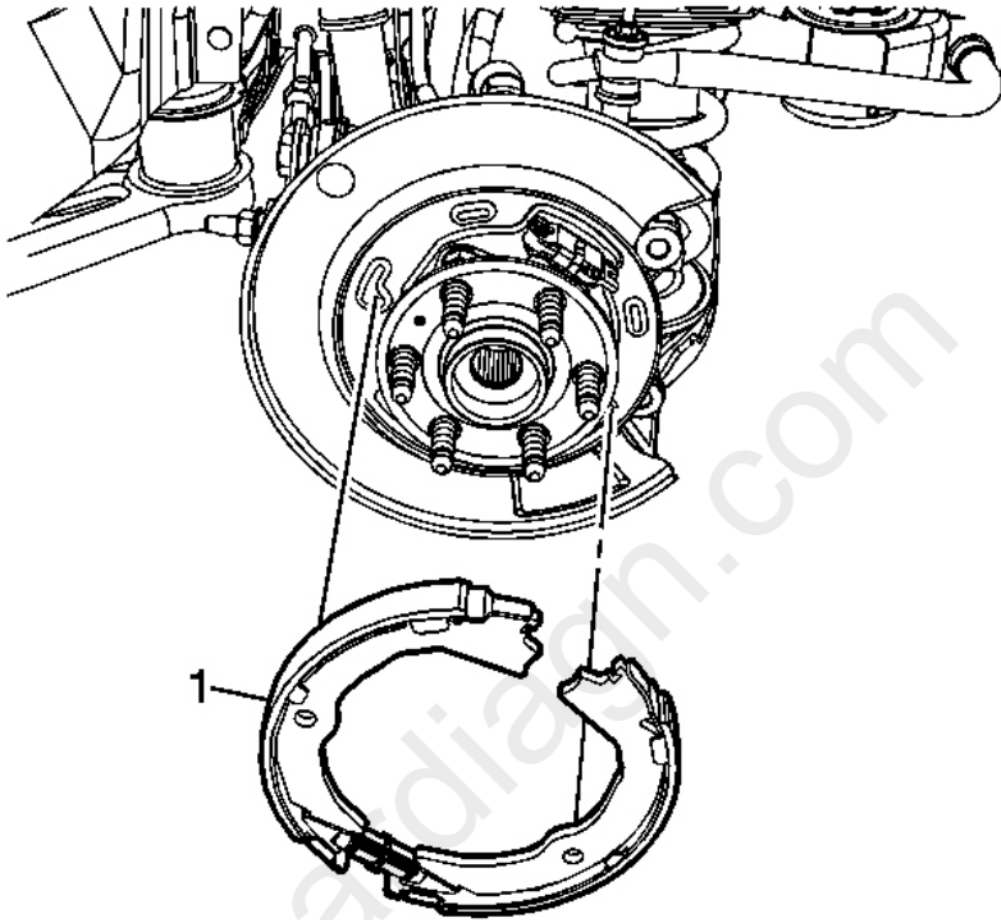


Fig. 18: View Of Park Brake Shoes

Courtesy of GENERAL MOTORS CORP.

6. Install the park brake shoes (1) by grasping the shoes near the park brake shoe actuator, spread the park brake shoes apart and lift around the wheel hub and bearing assembly.

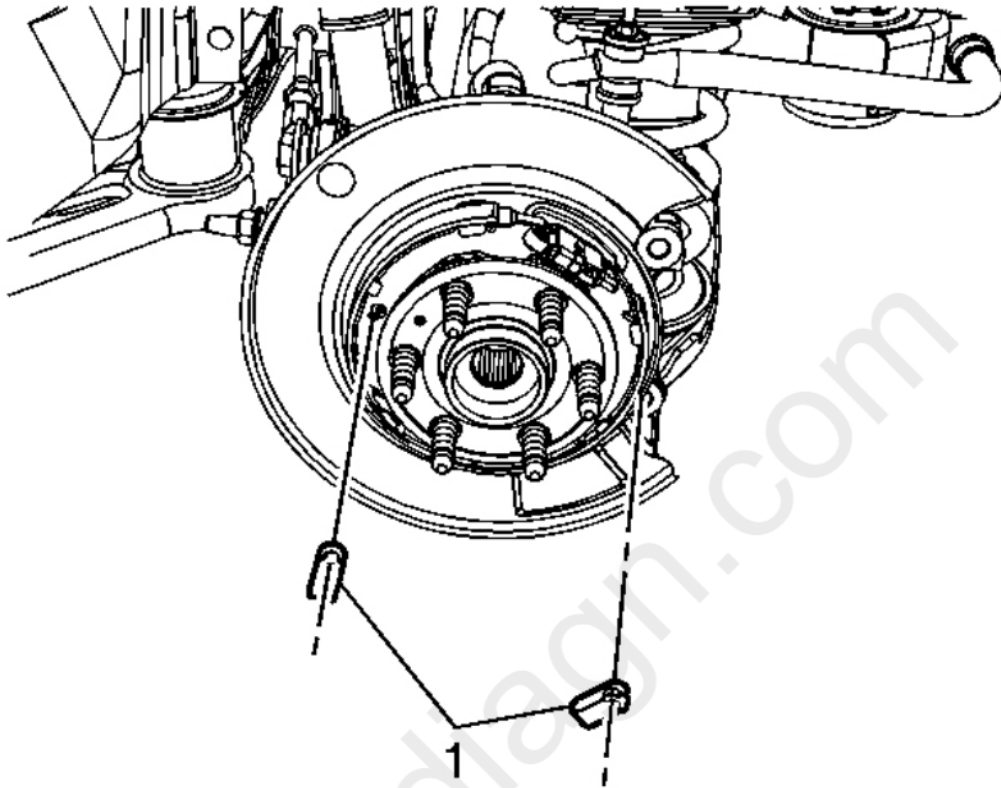


Fig. 19: Identifying Park Brake Shoe Hold Down Springs
Courtesy of GENERAL MOTORS CORP.

7. Install the hold down spring pins through the park brake shoe mounting plate.
8. Compress the park brake shoe hold down springs (1) and rotate the pins 1/4 turn to install the hold down springs.

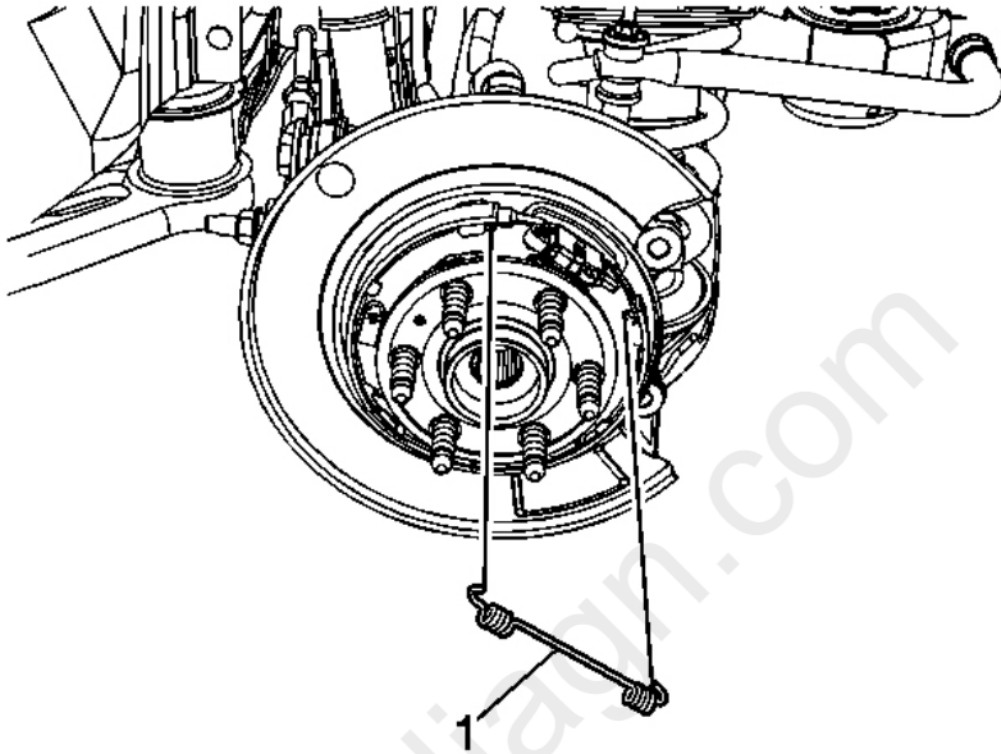


Fig. 2 : Identifying Park Brake Shoe Upper Return Spring
Courtesy of GENERAL MOTORS CORP.

9. Install the park brake shoe upper return spring (1).
10. Adjust the parking brake. Refer to **Parking Brake Adjustment**.
11. Install the rear brake rotor. Refer to **Rear Brake Rotor Replacement**.
12. Install the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation**.
13. Enable the parking brake cable adjuster. Refer to **Parking Brake Cable Adjuster Enabling**.

PAR KING BRA KES ITC REPLACEMENT

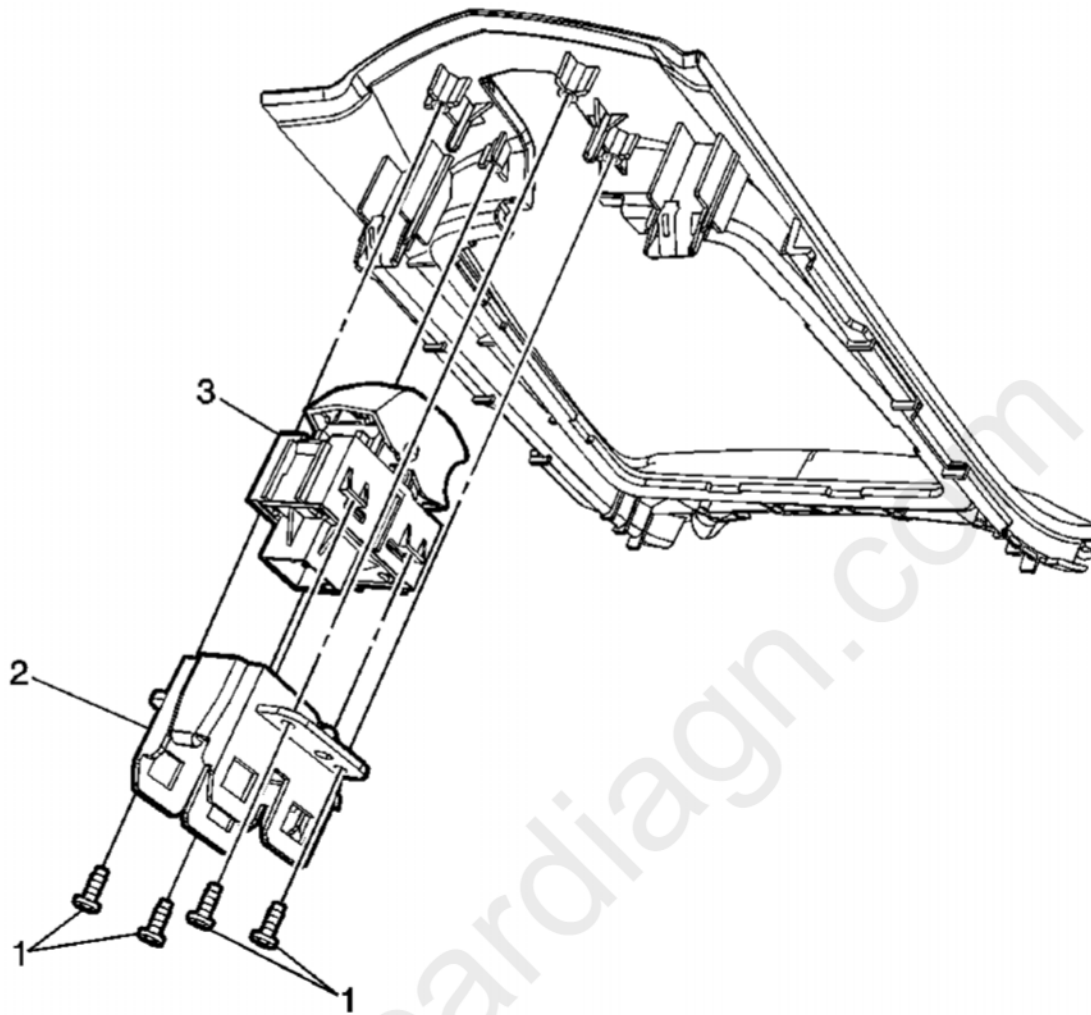


Fig. 2 : Identifying Parking Brake Switch
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures	
1. Remove the front floor console trim plate. Refer to <u>Front Floor Console Trim Plate Replacement</u> . 2. Disconnect the electrical connectors.	
1	Parking Brake Switch Bolt (Qty: 4) CAUTION: Refer to <u>Fastener Caution</u> . Tighten: 3 N.m (27 lb in)
2	Parking Brake Switch Retainer

PARKING BRAKE INTERMEDIATE CABLE REPLACEMENT**Removal Procedure**

1. Disable the parking brake cable adjuster. Refer to Parking Brake Cable Adjuster Disabling.
2. Turn the ignition to the OFF position.
3. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
4. If equipped with AWD, lower the rear suspension support approximately 152-254 mm (6-10 in) to access the cable connectors. Refer to Rear Suspension Support Replacement A or Rear Suspension Support Replacement F.

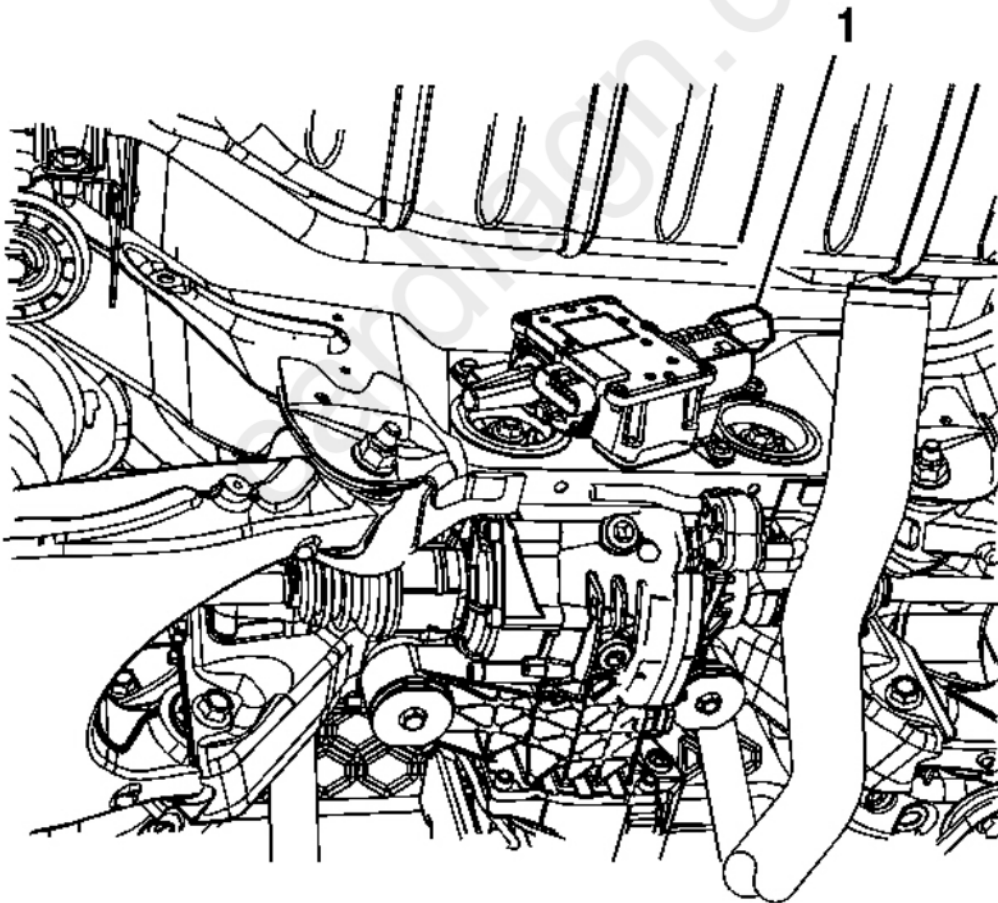


Fig. 22: Identifying Parking Brake Intermediate Cable Nut

Courtesy of GENERAL MOTORS CORP.

5. Disconnect the parking brake intermediate cable (1) from the electronic parking brake control module by rotating the cable nut counterclockwise.

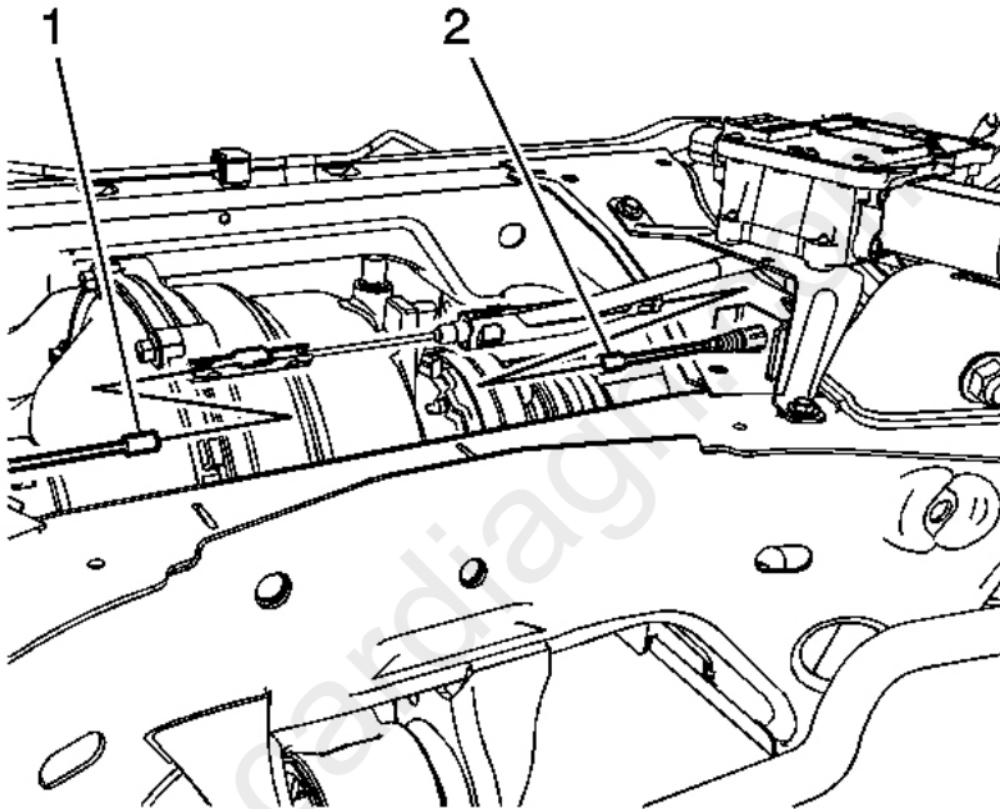


Fig. 2 : Identifying Park Brake Cable Fittings
Courtesy of GENERAL MOTORS CORP.

6. Disconnect the left parking brake rear cable fitting (1) from the park brake cable.
7. Disconnect the right parking brake rear cable fitting (2) from the park brake cable.

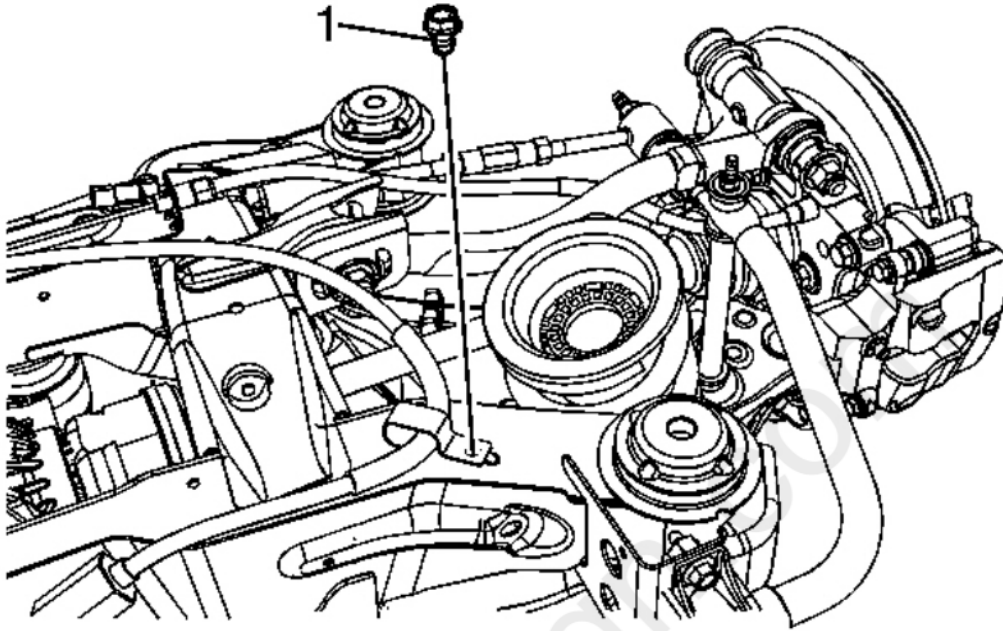


Fig. 2 : Identifying Parking Brake Intermediate Cable Clip Bolt
Courtesy of GENERAL MOTORS CORP.

8. Remove the parking brake intermediate cable clip bolt (1).

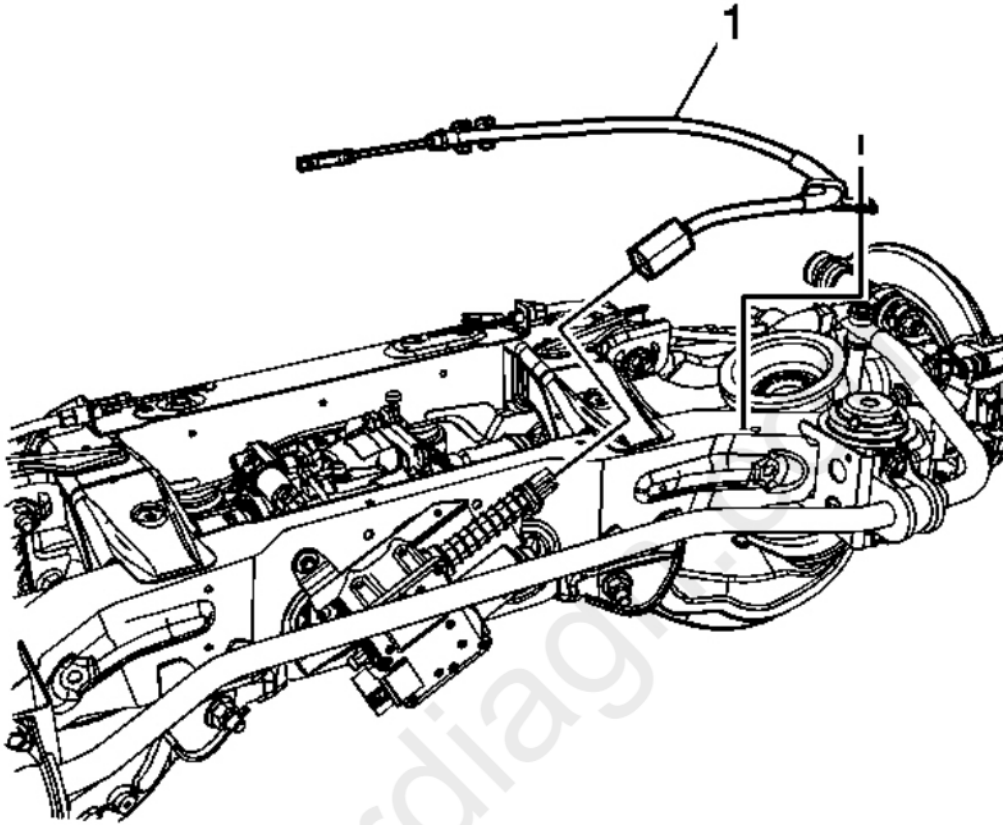


Fig. 25: Identifying Parking Brake Intermediate Cable
Courtesy of GENERAL MOTORS CORP.

9. Remove the parking brake intermediate cable (1).

Installation Procedure

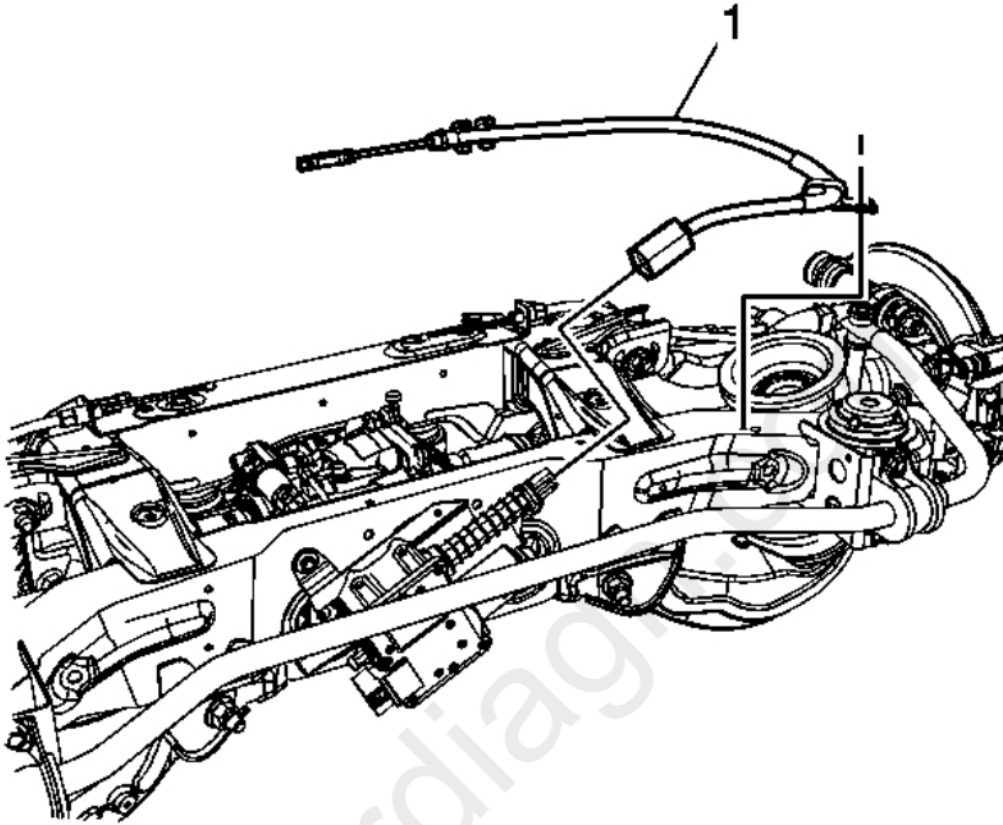


Fig. 26: Identifying Parking Brake Intermediate Cable
Courtesy of GENERAL MOTORS CORP.

1. Install the parking brake intermediate cable (1).

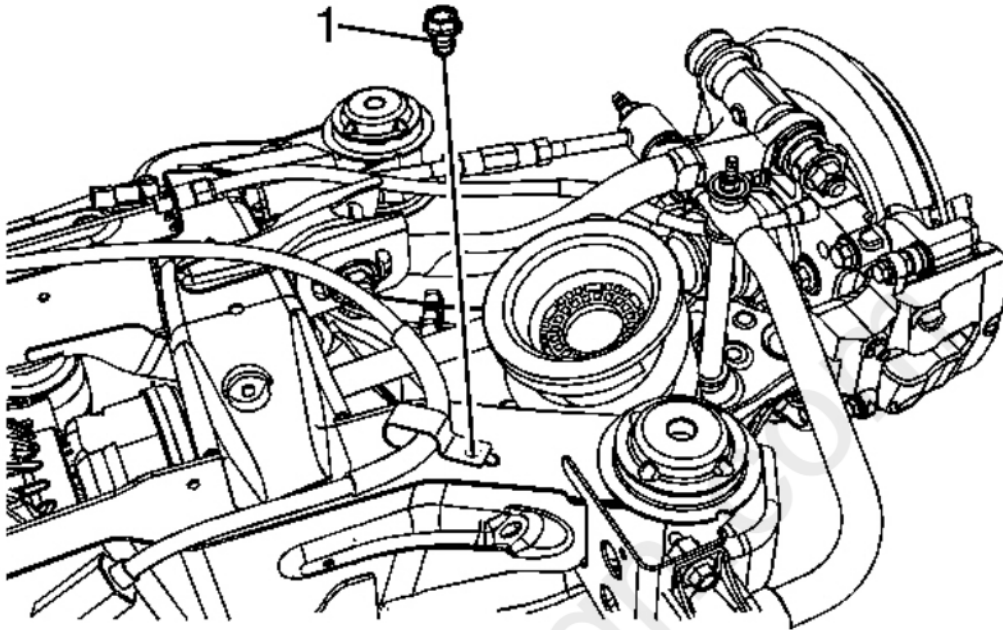


Fig. 27: Identifying Parking Brake Intermediate Cable Clip Bolt
Courtesy of GENERAL MOTORS CORP.

CAUTION: Refer to Fastener Caution .

2. Install the parking brake intermediate cable clip bolt (1) and tighten to 17 N.m (13 lb ft).

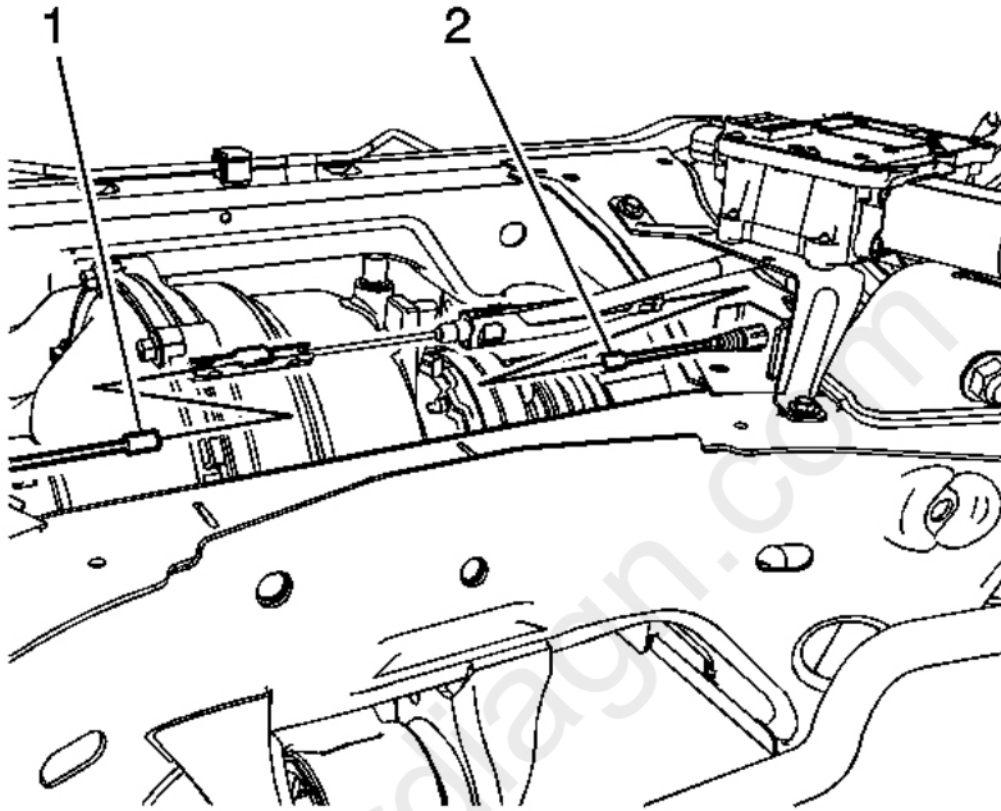


Fig. 28: Identifying Park Brake Cable Fittings
Courtesy of GENERAL MOTORS CORP.

3. Connect the left parking brake rear cable fitting (1) to the parking brake intermediate cable.
4. Connect the right parking brake rear cable fitting (2) to the parking brake intermediate cable.

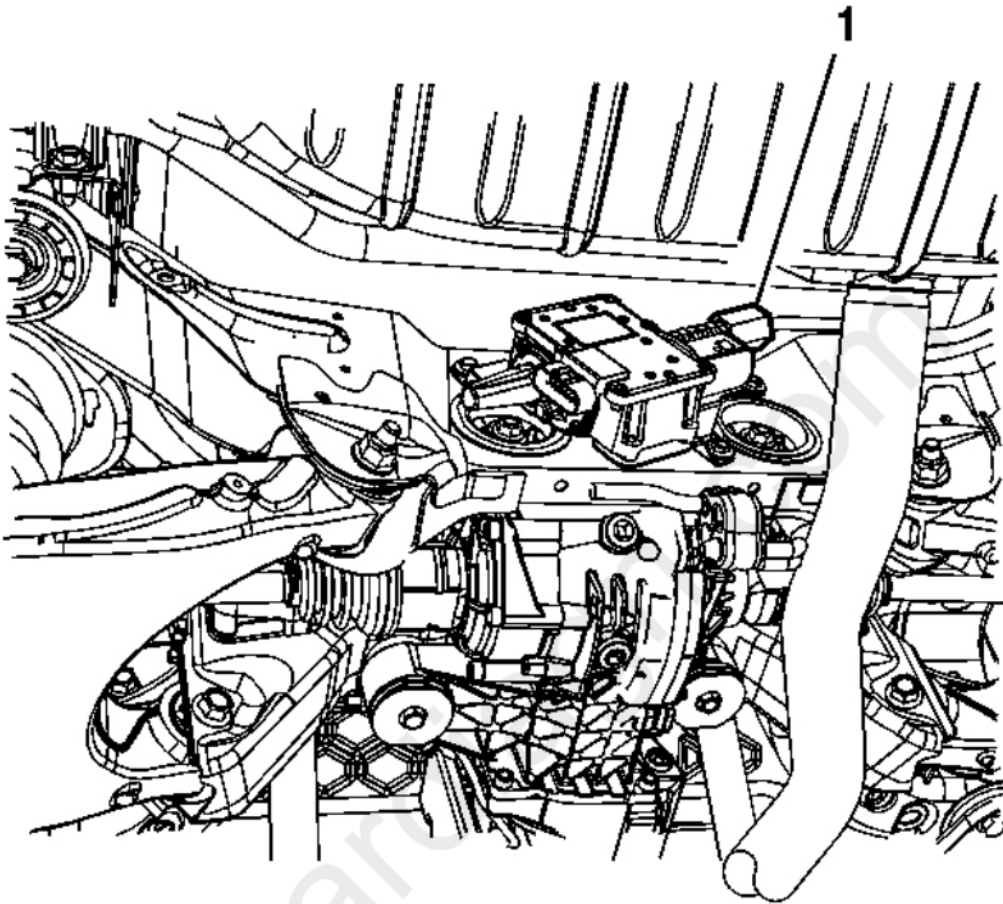


Fig. 29: Identifying Parking Brake Intermediate Cable Nut
Courtesy of GENERAL MOTORS CORP.

NOTE: Ensure the park brake cable fitting is engaged in the actuator in the spindle.

5. Install the parking brake intermediate cable fitting to the spindle.

NOTE: When installing the parking brake intermediate cable nut to the electronic parking brake control module spindle, hold the spindle housing securely to avoid distorting the housing.

6. Install the parking brake intermediate cable nut (1) to the electronic parking brake control module spindle by rotating the nut clockwise and tighten to 6 N.m (53 lb in).
7. If equipped with AWD, install the rear suspension support. Refer to **Rear Suspension Support**

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2010 BRAKES Park Brake - SRX

Replacement (AWD) or Rear Suspension Support Replacement (FWD) .

8. Enable the parking brake cable adjuster. Refer to **Parking Brake Cable Adjuster Enabling.**

PARKING BRAKE REAR CABLE REPLACEMENT - LEFT SIDE (FWD)

Special Tools

CH-37043: Parking Brake Cable Release Tool

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

Removal Procedure

WARNIN : Refer to Brake ust Warning .

1. Disable the parking brake cable adjuster. Refer to **Parking Brake Cable Adjuster Disabling.**
2. Turn the ignition to the OFF position.
3. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle .**
4. Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation .**
5. Remove the parking brake shoes. Refer to **Parking Brake Shoe Replacement.**

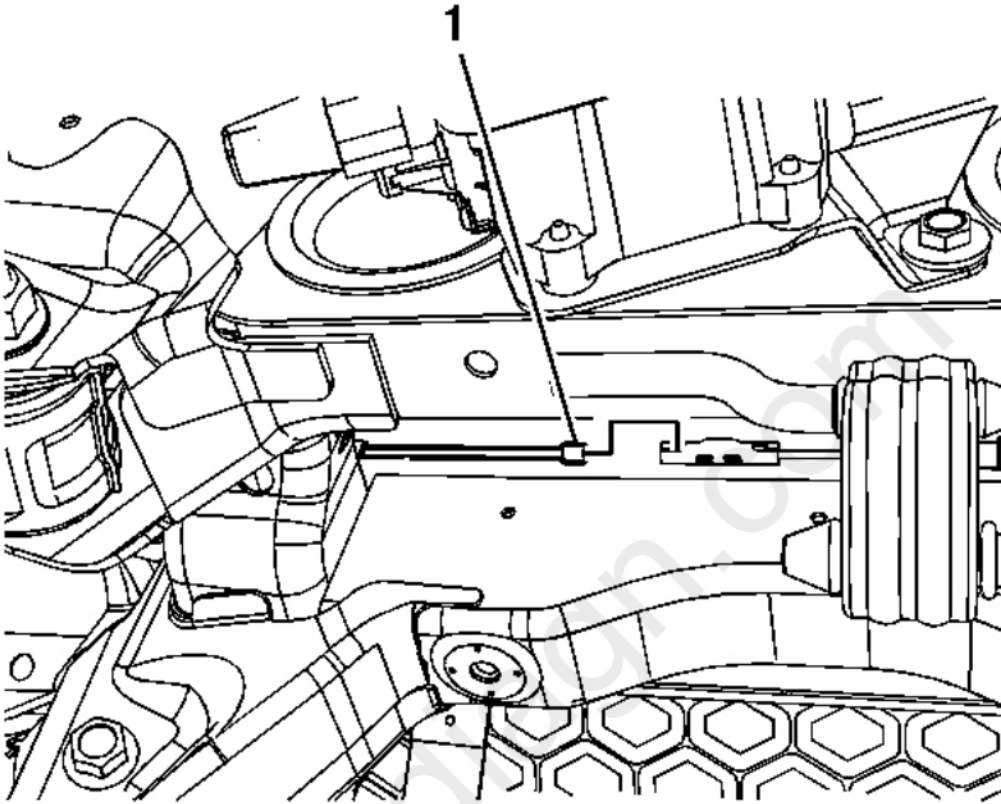


Fig. 30: Identifying Left Parking Brake Cable Fitting
Courtesy of GENERAL MOTORS CORP.

6. Disconnect the left parking brake cable fitting (1) from the parking brake intermediate cable connector.

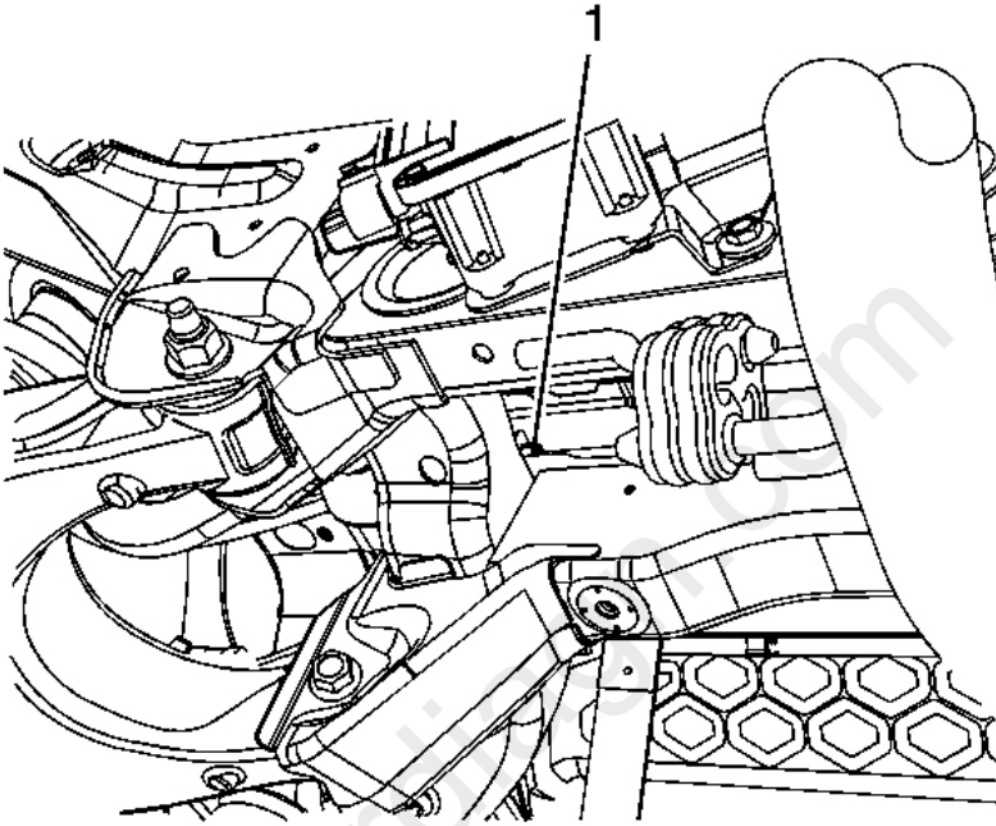


Fig. 31: Identifying Left Parking Brake Cable Conduit

Courtesy of GENERAL MOTORS CORP.

7. Using the **CH-37043: Parking Brake Cable Release Tool**, compress the locking tabs on the left parking brake cable conduit (1) and remove the cable from the rear frame bracket.

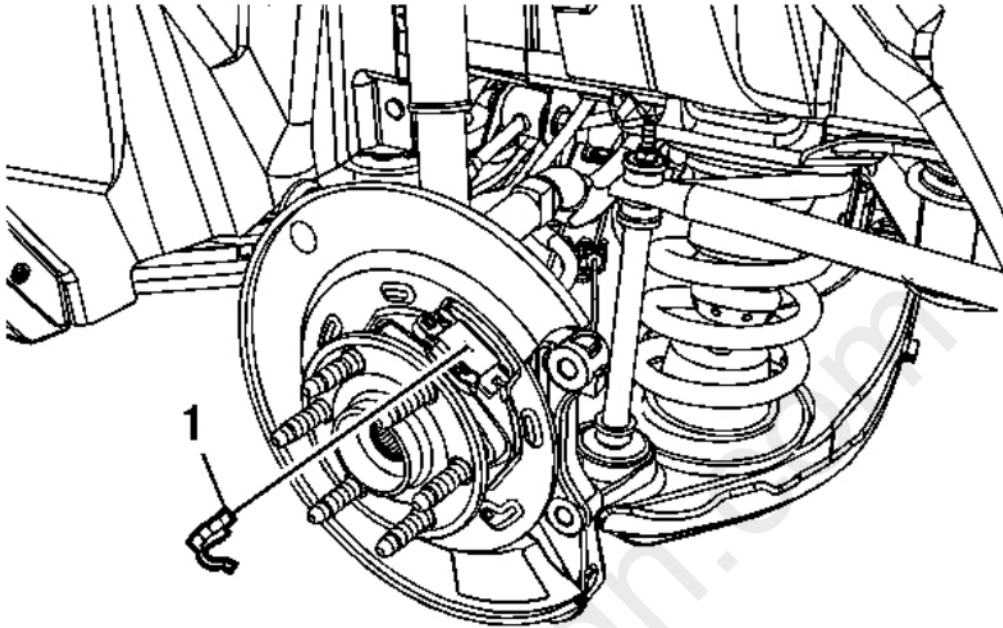


Fig. 32: Identifying Left Parking Brake Actuator Assembly Spring Clip
Courtesy of GENERAL MOTORS CORP.

8. Remove the left parking brake actuator assembly spring clip (1).
9. Press the parking brake actuator arm inward and release the parking brake rear cable fitting from the actuator.

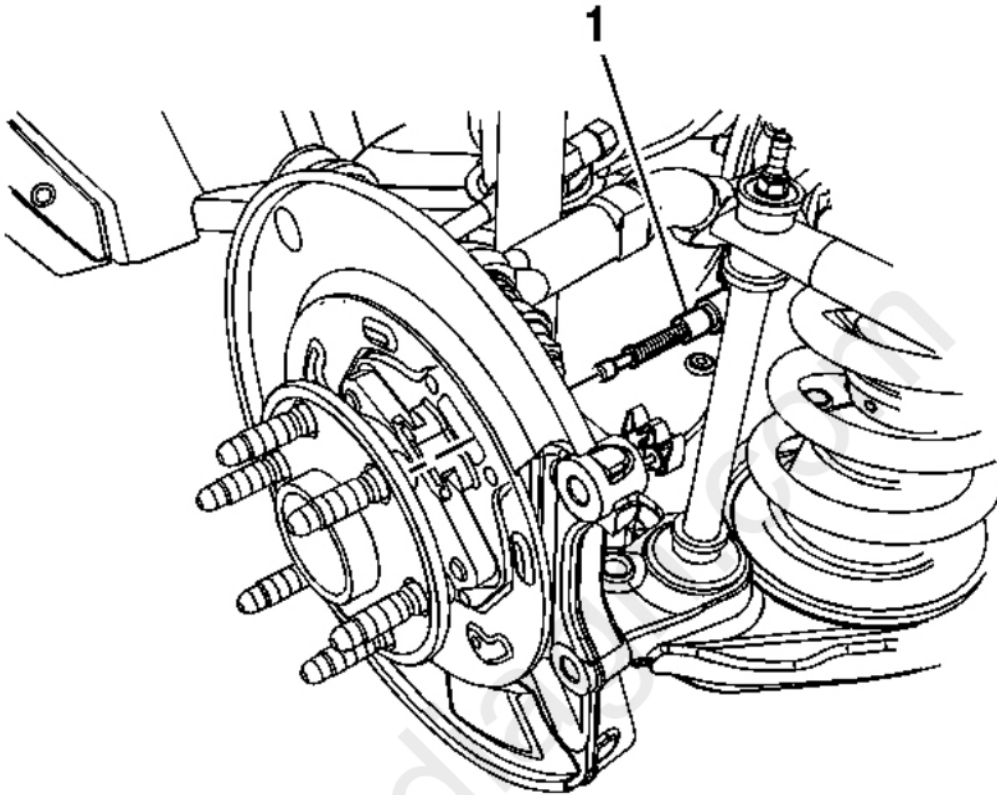


Fig. 33: Locating Parking Brake Rear Cable
Courtesy of GENERAL MOTORS CORP.

NOTE: The parking brake rear cable is secured to the rear suspension knuckle with an integral spring clip interference fit.

10. Grasp the parking brake rear cable (1) and pull the cable assembly inward to release the cable conduit from the rear suspension knuckle.
11. Remove the parking brake rear cable.

Installation Procedure

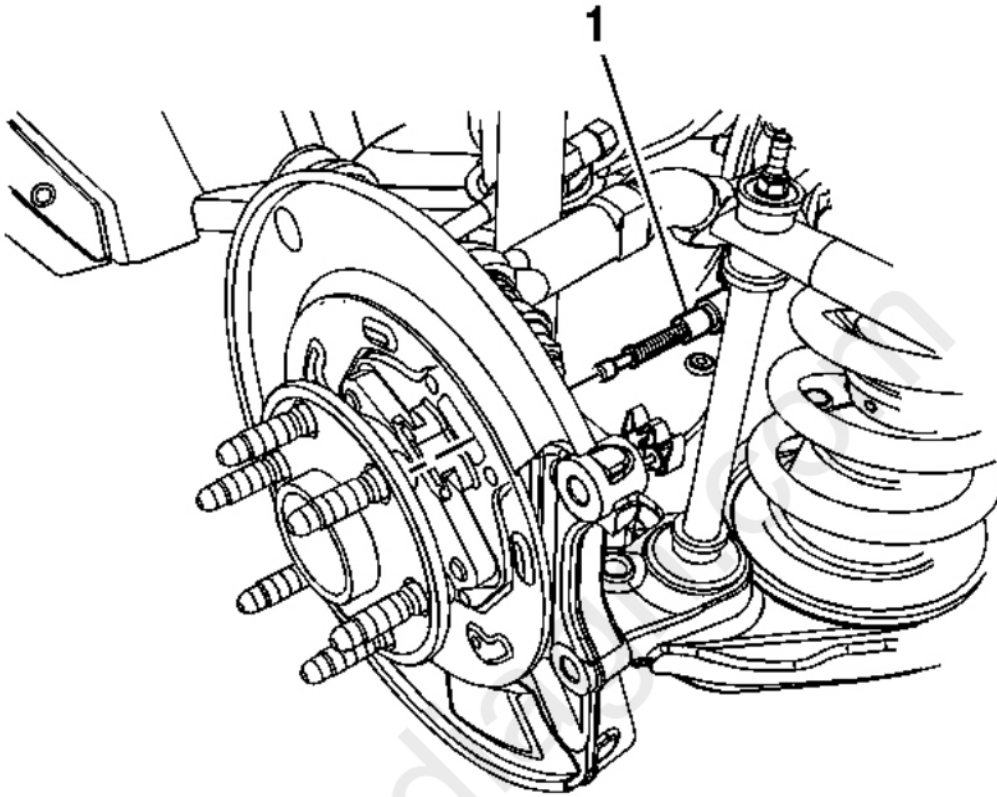


Fig. 34: Locating Parking Brake Rear Cable
Courtesy of GENERAL MOTORS CORP.

NOTE: The parking brake rear cable is secured to the rear suspension knuckle with an integral spring clip interference fit.

1. Insert the parking brake rear cable (1) into the rear suspension knuckle.
2. Ensure the parking brake rear cable is inserted fully into the rear suspension knuckle.

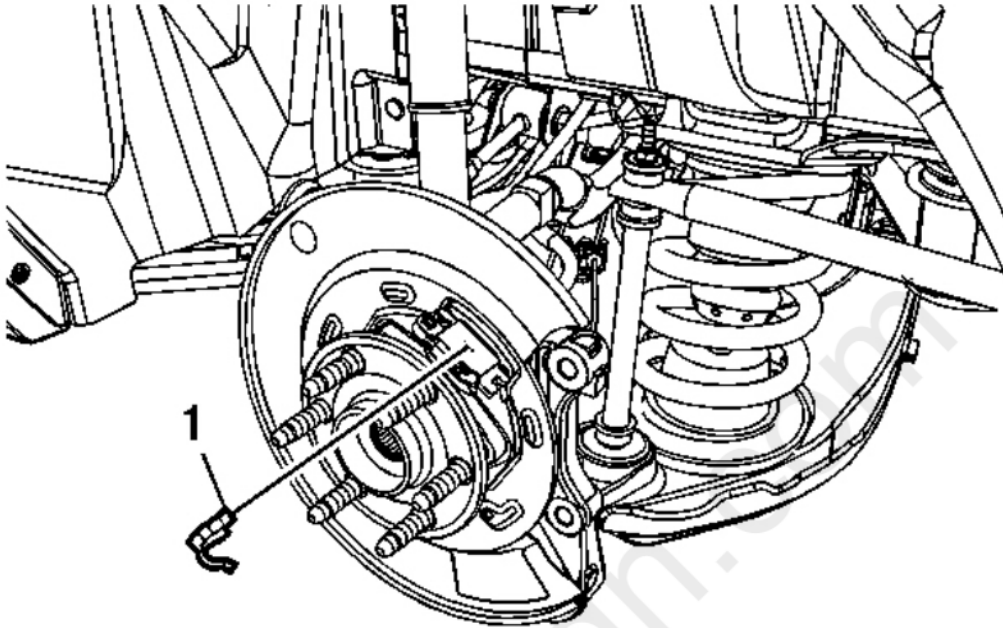


Fig. 35: Identifying Left Parking Brake Actuator Assembly Spring Clip
Courtesy of GENERAL MOTORS CORP.

3. Press the parking brake actuator arm inward and install the parking brake rear cable to from the actuator.
4. Install the left parking brake actuator assembly spring clip (1).

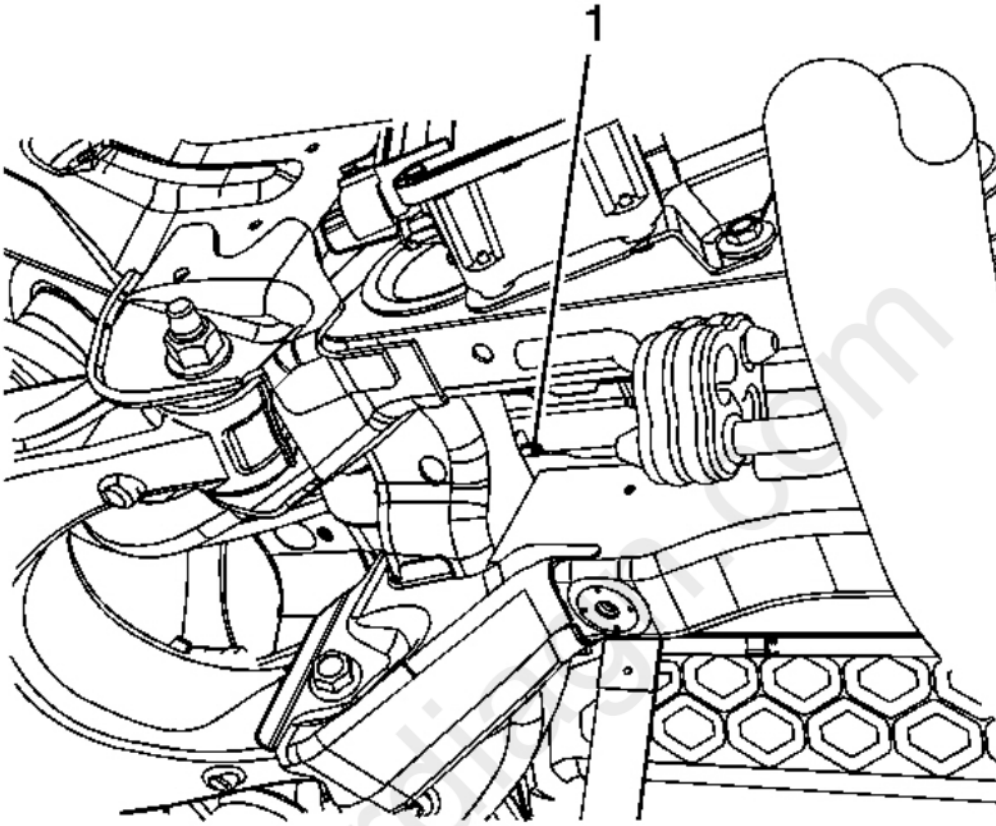


Fig. 3 : Identifying Left Parking Brake Cable Conduit
Courtesy of GENERAL MOTORS CORP.

5. Install the parking brake rear cable and conduit (1) to the rear frame bracket.
6. Ensure the parking brake rear cable conduit locking tabs are fully engaged to the rear frame bracket.

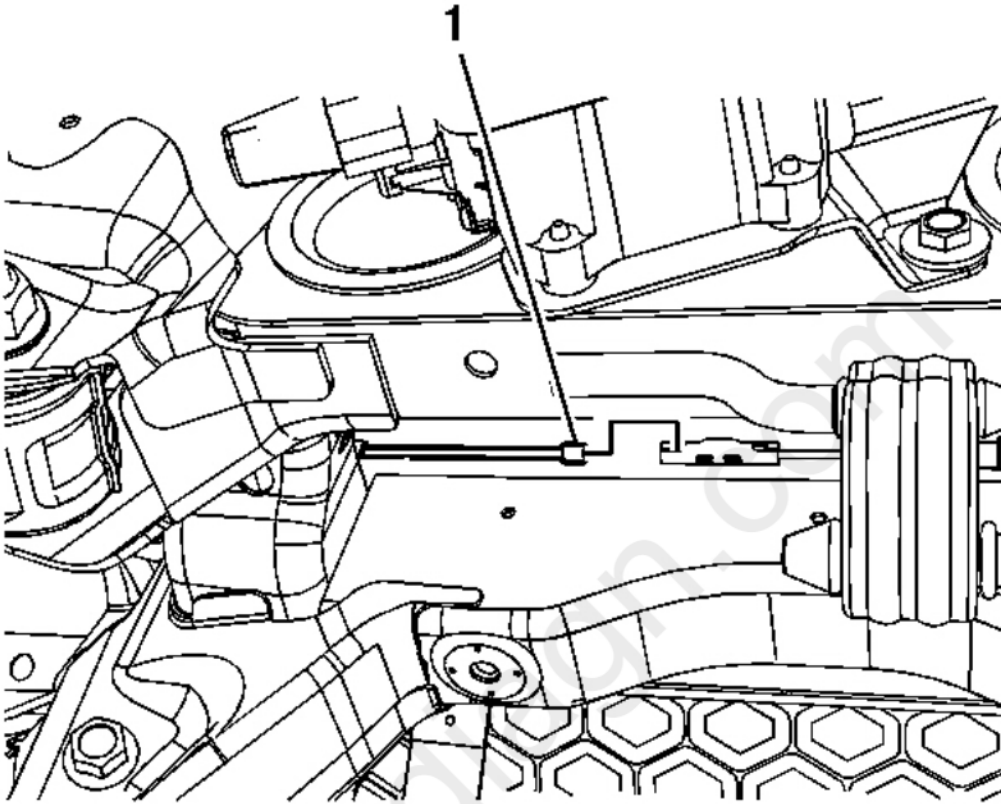


Fig. 37: Identifying Left Parking Brake Cable Fitting
Courtesy of GENERAL MOTORS CORP.

7. Connect the left parking brake cable fitting (1) to the parking brake intermediate cable connector.
8. Install the parking brake shoes. Refer to **Parking Brake Shoe Replacement**.
9. Install the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation**.
10. Enable the parking brake cable adjuster. Refer to **Parking Brake Cable Adjuster Disabling**.

PARKING BRAKE REAR CABLE REPLACEMENT - LEFT SIDE (AWD)

Special Tools

CH-37043: Parking Brake Cable Release Tool

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

Removal Procedure

WARNIN : Refer to ake ust Warning .

1. Disable the parking brake cable adjuster. Refer to Parking Brake Cable Adjuster Disabling.
2. Turn the ignition to the OFF position.
3. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle .
4. Remove the tire and wheel assembly. Refer to Tire and Wheel Removal and Installation .
5. Remove the parking brake shoes. Refer to Parking Brake Shoe Replacement.
6. Lower the rear suspension support approximately 152-254 mm (6-10 in). Refer to Rear Suspension Support Replacement (AWD) or Rear Suspension Support Replacement (FWD) .

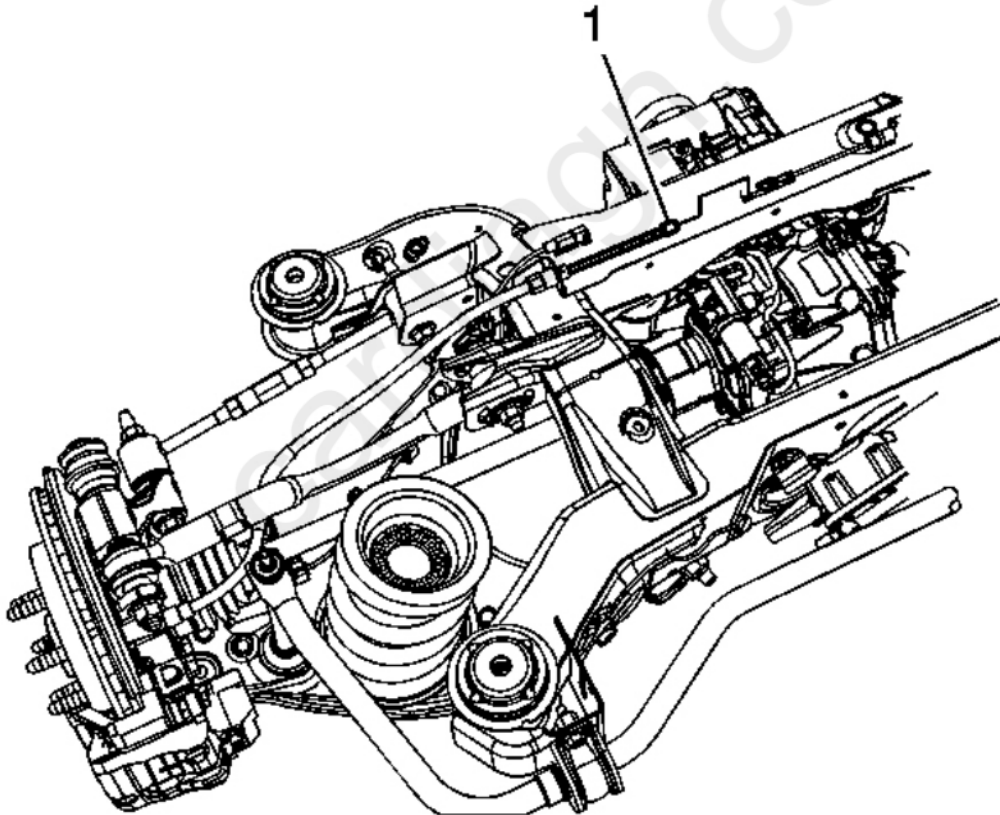


Fig. 3 : Identifying Left Parking Brake Cable Fitting & Parking Brake Intermediate Cable Connector

Courtesy of GENERAL MOTORS CORP.

7. Disconnect the left parking brake cable fitting (1) from the parking brake intermediate cable connector.

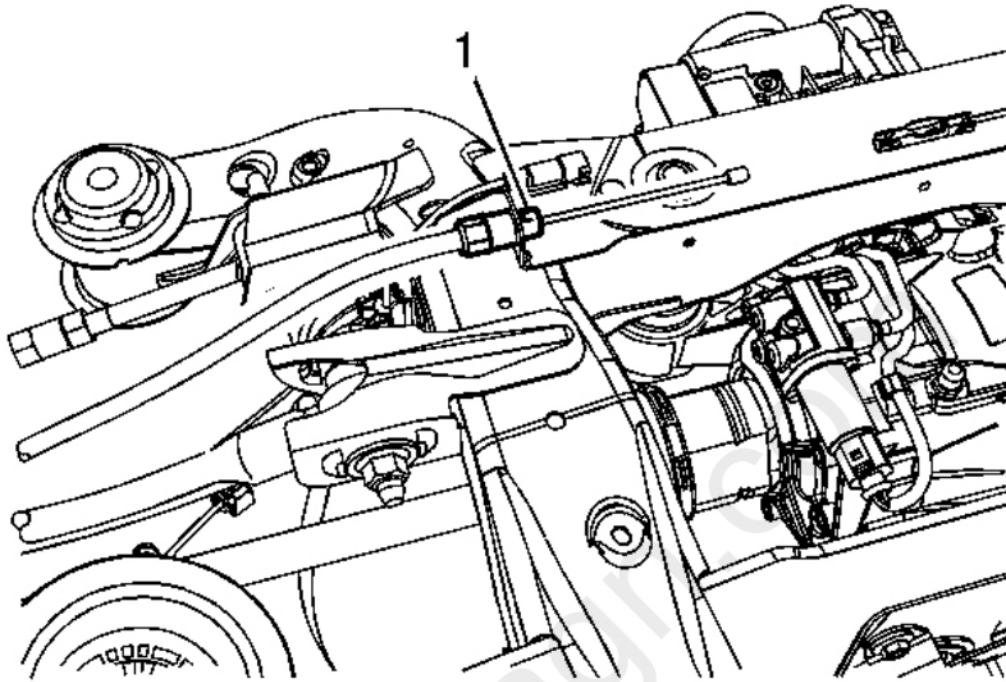


Fig. 39: Identifying Left Parking Brake Cable Conduit
Courtesy of GENERAL MOTORS CORP.

8. Using the **CH-37043: Parking Brake Cable Release Tool**, compress the locking tabs on the left parking brake cable conduit (1) and remove the cable from the rear frame bracket.

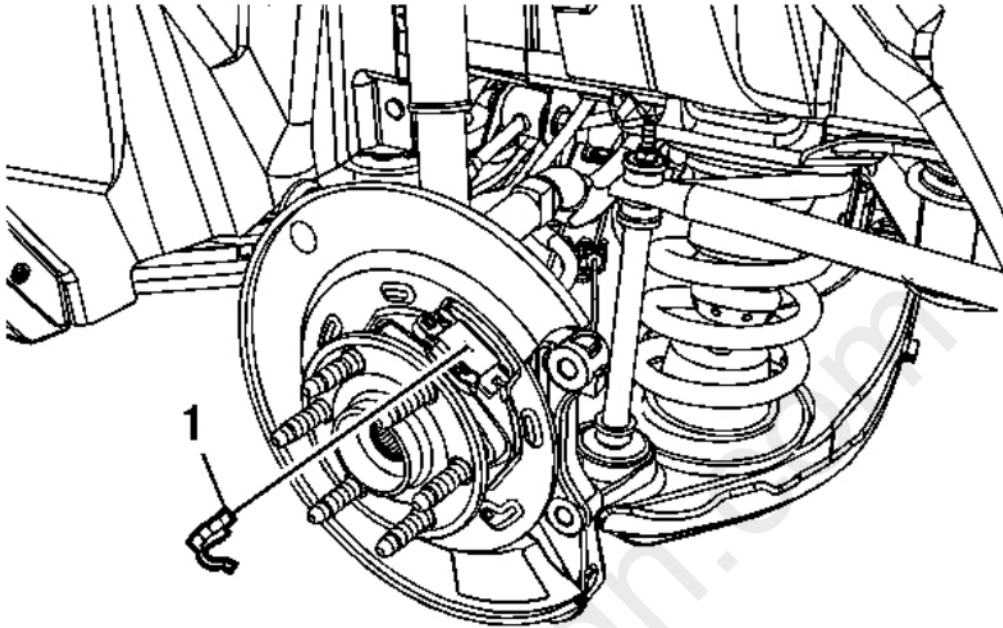


Fig. 40: Identifying Left Parking Brake Actuator Assembly Spring Clip
Courtesy of GENERAL MOTORS CORP.

9. Remove the left parking brake actuator assembly spring clip (1).
10. Press the parking brake actuator arm inward and release the parking brake rear cable fitting from the actuator.

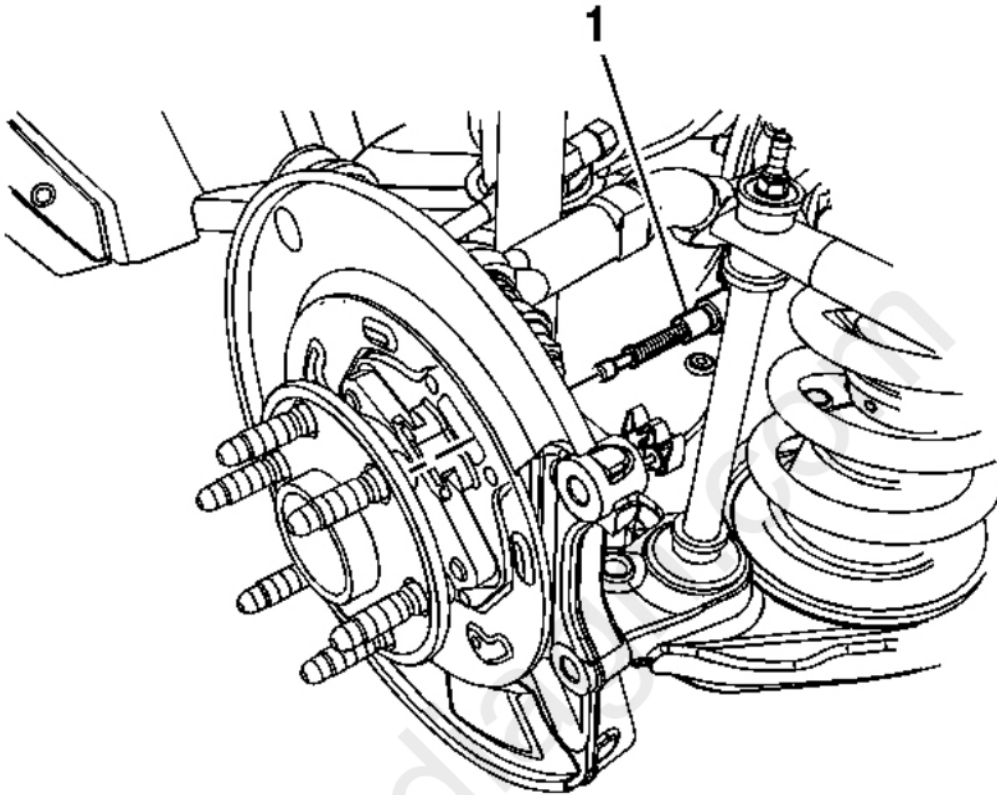


Fig. 41: Locating Parking Brake Rear Cable
Courtesy of GENERAL MOTORS CORP.

NOTE: The parking brake rear cable is secured to the rear suspension knuckle with an integral spring clip interference fit.

11. Grasp the parking brake rear cable (1) and pull the cable assembly inward to release the cable conduit from the rear suspension knuckle.
12. Remove the parking brake rear cable.

Installation Procedure

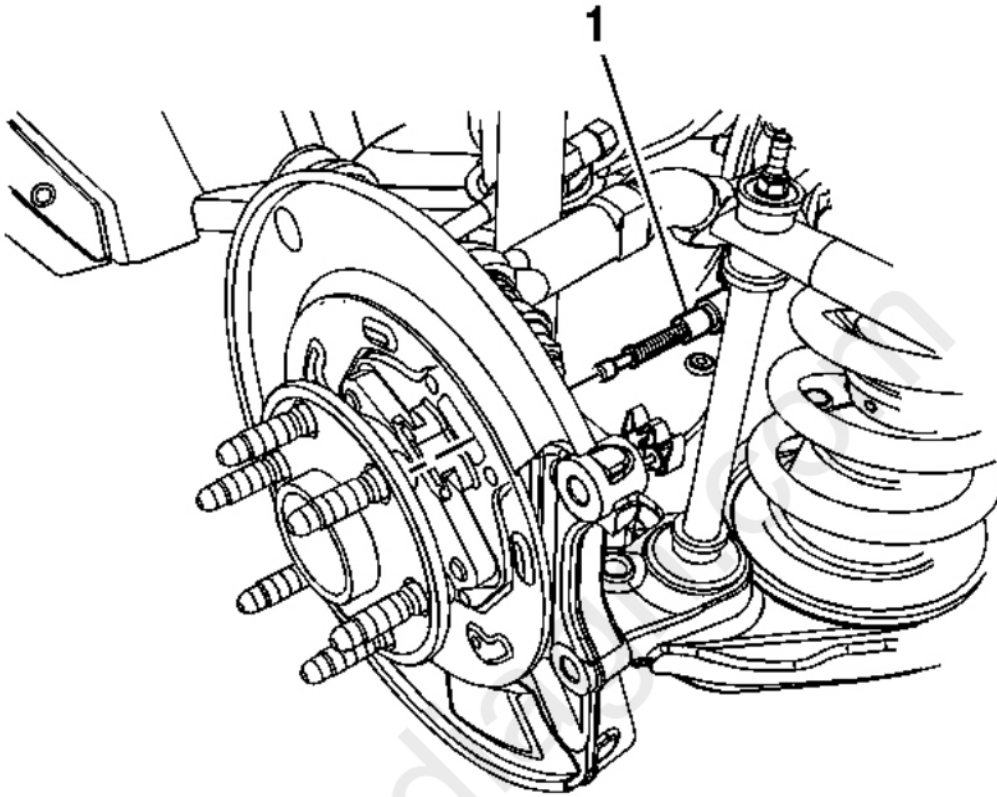


Fig. 42: Locating Parking Brake Rear Cable
Courtesy of GENERAL MOTORS CORP.

NOTE: The parking brake rear cable is secured to the rear suspension knuckle with an integral spring clip interference fit.

1. Insert the parking brake rear cable (1) into the rear suspension knuckle.
2. Ensure the parking brake rear cable is inserted fully into the rear suspension knuckle.

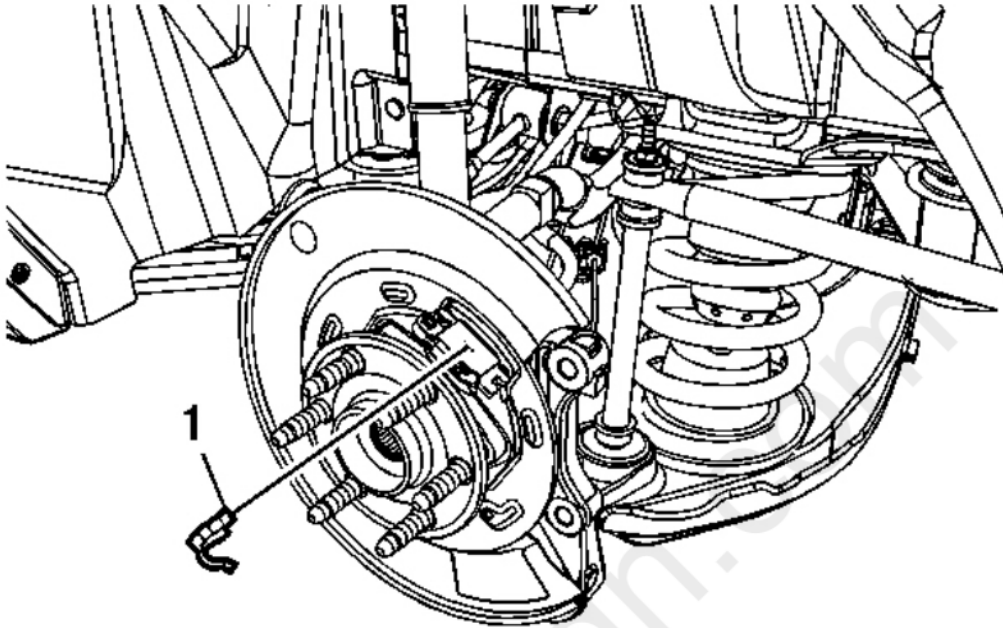


Fig. 43: Identifying Left Parking Brake Actuator Assembly Spring Clip
Courtesy of GENERAL MOTORS CORP.

3. Press the parking brake actuator arm inward and install the parking brake rear cable to from the actuator.
4. Install the left parking brake actuator assembly spring clip (1).

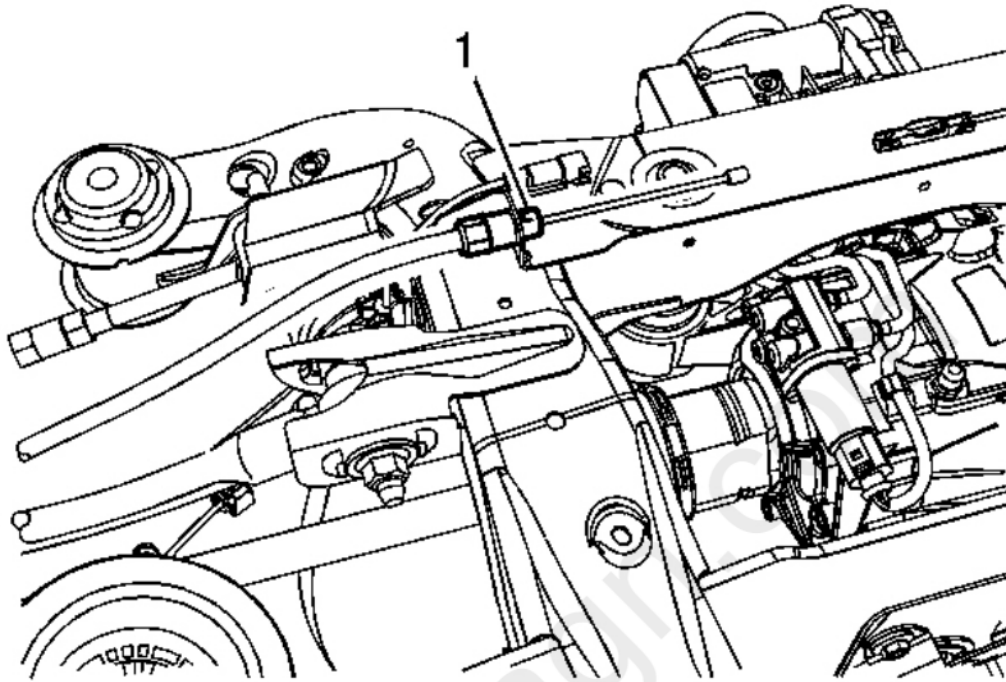


Fig. 44: Identifying Left Parking Brake Cable Conduit
Courtesy of GENERAL MOTORS CORP.

5. Install the parking brake rear cable and conduit (1) to the rear frame bracket.
6. Ensure the parking brake rear cable conduit locking tabs are fully engaged to the rear frame bracket.

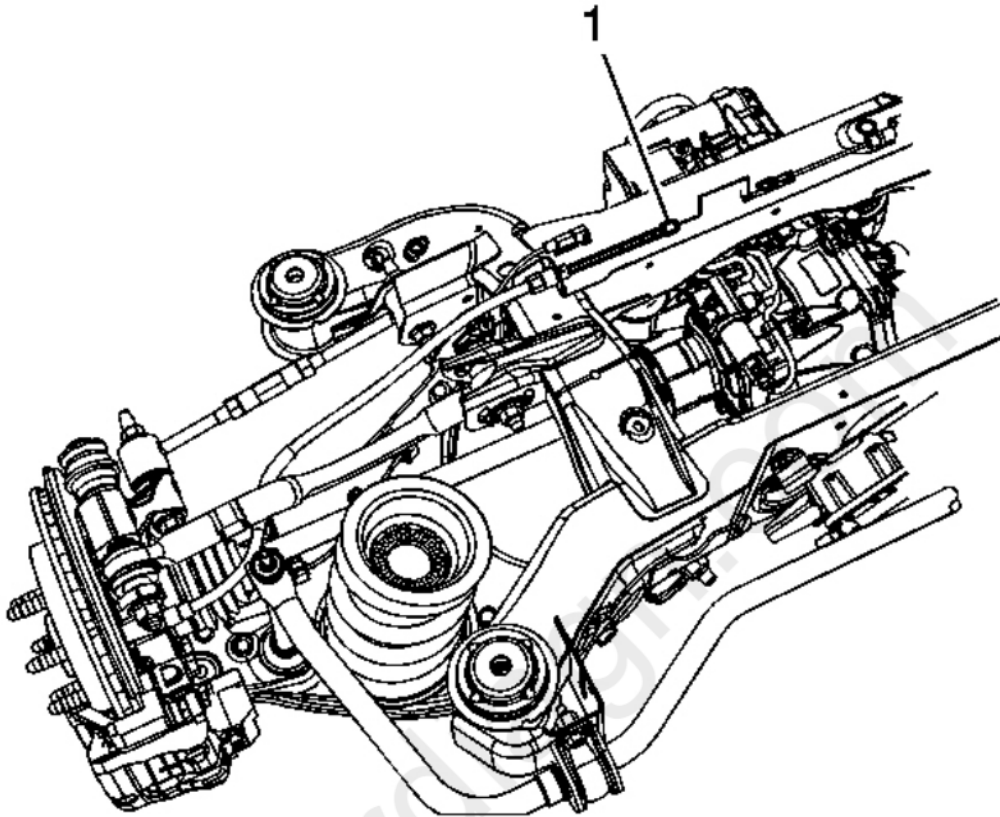


Fig. 45: Identifying Left Parking Brake Cable Fitting & Parking Brake Intermediate Cable Connector

Courtesy of GENERAL MOTORS CORP.

7. Connect the left parking brake cable fitting (1) to the parking brake intermediate cable connector.
8. Install the rear suspension support. Refer to **Rear Suspension Support Replacement (AWD)** or **Rear Suspension Support Replacement (FWD)** .
9. Install the parking brake shoes. Refer to **Parking Brake Shoe Replacement**.
10. Install the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
11. Enable the parking brake cable adjuster. Refer to **Parking Brake Cable Adjuster Disabling**.

PARKING BRAKE REAR CABLE REPLACEMENT - RIGHT SIDE (FWD)

Special Tools

CH-37043: Parking Brake Cable Release Tool

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

Removal Procedure

WARNIN : Refer to **Brake Adjust Warning** .

1. Disable the parking brake cable adjuster. Refer to **Parking Brake Cable Adjuster Disabling**.
2. Turn the ignition to the OFF position.
3. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
4. Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
5. Remove the parking brake shoes. Refer to **Parking Brake Shoe Replacement**.

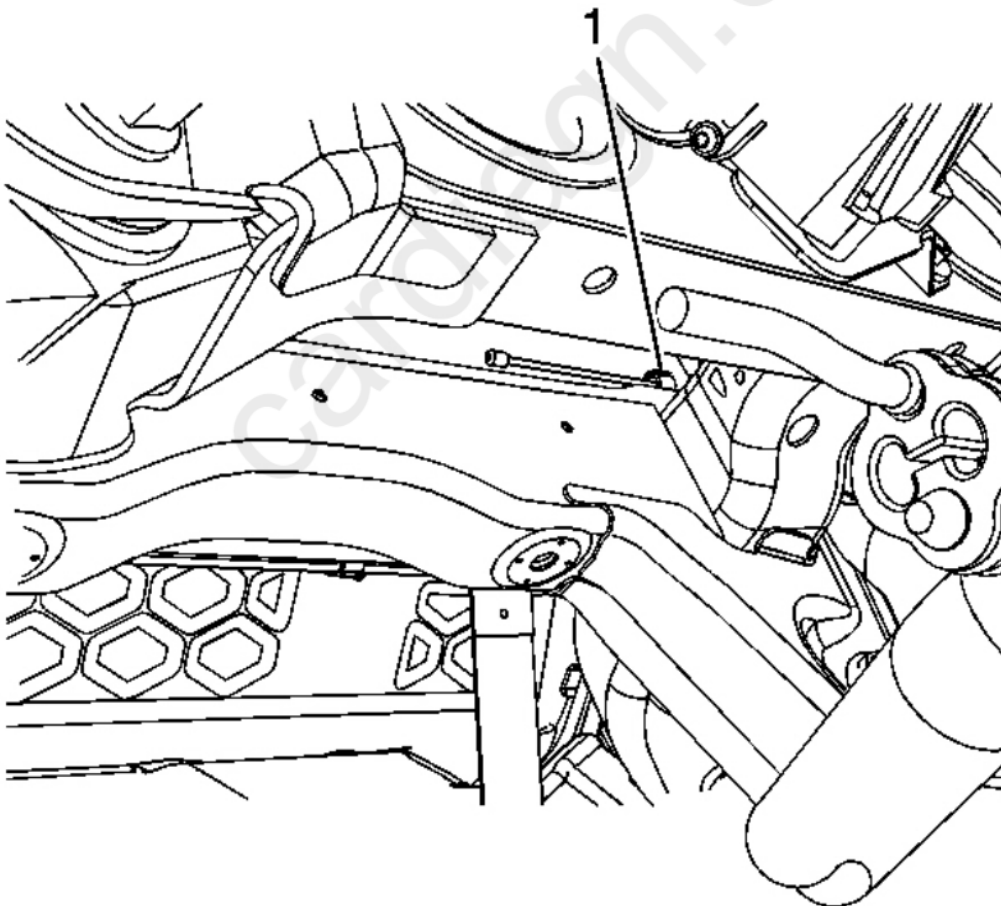


Fig. 4 : Identifying Right Parking Brake Cable Fitting & Parking Brake Intermediate Cable

Connector

Courtesy of GENERAL MOTORS CORP.

6. Disconnect the right parking brake cable fitting from the parking brake intermediate cable connector.
7. Using the **CH-37043: Parking Brake Cable Release Tool**, compress the locking tabs on the right parking brake cable conduit (1) and remove the cable from the rear frame bracket.

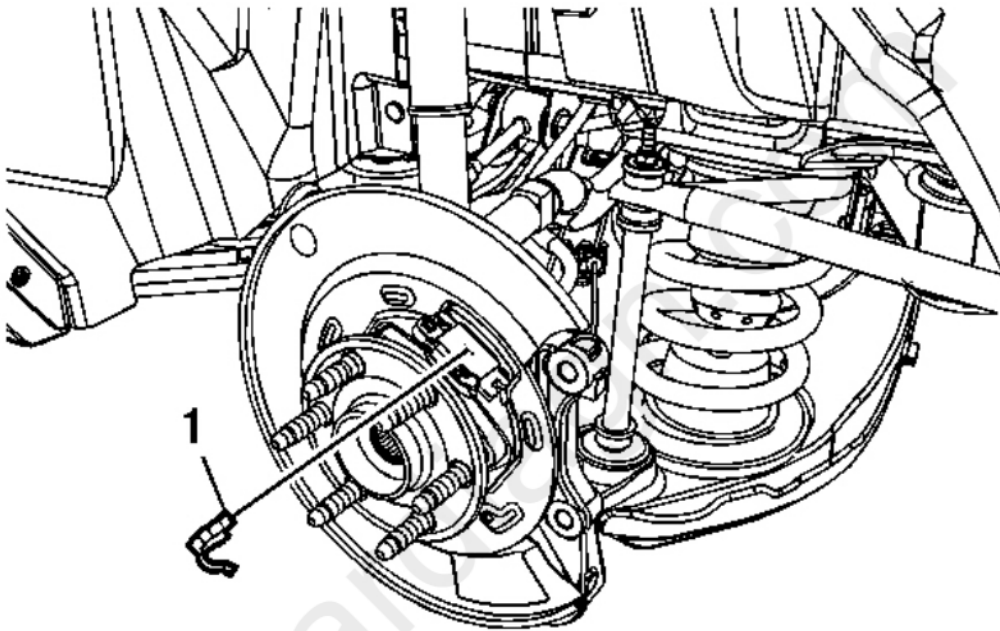


Fig. 47: Identifying Left Parking Brake Actuator Assembly Spring Clip

Courtesy of GENERAL MOTORS CORP.

8. Remove the left parking brake actuator assembly spring clip (1).
9. Press the parking brake actuator arm inward and release the parking brake rear cable fitting from the actuator.

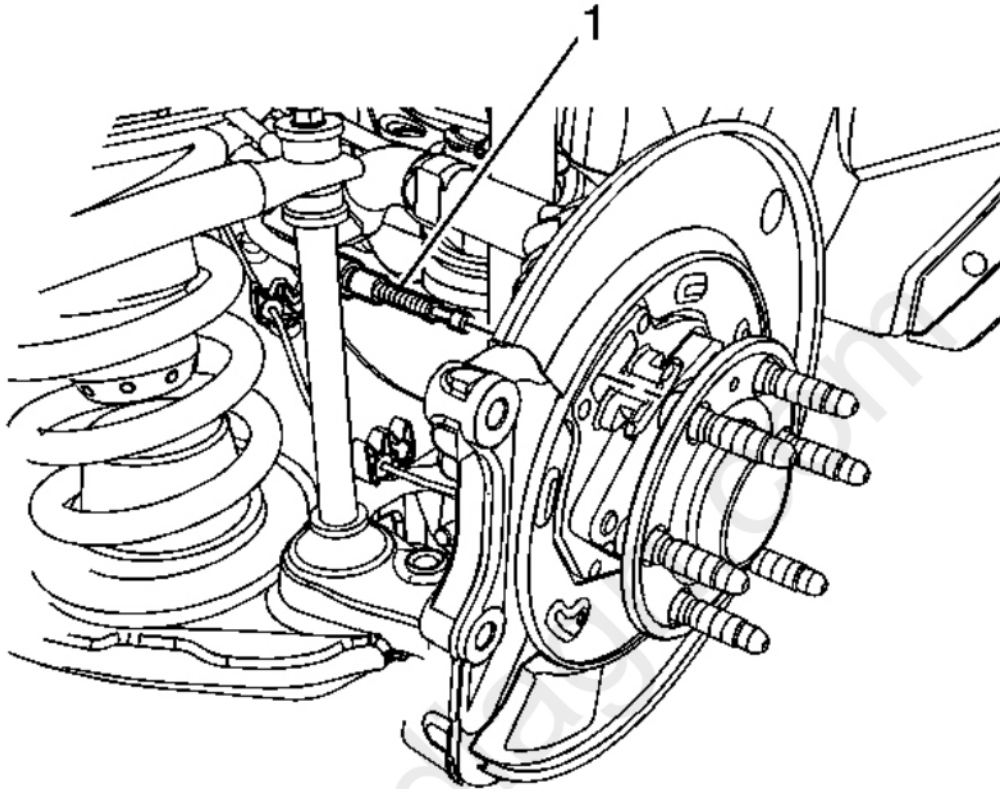


Fig. 4 : Identifying Parking Brake Rear Cable
Courtesy of GENERAL MOTORS CORP.

NOTE: The parking brake rear cable is secured to the rear suspension knuckle with an integral spring clip interference fit.

10. Grasp the parking brake rear cable (1) and pull the cable assembly inward to release the cable conduit from the rear suspension knuckle.
11. Remove the parking brake rear cable.

Installation Procedure

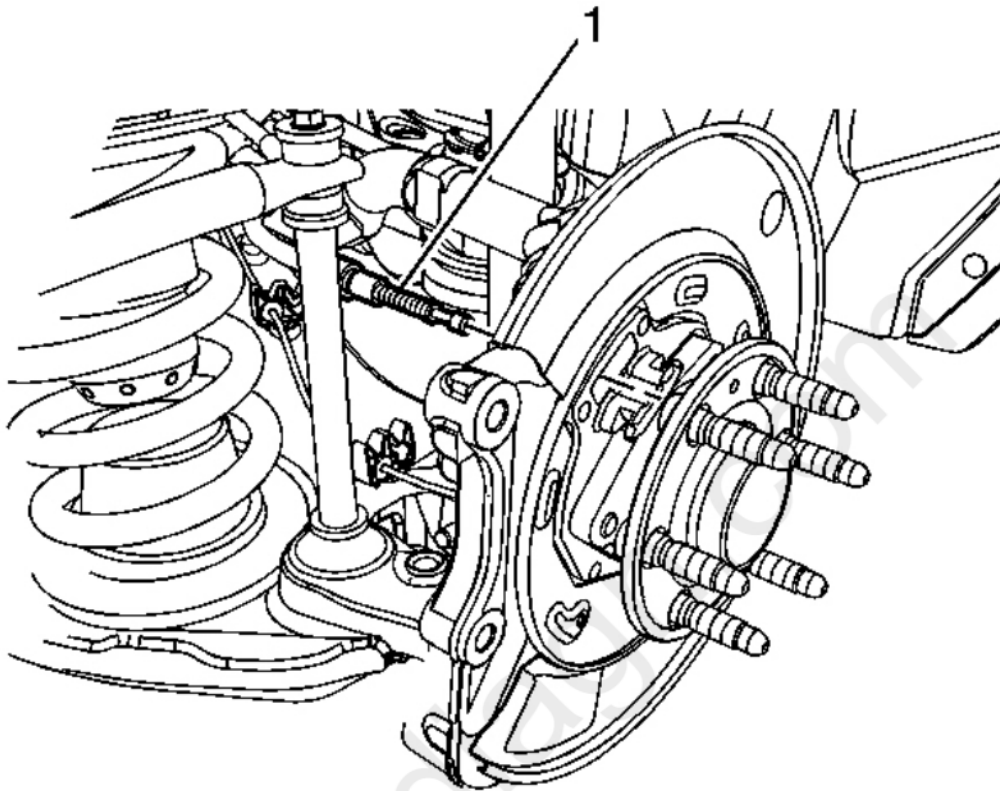


Fig. 49: Identifying Parking Brake Rear Cable
Courtesy of GENERAL MOTORS CORP.

NOTE: The parking brake rear cable is secured to the rear suspension knuckle with an integral spring clip interference fit.

1. Insert the parking brake rear cable (1) into the rear suspension knuckle.
2. Ensure the parking brake rear cable is inserted fully into the rear suspension knuckle.

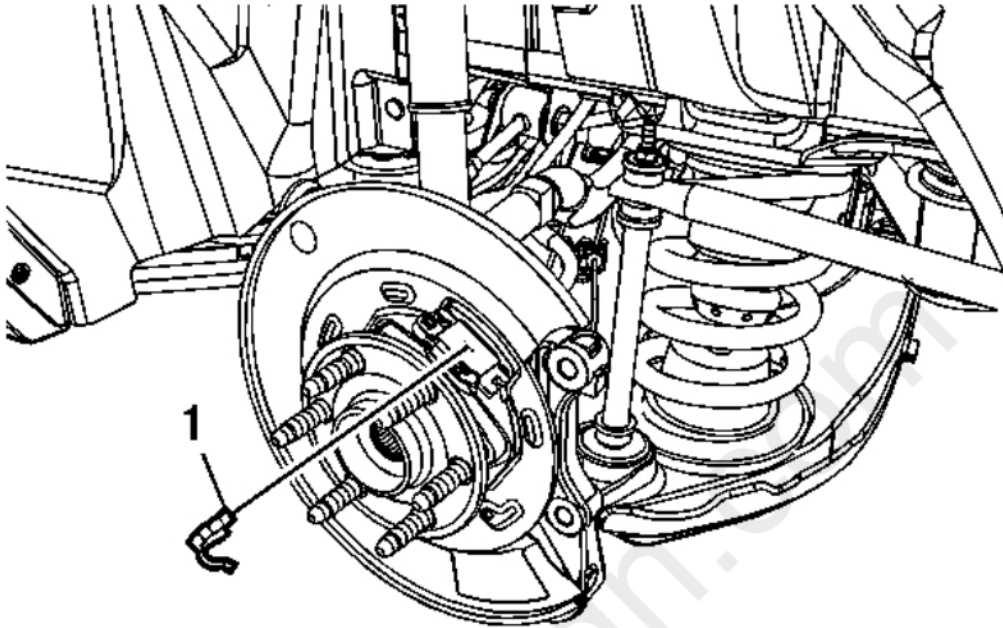


Fig. 50: Identifying Left Parking Brake Actuator Assembly Spring Clip
Courtesy of GENERAL MOTORS CORP.

3. Press the parking brake actuator arm inward and install the parking brake rear cable to the actuator.
4. Install the left parking brake actuator assembly spring clip (1).

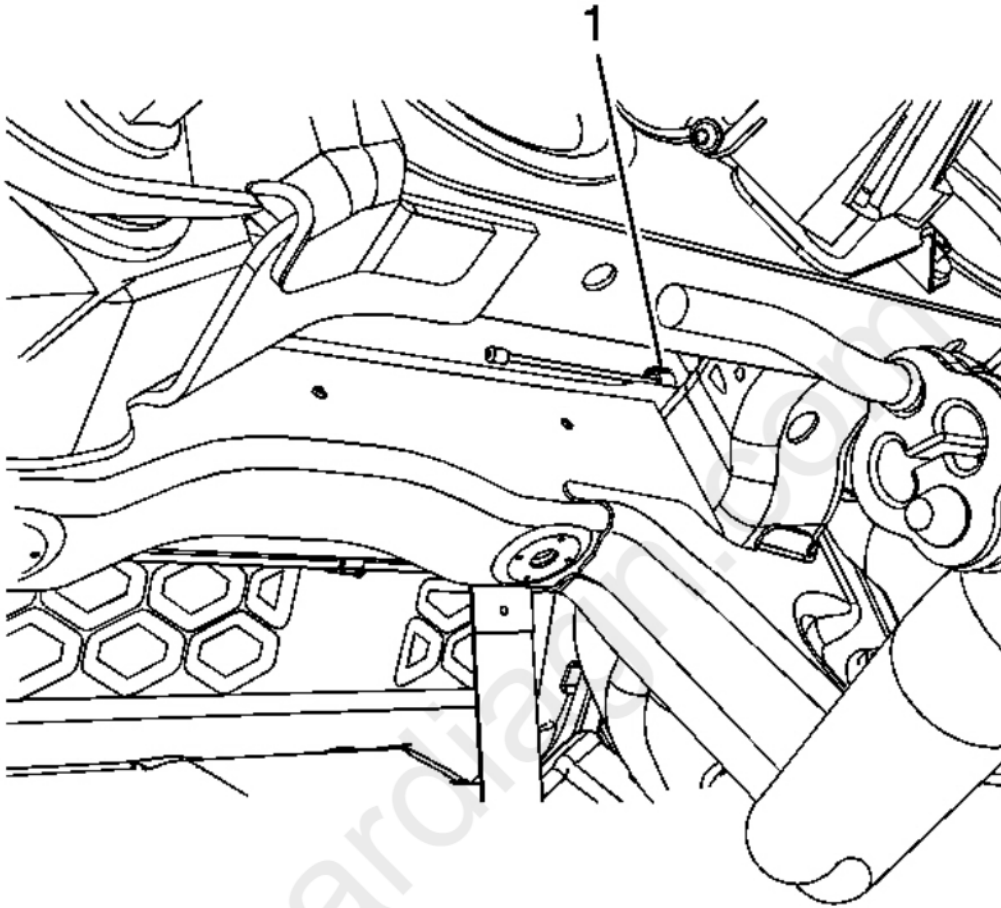


Fig. 51: Identifying Right Parking Brake Cable Fitting & Parking Brake Intermediate Cable Connector

Courtesy of GENERAL MOTORS CORP.

5. Install the parking brake rear cable and conduit (1) to the rear frame bracket.
6. Ensure the parking brake rear cable conduit locking tabs are fully engaged to the rear frame bracket.
7. Connect the right parking brake cable fitting to the parking brake intermediate cable connector.
8. Install the parking brake shoes. Refer to **Parking Brake Shoe Replacement**.
9. Install the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation**.
10. Enable the parking brake cable adjuster. Refer to **Parking Brake Cable Adjuster Disabling**.

PARKING BRAKE REAR CABLE REPLACEMENT - RIGHT SIDE (AWD)

Special Tools

CH-37043: Parking Brake Cable Release Tool

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

Removal Procedure

WARNIN : Refer to **Brake Dust Warning** .

1. Disable the parking brake cable adjuster. Refer to **Parking Brake Cable Adjuster Disabling**.
2. Turn the ignition to the OFF position.
3. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
4. Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
5. Remove the parking brake shoes. Refer to **Parking Brake Shoe Replacement**.
6. Lower the rear suspension support approximately 152-254 mm (6-10 in). Refer to **Rear Suspension Support Replacement (AWD)** or **Rear Suspension Support Replacement (FWD)** .

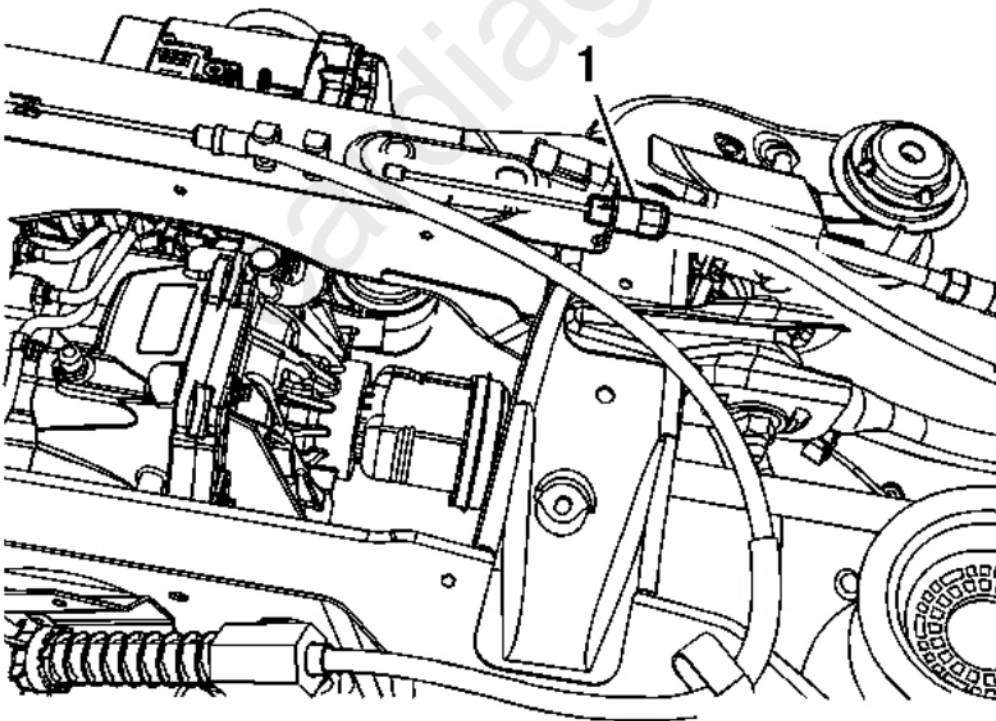


Fig. 52: Locating Right Parking Brake Cable Fitting & Parking Brake Intermediate Cable

Connector

Courtesy of GENERAL MOTORS CORP.

7. Disconnect the right parking brake cable fitting from the parking brake intermediate cable connector.
8. Using the **CH-37043: Parking Brake Cable Release Tool**, compress the locking tabs on the right parking brake cable conduit (1) and remove the cable from the rear frame bracket.

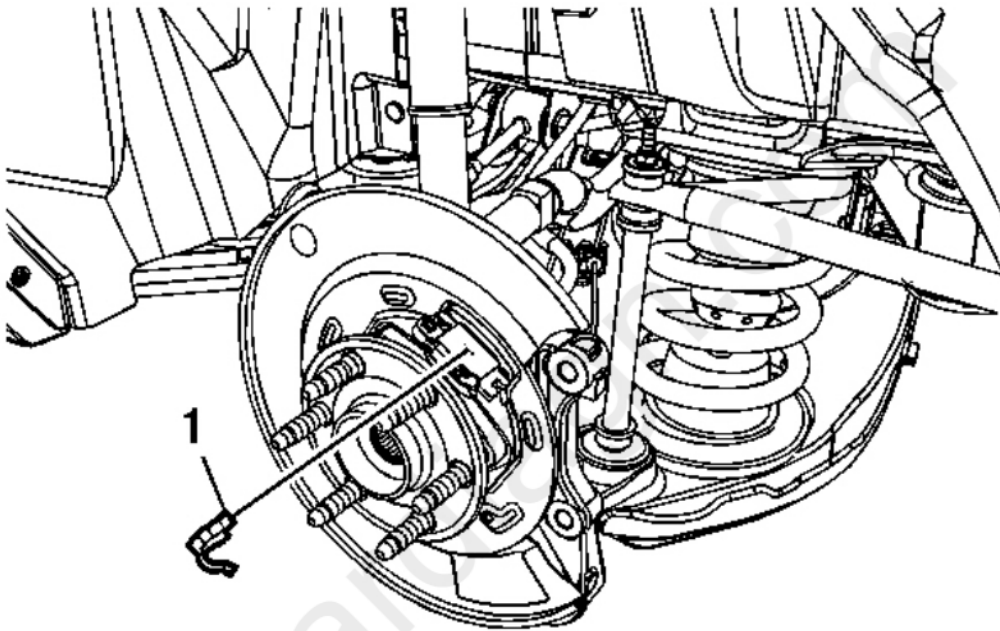


Fig. 53: Identifying Left Parking Brake Actuator Assembly Spring Clip

Courtesy of GENERAL MOTORS CORP.

9. Remove the parking brake actuator assembly spring clip (1).
10. Press the parking brake actuator arm inward and release the parking brake rear cable fitting from the actuator.

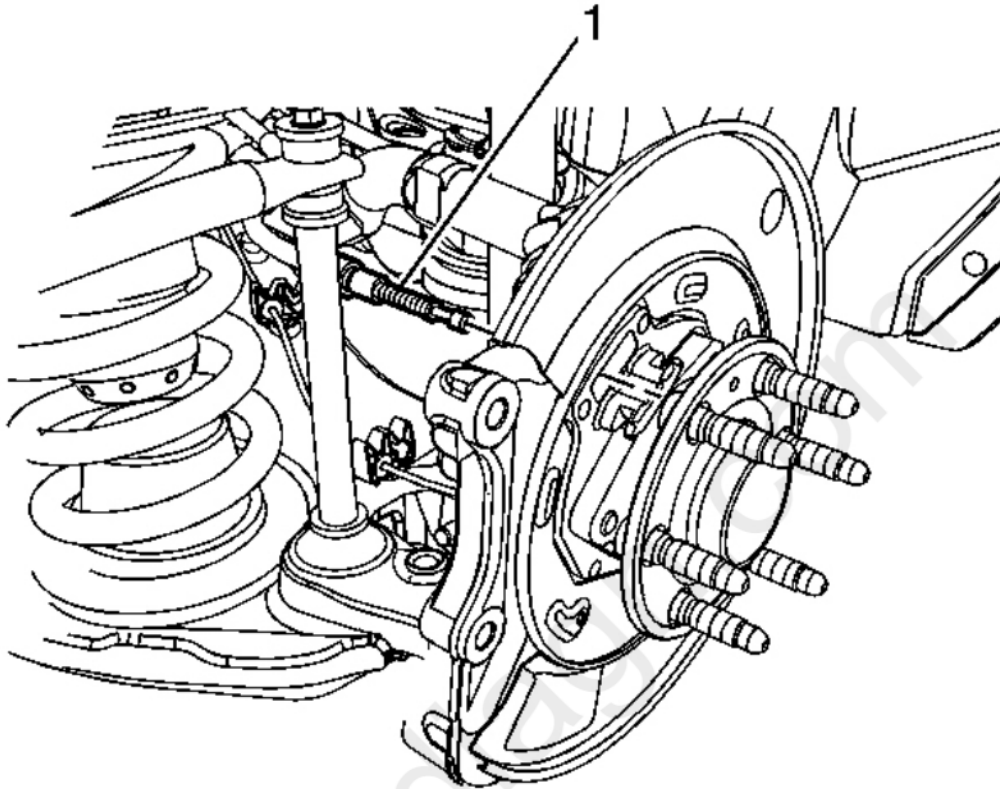


Fig. 5 : Identifying Parking Brake Rear Cable
Courtesy of GENERAL MOTORS CORP.

NOTE: The parking brake rear cable is secured to the rear suspension knuckle with an integral spring clip interference fit.

11. Grasp the parking brake rear cable (1) and pull the cable assembly inward to release the cable conduit from the rear suspension knuckle.
12. Remove the parking brake rear cable.

Installation Procedure

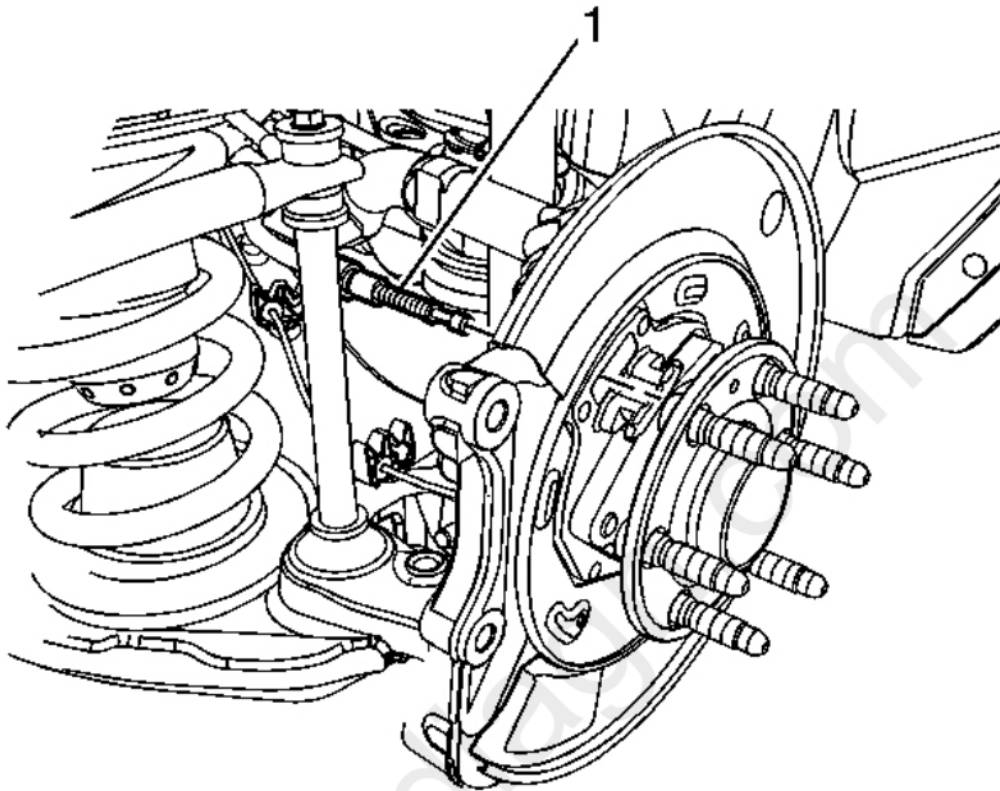


Fig. 55: Identifying Parking Brake Rear Cable
Courtesy of GENERAL MOTORS CORP.

NOTE: The parking brake rear cable is secured to the rear suspension knuckle with an integral spring clip interference fit.

1. Insert the parking brake rear cable (1) into the rear suspension knuckle.
2. Ensure the parking brake rear cable is inserted fully into the rear suspension knuckle.

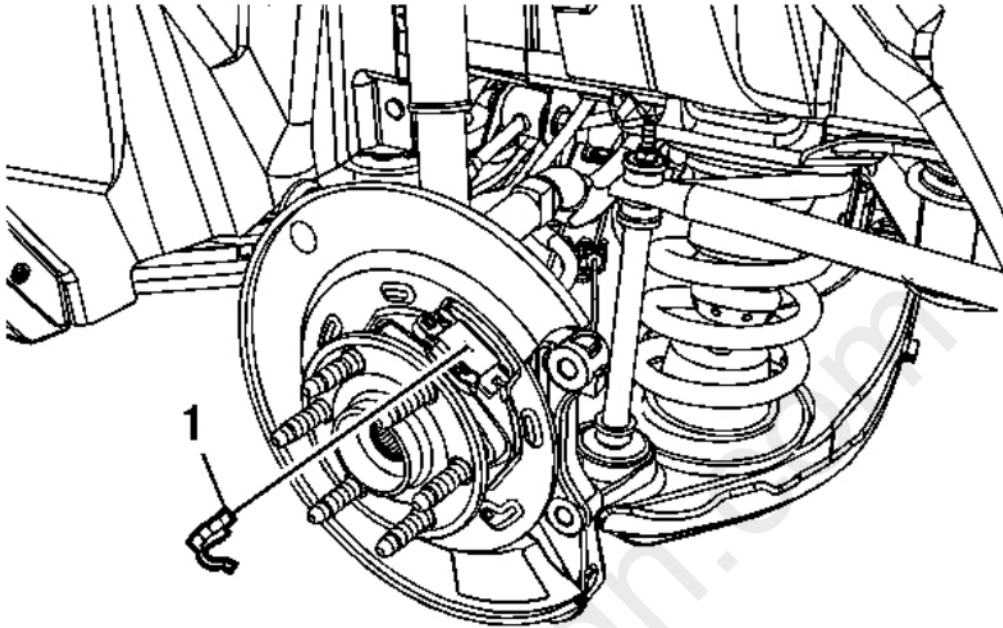


Fig. 56: Identifying Left Parking Brake Actuator Assembly Spring Clip
Courtesy of GENERAL MOTORS CORP.

3. Press the parking brake actuator arm inward and install the parking brake rear cable to the actuator.
4. Install the parking brake actuator assembly spring clip (1).

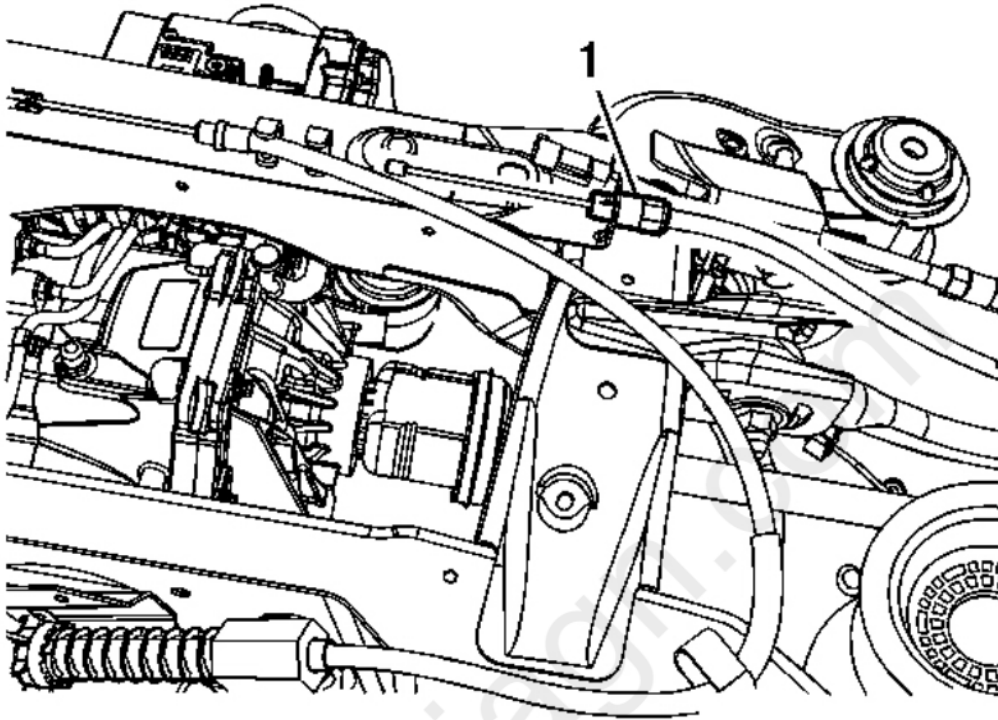


Fig. 5 : Locating Right Parking Brake Cable Fitting Parking Brake Intermediate Cable Connector

Courtesy of GENERAL MOTORS CORP.

5. Install the parking brake rear cable and conduit (1) to the rear frame bracket.
6. Ensure the parking brake rear cable conduit locking tabs are fully engaged to the rear frame bracket.
7. Connect the right parking brake cable fitting to the parking brake intermediate cable connector.
8. Install the rear suspension support. Refer to **Rear Suspension Support Replacement AWD** or **Rear Suspension Support Replacement FWD**.
9. Install the parking brake shoes. Refer to **Parking Brake Shoe Replacement**.
10. Install the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation**.
11. Enable the parking brake cable adjuster. Refer to **Parking Brake Cable Adjuster Disabling**.

PARKING BRAKE CABLE ADJUSTER DISABLING

The park brake cable tension is controlled by the electronic park brake (EPB) module. Tension can be fully released from the park brake cables to allow for service of the park brake system. Perform one of the following three methods to fully release cable tension.

Electronic Parking Brake Cable Tension Release**With Scan Tool - Preferred Method**

1. Block the drive wheels.
2. Install a scan tool to the vehicle.
3. Turn the ignition switch to the ON/RUN position with the engine OFF.
4. Using the scan tool, perform the following:
 1. From the scan tool menu, select Diagnostics
 2. Enter the appropriate vehicle information
 3. Select Chassis
 4. Select Parking Brake Control Module
 5. Select Special Functions
 6. Select Cable Replacement
5. Follow the instructions on the scan tool to fully release the tension on the parking brake cables.

Without Scan Tool - Optional Method

1. Block the drive wheels.
2. Turn the ignition switch to the ON/RUN position with the engine OFF.
3. Place the automatic transmission in PARK or manual transmission in NEUTRAL, as equipped.
4. Apply and hold the brake pedal. The brake pedal must remain applied throughout the park brake cable tension release process.
5. Press and hold down the electronic park brake (EPB) switch approximately 5 seconds.
6. Observe the PARK BRAKE lamp on the instrument cluster.
7. When the PARK BRAKE lamp flashes, release then immediately press and release the EPB switch.

The parking brake cable tension is fully released.

8. Release the brake pedal.

Manual Parking Brake Cable Tension Release

In the event the above methods to release the parking brake cable tension are unsuccessful, the following procedure may be necessary to release the parking brake cable tension.

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .

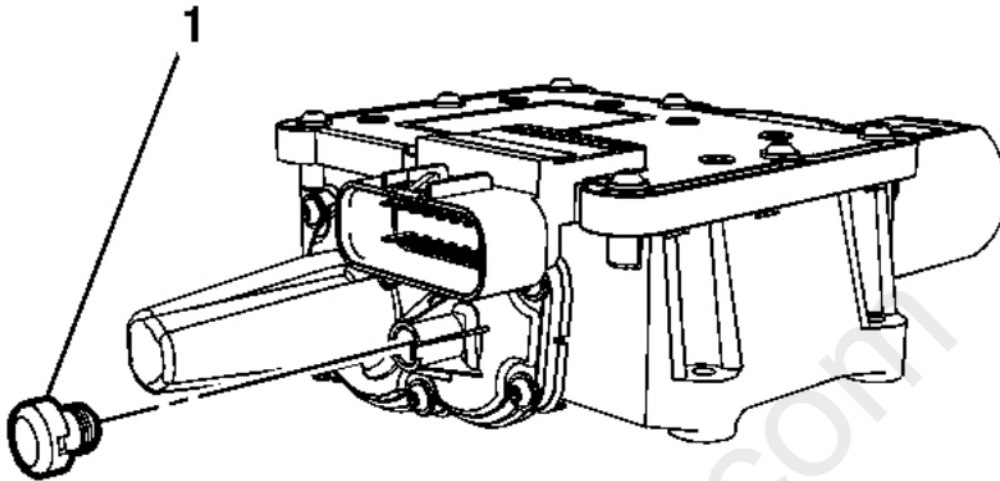


Fig. 58: Identifying Protective Plug
Courtesy of GENERAL MOTORS CORP.

NOTE: The protective plug for the manual release is located near the electrical connector.

2. Remove the protective plug (1) from the EPB manual release.
3. Using an appropriate square-drive tool, rotate the mechanism clockwise until the tension is fully released from the parking brake cables.

Up to 50 cycles may be required until the parking brake cable tension is fully released.

4. Install the protective plug to the EPB module.

PARKING BRAKE CABLE ADJUSTER ENABLING

The park brake cable tension is controlled by the electronic park brake (EPB) module. Cable tension needs to be set and the EPB module needs to be calibrated following the cable tension disabling procedure. Perform one of the following two methods to fully restore cable tension.

Electronic Parking Brake Cable Tensioning

With Scan Tool - Preferred Method

1. Block the drive wheels.
2. Install a scan tool to the vehicle.

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3. Turn the ignition switch to the ON/RUN position with the engine OFF.
4. Using the scan tool, perform the following:
 1. From the scan tool menu, select Diagnostics
 2. Enter the appropriate vehicle information
 3. Select Chassis
 4. Select Parking Brake Control Module
 5. Select Module Setup
 6. Select Parking Brake Calibration
5. The EPB module will be calibrated and proper tension will be applied to the parking brake cables.

Without Scan Tool - Optional Method

1. Block the drive wheels.
2. Turn the ignition switch to the ON/RUN position with the engine OFF.
3. Apply the brake pedal.
4. Place the automatic transmission in PARK or manual transmission in NEUTRAL, as equipped.
5. Momentarily lift then release the EPB switch to apply the EPB.
6. Momentarily press down then release the EPB switch to release the EPB.
7. Repeat step 5 and 6 to cycle the EPB on then off an additional 4 times.
8. The EPB module will be calibrated and proper tension will be applied to the parking brake cables.

PARKING BRAKE ACTUATOR REPLACEMENT

Removal Procedure

WARNIN : Refer to **Brake Adjust Warning** .

1. Disable the parking brake cable adjuster. Refer to **Parking Brake Cable Adjuster Disabling**.
2. Turn the ignition to the OFF position.
3. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
4. Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
5. Remove the park brake shoes. Refer to **Parking Brake Shoe Replacement**.

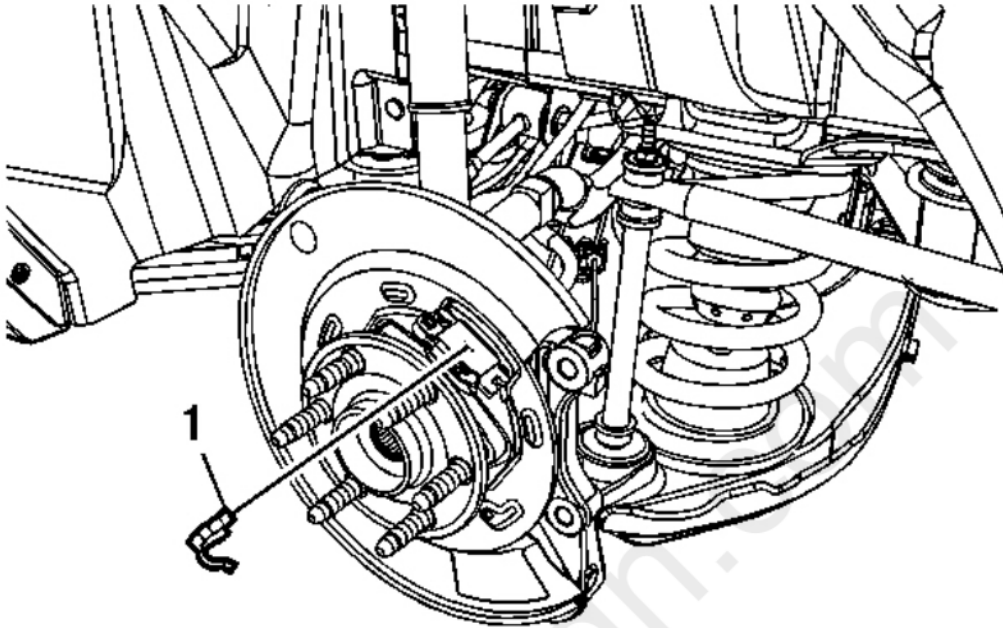


Fig. 59: Identifying Left Parking Brake Actuator Assembly Spring Clip
Courtesy of GENERAL MOTORS CORP.

6. Remove the parking brake actuator spring clip (1).
7. Press the parking brake actuator lever inward and release the parking brake rear cable fitting.

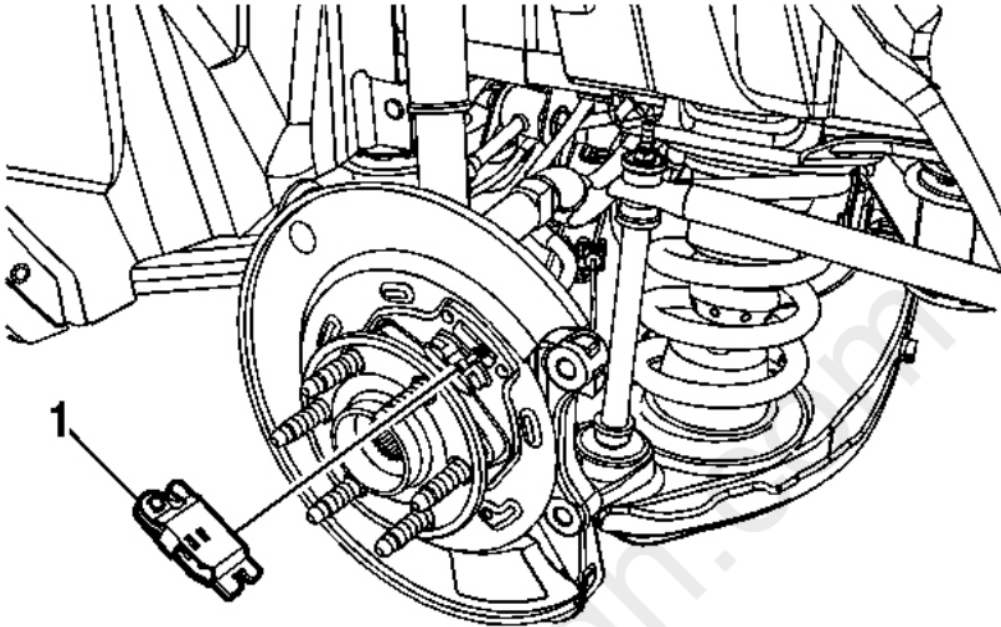


Fig. 60: Identifying Parking Brake Actuator
Courtesy of GENERAL MOTORS CORP.

8. Remove the parking brake actuator (1).

Installation Procedure

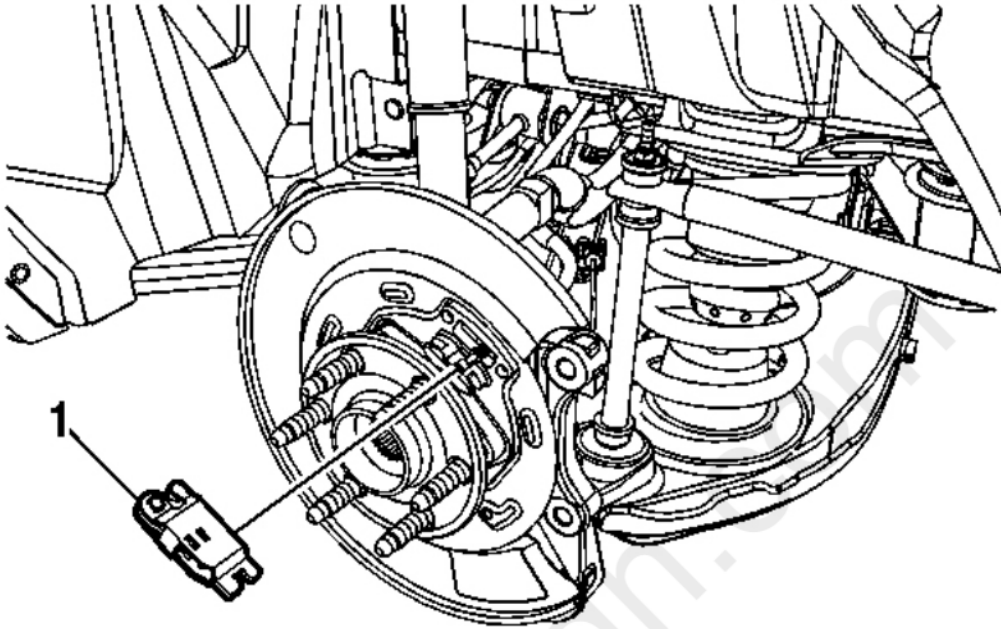


Fig. 61: Identifying Parking Brake Actuator
Courtesy of GENERAL MOTORS CORP.

1. Install the parking brake actuator (1).

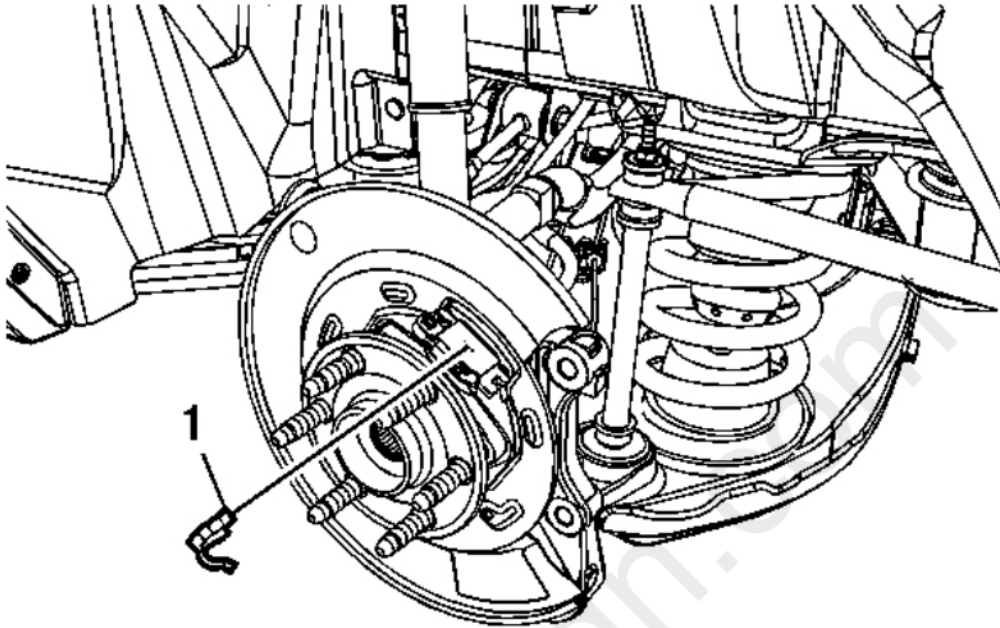


Fig. 62: Identifying Left Parking Brake Actuator Assembly Spring Clip
Courtesy of GENERAL MOTORS CORP.

2. Press the parking brake actuator lever inward and install the parking brake rear cable fitting.
3. Install the parking brake actuator spring clip (1).
4. Install the park brake shoes. Refer to **Parking Brake Shoe Replacement**.
5. Install the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation**.
6. Enable the parking brake cable adjuster. Refer to **Parking Brake Cable Adjuster Enabling**.

PARKING BRAKE ADJUSTMENT

Special Tools

CH-21177: Drum to Brake Shoe Clearance Gauge

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

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Adjustment Procedure

1. Disable the parking brake cable adjuster. Refer to Parking Brake Cable Adjuster Disabling.
2. Turn the ignition to the OFF position.
3. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
4. Remove the rear tire and wheel assemblies. Refer to Tire and Wheel Removal and Installation.
5. Remove the rear brake rotors. Refer to Rear Brake Rotor Replacement.

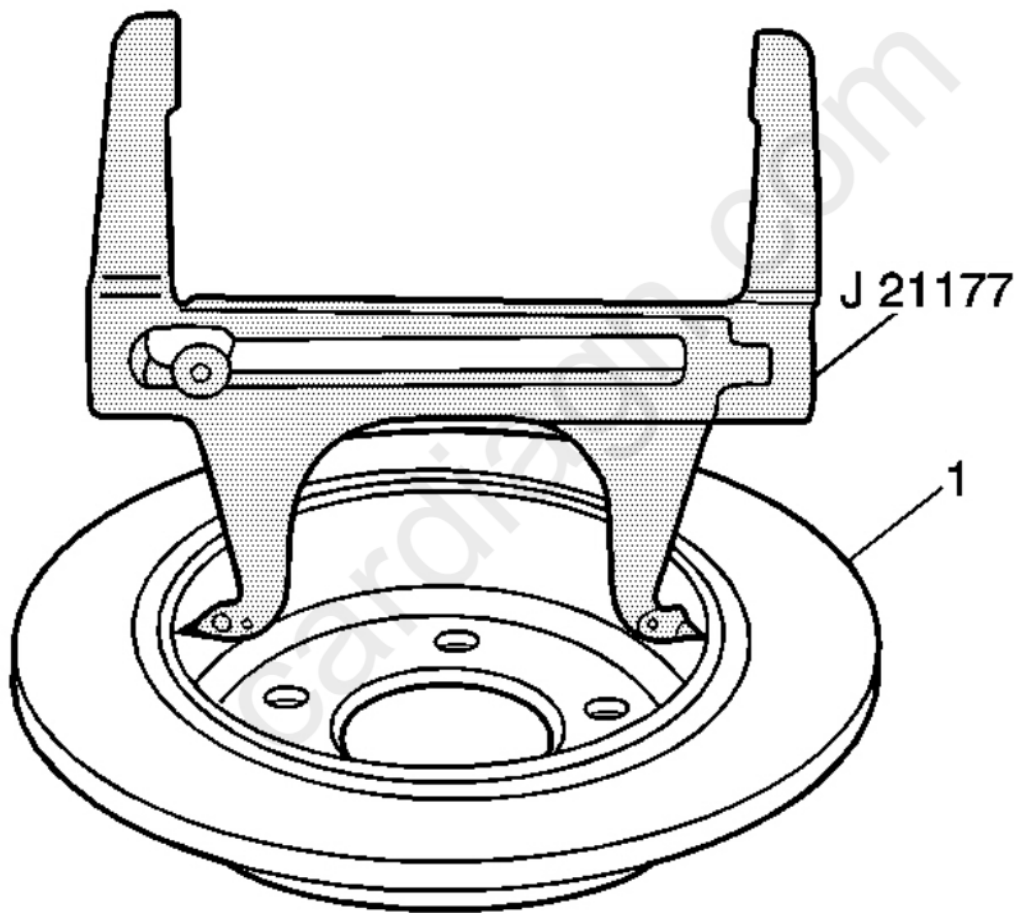


Fig. 63: Measuring Inside Of Rotor
Courtesy of GENERAL MOTORS CORP.

6. Set the **CH-21177: Drum to Brake Shoe Clearance Gauge** inside of the drum portion of the disc brake rotor at the widest point.
 - Place the contacts on the tool to the widest point of the park brake drum (1).
 - Tighten the set screw on the tool prior to removing the tool from the drum.

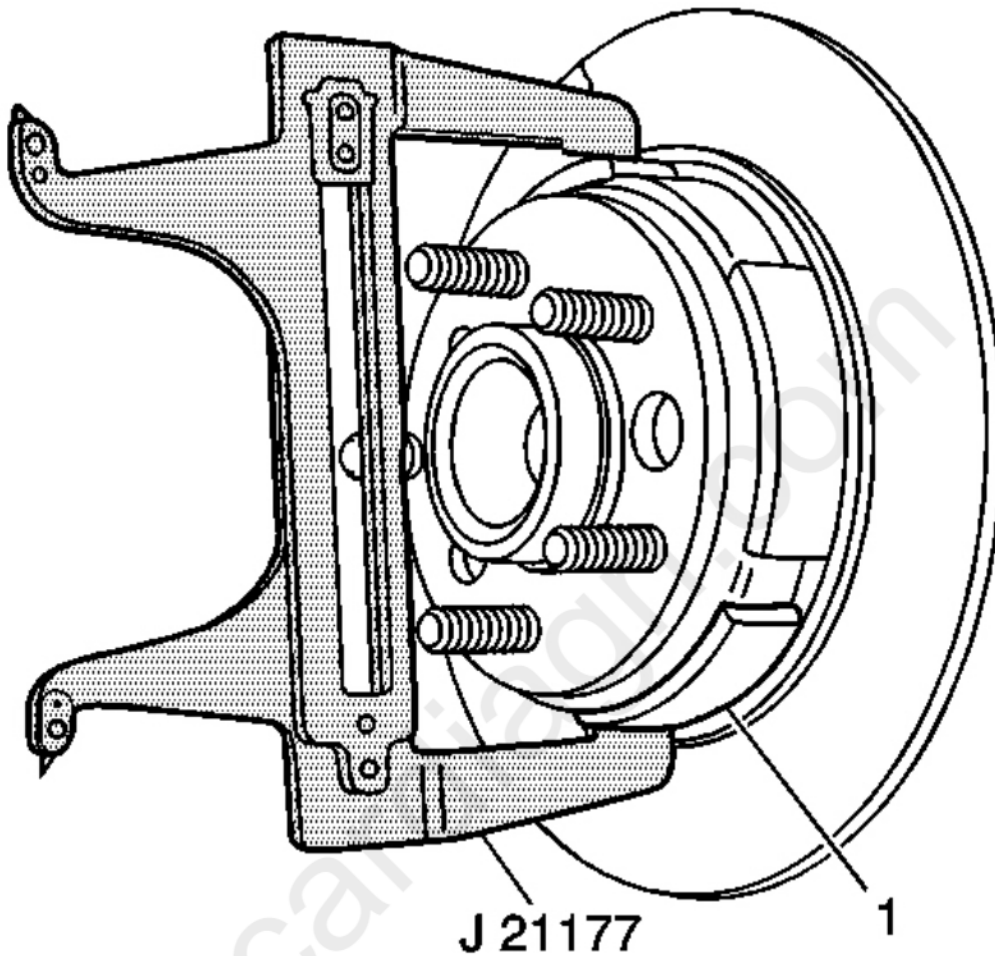


Fig. 64: Adjusting Parking Brake Shoes Using Special Tool
Courtesy of GENERAL MOTORS CORP.

7. Position the **CH-21177: Drum to Brake Shoe Clearance Gauge** over the parking brake shoes (1) at the widest point.
8. Turn the adjuster on the actuator until the park brake shoes just contact the **CH-21177: Drum to Brake Shoe Clearance Gauge**.
9. Repeat steps 6-8 for the opposite parking brake assembly.
10. Install the rear brake rotors. Refer to **Rear Brake Rotor Replacement**.
11. Install the rear tire and wheel assemblies. Refer to **Tire and Wheel Removal and Installation**.
12. Enable the parking brake cable adjuster. Refer to **Parking Brake Cable Adjuster Enabling**.
13. Apply the electronic parking brake.

14. Place the transmission in NEUTRAL.
15. Raise and support the vehicle so the tire and wheel assemblies are clear of the ground.

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16. Attempt to rotate the rear tire and wheel assemblies.
 - The wheels should not rotate forward.
 - The wheels should not rotate rearward, or should exhibit significant rearward drag.
17. Release the electronic parking brake.
18. Verify the rear tire and wheel assemblies rotate freely and do not exhibit forward or rearward drag.
19. If the rear tire and wheel assemblies do not rotate freely and without forward or rearward drag, repeat the adjustment procedure completely.

DESCRIPTION AND OPERATION

ELECTRONIC PARKING BRAKE CONTROL MODULE DESCRIPTION

Vehicles with the electric parking brake have a switch in the center console, which takes the place of the manual parking brake system, the foot pedal and release handle. In case of insufficient electrical power, the electric parking brake cannot be applied or released.

Electric Parking Brake Module

The electric parking brake module has an internal motor, apply actuator, release actuator, and temperature sensor. The electric parking brake module also contains the logic for applying and releasing the parking brake when commanded by the parking brake switch. When the electric parking brake module receives a signal from the switch, the internal circuit board temperature is checked to verify it is within operating range before the module performs the requested operation.

Electric Parking Brake Apply

The electric parking brake can be applied any time the vehicle is stopped or in motion. The electric parking brake is applied by momentarily lifting up on the electric parking brake switch. Once fully applied, the BRAKE light will turn on, and the DIC message "Park Brake Set" will be displayed. If the electric parking brake is applied while the vehicle is in motion, a chime will sound, and the DIC message "Release Park Brake Switch" will be displayed.

If the BRAKE light is on, either the electric parking brake is applied, or there is a malfunction in the hydraulic brake system.

If the BRAKE light is flashing, the electric parking brake is only partially applied or released, or there is a problem with the electric parking brake. The DIC message "Service Park Brake" will be displayed.

Electric Parking Brake Release

2010 Cadillac SRX

2010 BRAKES Park Brake - SRX

To release the electric parking brake, turn the ignition switch to the ON or RUN position, apply and hold the brake pedal, and push down momentarily on the electric parking brake switch. When the electric parking brake is released the BRAKE light turns off and the DIC message "Park Brake Released" is displayed.

The electric parking brake will automatically release if the vehicle is running and put in motion.

The electric parking brake can be used to prevent roll back for vehicles with a manual transmission taking off on a hill. In a situation where no roll back is desired, an applied electric parking brake will allow both feet to be used for the clutch and accelerator pedals in preparation for starting the vehicle moving in the intended direction. In this situation, perform the normal clutch and accelerator actions required to begin moving the vehicle. There is no need to push the switch to release the electric parking brake. To disable this feature lift and hold the electric parking brake switch while the vehicle is in motion, this will keep the electric parking brake applied.

PARK BRAKE SYSTEM DESCRIPTION AND OPERATION

System Component Description

The park brake system consists of the following:

Electronic Parking Brake (EPB) Control Module Assembly

Transfers park brake system apply input force to the park brake cable system.

Electronic Parking Brake Switch

Applied by the driver and activates EPB control module or Electronic Stability Control (ESC) braking system.

Parking Brake Cable

Transfers input force received from the electronic parking brake control module, through the parking brake cable equalizer, to the parking brake apply lever.

Parking Brake Cable Equalizer

Evenly distributes input force to both the left and right parking brake assemblies.

Parking Brake Apply Lever

Multiplies and transfers input force from the parking brake cable to the parking brake actuator.

Parking Brake Actuator

Uses multiplied input force from the apply lever to expand the parking brake shoes toward the friction surface of the drum-in-hat portion of the rear brake rotor.

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2010 BRAKES Park Brake - SRX

Parking Brake Adjuster

Threaded parking brake adjusters are also used to control clearance between the parking brake shoes and the friction surface of the drum-in-hat portion of the rear brake rotor.

Parking Brake Shoe

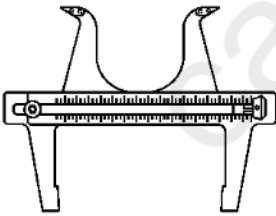
Applies mechanical output force from the parking brake actuators to the friction surface of the drum-in-hat portion of the rear brake rotor.

System Operation

Park brake apply input force is received by activating the electronic parking brake switch signaling the EPB control module, and transfers an evenly distributed force through the parking brake cables and equalizer to the parking brake apply levers. The parking brake apply levers multiply and transfer the input force to the parking brake actuators which expand the parking brake shoes toward the friction surface of the drum-in-hat portion of the rear brake rotors to prevent the rotation of the rear tire and wheel assemblies. The electronic parking brake switch signals the EPB module to release applied input force the parking brake cables when activated. The EPB module then removes the applied input force, releasing the parking brake.

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

Illustration	Tool Number Description
	J 21177-A Drum To Brake Shoe Clearance Gauge
	J 37043 Parking Brake Cable Release Tool

