

BRAKES

Park Brake - Coupe & Wagon

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Electronic Park Brake Module Bolt	25 N.m	18 lb ft
Electronic Park Brake Module Bracket Bolt	9 N.m	80 lb in
Electronic Park Brake Module Park Cable Nut	6 N.m	53 lb in
Electronic Park Brake Switch Retainer Bolt	3 N.m	27 lb in
Park Brake Cable Bracket Nut	60 N.m	44 lb ft
Park Brake Cable Guide Bolt	10 N.m	89 lb in
Park Brake Cable Guide Nut	10 N.m	89 lb in
Park Brake Indicator Switch Bolt	2 N.m	18 lb in
Park Brake Lever Nut	25 N.m	18 lb ft
Park Brake Intermediate Cable Guide Nut	9 N.m	80 lb in
Park Brake Lever Bolt	10 N.m	89 lb in
Park Brake Release Handle Screw	2 N.m	18 lb in
Rear Brake Hose Assembly Bracket Nut	10 N.m	89 lb in

SCHEMATIC WIRING DIAGRAMS

PARK BRAKE SYSTEM WIRING SCHEMATICS

Parking Brake System

DTC	Description
<u>DTC C028A, C028B, or C028F</u>	DTC C028A 00 Park Brake Motor Circuit Malfunction DTC C028A 01 Park Brake Motor Circuit Short to Battery DTC C028A 02 Park Brake Motor Circuit Short to Ground DTC C028A 04 Park Brake Motor Circuit Open Circuit DTC C028A 05 Park Brake Motor Circuit Short to Battery or Open Circuit DTC C028A 08 Park Brake Motor Circuit Performance - Signal Invalid DTC C028A 28 Park Brake Motor Circuit Performance - Incorrect Frequency DTC C028A 61 Park Brake Motor Circuit Actuator Stuck DTC C028B 08 Park Brake Motor Position Sensor Signal Performance - Signal Invalid DTC C028B 26 Park Brake Motor Position Sensor Signal Low Frequency DTC C028B 29 Park Brake Motor Position Sensor Signal Too Few Pulses DTC C028B 2A Park Brake Motor Position Sensor Signal Too Many Pulses DTC C028F 01 Park Brake Solenoid Actuator Circuit Short to Battery

	DTC C028F 02 Park Brake Solenoid Actuator Circuit Short to Ground DTC C028F 08 Park Brake Solenoid Actuator Circuit Performance - Signal Invalid
<u>DTC C027D or C028D</u>	DTC C027D 64 Park Brake Slip Detected DTC C028D 00 Replace Park Brake Pad
<u>DTC C0293</u>	DTC C0293 00 Park Brake Switch Malfunction DTC C0293 01 Park Brake Switch Short to Battery DTC C0293 02 Park Brake Switch Short to Ground DTC C0293 04 Park Brake Switch Open DTC C0293 06 Park Brake Switch Low Voltage/Open DTC C0293 08 Park Brake Switch Performance - Signal Invalid
<u>DTC C0298</u>	DTC C0298 00 Park Brake Unlatch Switch Circuit Malfunction DTC C0298 01 Park Brake Unlatch Switch Circuit Short to Battery DTC C0298 02 Park Brake Unlatch Switch Circuit Short to Ground DTC C0298 04 Park Brake Unlatch Switch Circuit Open DTC C0298 08 Park Brake Unlatch Switch Circuit Performance - Signal Invalid
<u>DTC C0558</u>	DTC C0558 55 Calibration Data Too Few Transitions DTC C0558 5A Calibration Data Not Plausible
<u>DTC C0561</u>	DTC C0561 71 System Disabled Information Stored Invalid Data
<u>DTC C056D</u>	DTC C056D 00 Electronic Control Unit Hardware Malfunction DTC C056D 34 Electronic Control Unit Hardware RAM Malfunction DTC C056D 35 Electronic Control Unit Hardware ROM Malfunction DTC C056D 36 Electronic Control Unit Hardware EEPROM Performance/Malfunction DTC C056D 37 Electronic Control Unit Hardware Software Malfunction DTC C056D 38 Electronic Control Unit Hardware Supervision Software Malfunction DTC C056D 39 Electronic Control Unit Hardware Internal Malfunction DTC C056D 3B Electronic Control Unit Hardware Internal Self - Test Malfunction DTC C056D 3C Electronic Control Unit Hardware Internal Communication Malfunction
<u>DTC C056E</u>	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
<u>DTC C0574</u>	DTC C0574 00 Printed Circuit Board Temperature Sensor Malfunction DTC C0574 01 Printed Circuit Board Temperature Sensor Short to Battery DTC C0574 02 Printed Circuit Board Temperature Sensor Short to Ground DTC C0574 54 Printed Circuit Board Temperature Sensor High

DTC C028A, C028B, OR C028F: PARK BRAKE MOTOR CIRCUIT/PARK BRAKE MOTOR POSITION SENSOR/PARK BRAKE SOLENOID ACTUATOR

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 C028A 00

Park Brake Motor Circuit Malfunction

DTC C028A 01

Park Brake Motor Circuit Short to Battery

DTC C028A 02

Park Brake Motor Circuit Short to Ground

DTC C028A 04

Park Brake Motor Circuit Open Circuit

DTC C028A 05

Park Brake Motor Circuit Short to Battery or Open Circuit

DTC C028A 08

Park Brake Motor Circuit Performance - Signal Invalid

DTC C028A 28

Park Brake Motor Circuit Performance - Incorrect Frequency

DTC C028A 61

Park Brake Motor Circuit Actuator Stuck

DTC C028B 08

Park Brake Motor Position Sensor Signal Performance - Signal Invalid

DTC C028B 26

Park Brake Motor Position Sensor Signal Low Frequency

DTC C028B 29

Park Brake Motor Position Sensor Signal Too Few Pulses

DTC C028B 2A

Park Brake Motor Position Sensor Signal Too Many Pulses

DTC C028F 01

Park Brake Solenoid Actuator Circuit Short to Battery

DTC C028F 02

Park Brake Solenoid Actuator Circuit Short to Ground

DTC C028F 08

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 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 will 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.

The parking brake control module contains an internal park brake motor position sensor which monitors the park brake motor position. 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.
- Battery voltage is between 9 - 16 V

Conditions for Setting the DTC

DTC C028A

The parking brake control module detects an internal motor malfunction.

DTC C028B

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

DTC C028F

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

Action Taken When the DTC Sets

DTC C028A

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

DTC C028B

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

OR

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

DTC C028F

- The 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 will clear the DTC after 40 consecutive ignition on/off cycles with at least one test pass in each ignition cycle and no test fail result.
- 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 - INDEX - COUPE AND WAGON

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.
2. Verify that DTC C028A, C028B, or C028F is not set.
 - **If any of the DTCs are set**
 1. Program the K83 Parking Brake Control Module. Refer to **Electronic Parking Brake Control Module Programming and Setup** .
 2. Ignition ON.
 3. Apply and release the park brake.
 4. Verify the DTC is not set.
 - If the DTC is set, replace the K83 Parking Brake Control Module.
 - If the DTC is not set
 5. All OK.
 - **If none of the DTC are set**
3. All OK.

Repair Instructions

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

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

DTC C027D OR C028D: PARK BRAKE SLIP DETECTED/REPLACE PARK BRAKE PAD

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 C027D 64

Park Brake Slip Detected

DTC C028D 00

Replace Park Brake Pad

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 parking brake control module performs the requested operation. The parking brake control module checks for rear wheel speeds after applying the parking brake to check for mechanical faults.

Conditions for Running the DTC

Ignition OFF, ACCESSORY, or RUN mode.

Conditions for Setting the DTC

C027D 64

The parking brake control module has detected wheel speed on the rear wheels with the parking brake applied.

C028D 00

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 will clear the DTC after 100 consecutive ignition on/off cycles with at least one test pass in each ignition cycle and no test fail result.
- Adjust or replace the park brake pads.

Reference Information

Schematic Reference

Park Brake System Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX - COUPE AND WAGON

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.
2. Verify no additional DTCs are set in other control modules.
 - **If additional DTCs are set**

Refer to **Diagnostic Trouble Code (DTC) List - Vehicle**

- **If no additional DTCs are set**
3. Verify that DTC C027D or C028D is not set.
 - **If the DTC is set**
 1. Verify the park brake cable is connected properly. Refer to **Park Brake System Diagnosis**
 2. Check park brake pads for excessive wear. Refer to **Disc Brake System Diagnosis**
 3. Program the K83 Parking Brake Control Module. Refer to **Electronic Parking Brake Control Module Programming and Setup** .
 4. Ignition ON. Apply and release the park brake.
 5. Verify the DTC is not set.
 - If the DTC is set, replace the K83 Parking Brake Control Module.
 - If the DTC is not set
 - 6. All OK.

- If the DTC is not set
4. All OK.

Repair Instructions

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

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

DTC C0293: PARK BRAKE SWITCH

Diagnostic Instructions

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

DTC Descriptors

DTC C0293 00

Park Brake Switch Malfunction

DTC C0293 01

Park Brake Switch Short to Battery

DTC C0293 02

Park Brake Switch Short to Ground

DTC C0293 04

Park Brake Switch Open

DTC C0293 06

Park Brake Switch Low Voltage/Open

DTC C0293 08

Park Brake Switch Performance - Signal Invalid

Diagnostic Fault Information

	Short to	Open/High	Short to	Signal
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Circuit	Ground	Resistance	Voltage	Performance
B+ Terminal 1	C0293 02 C0293 06	C0293 04 C0293 06	C0293 01	C0293 00 C0293 08
B+ Terminal 4	C0293 02 C0293 06	C0293 04 C0293 06	C0293 01	C0293 00 C0293 08
B+ Terminal 5	C0293 02 C0293 06	C0293 04 C0293 06	C0293 01	C0293 00 C0293 08
Signal Terminal 2	C0293 02 C0293 06	C0293 04 C0293 06	C0293 01	C0293 00 C0293 08
Signal Terminal 3	C0293 02 C0293 06	C0293 04 C0293 06	C0293 01	C0293 00 C0293 08
Signal Terminal 7	C0293 02 C0293 06	C0293 04 C0293 06	C0293 01	C0293 00 C0293 08

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. The parking brake control module will perform diagnostics on the park brake control switch and its wiring harness to verify it is functioning properly. 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 park brake switch control diagnostic checks for failure conditions in the park brake switch and associated wiring into the parking brake control module.

Conditions for Running the DTC

Ignition OFF, ACCESSORY, or RUN mode.

Conditions for Setting the DTC

The parking brake control module detects a short to battery, short to ground, open circuit, or an internal parking brake switch malfunction. The parking brake control module detects the apply or release button was activated for more than 90 seconds.

Action Taken When the DTC Sets

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

Conditions for Clearing the DTC

- The parking brake control module will clear the DTC after 40 consecutive ignition on/off cycles with at least one test pass in each ignition cycle and no test fail result.
- The condition for the DTC is no longer present.

- The park brake control switch button is INACTIVE using the scan tool without the switch being activated.

Reference Information

Schematic Reference

Park Brake System Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX - COUPE AND WAGON

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.
2. Verify the scan tool Park Brake Status parameter changes between Released and Apply while pressing and releasing the S91 park brake control switch.
 - **If the parameter does not change**

Refer to Circuit/System Test.

- **If the parameter changes**

3. All OK.

Circuit/System Test

C0293 01, C0293 02, C0293 04 or C0293 06

1. Ignition OFF, disconnect the harness at the S91 park brake control switch.

2. Test for greater than 11.5 V between the B+ circuit terminal listed below and ground:
 - Terminal 1
 - Terminal 4
 - Terminal 5
 - **If 11.5 V or less**
 1. Ignition OFF, disconnect the harness connector at the K83 parking brake control module.
 2. Test for infinite resistance between the B+ circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 ohms in the B+ circuit end to end.
 - If 2 ohms or greater, repair the open/high resistance in the circuit.
 - If less than 2 ohms, replace the K83 parking brake control module.
 - **If greater than 11.5 V**
 - 3. Connect the harness connector at the S91 park brake control switch. Disconnect the harness connector at the K83 parking brake control module.
 - 4. Ignition ON, test for greater than 11.5 V between the ignition circuit terminal P and ground:
 - **If 11.5 V or less**
 1. Ignition OFF, test for infinite resistance between the ignition circuit terminal P and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 2. Test for less than 2 ohms in the B+ circuit end to end.
 - If 2 ohms or greater, repair the open/high resistance in the circuit.
 - If less than 2 ohms and the fuse is blown, replace the K83 parking brake control module.
 - **If greater than 11.5 V**
 - 5. Ignition OFF, test for less than 1 V between the circuit terminals listed below and ground:
 - B+ circuit terminal N
 - B+ circuit terminal R
 - B+ circuit terminal S
 - Signal circuit terminal B
 - Signal circuit terminal C
 - Signal circuit terminal D
 - **If 1 V or greater**

Repair the short to voltage on the circuit.

 - **If less than 1 V**
 - 6. Test for infinite resistance between the signal circuit terminals listed below and ground:
 - Signal circuit terminal B
 - Signal circuit terminal C

- Signal circuit terminal D
 - **If less than infinite resistance**

Repair the short to ground on the circuit.

- **If infinite resistance**

7. Test for less than 5 ohms between the signal circuit terminal D and the B+ circuit terminal R.

- **If 5 ohms or greater**

1. Ignition OFF, disconnect the harness connector at the S91 park brake control switch.
2. Test for less than 2 ohms in the signal circuit terminal D end to end.
 - If 2 ohms or greater, repair the open/high resistance in the circuit.
 - If less than 2 ohms, test or replace the S91 park brake control switch.

- **If less than 5 ohms**

8. Test for less than 5 ohms between the signal circuit terminal B and the B+ circuit terminal S.

- **If 5 ohms or greater**

1. Ignition OFF, disconnect the harness connector at the S91 park brake control switch.
2. Test for less than 2 ohms in the signal circuit terminal B end to end.
 - If 2 ohms or greater, repair the open/high resistance in the circuit.
 - If less than 2 ohms, test or replace the S91 park brake control switch.

- **If less than 5 ohms**

9. Test for less than 5 ohms between the signal circuit terminal C and the B+ circuit terminal N.

- **If 5 ohms or greater**

1. Ignition OFF, disconnect the harness connector at the S91 park brake control switch.
2. Test for less than 2 ohms in the signal circuit terminal C end to end.
 - If 2 ohms or greater, repair the open/high resistance in the circuit.
 - If less than 2 ohms, test or replace the S91 park brake control switch.

- **If less than 5 ohms**

10. Replace the K83 parking brake control module.

C0293 00 or C0293 08

1. Ignition ON.
2. Verify no additional DTCs are set in other control modules.

- **If additional DTCs are set**

Refer to **Diagnostic Trouble Code (DTC) List - Vehicle**

- **If no additional DTCs are set**

3. Verify DTC C0293 00 or C0293 08 is not set.

- **If DTC C0293 00 or C0293 08 is set**

1. Ignition OFF, remove the parking brake control module fuse and reinstall, ignition ON.
2. Verify DTC C0293 00 or C0293 08 is not set.
 - If the DTC is set,

replace the K83 parking brake control module.
 - If the DTC is not set
3. All OK.
 - **If DTC C0293 00 or C0293 08 is not set**
4. All OK.

Component Testing

1. Ignition OFF, disconnect the harness connector at the S91 park brake control 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 control switch signal terminal 1
 - B+ terminal 4 and the park brake control switch signal terminal 2
 - B+ terminal 5 and the park brake control switch signal terminal 1
 - B+ terminal 5 and the park brake control switch signal terminal 2
 - Park brake control switch signal terminal 3 and the park brake control switch signal terminal 1
 - Park brake control switch signal terminal 3 and the park brake control switch signal terminal 2
 - Park brake control switch signal terminal 7 and the park brake control switch signal terminal 1
 - Park brake control switch signal terminal 7 and the park brake control switch signal terminal 2
 - **If less than infinite resistance**

Replace the S91 park brake control switch.
 - **If infinite resistance**
3. Test for less than 5 ohms between the terminals listed below with the switch in the inactive state:
 - Park brake control switch signal terminal 1 and terminal 2
 - B+ terminal 4 and park brake control switch signal terminal 7
 - B+ terminal 5 and park brake control switch signal terminal 3
 - **If 5 ohms or greater**

Replace the S91 park brake control switch.
 - **If less than 5 ohms**
4. Test for less than 5 ohms between the terminals listed below with the switch in the apply position:
 - Park brake control switch signal terminal 1 and terminal 2
 - B+ terminal 4 and park brake control switch signal terminal 1
 - B+ terminal 4 and park brake control switch signal terminal 2

- B+ terminal 5 and park brake control switch signal terminal 3
- **If 5 ohms or greater**

Replace the S91 park brake control switch.

- **If less than 5 ohms**

5. Test for less than 5 ohms between the terminals listed below with the switch in the release position:

- Park brake switch control signal terminal 1 and terminal 2
- B+ terminal 5 and park brake control switch signal terminal 1
- B+ terminal 5 and park brake control switch signal terminal 2
- B+ terminal 4 and park brake control switch signal terminal 7
- **If 5 ohms or greater**

Replace the S91 park brake control switch.

- **If less than 5 ohms**

6. All OK.

Repair Instructions

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

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

DTC C0298: PARK BRAKE UNLATCH SWITCH

Diagnostic Instructions

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

DTC Descriptors

DTC C0298 00

Park Brake Unlatch Switch Circuit Malfunction

DTC C0298 01

Park Brake Unlatch Switch Circuit Short to Battery

DTC C0298 02

Park Brake Unlatch Switch Circuit Short to Ground

DTC C0298 04

Park Brake Unlatch Switch Circuit Open

DTC C0298 08

Park Brake Unlatch Switch Circuit Performance - Signal Invalid

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
B+ Terminal 1	C0298 08	C0298 08	-	C0298 00 C0298 08
B+ Terminal 5	C0298 02	C0298 04	C0298 01	C0298 00 C0298 08
Signal Terminal 2	C0298 08	C0298 08	-	C0298 00 C0298 08
Signal Terminal 3	C0298 02	C0298 04	C0298 01	C0298 00 C0298 08

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 a short to battery, short to ground, open circuit, or an internal parking brake switch malfunction. 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 will clear the DTC after 40 consecutive ignition on/off cycles with at least one test pass in each ignition cycle and no test fail result.
- The condition for the DTC is no longer present.
- The park brake control switch button is INACTIVE using the scan tool without the switch being activated.

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 - INDEX - COUPE AND WAGON

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.
2. Verify that DTC C0293 is not set.
 - **If DTC C0293 is set**

Refer to **DTC C0293**.

- **If DTC C0293 is not set**

3. Verify the scan tool Park Brake Status parameter changes between Released and Apply when pressing

and releasing the S91 park brake control switch.

- **If the parameter does not change**

Replace the S91 park brake control switch.

- **If the parameter changes**

4. All OK.

Repair Instructions

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

Parking Brake Switch Replacement

DTC C0558: CALIBRATION DATA

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 C0558 55

Calibration Data Too Few Transitions

DTC C0558 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

C0558 55

The parking brake control module detects a calibration malfunction.

C0558 5A

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

Action Taken When the DTC Sets

C0558 55

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

C0558 5A

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

OR

- The 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 will clear the DTC after 40 consecutive ignition on/off cycles with at least one test pass in each ignition cycle and no test fail result.
- Calibrate the parking brake control module after mechanical repairs are made.

Diagnostic Aids

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

Reference Information

Schematic Reference

Park Brake System Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX - COUPE AND WAGON

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.
2. Verify that DTC C0558 55 is not set.
 - **If DTC C0558 55 is set**
 1. Program the K83 Parking Brake Control Module. Refer to **Electronic Parking Brake Control Module Programming and Setup** .
 2. Ignition ON.
 3. Apply and release the park brake.
 4. Verify the DTC is not set.
 - If the DTC is set,

replace the K83 Parking Brake Control Module.
 - If the DTC is not set
5. All OK.
 - **If DTC C0558 55 is not set**
3. Verify the scan tool Park Brake Cable Position parameter is less than 1251 counts.
 - **If 1251 counts or greater**
 1. Verify the park brake cable is connected properly. Refer to **Park Brake System Diagnosis**
 2. Check park brake pads for excessive wear. Refer to **Disc Brake System Diagnosis**
 - **If less than 1251 counts**
4. All OK.

Repair Instructions

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

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

DTC C0561: SYSTEM DISABLED INFORMATION STORED INVALID DATA

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 Data

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 parking brake functionality is degraded.

Conditions for Clearing the DTC

- The parking brake control module will clear the DTC after 40 consecutive ignition on/off cycles with at least one test pass in each ignition cycle and no test fail result.
- 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 - INDEX - COUPE AND WAGON

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.
2. Verify no additional DTCs are set in other control modules.
 - **If additional DTCs are set**

Refer to **Diagnostic Trouble Code (DTC) List - Vehicle**
 - **If no additional DTCs are set**
3. Verify the scan tool Park Brake Control Module Invalid Signal Identification parameters are all Valid.
 - **If any parameter is Invalid**

Refer to the appropriate subsection in which the failure occurred. Refer to **Symptoms - Vehicle**
 - **If all parameters are Valid**
4. All OK.

Repair Instructions

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

DTC C056D: ELECTRONIC CONTROL UNIT HARDWARE

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 C056D 00

Electronic Control Unit Hardware Malfunction

DTC C056D 34

Electronic Control Unit Hardware RAM Malfunction

DTC C056D 35

Electronic Control Unit Hardware ROM Malfunction

DTC C056D 36

Electronic Control Unit Hardware EEPROM Performance/Malfunction

DTC C056D 37

Electronic Control Unit Hardware Software Malfunction

DTC C056D 38

Electronic Control Unit Hardware Supervision Software Malfunction

DTC C056D 39

Electronic Control Unit Hardware Internal Malfunction

DTC C056D 3B

Electronic Control Unit Hardware Internal Self - Test Malfunction

DTC C056D 3C

Electronic Control Unit Hardware Internal Communication 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. 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

DTC C056D 00, C056D 34, C056D 35, C056D 36, C056D 37, C056D 38, C056D 3B, or C056D 3C

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

DTC C056D 39

- The 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 will clear the DTC after 40 consecutive ignition on/off cycles with at least one test pass in each ignition cycle and no test fail result.
- 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 - INDEX - COUPE AND WAGON

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.
2. Verify DTC C056D 36 is not set.
 - **If DTC C056D 36 is set**
 1. Program the K83 Parking Brake Control Module. Refer to **Electronic Parking Brake Control Module Programming and Setup** .
 2. Ignition ON.
 3. Apply and release the park brake.
 4. Verify the DTC is not set.
 - If the DTC is set, replace the K83 Parking Brake Control Module.
 - If the DTC is not set
 5. All OK.
 - **If DTC C056D 36 is not set**
3. Perform the Parking Brake Motor Reset procedure with a scan tool for the Parking Brake Control Module.
4. Verify DTC C056D is not set.
 - **If DTC C056D is set**

Replace the K83 Parking Brake Control Module.
 - **If DTC C056D is not set**
5. All OK.

Repair Instructions

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

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

DTC C056E: ELECTRONIC CONTROL UNIT SOFTWARE

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 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. 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 requested operation.

Conditions for Running the DTC

Ignition OFF, ACCESSORY, or RUN mode.

Conditions for Setting the DTC

The electric parking brake 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

- The electric parking brake functionality is degraded.
- A 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.
- The latest software and calibrations are programmed into the electric parking brake module.

Reference Information

Schematic Reference

Park Brake System Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX - COUPE AND WAGON

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 Electric Parking Brake Control Module.

Repair Instructions

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

Control Module References for Electric Parking Brake Module replacement, setup, and programming

DTC C0574: PRINTED CIRCUIT BOARD TEMPERATURE SENSOR

Diagnostic Instructions

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

DTC Descriptors

DTC C0574 00

Printed Circuit Board Temperature Sensor Malfunction

DTC C0574 01

Printed Circuit Board Temperature Sensor Short to Battery

DTC C0574 02

Printed Circuit Board Temperature Sensor Short to Ground

DTC C0574 54

Printed 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 or C0574 02

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

C0574 00 or C0574 54

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

Action Taken When the DTC Sets

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

- The park 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.
- 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 park brake.

Reference Information

Schematic Reference

Park Brake System Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX - COUPE AND WAGON

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.
2. Verify no additional DTCs are set in other control modules.
 - **If additional DTCs are set**

Refer to **Diagnostic Trouble Code (DTC) List - Vehicle**

- **If no additional DTCs are set**

3. Verify that DTC C0574 01 or C0574 02 is not set.

- **If DTC C0574 01 or C0574 02 is set**

1. Ignition OFF. Remove the parking brake control module fuse and reinstall. Ignition ON.

2. Verify DTC C0574 01 or C0574 02 is not set.

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

- If the DTC is not set

3. All OK.

- **If DTC C0574 01 or C0574 02 is not set**

4. Allow the K83 Parking Brake Control Module to cool down for 15 minutes.

5. Verify the scan tool Calculated System Temperature parameter is less than 105° C.

- **If 105° C or greater**

Replace the K83 Parking Brake Control Module.

- **If less than 105° C**

6. All OK.

Repair Instructions

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

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

SYMPTOMS - PARK BRAKE

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

Refer to **Electronic Parking Brake Control Module Description**.

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

Park Brake Will Not Hold or Release

Step	Action	Yes	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 5	Go to Step 3
3	Inspect the disc brake system for proper operation. Refer to <u>Disc Brake System Diagnosis</u> . Did you find and correct a condition?	Go to Step 5	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 5	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

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 8	Go to Step 4
	1. Shift the transmission into NEUTRAL.		

4	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 18	Go to Step 5
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 6	Go to Step 7
6	Reconnect or replace the park brake cables as necessary. Refer to the following procedures as necessary: • <u>Parking Brake Lever Pedal Assembly Replacement</u> (The front park brake cable and the park brake pedal are replaced as an assembly.) • <u>Parking Brake Intermediate Cable Replacement</u> • <u>Parking Brake Rear Cable Replacement - Left Side (With Electronic Park Brake),</u> <u>Parking Brake Rear Cable Replacement - Left Side (Without Electronic Park Brake)</u> • <u>Parking Brake Rear Cable Replacement - Right Side (Without Electronic Park Brake),</u> <u>Parking Brake Rear Cable Replacement - Right Side (With Electronic Park Brake)</u> Did you complete the repair and/or replacement?	Go to Step 18	-
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 18	Go to Step 8
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 (J56)</u> , <u>Rear Brake Rotor Replacement (JE5, J55)</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?	Go to Step 9	Go to Step 10
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 18	-
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 11	Go to Step 13
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 18	Go to Step 12
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 18	Go to <u>Symptoms - Park Brake</u>
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 14	Go to Step 15
	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 Lever Pedal Assembly Replacement</u> (The front park brake cable and the park brake pedal are replaced as an assembly.)		

14	• <u>Parking Brake Intermediate Cable Replacement</u> • <u>Parking Brake Rear Cable Replacement - Left Side (With Electronic Park Brake), Parking Brake Rear Cable Replacement - Left Side (Without Electronic Park Brake)</u> • <u>Parking Brake Rear Cable Replacement - Right Side (Without Electronic Park Brake), Parking Brake Rear Cable Replacement - Right Side (With Electronic Park Brake)</u>		-
	Did you complete the replacement?	Go to Step 18	
15	1. Disconnect the park brake release handle assembly cable from the park brake pedal assembly and check for free movement. 2. Replace the park brake release handle assembly if the release cable does not have free movement. Refer to <u>Parking Brake Release Handle Assembly Replacement</u>.		
	Did you find and correct a condition?	Go to Step 18	Go to Step 16
16	Inspect the park brake pedal assembly for proper operation and replace as necessary. Refer to <u>Parking Brake Lever Pedal Assembly Replacement</u> . Did you find and correct the condition?	Go to Step 18	Go to Step 17
17	1. Replace the component that is used to adjust the park brake system. Refer to <u>Parking Brake Lever Pedal Assembly Replacement</u>. 2. Adjust the park brake. Refer to <u>Parking Brake Adjustment</u>.		
	Did you complete the replacement and adjustment?	Go to Step 18	Go to <u>Symptoms - Park Brake</u>
18	Install or connect any components that were removed or disconnected during diagnosis. Did you complete the operation?	Park Brake System OK	Go to <u>Symptoms - Park Brake</u>

PARKING BRAKE SHOE INSPECTION

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
2. Remove the rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
3. Remove the rear brake caliper. Refer to **Rear Brake Caliper Replacement (J56)** , **Rear Brake Caliper Replacement (JE5, J55)** .
4. Remove the rear brake caliper bracket. Refer to **Rear Brake Caliper Bracket Replacement** .

5. Remove the rear brake rotor. Refer to **Rear Brake Rotor Replacement (J56)** , **Rear Brake Rotor Replacement (JE5, J55)** .
6. 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
 - Brake lining cracking
 - Oil or fluid contamination of the brake lining
7. Adjust the park brake shoe. Refer to **Parking Brake Adjustment**.
8. Install the rear brake rotor. Refer to **Rear Brake Rotor Replacement (J56)** , **Rear Brake Rotor Replacement (JE5, J55)** .
9. Install the rear brake caliper bracket. Refer to **Rear Brake Caliper Bracket Replacement** .
10. Install the rear brake caliper. Refer to **Rear Brake Caliper Replacement (J56)** , **Rear Brake Caliper Replacement (JE5, J55)** .
11. Install the rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
12. Lower the vehicle.

REPAIR INSTRUCTIONS

ELECTRONIC PARKING BRAKE CONTROL MODULE REPLACEMENT

Removal Procedure

1. Block the rear drive wheels.
2. Release the electronic park brake cable tension, if equipped. Refer to **Parking Brake Cable Adjuster Disabling (Electric Park Brake)**.
3. Turn the ignition to the OFF position.
4. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
5. Remove the rear tire and wheel assemblies. Refer to **Tire and Wheel Removal and Installation** .

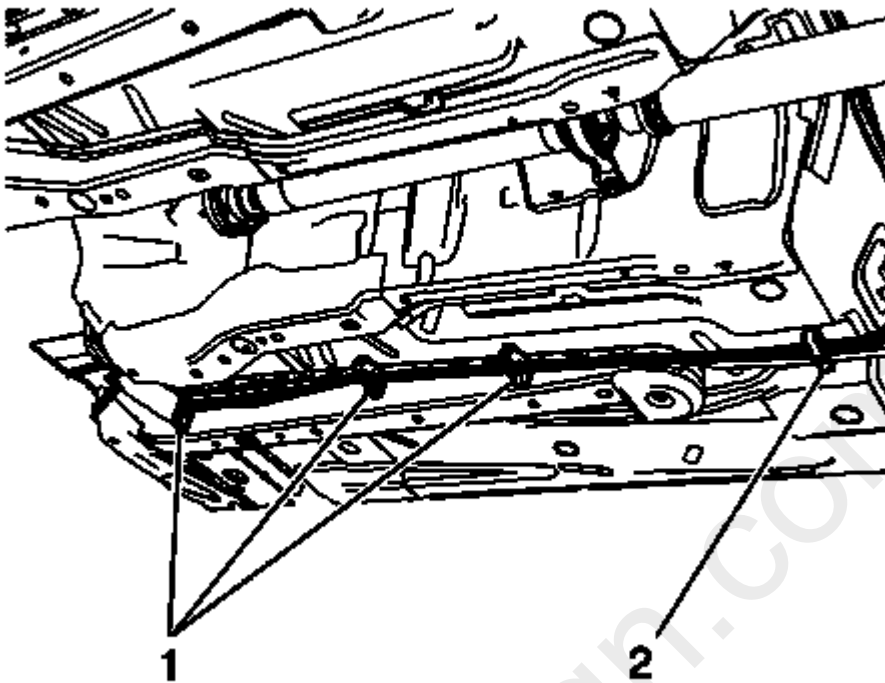


Fig. 2: Identifying Frame Rail Clips
Courtesy of GENERAL MOTORS COMPANY

NOTE: Do not disconnect the fuel lines or brake pipe fittings.

6. Release the fuel and brake pipe bundle from the frame rail clips (1).
7. Release the fuel and brake pipe bundle retainer (2) from the vehicle underbody.

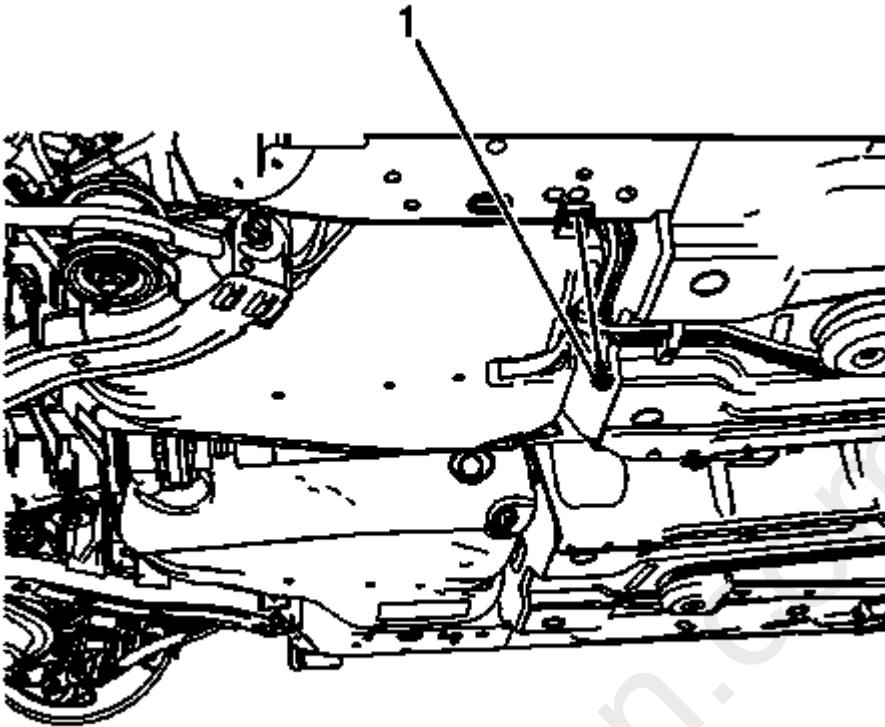


Fig. 3: Identifying Bolt Securing Fuel & Brake Pipe Bundle
Courtesy of GENERAL MOTORS COMPANY

8. Remove the bolt (1) securing the fuel and brake pipe bundle from the vehicle underbody.

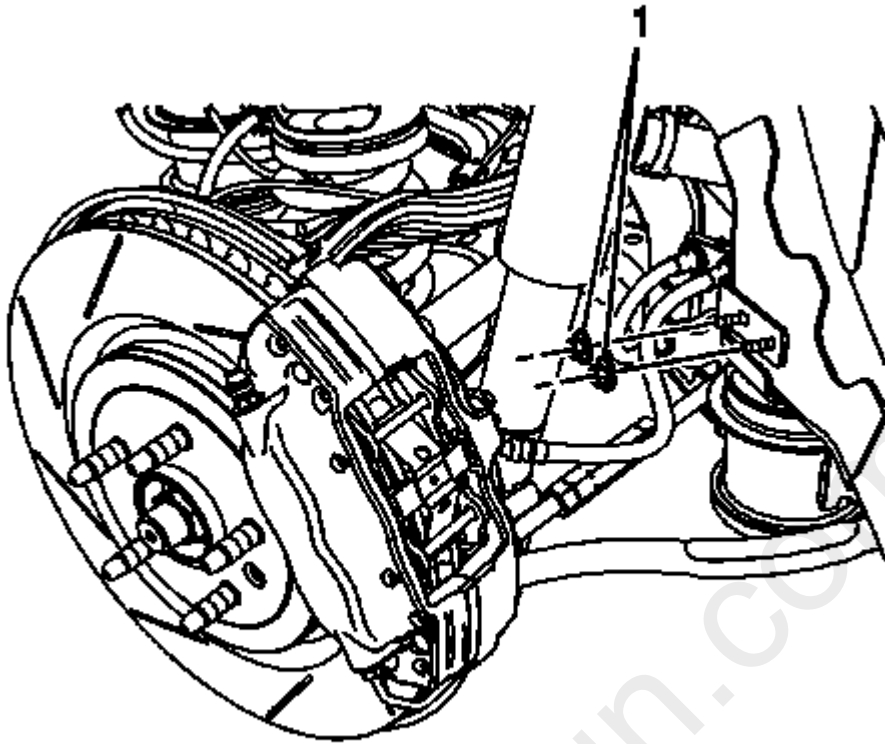


Fig. 4: Identifying Rear Brake Hose Assembly Bracket Nuts
Courtesy of GENERAL MOTORS COMPANY

NOTE: Do not disconnect the brake pipe fittings or the brake hose fittings.

9. Remove the nuts (1) from the rear brake hose assembly bracket.

Release the bracket from the studs.

10. Lower the rear frame assembly approximately 152-254 mm (6-10 in). Refer to **Rear Frame Replacement** .

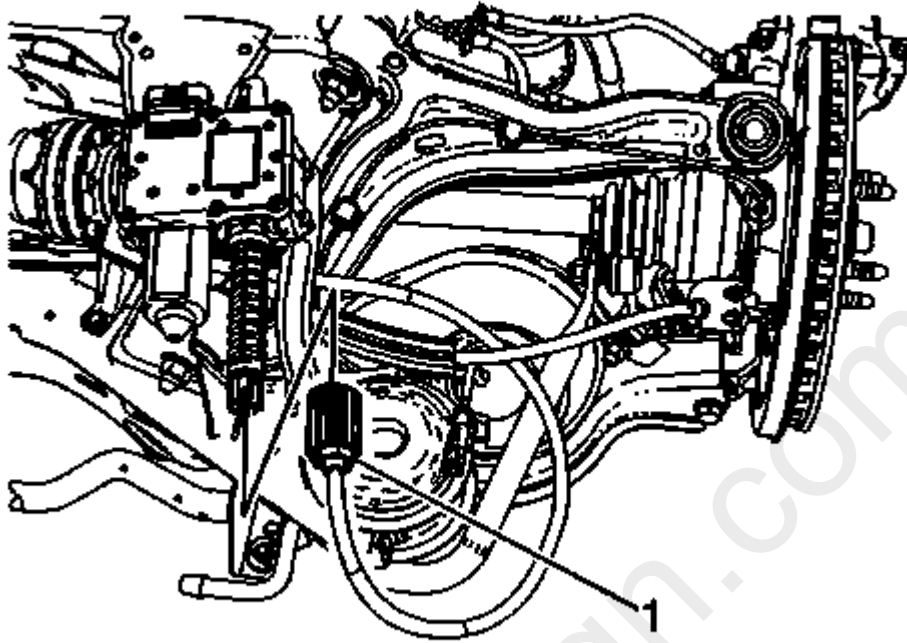


Fig. 5: Identifying Park Brake Cable Nut
Courtesy of GENERAL MOTORS COMPANY

11. Disconnect the park brake cable nut (1) from the electronic park brake module spindle by rotating the nut counterclockwise.

Position the park brake cable nut rearward.

12. Remove the park brake cable fitting from the spindle.

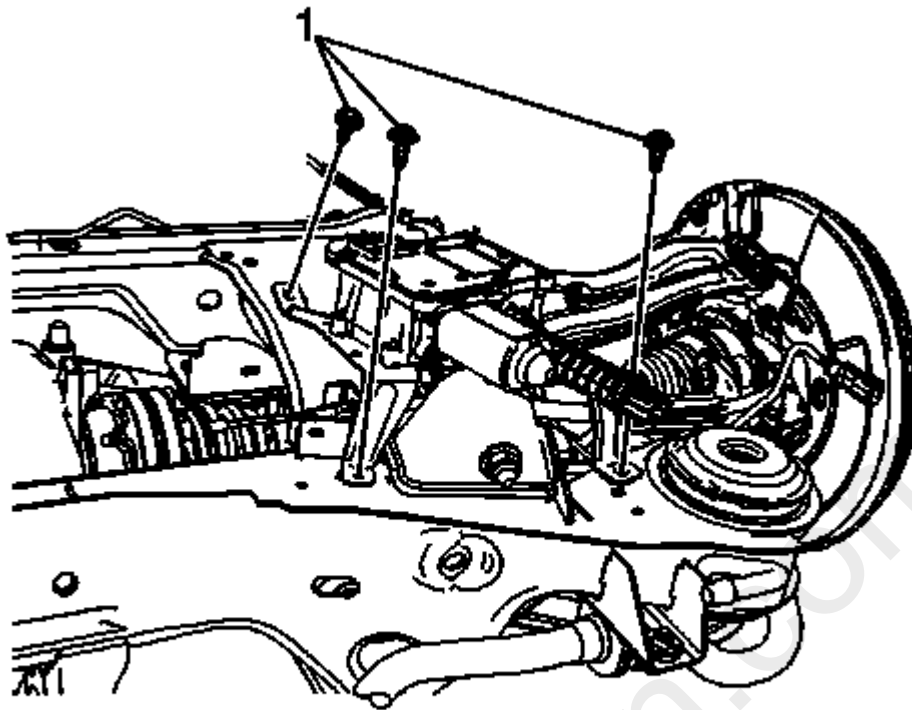


Fig. 6: Identifying Electronic Park Brake Module Bracket Bolts
Courtesy of GENERAL MOTORS COMPANY

13. Disconnect the electronic park brake module electrical connector.
14. Remove the electronic park brake module bracket bolts (1).

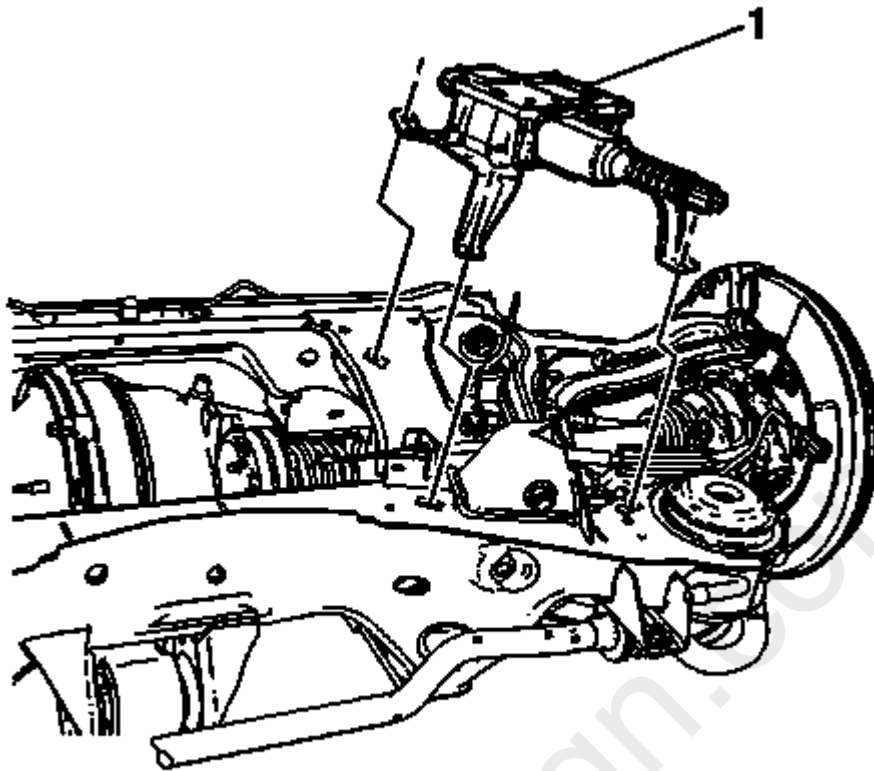


Fig. 7: Identifying Electronic Park Brake Module Assembly
Courtesy of GENERAL MOTORS COMPANY

15. Remove the electronic park brake module assembly (1).

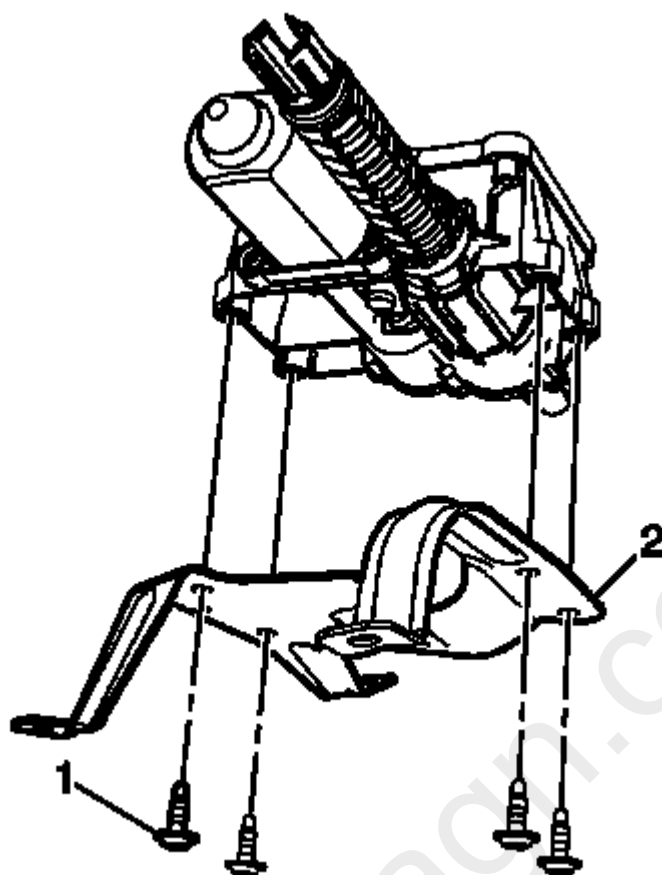


Fig. 8: Identifying Electronic Park Brake Module Bracket Bolts & Bracket
Courtesy of GENERAL MOTORS COMPANY

16. If necessary, remove the electronic park brake module bracket bolts (1) and the bracket (2).

Installation Procedure

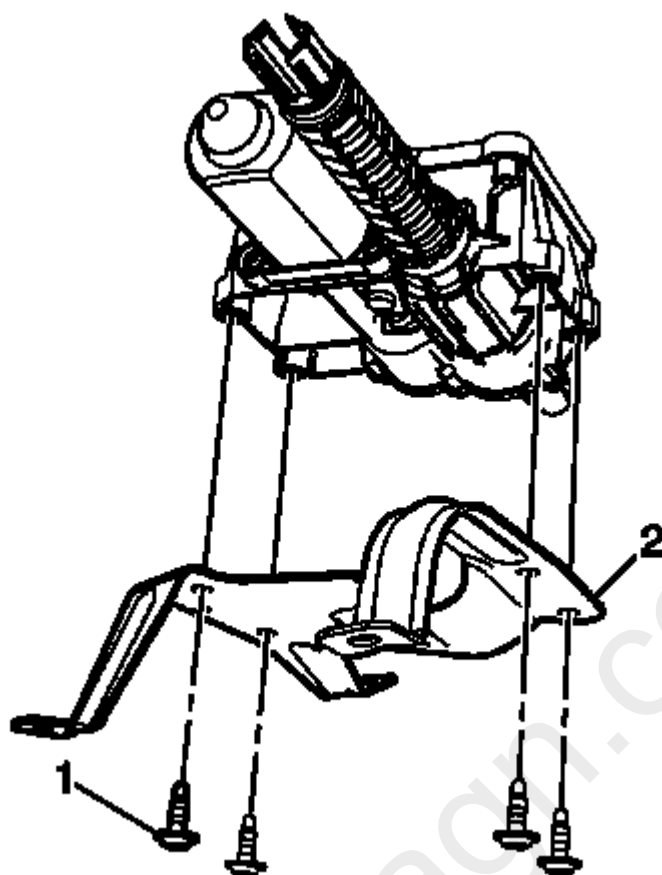


Fig. 9: Identifying Electronic Park Brake Module Bracket Bolts & Bracket
Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to Fastener Caution .

1. If removed, install the electronic park brake module bracket bolts (1) and the bracket (2) and tighten the bolts to 9 N.m (80 lb in).

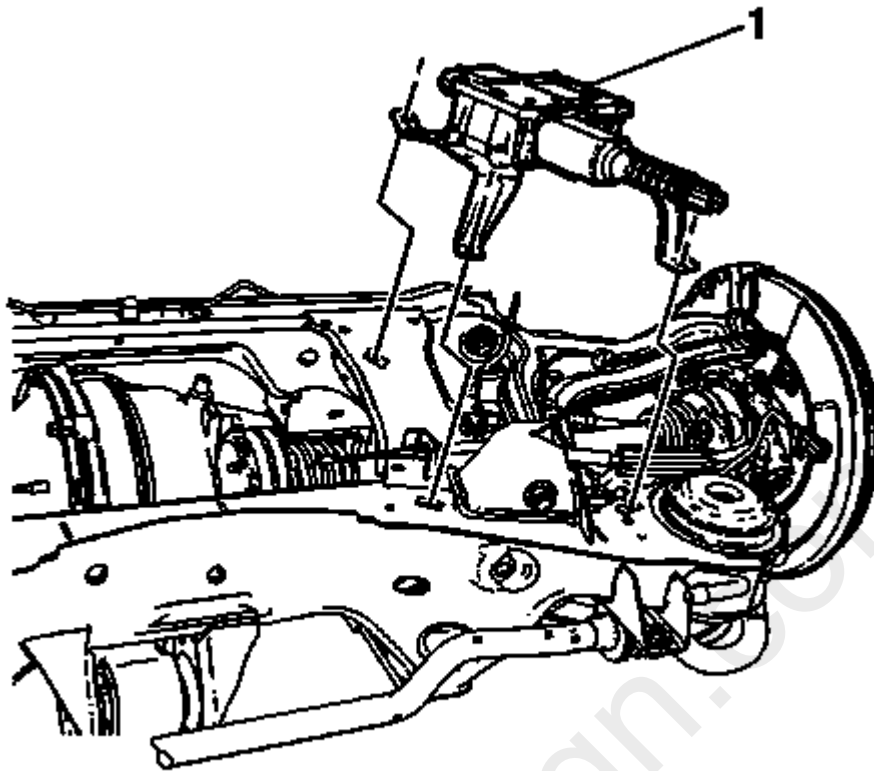


Fig. 10: Identifying Electronic Park Brake Module Assembly
Courtesy of GENERAL MOTORS COMPANY

2. Install the electronic park brake module assembly (1) to the rear frame assembly.

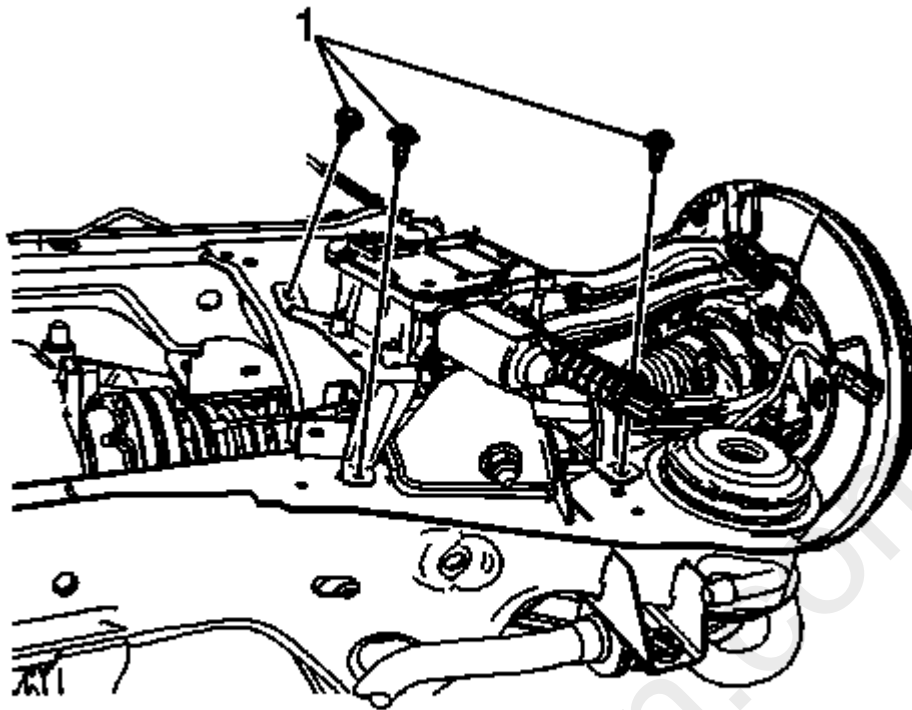


Fig. 11: Identifying Electronic Park Brake Module Bracket Bolts
Courtesy of GENERAL MOTORS COMPANY

3. Install the electronic park brake module bracket bolts (1) and tighten to 25 N.m (18 lb ft).
4. Connect the electronic park brake module electrical connector.

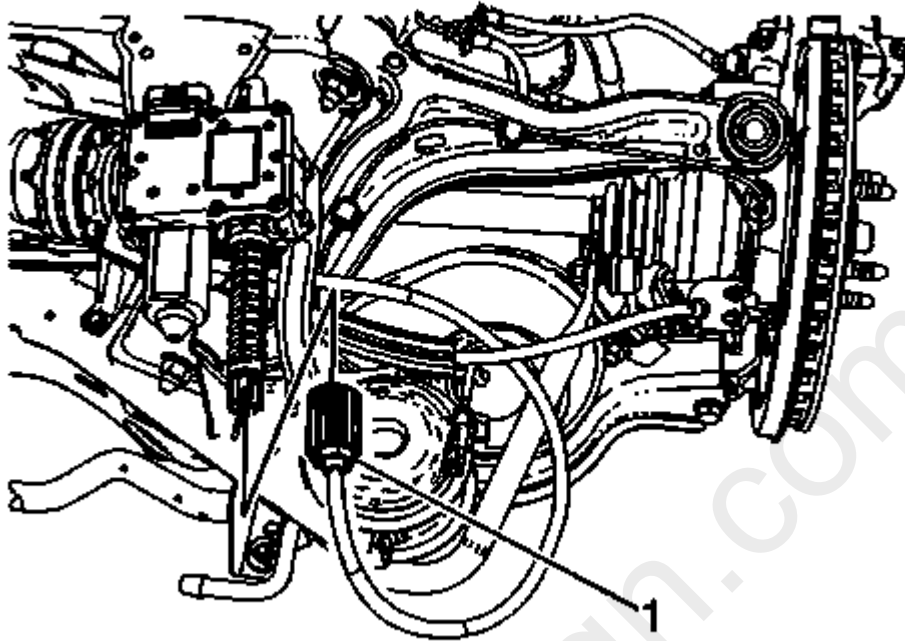


Fig. 12: Identifying Park Brake Cable Nut
Courtesy of GENERAL MOTORS COMPANY

5. Inspect the O-ring seals on the spindle and the cable for damage and correct positioning and replace, if necessary.
6. Install the park brake cable fitting to the spindle.

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

7. Position the park brake cable nut to the spindle.

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

8. Install the park brake cable nut (1) to the electronic park brake module spindle by rotating the nut clockwise and tighten to 6 N.m (53 lb in).

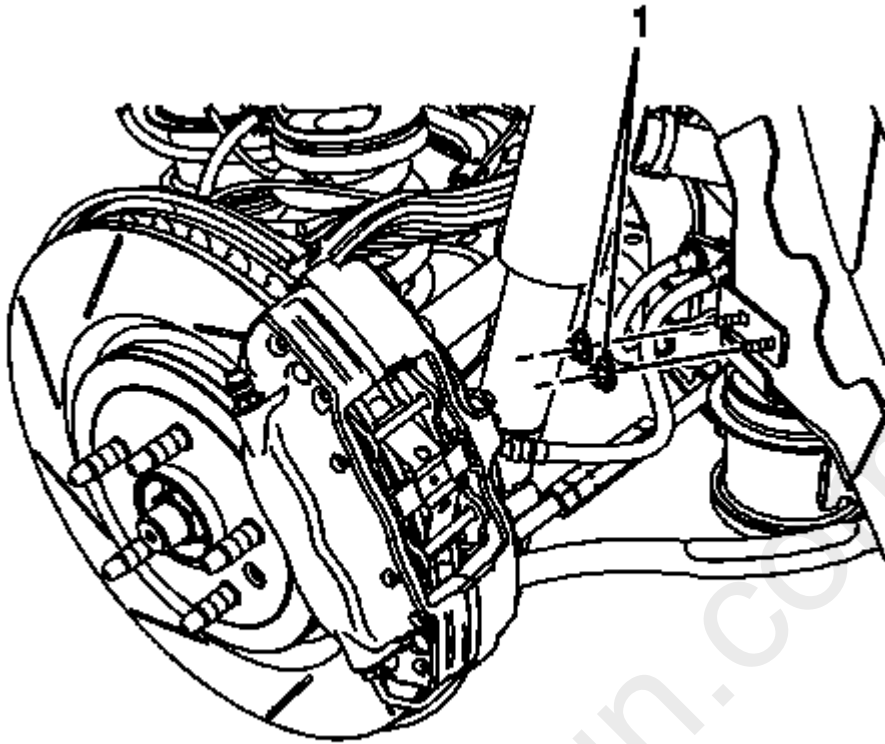


Fig. 13: Identifying Rear Brake Hose Assembly Bracket Nuts
Courtesy of GENERAL MOTORS COMPANY

NOTE: When installing the rear frame assembly, ensure the park brake cable does not become trapped between the frame mount and the vehicle body.

9. Install the rear frame assembly. Refer to **Rear Frame Replacement** .
10. Install the rear brake hose assembly bracket to the studs.
11. Install the nuts (1) to the rear brake hose assembly bracket and tighten to 10 N.m (89 lb in).

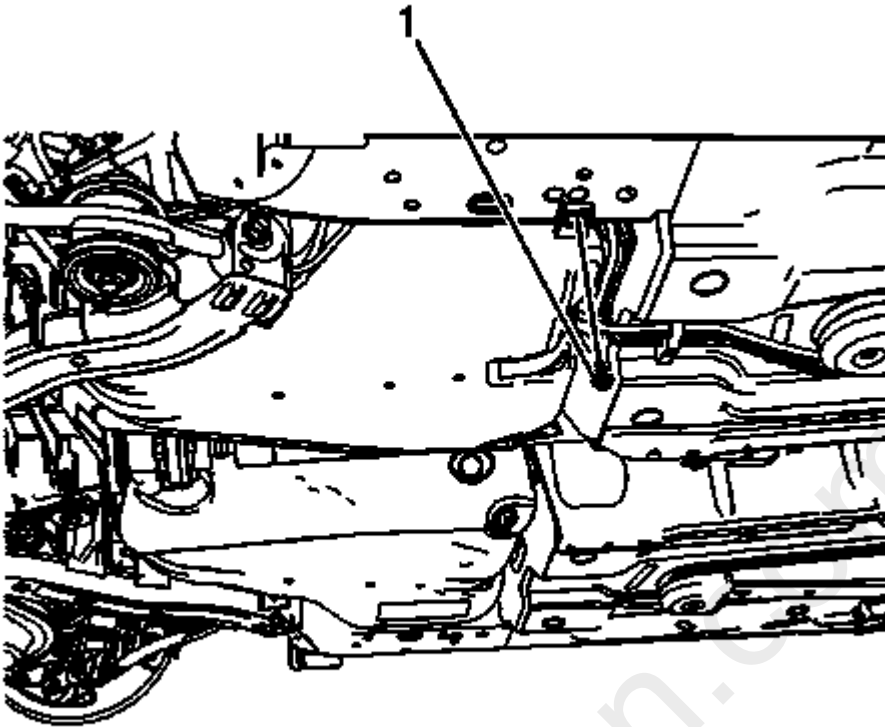


Fig. 14: Identifying Bolt Securing Fuel & Brake Pipe Bundle
Courtesy of GENERAL MOTORS COMPANY

12. Install the bolt (1) securing the fuel and brake pipe bundle to the vehicle underbody and tighten to 10 N.m (89 lb in).

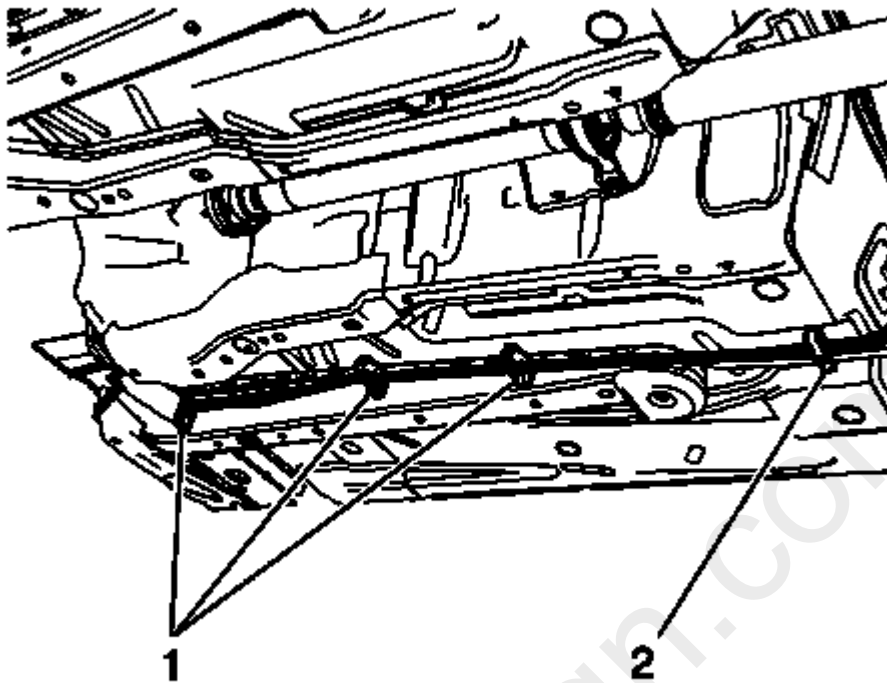


Fig. 15: Identifying Frame Rail Clips
Courtesy of GENERAL MOTORS COMPANY

13. Install the fuel and brake pipe bundle to the frame rail clips (1).
14. Install the fuel and brake pipe bundle retainer (2) to the vehicle underbody.
15. Install the rear tire and wheel assemblies. Refer to **Tire and Wheel Removal and Installation** .
16. Lower the vehicle.
17. Set the electric park brake cable tension. Refer to **Parking Brake Cable Adjuster Enabling (Electric Park Brake)**.

PARKING BRAKE SHOE REPLACEMENT

Removal Procedure

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

1. Block the rear drive wheels.
2. Release the park brake lever, if equipped.
3. Release the electronic park brake cable tension, if equipped. Refer to **Parking Brake Cable Adjuster**

Disabling (Electric Park Brake).

4. Turn the ignition to the OFF position.
5. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
6. Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
7. Remove the rear brake rotor. Refer to **Rear Brake Rotor Replacement (J56)** , **Rear Brake Rotor Replacement (JE5, J55)** .

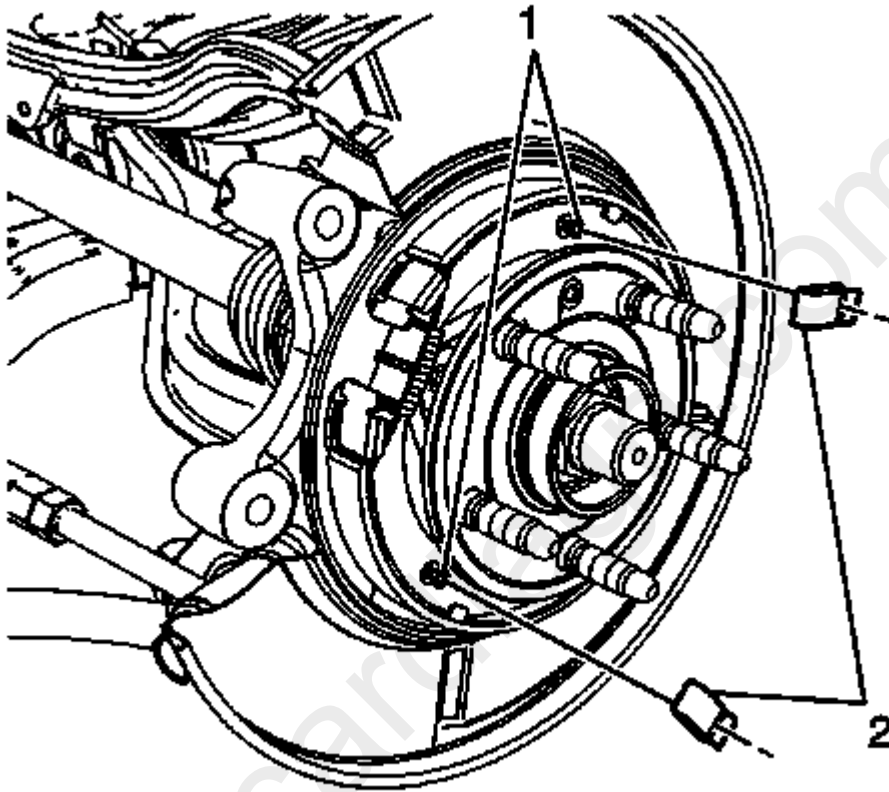


Fig. 16: View of Parking Brake Shoe Pins
Courtesy of GENERAL MOTORS COMPANY

8. Remove the park brake shoe pins (1) by compressing the hold down springs (2) and rotating the spring 1/4 turn.

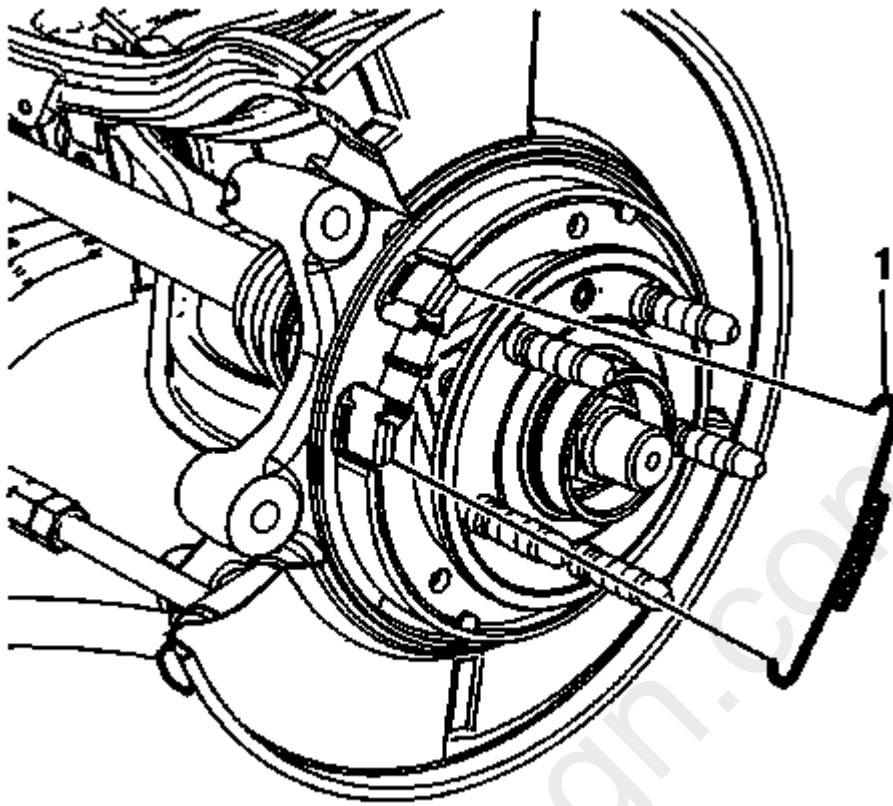


Fig. 17: View of Brake Shoes and Spring
Courtesy of GENERAL MOTORS COMPANY

9. Rotate the adjuster screw to retract the park brake shoes.
10. Remove the park brake shoe adjuster spring (1).

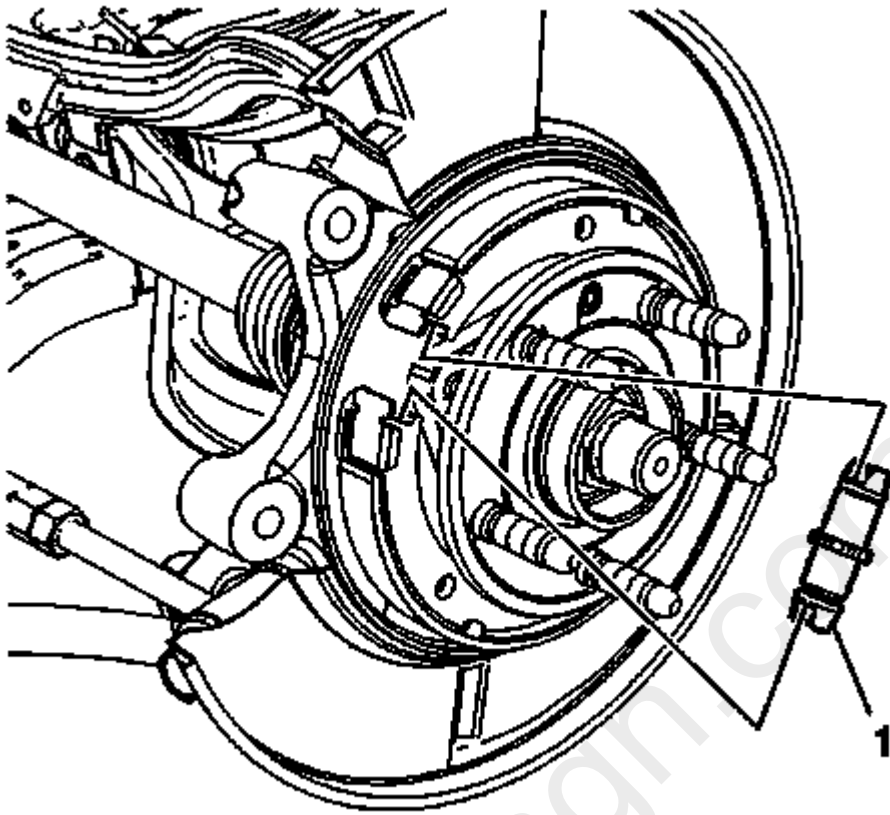


Fig. 18: View of Parking Brake Adjuster
Courtesy of GENERAL MOTORS COMPANY

11. Spread the park brake shoes and remove the park brake shoe adjuster (1).
12. Disassemble the park brake shoe adjuster and lubricate the adjuster screw threads with high temperature brake lubricant.

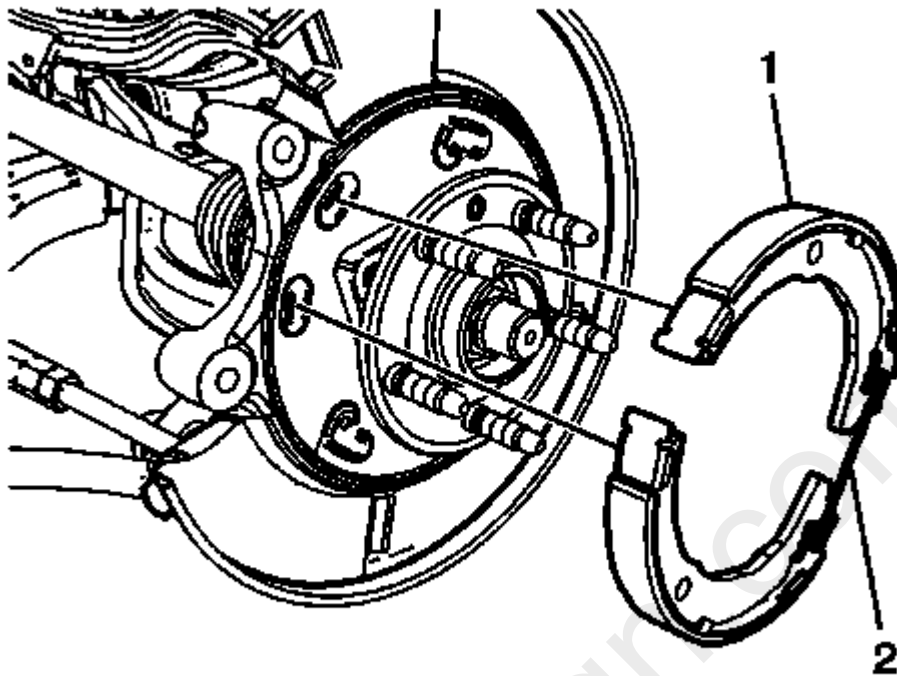


Fig. 19: View of Parking Brake Shoe Assembly
Courtesy of GENERAL MOTORS COMPANY

13. Remove the park brake shoe assembly (1) from the backing plate by spreading the park brake shoes apart.

Pull the park brake shoe assembly over and off of the actuator.

14. Remove the park brake shoe return spring (2) from the park brake shoes.
15. Clean the park brake shoe backing plate.
16. Lubricate the park brake shoe to backing plate contact points with high temperature brake lubricant.

Installation Procedure

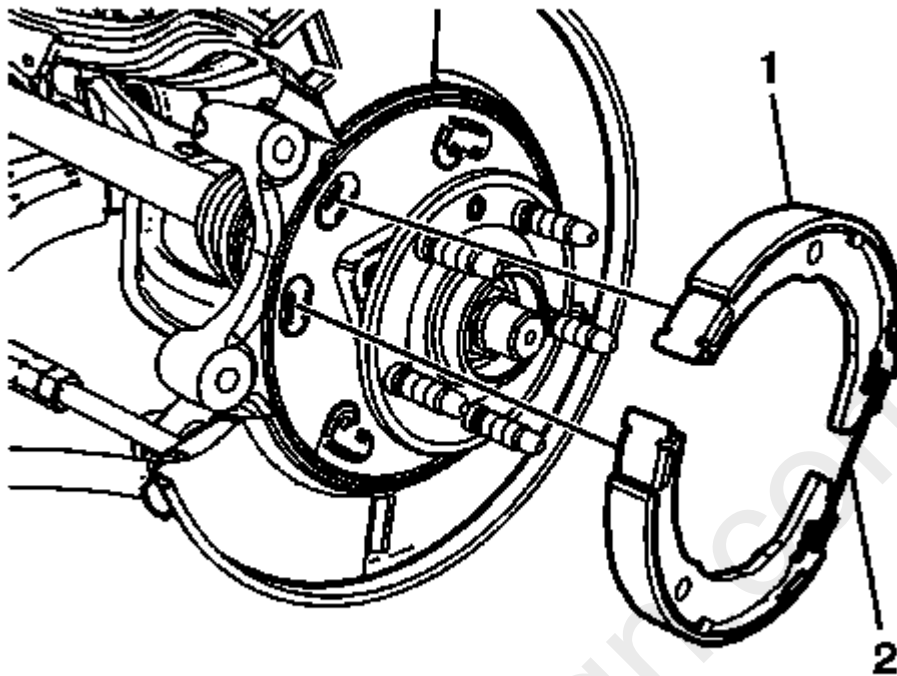


Fig. 20: View of Parking Brake Shoe Assembly
Courtesy of GENERAL MOTORS COMPANY

1. Assemble the park brake shoes (1) to the return spring (2).
2. Install the park brake shoe assembly to the backing plate by spreading the park brake shoes apart.

Position the park brake shoe assembly over the actuator.

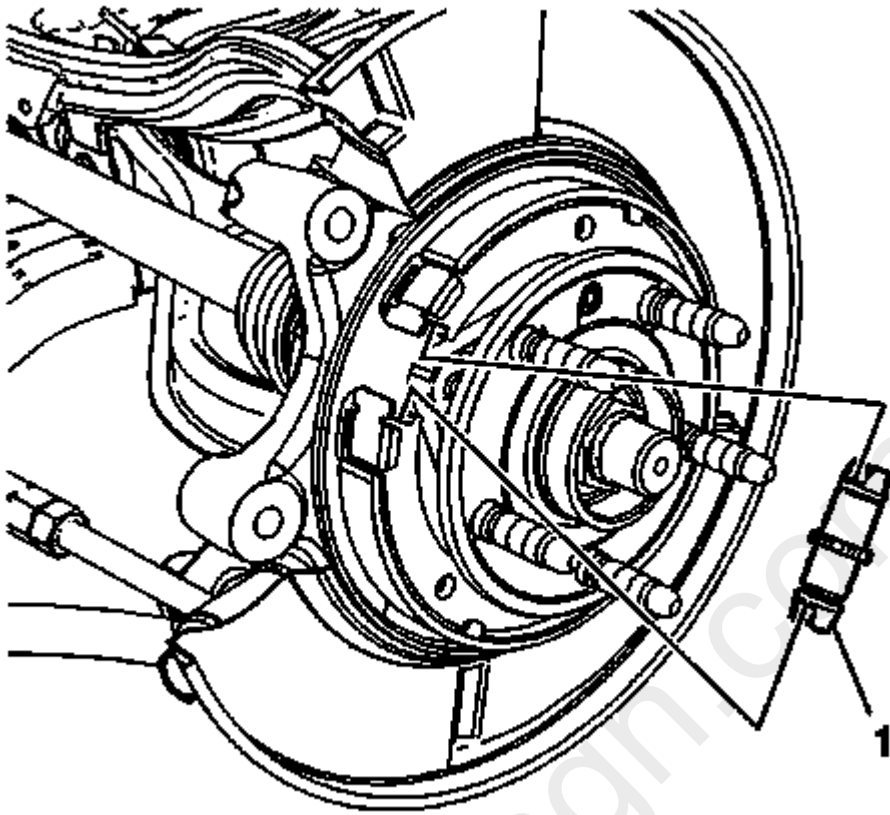


Fig. 21: View of Parking Brake Adjuster
Courtesy of GENERAL MOTORS COMPANY

3. Assemble the park brake shoe adjuster.
4. Spread the park brake shoes and install the park brake shoe adjuster (1).

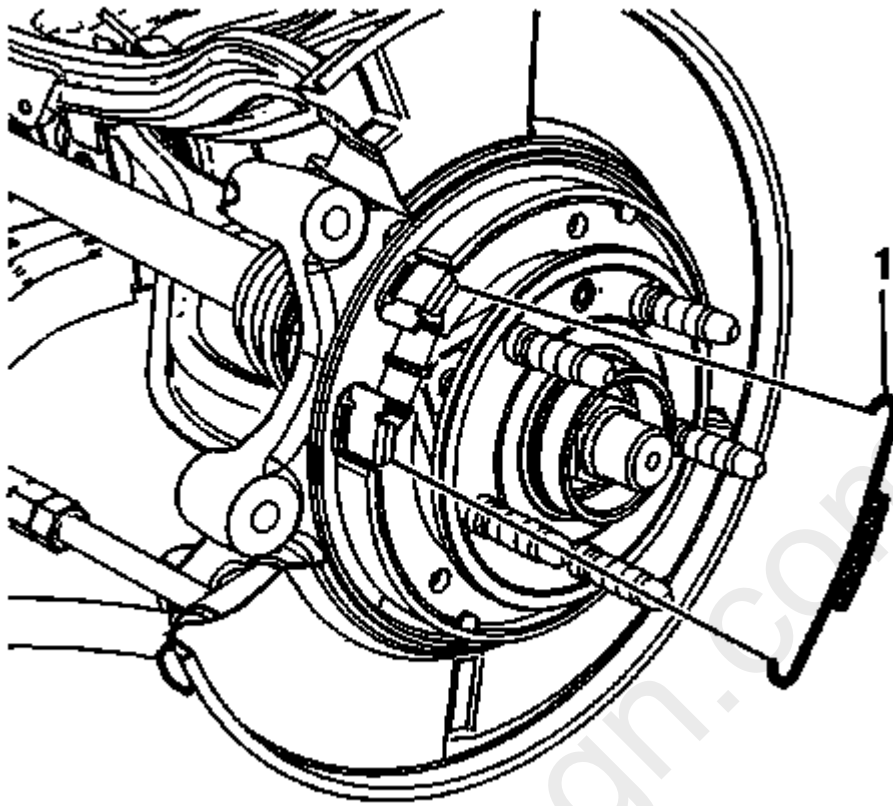


Fig. 22: View of Brake Shoes and Spring
Courtesy of GENERAL MOTORS COMPANY

5. Install the park brake shoe adjuster spring (1).

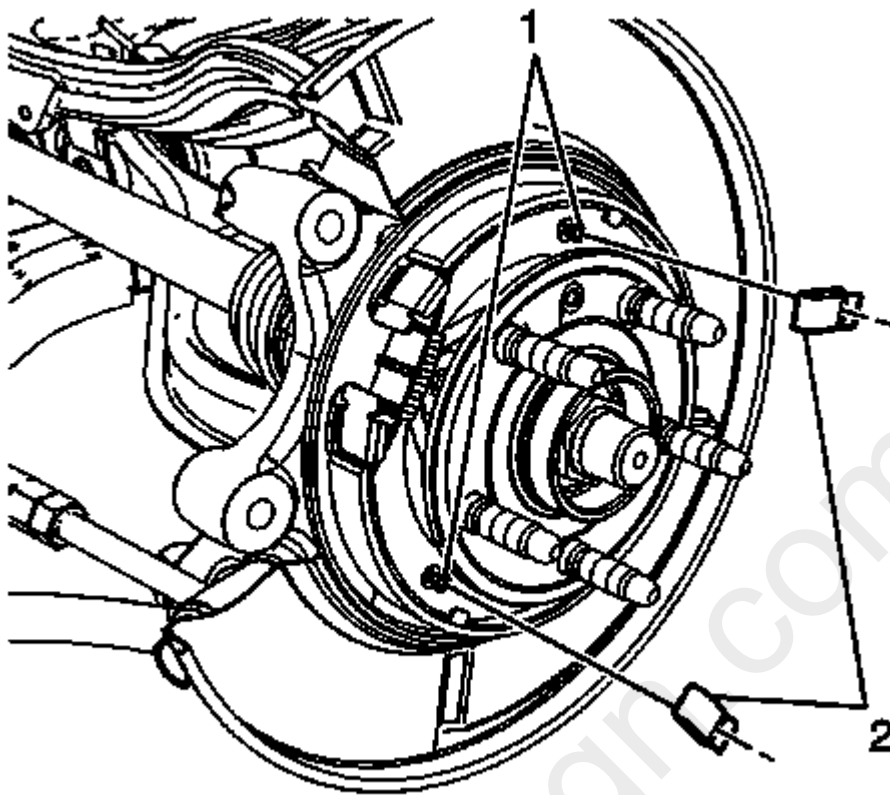


Fig. 23: View of Parking Brake Shoe Pins
 Courtesy of GENERAL MOTORS COMPANY

6. Install the park brake shoe pins (1) by compressing the hold down springs (2) and rotating the spring 1/4 turn.
7. Install the rear brake rotor. Refer to **Rear Brake Rotor Replacement (J56)** , **Rear Brake Rotor Replacement (JE5, J55)** .
8. Adjust the park brake. Refer to **Parking Brake Adjustment**.
9. Set the electric park brake cable tension. Refer to **Parking Brake Cable Adjuster Enabling (Electric Park Brake)**.
10. Install the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .

PARKING BRAKE RELEASE HANDLE ASSEMBLY REPLACEMENT

Removal Procedure

1. Remove the driver knee bolster. Refer to **Driver Knee Bolster Replacement (Left Hand Drive)** , **Driver Knee Bolster Replacement (Right Hand Drive)** .

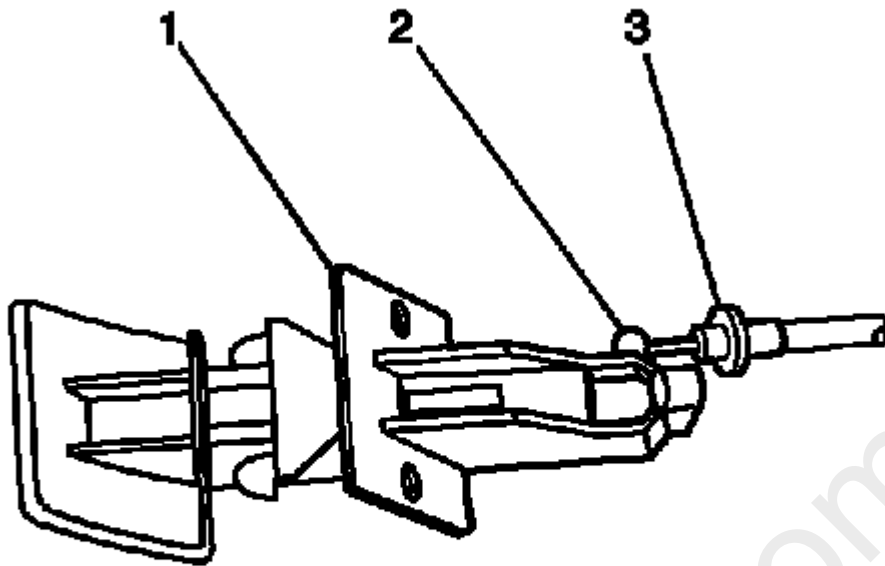


Fig. 24: View Of Park Brake Release Handle Assembly
Courtesy of GENERAL MOTORS COMPANY

2. Remove the park brake release handle screws.
3. Remove the park brake release cable housing (3) from the park brake release handle assembly (1).
4. Remove the park brake release handle (2) from the park brake release cable (1).
5. Remove the park brake release handle from the vehicle.

Installation Procedure

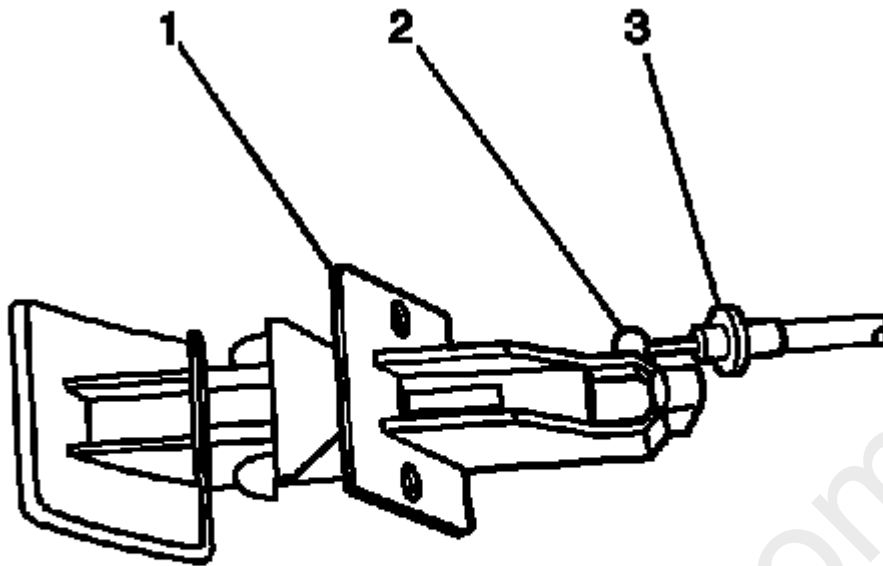


Fig. 25: View Of Park Brake Release Handle Assembly
Courtesy of GENERAL MOTORS COMPANY

1. Install the park brake release handle (2) to the park brake release cable (1).
2. Install the park brake release cable housing (3) to the park brake release handle assembly (1).
3. Install the park brake release handle assembly (1) to the knee bolster.

CAUTION: Refer to Fastener Caution .

4. Install the park brake release handle screws and tighten to 2 N.m (18 lb in).
5. Install the driver knee bolster. Refer to **Driver Knee Bolster Replacement (Left Hand Drive)** , **Driver Knee Bolster Replacement (Right Hand Drive)** .

PARKING BRAKE RELEASE CABLE REPLACEMENT

Removal Procedure

1. Remove the driver knee bolster. Refer to **Driver Knee Bolster Replacement (Left Hand Drive)** , **Driver Knee Bolster Replacement (Right Hand Drive)** .

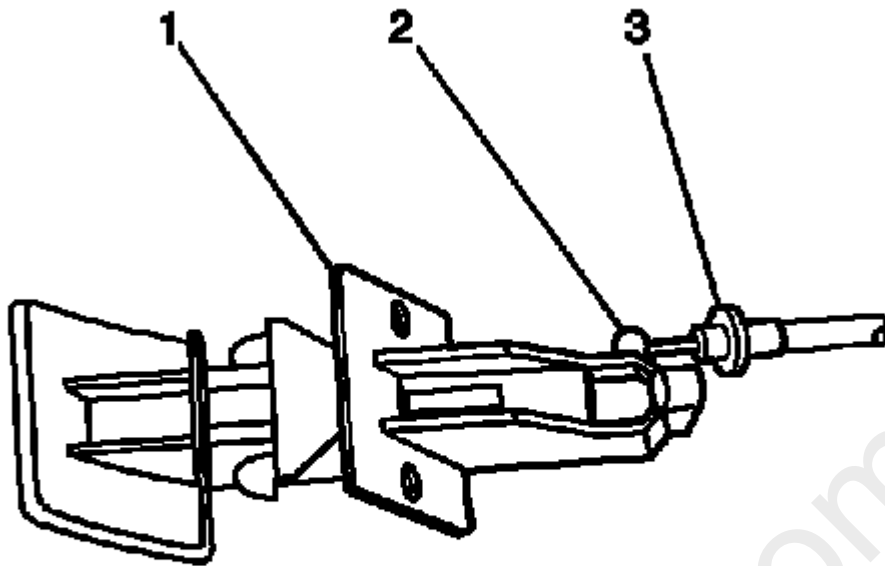


Fig. 26: View Of Park Brake Release Handle Assembly
Courtesy of GENERAL MOTORS COMPANY

2. Remove the park brake release handle screws.
3. Remove the park brake release cable housing (3) from the park brake release handle assembly (1).
4. Remove the park brake release cable (2) from the park brake release handle assembly.

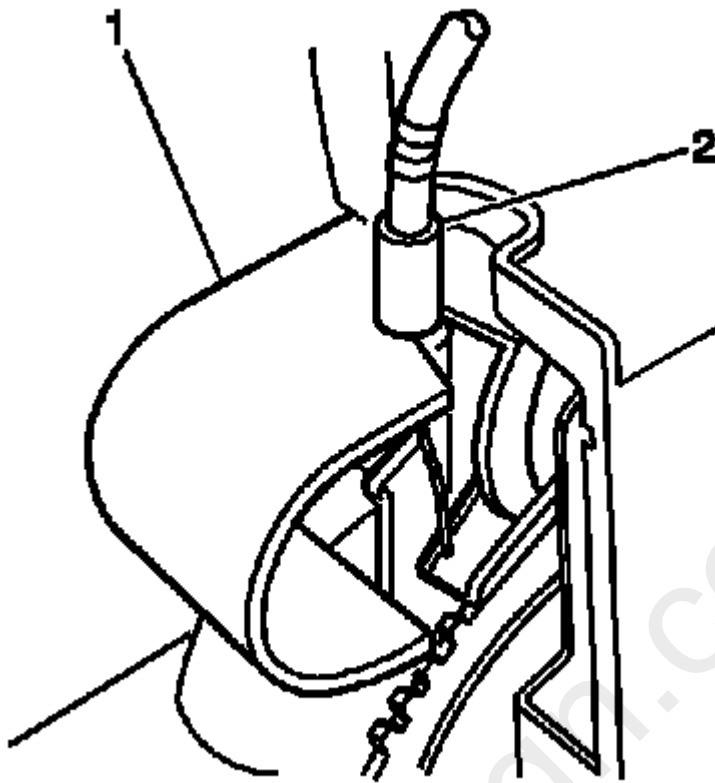


Fig. 27: View Of Park Brake Pedal Assembly & Release Cable Housing
Courtesy of GENERAL MOTORS COMPANY

5. Remove the park brake release cable housing (2) from the park brake pedal assembly (1).

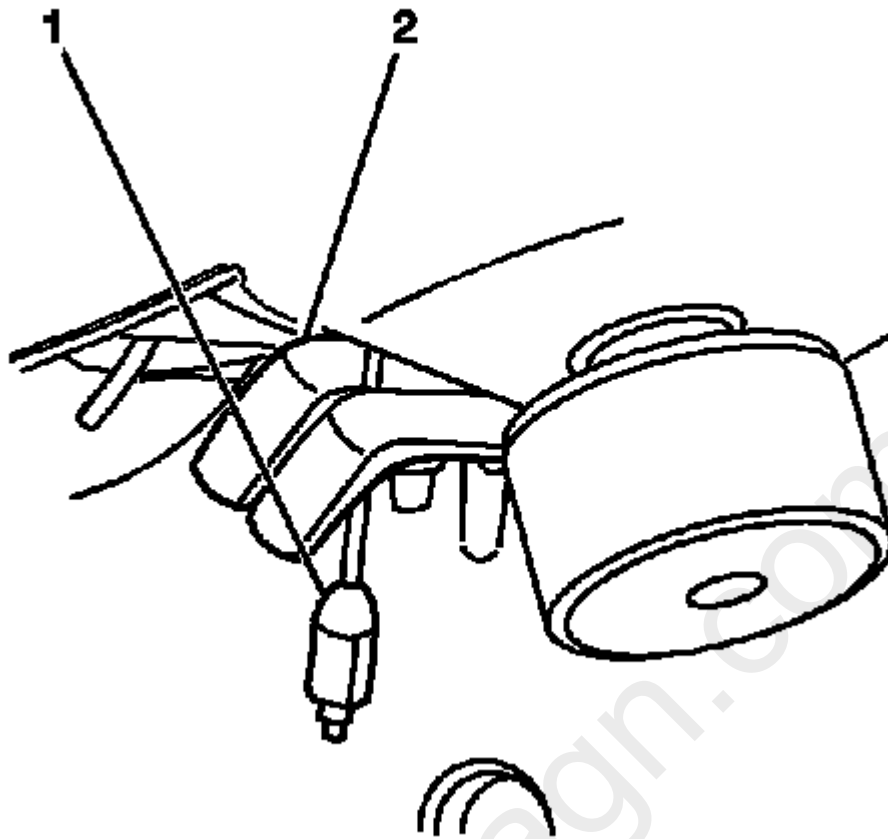


Fig. 28: View Of Park Brake Cable & Pedal Release Lever
Courtesy of GENERAL MOTORS COMPANY

6. Remove the park brake cable (1) from the park brake pedal release lever (2).
7. Remove the park brake release cable from the vehicle.

Installation Procedure

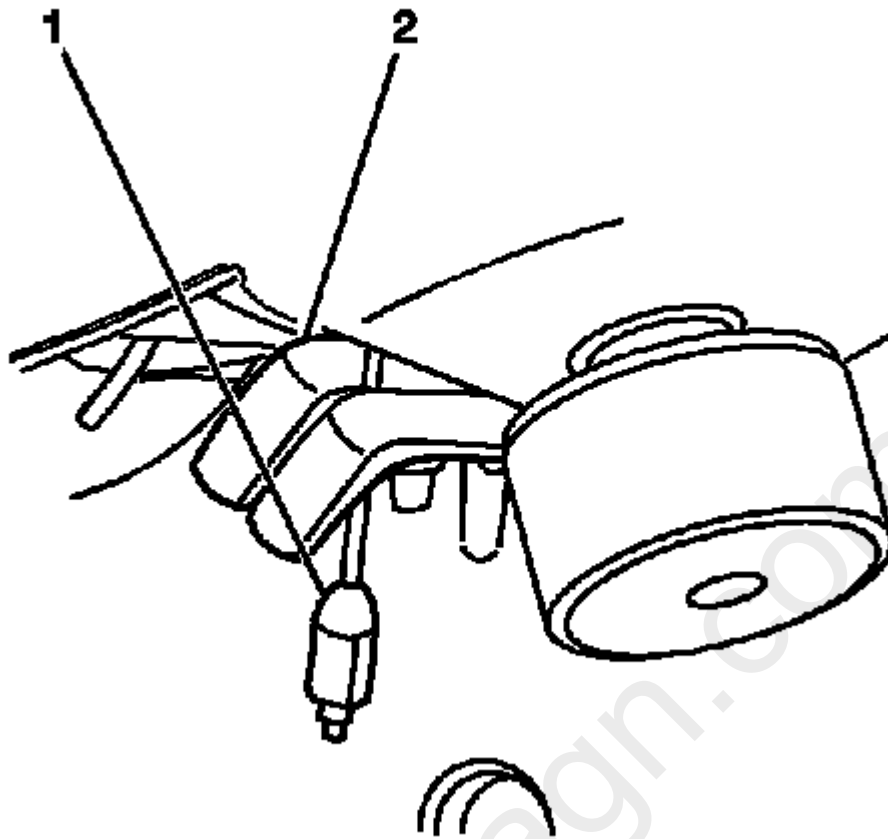


Fig. 29: View Of Park Brake Cable & Pedal Release Lever
Courtesy of GENERAL MOTORS COMPANY

1. Install the park brake cable (1) to the park brake pedal release lever (2).

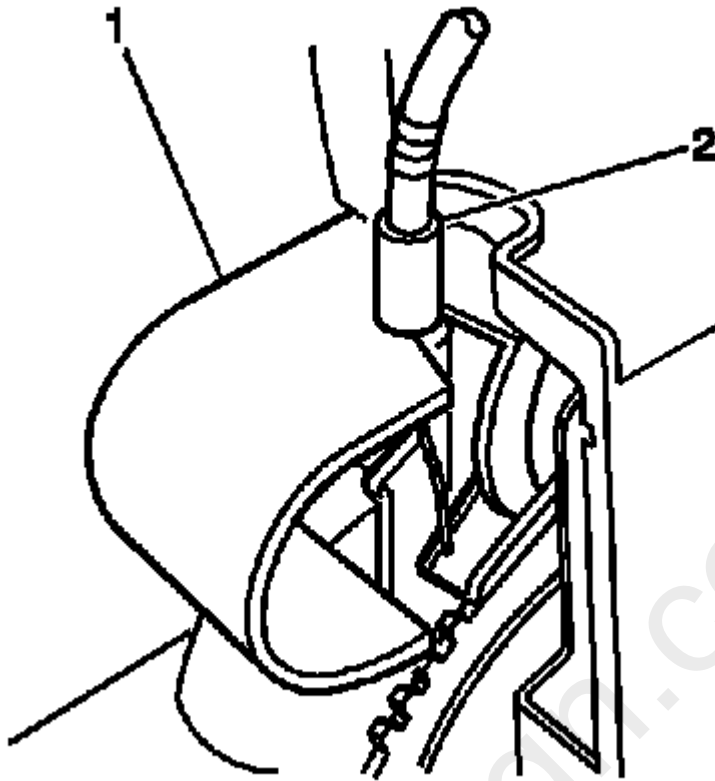


Fig. 30: View Of Park Brake Pedal Assembly & Release Cable Housing
Courtesy of GENERAL MOTORS COMPANY

2. Install the park brake release cable housing (2) to the park brake pedal assembly (1).

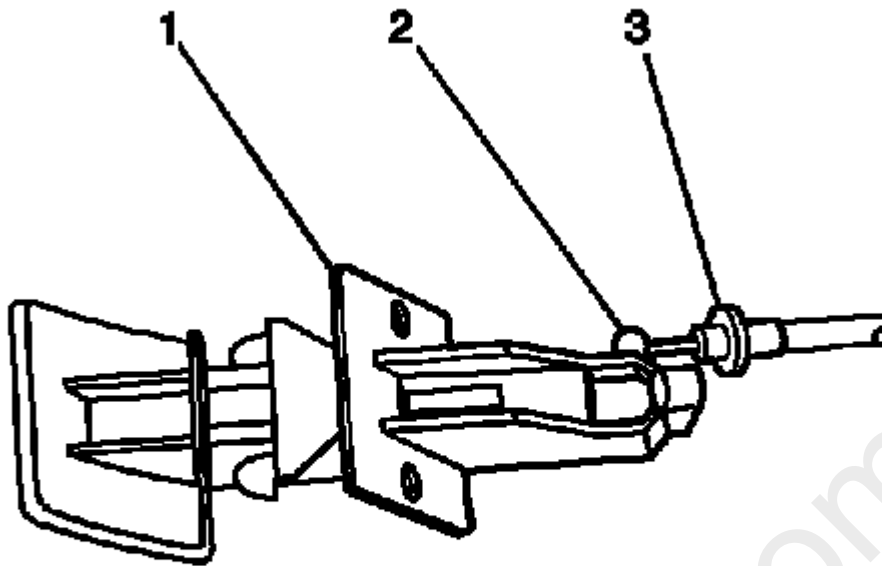


Fig. 31: View Of Park Brake Release Handle Assembly
Courtesy of GENERAL MOTORS COMPANY

3. Install the park brake release cable (2) to the park brake release handle assembly (1).
4. Install the park brake release cable housing (3) to the park brake release handle assembly (1).
5. Install the park brake release handle assembly (1) to the knee bolster.

CAUTION: Refer to Fastener Caution .

6. Install the park brake release handle screws and tighten to 2 N.m (18 lb in).
7. Install the driver knee bolster. Refer to **Driver Knee Bolster Replacement (Left Hand Drive)** , **Driver Knee Bolster Replacement (Right Hand Drive)** .

PARKING BRAKE LEVER PEDAL ASSEMBLY REPLACEMENT

Removal Procedure

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

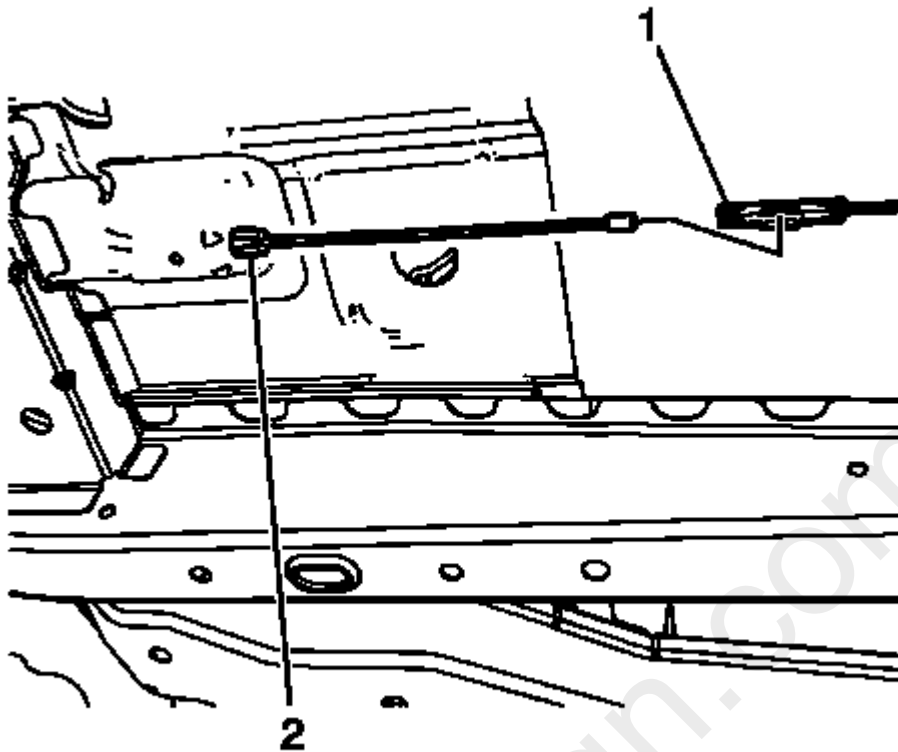


Fig. 32: View of Parking Brake Cable Retaining Bracket
Courtesy of GENERAL MOTORS COMPANY

2. Pull down on the intermediate park brake cable and disconnect the front park brake cable from the intermediate park brake cable connector (1).
3. Release the front park brake cable conduit (2) from the vehicle underbody.

Compress the locking tabs on the cable conduit to release the conduit from the underbody.

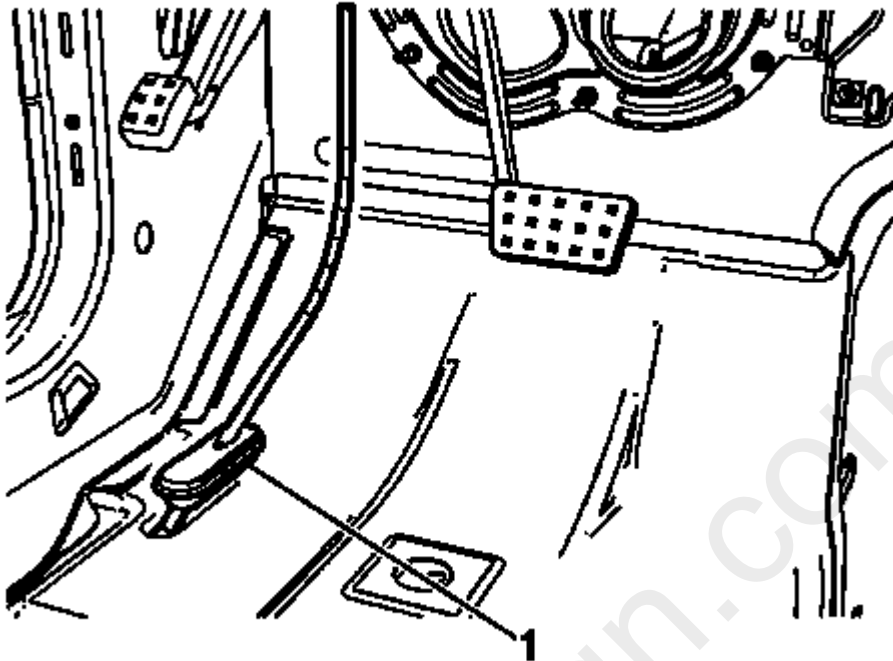


Fig. 33: View of Cable Conduit

Courtesy of GENERAL MOTORS COMPANY

4. Remove the park brake release handle. Refer to **Parking Brake Release Handle Assembly Replacement**.
5. Remove the driver knee bolster. Refer to **Driver Knee Bolster Replacement (Left Hand Drive)** , **Driver Knee Bolster Replacement (Right Hand Drive)** .
6. Remove the left instrument panel side trim panel. Refer to **Instrument Panel Side Trim Panel Replacement** .
7. Remove the left front side door sill plate. Refer to **Front Side Door Sill Trim Plate Replacement (Coupe)** , **Front Side Door Sill Trim Plate Replacement (Wagon)** .
8. Pull the carpet back to expose the park brake cable.
9. Release the front park brake cable pass through grommet (1) from the floor panel.
10. Disconnect the electrical connector from the park brake indicator switch.
11. Remove the park brake indicator switch wiring harness retainer from the park brake pedal assembly and position the harness aside.

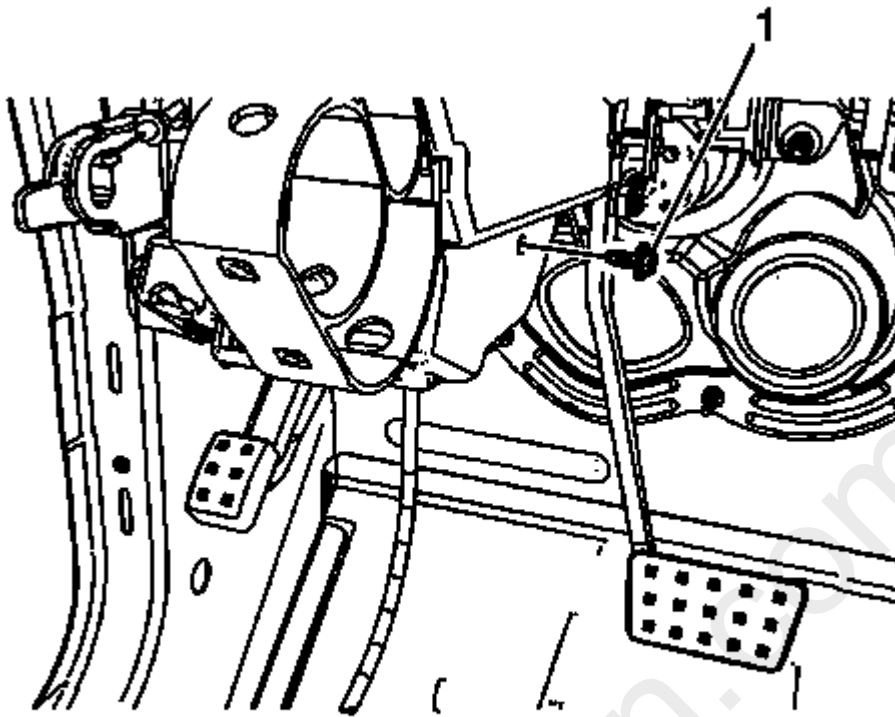


Fig. 34: View of Parking Brake Lever Bolt
Courtesy of GENERAL MOTORS COMPANY

12. Remove the park brake lever bolt (1).

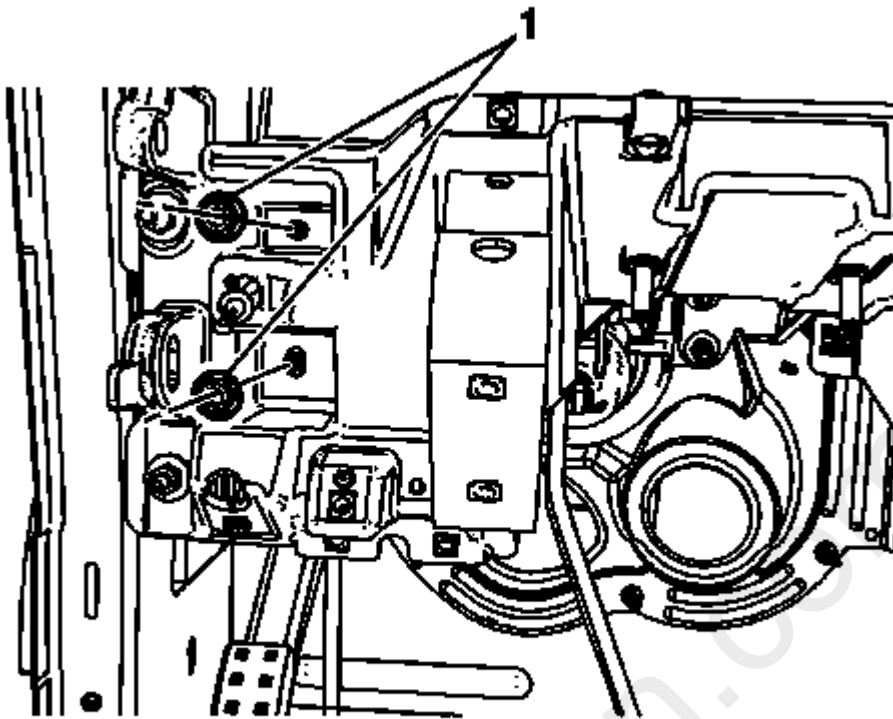


Fig. 35: View of Parking Brake Lever Nuts
Courtesy of GENERAL MOTORS COMPANY

13. Remove the park brake lever nuts (1).

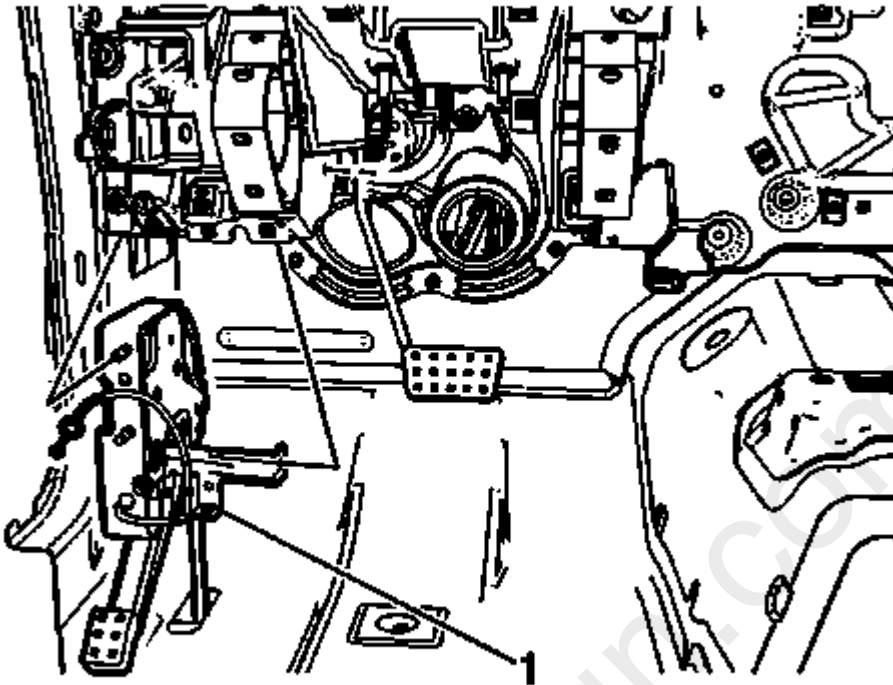


Fig. 36: View of Instrument Panel and Parking Brake Lever Assembly
Courtesy of GENERAL MOTORS COMPANY

14. Lower the park brake lever assembly (1) from under the instrument panel.
15. Pull the front park brake cable through the floor panel and remove the park brake lever and front cable assembly from the vehicle.

Feed the front park brake cable through the mounting bracket on the vehicle underbody.

Installation Procedure

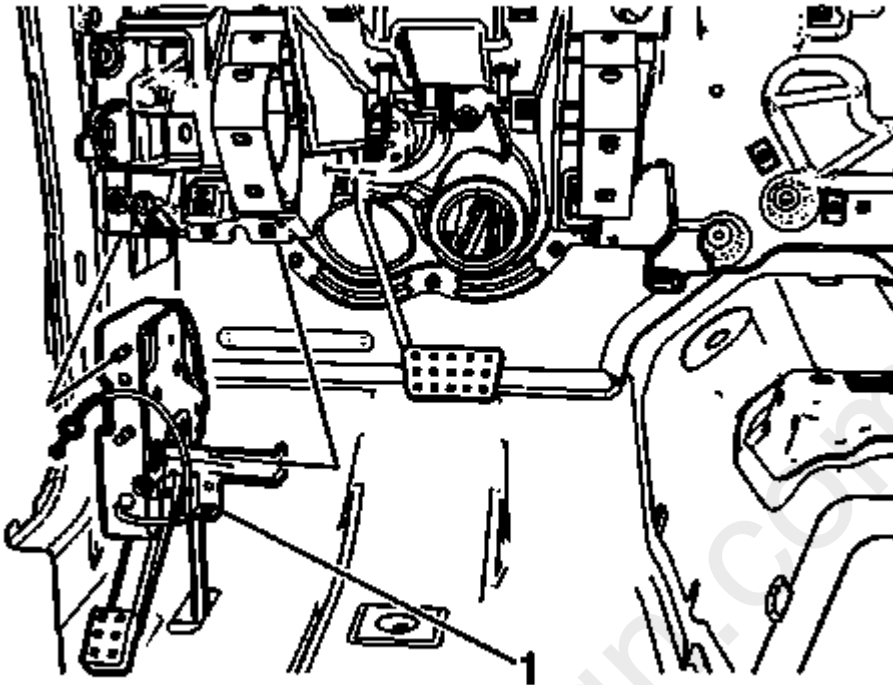


Fig. 37: View of Instrument Panel and Parking Brake Lever Assembly
Courtesy of GENERAL MOTORS COMPANY

1. Install the park brake lever assembly (1) to the instrument panel.
2. Feed the front park brake cable through the floor panel and install the park brake cable through the mounting bracket on the vehicle underbody.

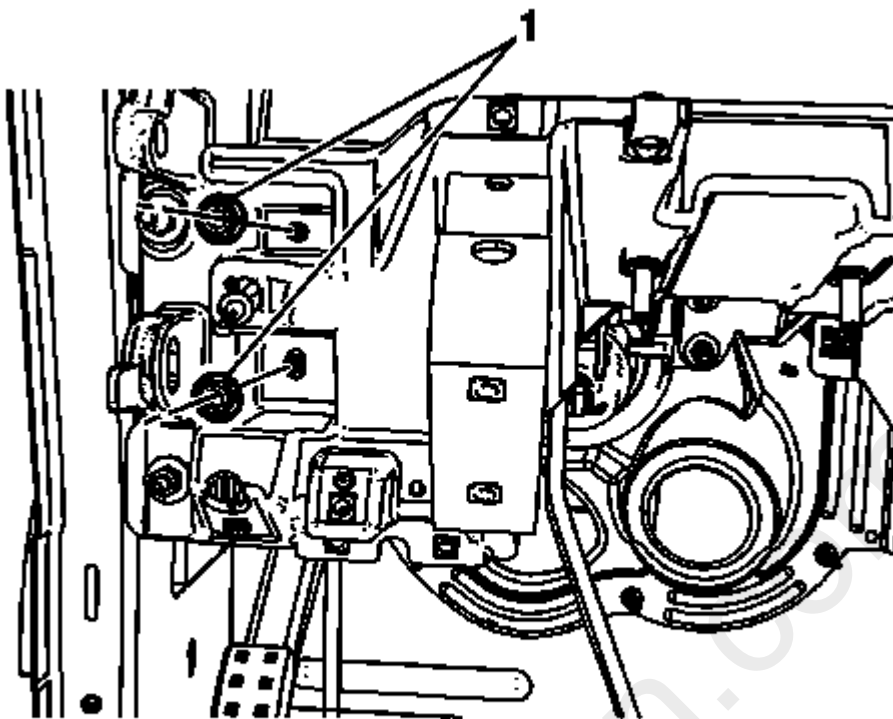


Fig. 38: View of Parking Brake Lever Nuts
Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to Fastener Caution .

3. Install the park brake lever nuts (1) and tighten to 25 N.m (18 lb ft).

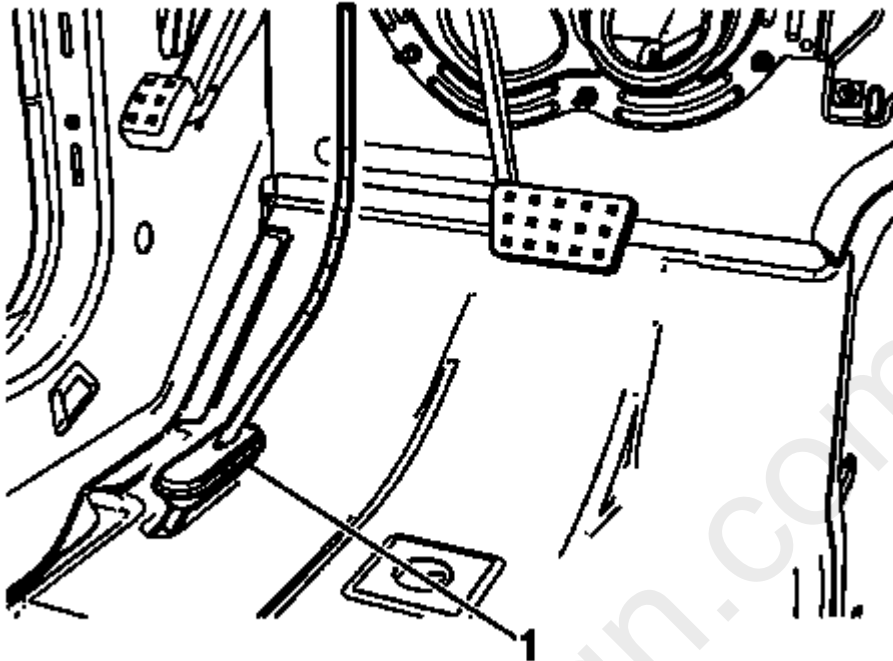


Fig. 39: View of Cable Conduit

Courtesy of GENERAL MOTORS COMPANY

4. Install the front park brake cable pass through grommet (1) to the floor panel.
5. Connect the electrical connector to the park brake indicator switch.
6. Install the park brake indicator switch wiring harness retainer to the park brake pedal assembly.
7. Position the carpet to the floor panel.
8. Install the left front side door sill plate. Refer to **Front Side Door Sill Trim Plate Replacement (Coupe)** , **Front Side Door Sill Trim Plate Replacement (Wagon)** .
9. Install the park brake release handle. Refer to **Parking Brake Release Handle Assembly Replacement**.

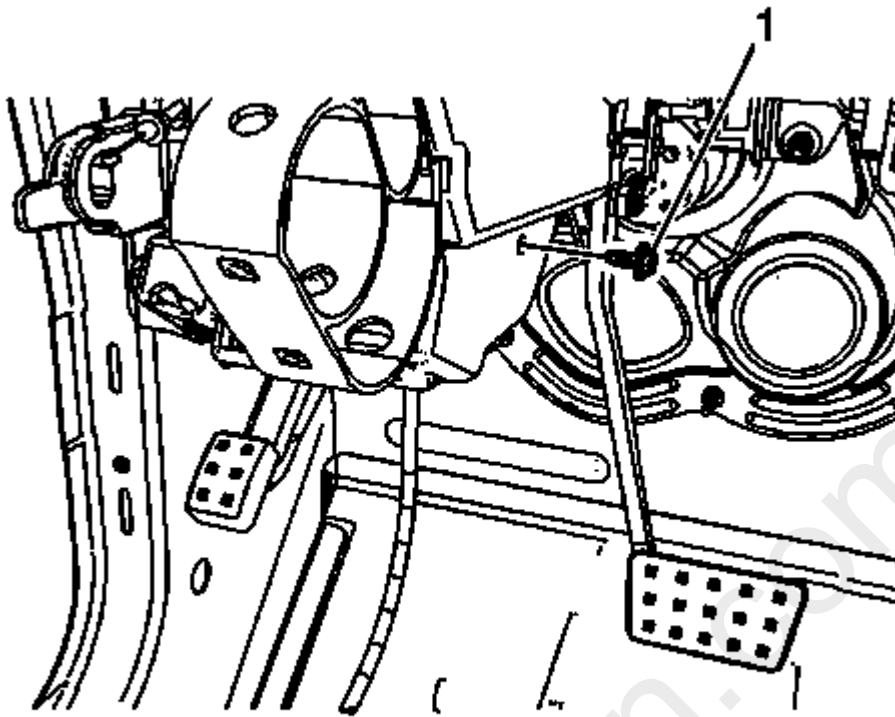


Fig. 40: View of Parking Brake Lever Bolt
Courtesy of GENERAL MOTORS COMPANY

10. Install the park brake lever bolt (1) and tighten to 10 N.m (89 lb in).
11. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .

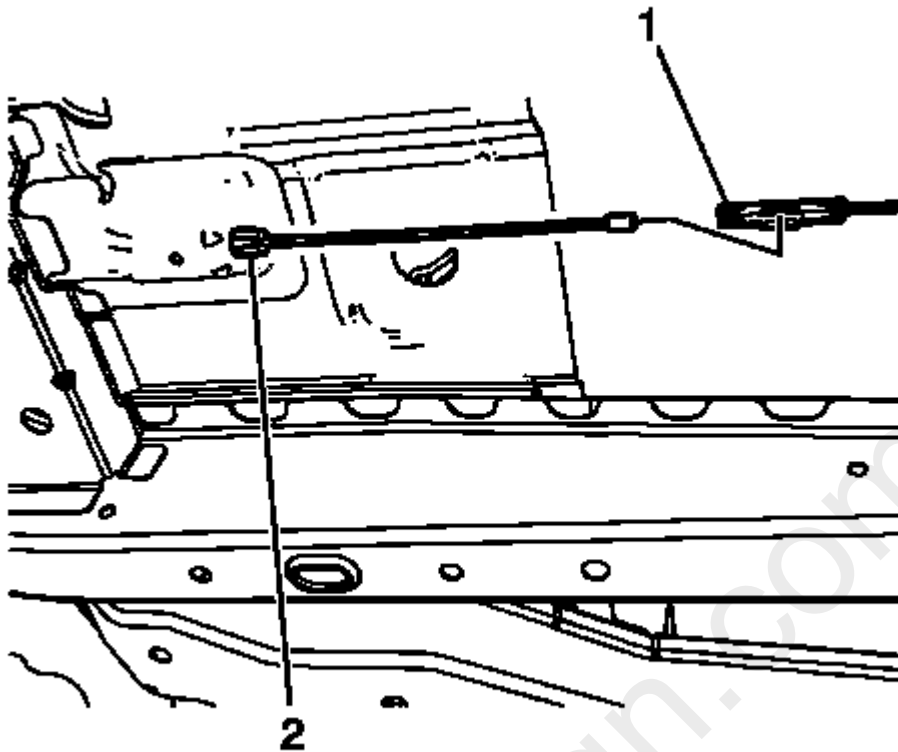


Fig. 41: View of Parking Brake Cable Retaining Bracket
Courtesy of GENERAL MOTORS COMPANY

12. Pull down on the intermediate park brake cable and connect the front park brake cable to the intermediate park brake cable connector (1).
13. Install the front park brake cable conduit (2) to the vehicle underbody.

Pull the park brake cable conduit rearward until the locking tabs on the conduit are fully deployed.

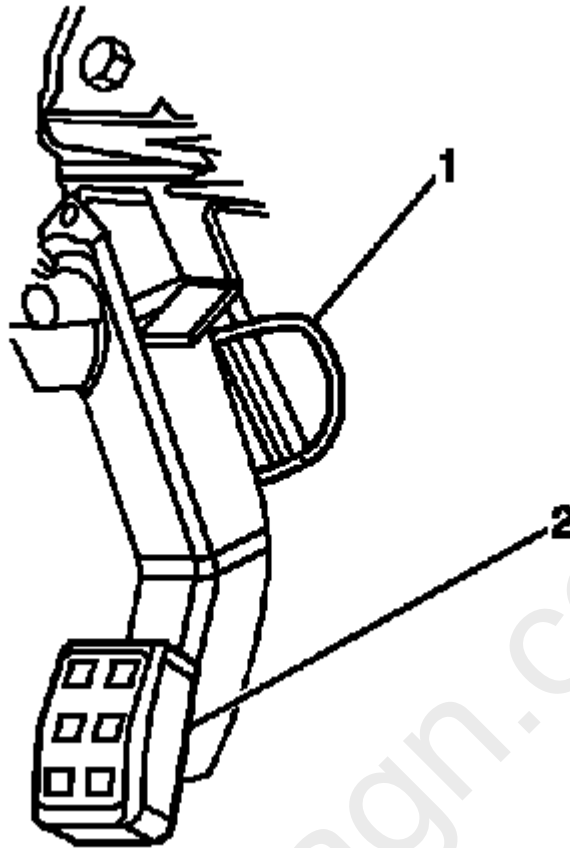


Fig. 42: View Of Park Brake Pedal & Cable Tension Set Pin
Courtesy of GENERAL MOTORS COMPANY

14. If a new park brake pedal assembly is being installed, the cable tension set pin has to be removed to set the cable tension.
15. To set the park brake cable tension, rotate the pin (1) forward then rotate the pin to the left.
16. Remove the pin.
17. Apply the park brake pedal (2) 3 full cycles to complete the tension set.
18. Install the driver knee bolster. Refer to **Driver Knee Bolster Replacement (Left Hand Drive)** , **Driver Knee Bolster Replacement (Right Hand Drive)** .
19. Install the left instrument panel side trim panel. Refer to **Instrument Panel Side Trim Panel Replacement** .

PARKING BRAKE INDICATOR SWITCH REPLACEMENT

Removal Procedure

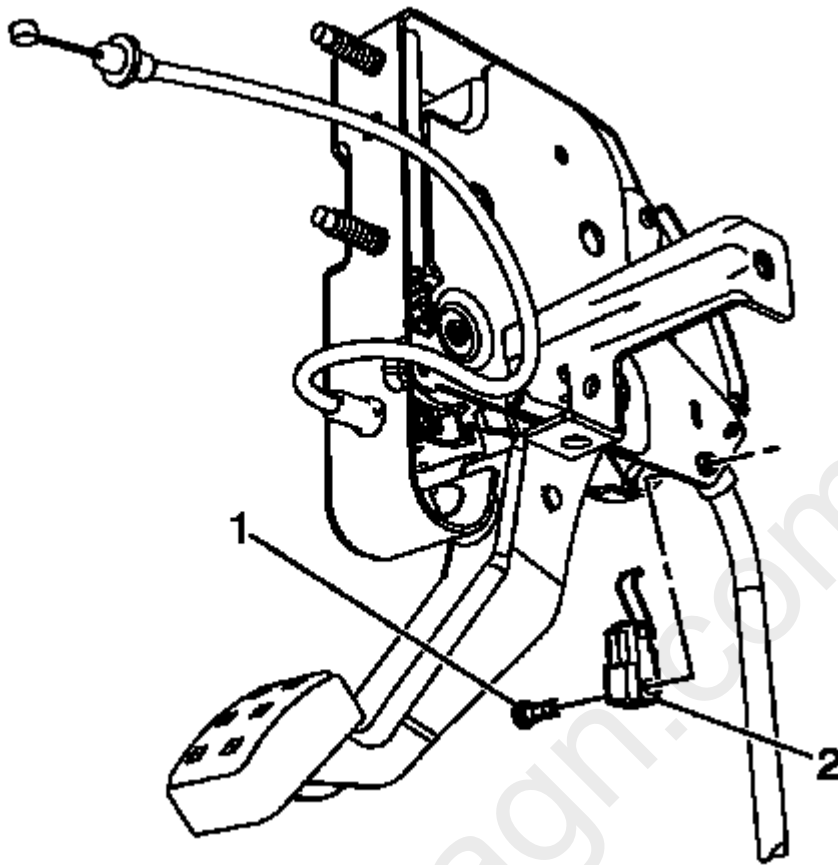


Fig. 43: View of Parking Brake Indicator Switch
Courtesy of GENERAL MOTORS COMPANY

1. Remove the left instrument panel insulator panel. Refer to **Instrument Panel Insulator Replacement - Left Side (Right Hand Drive)** , **Instrument Panel Insulator Replacement - Left Side (Left Hand Drive)** .
2. Disconnect the parking brake indicator switch electrical connector.
3. Remove the parking brake indicator switch bolt (1).
4. Remove the parking brake indicator switch (2).

Installation Procedure

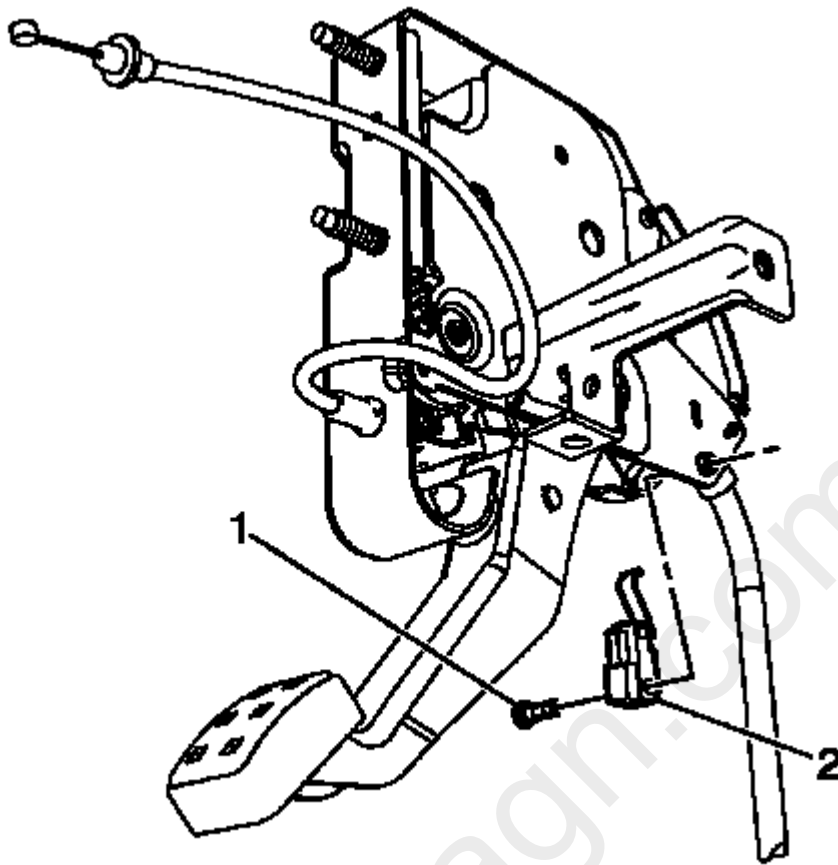


Fig. 44: View of Parking Brake Indicator Switch
Courtesy of GENERAL MOTORS COMPANY

1. Assemble the parking brake indicator switch bolt (1) to the parking brake indicator switch (2).
2. Install the parking brake indicator switch assembly to the parking brake lever.

Align the pin on the indicator switch to the locator hole on the parking brake lever.

CAUTION: Refer to Fastener Caution .

3. Tighten the parking brake indicator switch bolt to 2 N.m (18 lb in).
4. Connect the parking brake indicator switch electrical connector.
5. Install the left instrument panel insulator panel. Refer to **Instrument Panel Insulator Replacement - Left Side (Right Hand Drive)** , **Instrument Panel Insulator Replacement - Left Side (Left Hand Drive)** .

PARKING BRAKE SWITCH REPLACEMENT

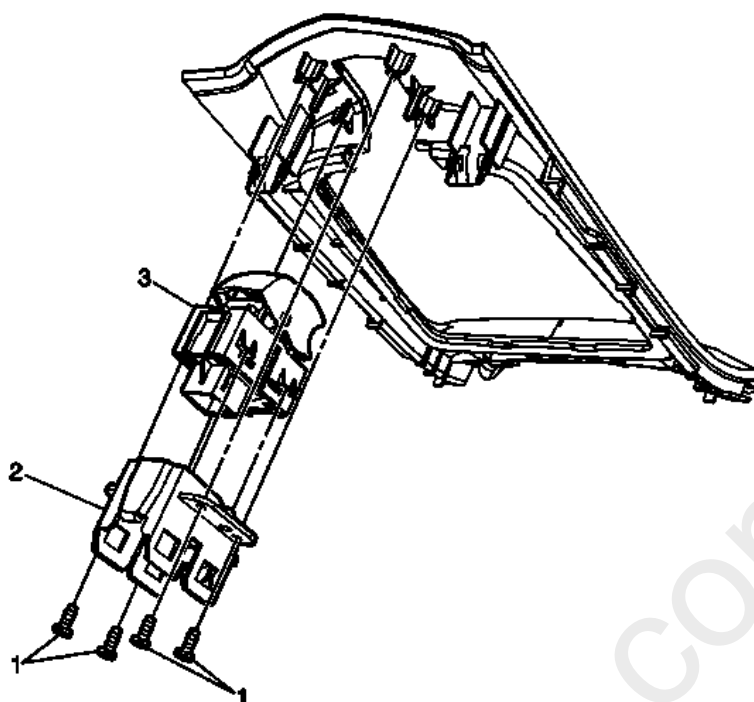


Fig. 45: Identifying Parking Brake Switch
 Courtesy of GENERAL MOTORS COMPANY

Parking Brake Switch Replacement

Callout	Component Name
Preliminary Procedures 1. Remove the transmission control indicator. Refer to <u>Automatic Transmission Control Indicator Replacement</u> . 2. Disconnect the electrical connectors.	
1	Electric Park Brake (EPB) Switch Retainer Bolts (Qty: 4) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 3 N.m (27 lb in)
2	EPB Switch Retainer
3	EPB Switch

PARKING BRAKE CABLE REPLACEMENT

Removal Procedure

1. Block the rear drive wheels.
2. Release the electronic park brake cable tension, if equipped. Refer to **Parking Brake Cable Adjuster Disabling (Electric Park Brake)**.
3. Turn the ignition to the OFF position.
4. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
5. Lower, but do not disconnect, the exhaust system enough to gain access to the electronic park brake module assembly. Refer to **Exhaust System Insulator, Hanger, Bracket Replacement** .

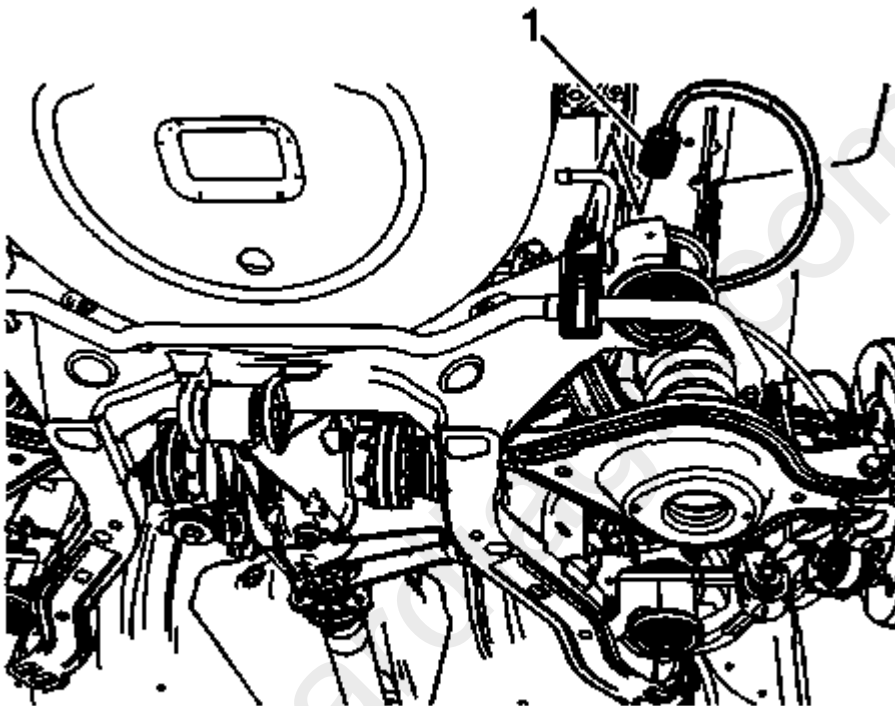


Fig. 46: Locating Park Brake Cable
Courtesy of GENERAL MOTORS COMPANY

6. Disconnect the park brake cable (1) from the electronic park brake module by rotating the cable nut counterclockwise.

Position the park brake cable nut rearward.
7. Release the park brake cable fitting from the electronic park brake module spindle.

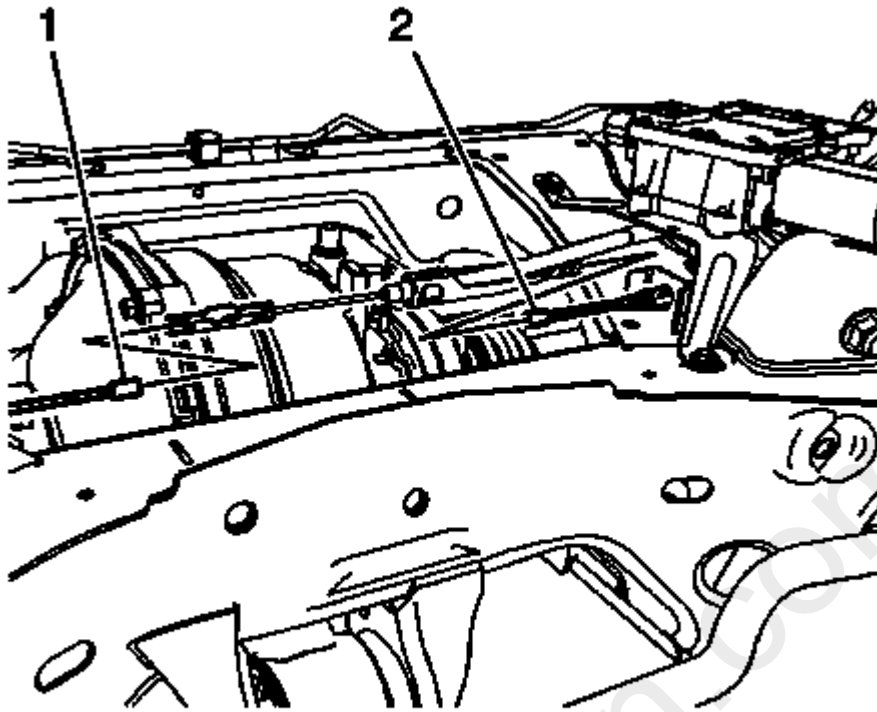


Fig. 47: Identifying Park Brake Cable Fittings
Courtesy of GENERAL MOTORS COMPANY

8. Disconnect the left park brake cable fitting (1) from the park brake cable.
9. Disconnect the right park brake cable fitting (2) from the park brake cable.

NOTE: **Note the routing of the park brake cable through the rear frame assembly to ensure correct installation.**

10. Remove the park brake cable from the vehicle.

Installation Procedure

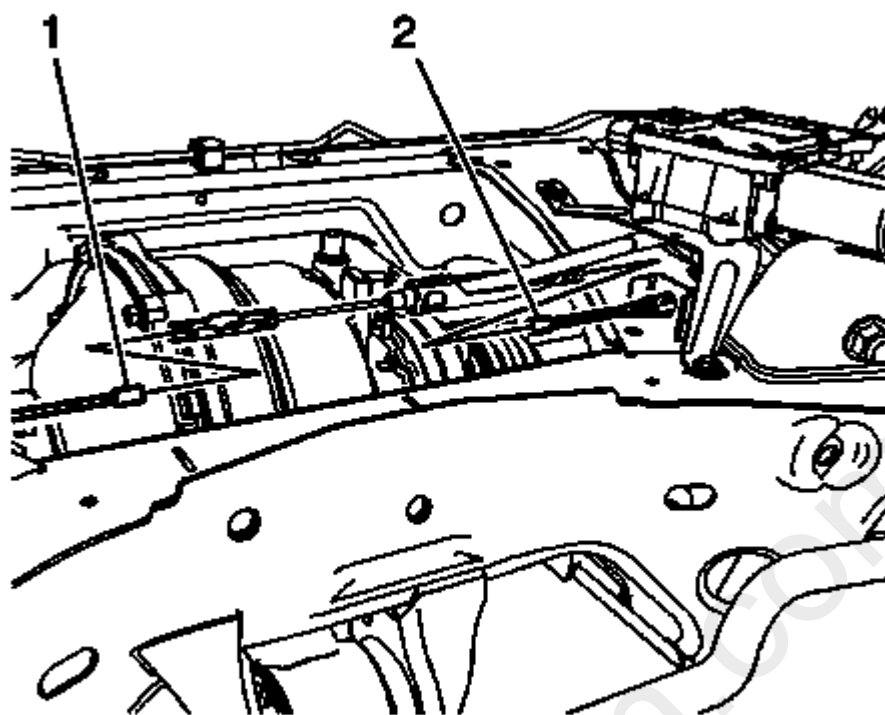


Fig. 48: Identifying Park Brake Cable Fittings
Courtesy of GENERAL MOTORS COMPANY

NOTE: Ensure the park brake cable is routed through the rear frame assembly as noted during removal.

1. Install the park brake cable to the vehicle.
2. Connect the left park brake cable fitting (1) to the park brake cable.
3. Connect the right park brake cable fitting (2) to the park brake cable.

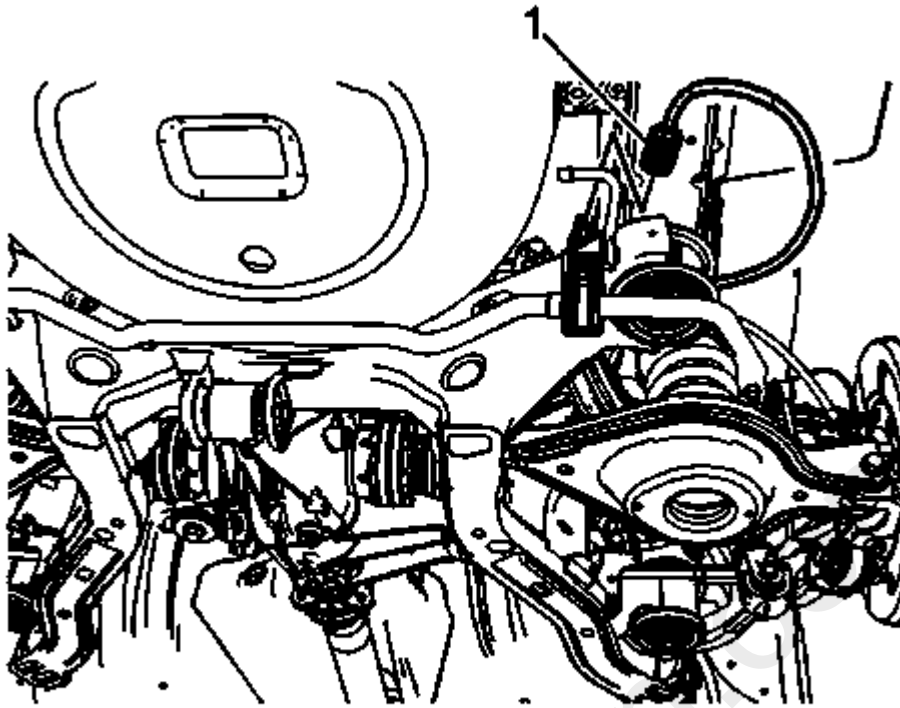


Fig. 49: Locating Park Brake Cable
Courtesy of GENERAL MOTORS COMPANY

4. Inspect the O-ring seals on the spindle and the cable for damage and correct positioning and replace, if necessary.
5. Install the park brake cable fitting to the spindle.

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

6. Position the park brake cable collar to the spindle.

CAUTION: Refer to Fastener Caution .

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

7. Install the park brake cable nut (1) to the electronic park brake module spindle by rotating the nut clockwise and tighten to 6 N.m (53 lb in).

8. Install the exhaust system. Refer to **Exhaust System Insulator, Hanger, Bracket Replacement** .
9. Lower the vehicle.
10. Set the electric park brake cable tension. Refer to **Parking Brake Cable Adjuster Enabling (Electric Park Brake)**.

PARKING BRAKE INTERMEDIATE CABLE REPLACEMENT

Special Tools

J-37043 Parking Brake Cable Release Tool

Removal Procedure

1. Release the park brake.

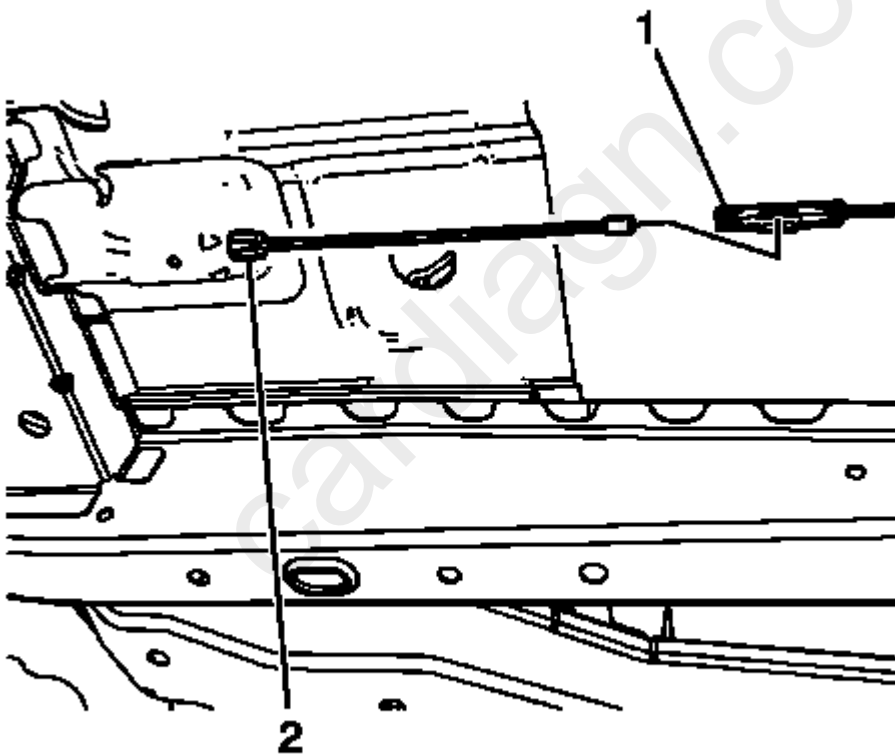


Fig. 50: View of Parking Brake Cable Retaining Bracket
Courtesy of GENERAL MOTORS COMPANY

2. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
3. Pull down on the intermediate park brake cable and release the connector (1) from the front park brake cable.

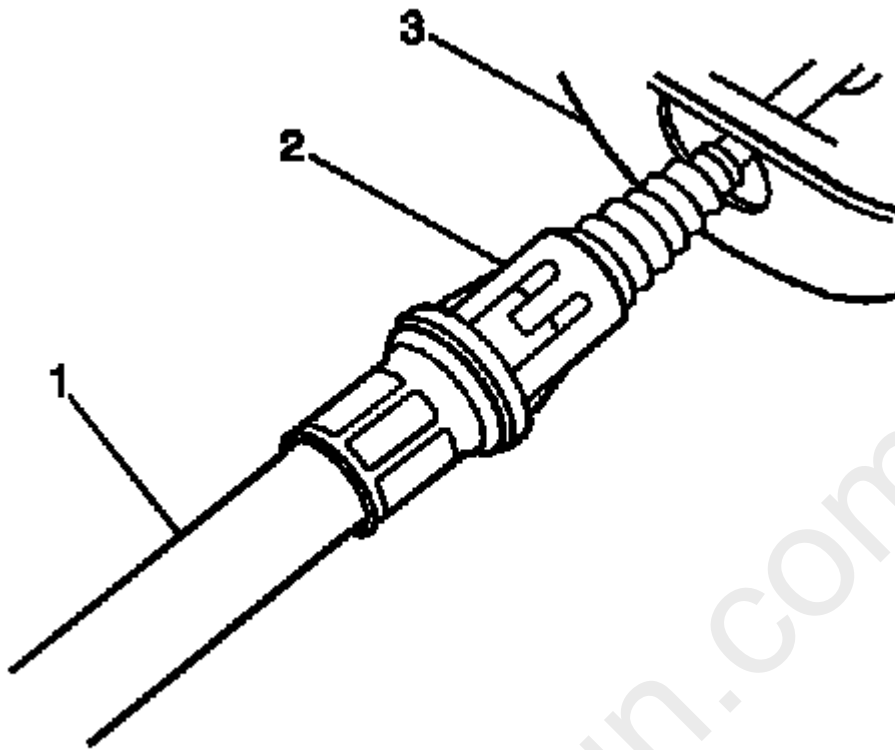


Fig. 51: View Of Intermediate Park Brake Cable Housing & Locking Retainer
Courtesy of GENERAL MOTORS COMPANY

4. Using the **J-37043** Parking Brake Cable Release Tool , depress the locking retainer (2) of the intermediate park brake cable housing (1).
5. Remove the intermediate park brake cable from the floor panel bracket (3).

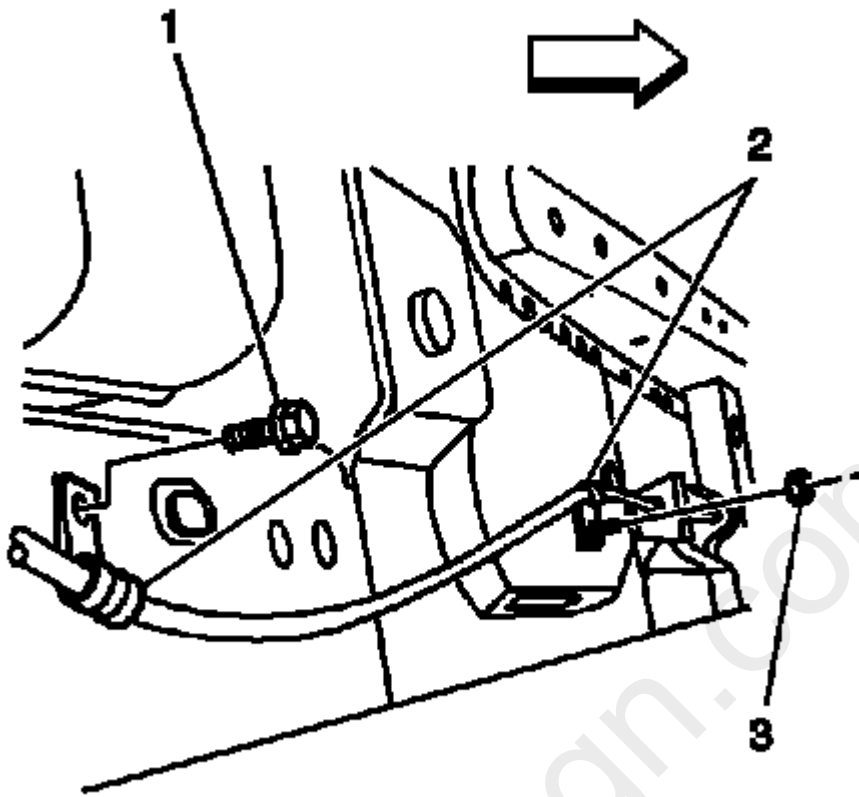


Fig. 52: Identifying Park Brake Cable Guide Components
Courtesy of GENERAL MOTORS COMPANY

6. Remove the park brake cable guide nut (3) from the mounting stud.
7. Remove the park brake cable guide bolt (1) from the floor panel.
8. Remove the park cable guides (2).

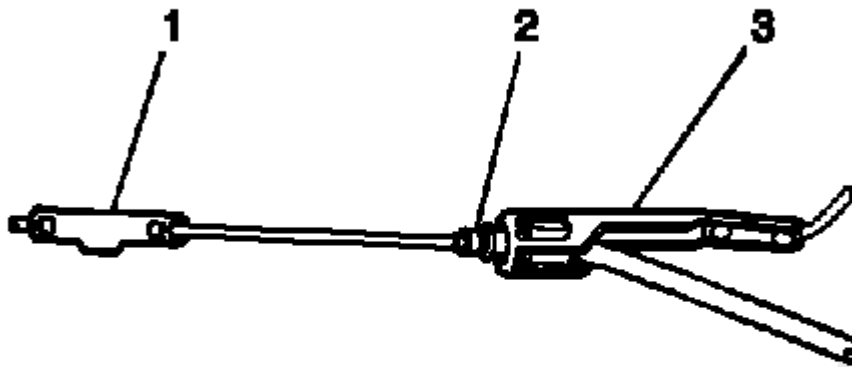


Fig. 53: View Of Rear Park Brake Cable Connector & Intermediate Park Brake Cable
Courtesy of GENERAL MOTORS COMPANY

9. Disconnect the intermediate cable (2) from the rear equalizer (3).
10. Disconnect the intermediate cable from the right rear park brake cable connector (1).
11. Disconnect the intermediate cable housing from the rear cable housing retaining bracket by depressing the locking retainer.
12. Remove the intermediate cable from the vehicle.

Installation Procedure

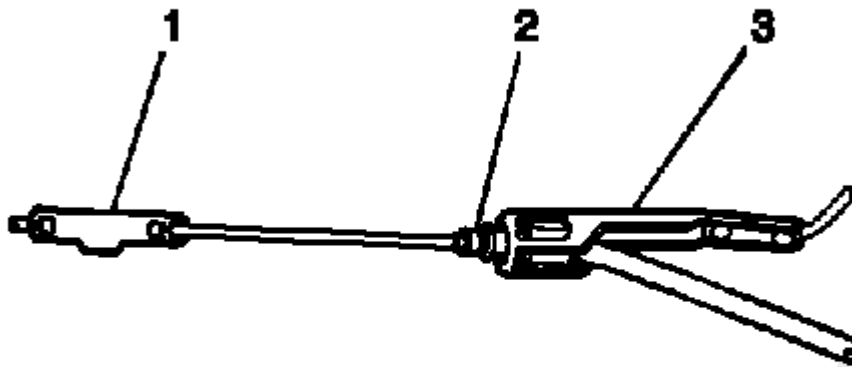


Fig. 54: View Of Rear Park Brake Cable Connector & Intermediate Park Brake Cable
Courtesy of GENERAL MOTORS COMPANY

1. Route and install the intermediate park brake cable into park brake cable retaining bracket.
2. Seat the intermediate park cable into the park brake cable retaining bracket.
3. Connect the right rear parking brake cable connector (1) to the intermediate park brake cable (2).
4. Connect the intermediate park brake cable to the equalizer (3).

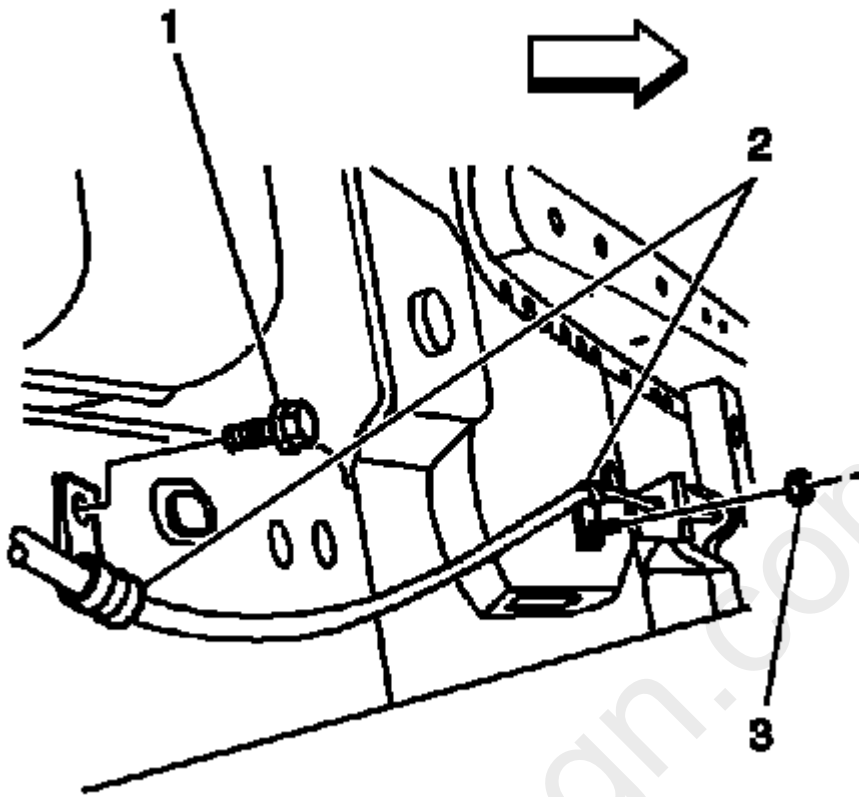


Fig. 55: Identifying Park Brake Cable Guide Components
Courtesy of GENERAL MOTORS COMPANY

5. Install the park cable guides (2).

CAUTION: Refer to Fastener Caution .

6. Install the park brake cable guide bolt (1) to the floor panel and tighten to 10 N.m (89 lb in).
7. Install the park brake cable guide nut (3) to the mounting stud and tighten to 10 N.m (89 lb in).

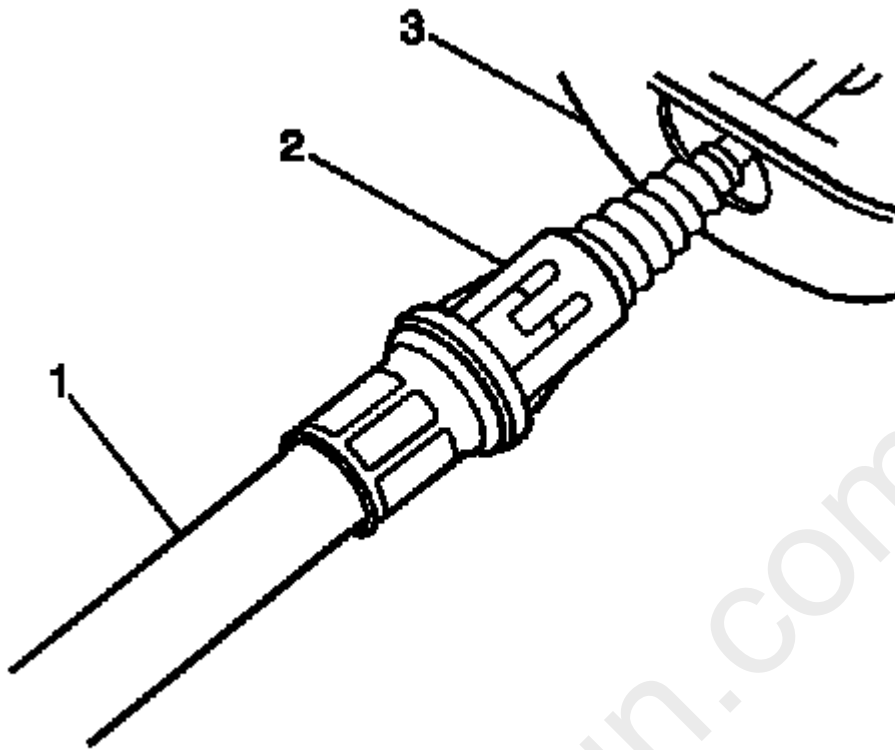


Fig. 56: View Of Intermediate Park Brake Cable Housing & Locking Retainer
Courtesy of GENERAL MOTORS COMPANY

8. Connect intermediate park brake cable housing (1) to the floor panel bracket (3).
9. Seat the intermediate park brake cable housing retainer to the floor panel.

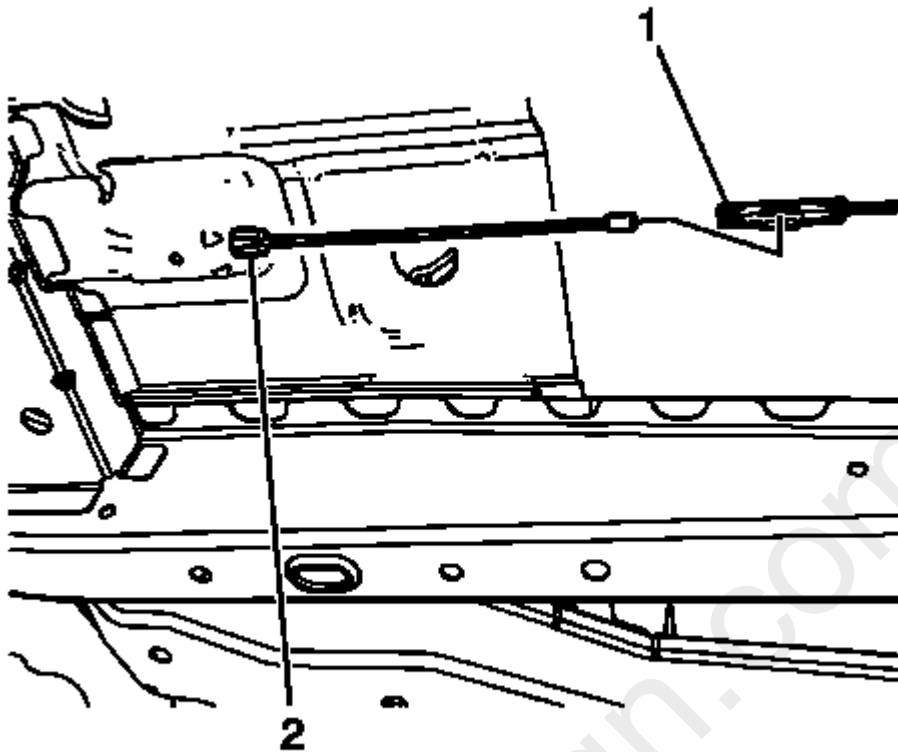


Fig. 57: View of Parking Brake Cable Retaining Bracket
Courtesy of GENERAL MOTORS COMPANY

10. Insert the intermediate park brake cable into the cable retaining bracket and lock the intermediate park brake cable into place.
11. Connect the intermediate park brake cable connector (1) to the front park brake cable.
12. Lower the vehicle.
13. Cycle the park brake pedal 1 or 2 times.

PARKING BRAKE REAR CABLE REPLACEMENT - LEFT SIDE (WITHOUT ELECTRONIC PARK BRAKE)

Special Tools

J-37043 Parking Brake Cable Release Tool

Removal Procedure

WARNING: Refer to Brake Dust Warning .

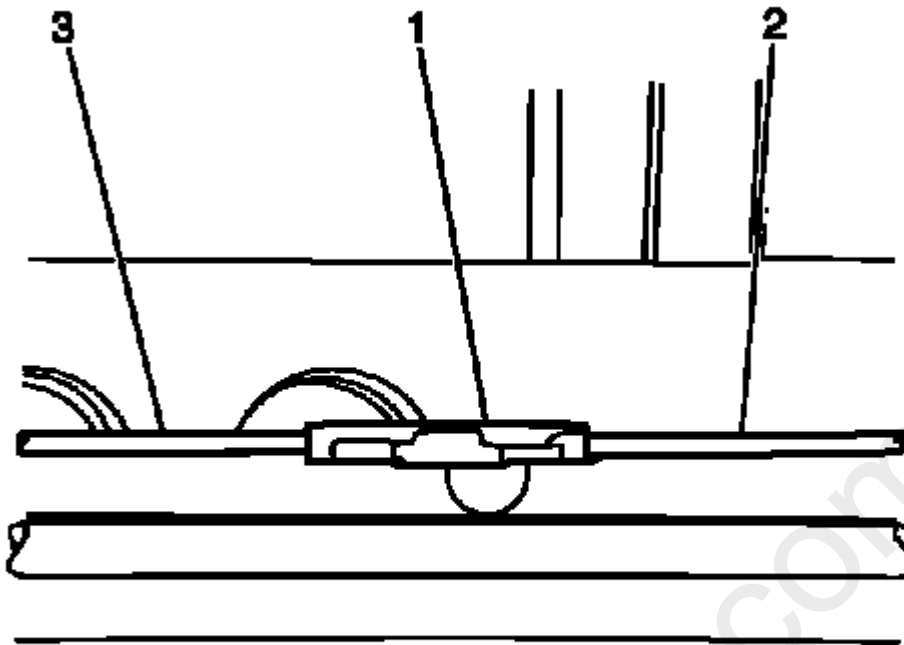


Fig. 58: View Of Park Brake Cable
Courtesy of GENERAL MOTORS COMPANY

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
2. Remove the left rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
3. Remove the exhaust system. Refer to **Exhaust System Replacement (LSA-Coupe)** , **Exhaust System Replacement (LSA-Wagon)** , **Exhaust System Replacement (Single Exhaust)** , **Exhaust System Replacement (LFX/LFW-Coupe)** , **Exhaust System Replacement (LFX/LFW-Wagon)** .
4. Pull down on the intermediate park brake cable (2) near the park brake connector (1).
5. Disconnect the intermediate park brake cable (2) from the park brake cable connector (1).

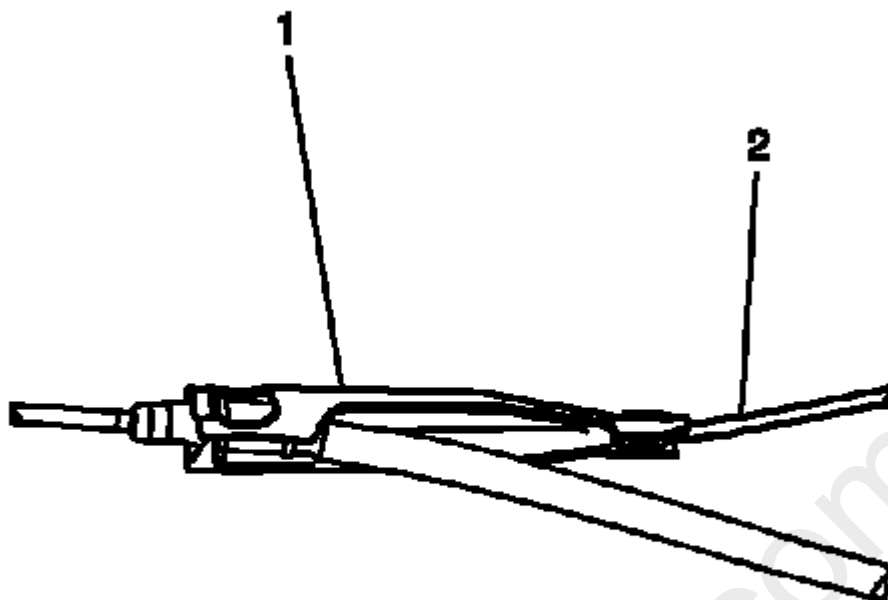


Fig. 59: Disconnecting/Reconnecting Park Brake Cable At Equalizer
Courtesy of GENERAL MOTORS COMPANY

6. Disconnect the left rear park brake cable (2) from the equalizer (1).

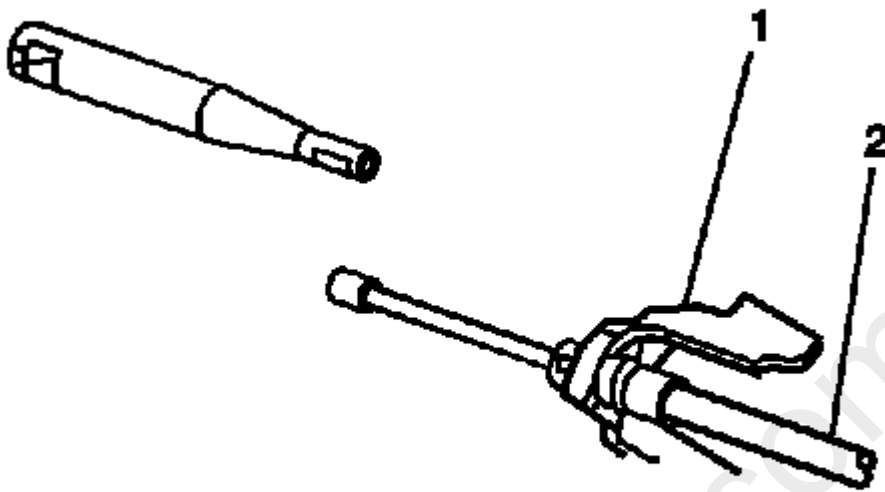


Fig. 60: Removing/Installing Park Brake Cable Components
Courtesy of GENERAL MOTORS COMPANY

7. Use the J-37043 Parking Brake Cable Release Tool to compress the left rear park brake cable retainer.
8. Remove the left rear park brake cable (2) from the left rear park brake cable support bracket (1).

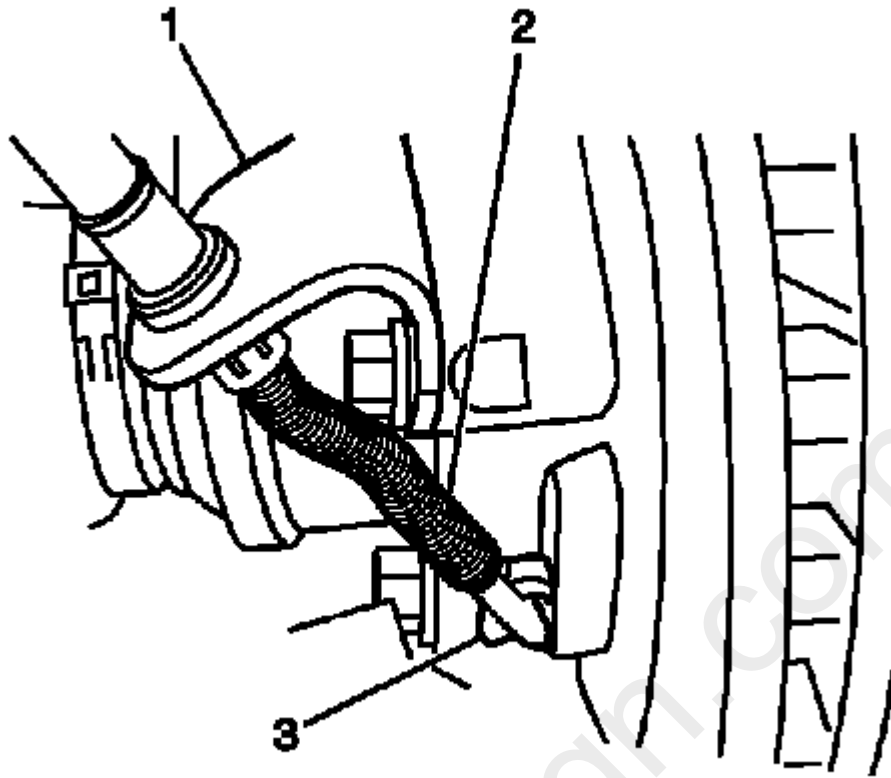


Fig. 61: View Of Left Rear Park Brake Cable, Support Bracket & Actuator Lever
Courtesy of GENERAL MOTORS COMPANY

9. Disconnect the left rear park brake cable (2) from the left rear park brake actuator lever (3).
10. Use the **J-37043** Parking Brake Cable Release Tool to compress the retainer on the left rear park brake cable (2).
11. Remove the left rear park brake cable (2) from the left rear park brake cable support bracket (1).

Installation Procedure

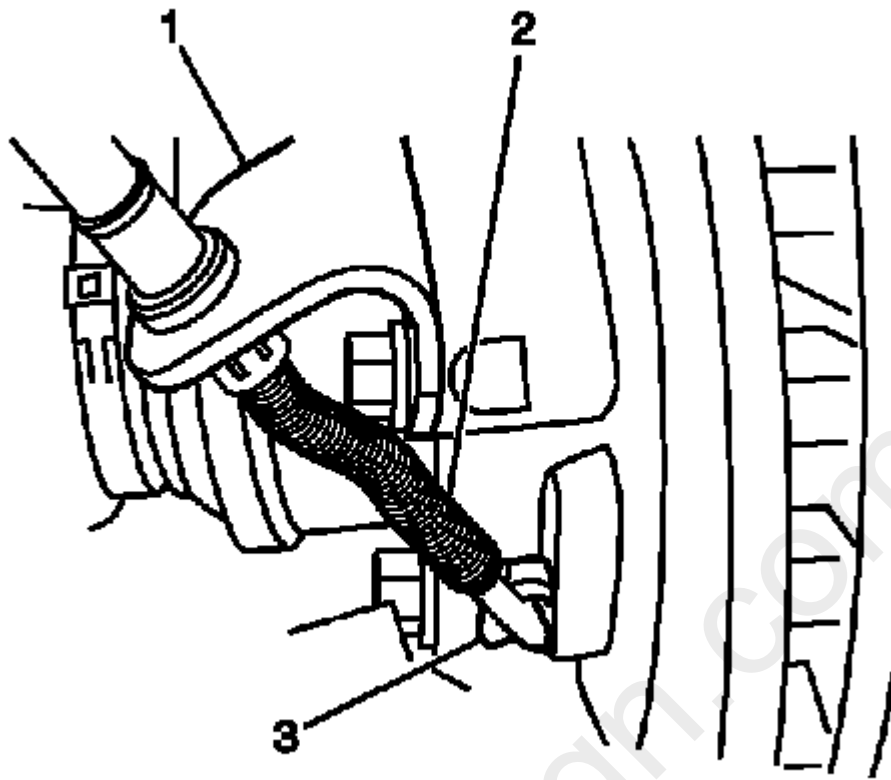


Fig. 62: View Of Left Rear Park Brake Cable, Support Bracket & Actuator Lever
Courtesy of GENERAL MOTORS COMPANY

1. Install the left rear park brake cable (2) to the left rear park brake cable bracket (1).
2. Ensure that the locking tabs are properly seated.
3. Connect the left rear park brake cable (2) to the left rear park brake actuator lever (3).

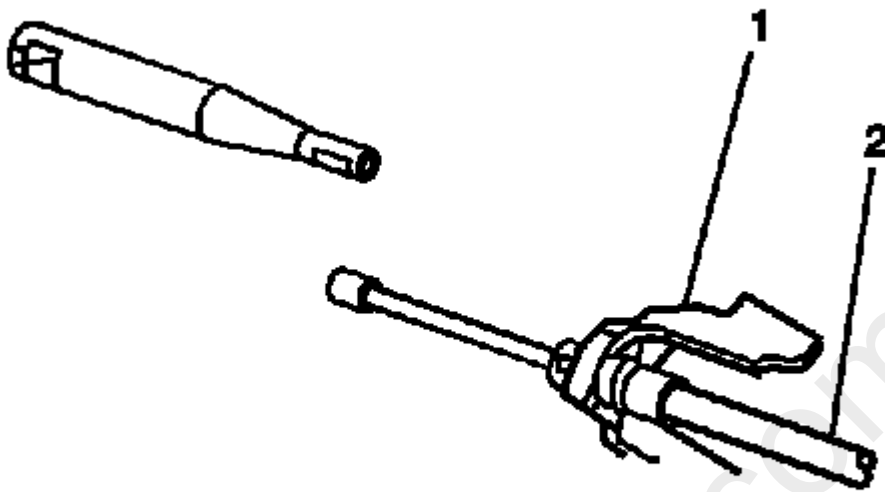


Fig. 63: Removing/Installing Park Brake Cable Components
Courtesy of GENERAL MOTORS COMPANY

4. Install the left rear park brake cable (2) to the left rear support mounting bracket (1).
5. Ensure that the locking tabs are properly seated.

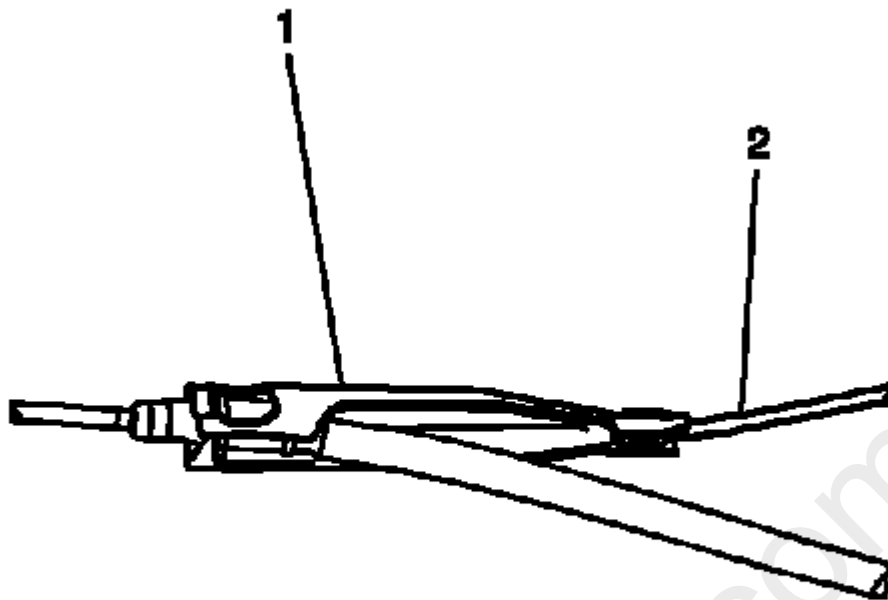


Fig. 64: Disconnecting/Reconnecting Park Brake Cable At Equalizer
Courtesy of GENERAL MOTORS COMPANY

6. Connect the left rear park brake cable (2) to the equalizer (1).

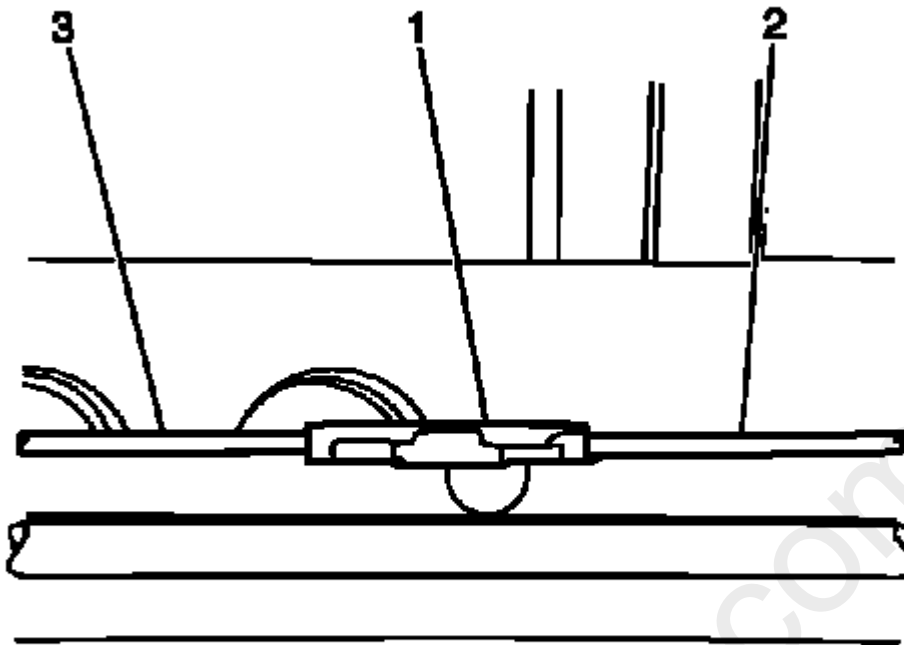


Fig. 65: View Of Park Brake Cable
 Courtesy of GENERAL MOTORS COMPANY

7. Connect the intermediate park brake cable (2) to the park brake cable connector (1).
8. Install the left rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation**
9. Install the exhaust system. Refer to **Exhaust System Replacement (LSA-Coupe)** , **Exhaust System Replacement (LSA-Wagon)** , **Exhaust System Replacement (Single Exhaust)** , **Exhaust System Replacement (LFX/LFW-Coupe)** , **Exhaust System Replacement (LFX/LFW-Wagon)** .
10. Lower the vehicle.
11. Cycle the park brake pedal 1 or 2 times.

PARKING BRAKE REAR CABLE REPLACEMENT - LEFT SIDE (WITH ELECTRONIC PARK BRAKE)

Special Tools

J-37043 Parking Brake Cable Release Tool

Removal Procedure

1. Block the rear drive wheels.

2. Release the electronic park brake cable tension, if equipped. Refer to **Parking Brake Cable Adjuster Disabling (Electric Park Brake)**.
3. Turn the ignition to the OFF position.
4. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
5. Remove the exhaust system. Refer to **Exhaust System Replacement (LSA-Coupe)** , **Exhaust System Replacement (LSA-Wagon)** , **Exhaust System Replacement (Single Exhaust)** , **Exhaust System Replacement (LFX/LFW-Coupe)** , **Exhaust System Replacement (LFX/LFW-Wagon)** .
6. Remove the left rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .

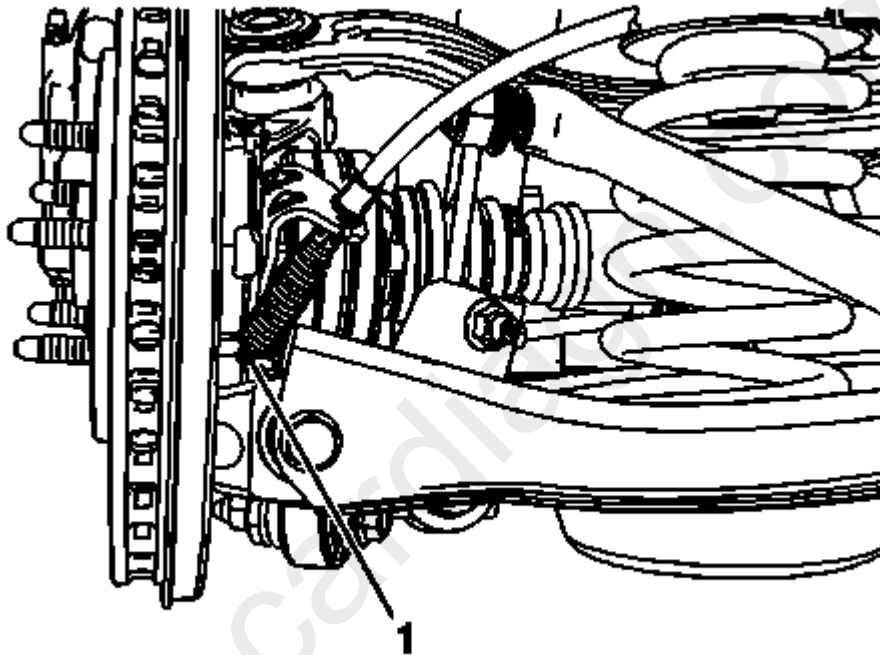


Fig. 66: Identifying Park Brake Cable Eye
Courtesy of GENERAL MOTORS COMPANY

7. Disconnect the park brake cable eye (1) from the park brake actuator lever.

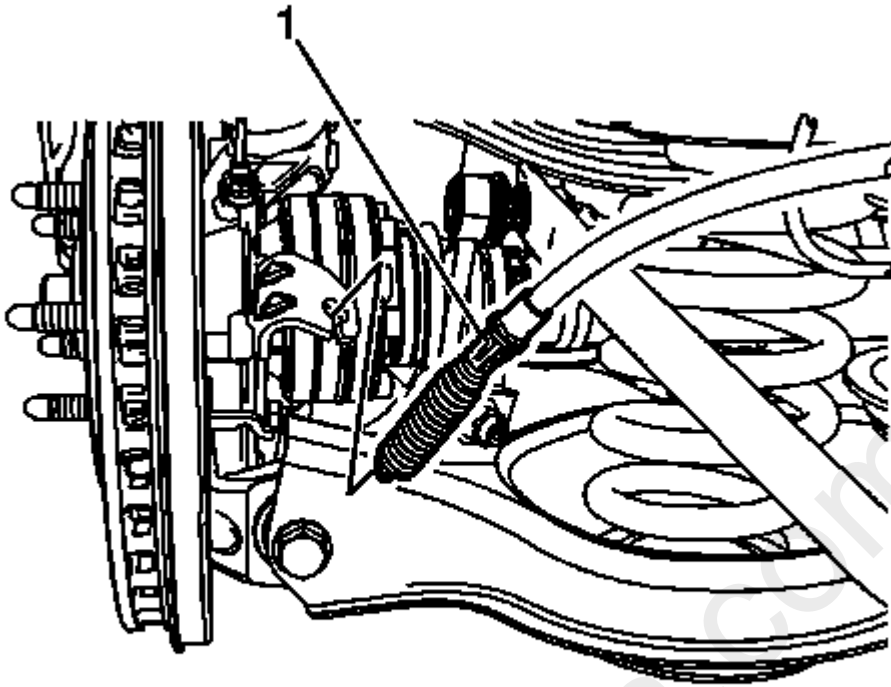


Fig. 67: Identifying Park Brake Cable Conduit
Courtesy of GENERAL MOTORS COMPANY

8. Using the J-37043 Parking Brake Cable Release Tool , compress the locking fingers on the park brake cable conduit (1) and remove the park brake cable from the bracket.

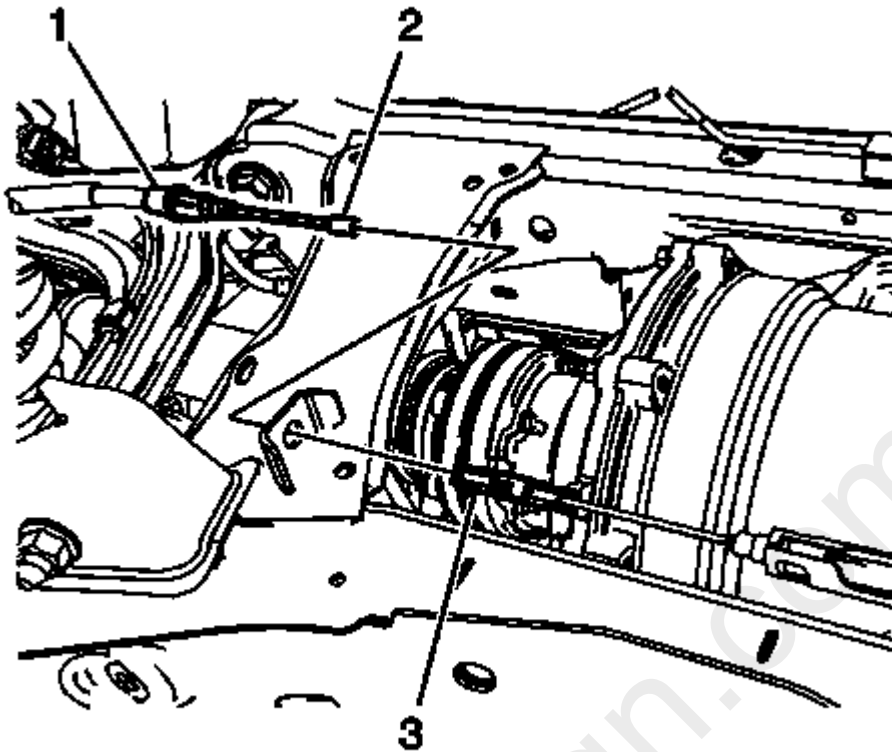


Fig. 68: Identifying Rear Park Brake Cable Components
Courtesy of GENERAL MOTORS COMPANY

9. Using the J-37043 Parking Brake Cable Release Tool , compress the locking fingers on the park brake cable conduit (1) and remove the park brake cable from the rear frame assembly bracket.
10. Disconnect the rear park brake cable fitting (2) from the park brake cable connector (3).
11. Remove the rear park brake cable,

Installation Procedure

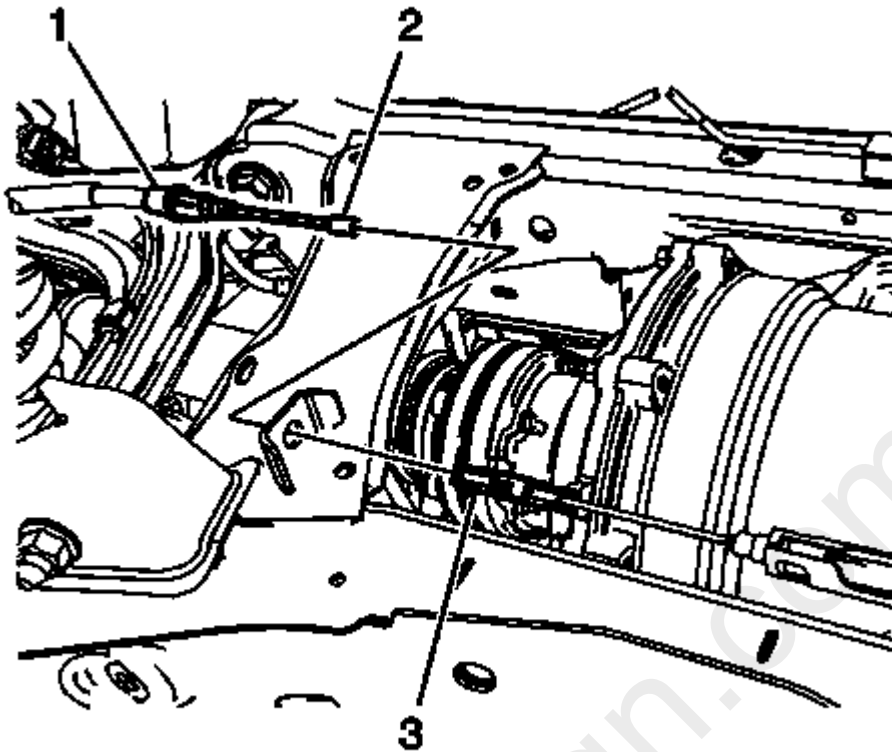


Fig. 69: Identifying Rear Park Brake Cable Components
Courtesy of GENERAL MOTORS COMPANY

1. Install the rear park brake cable,
2. Install the park brake cable conduit (1) to the rear frame assembly bracket.

Ensure the locking tabs on the park brake cable conduit are fully engaged to the bracket.

3. Connect the rear park brake cable fitting (2) the park brake cable connector (3).

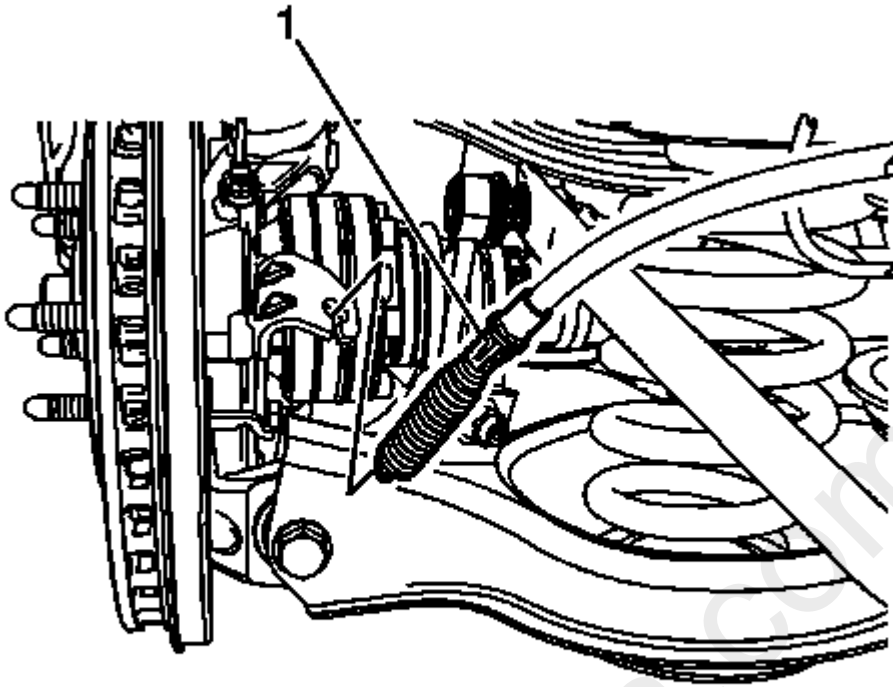


Fig. 70: Identifying Park Brake Cable Conduit
Courtesy of GENERAL MOTORS COMPANY

4. Install the left rear park brake cable (1) to the bracket.

Ensure the locking tabs on the park brake cable conduit are fully engaged to the bracket.

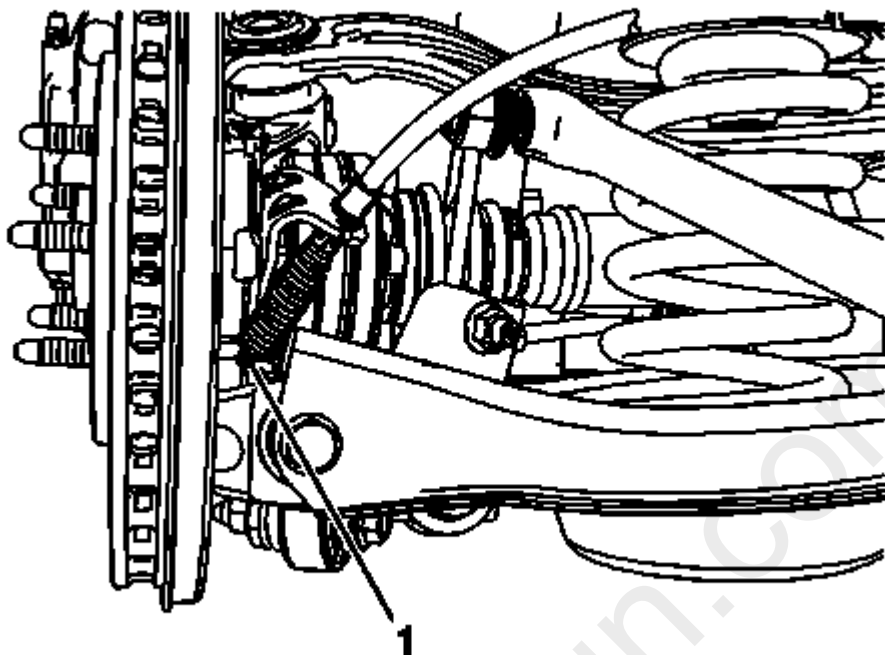


Fig. 71: Identifying Park Brake Cable Eye
Courtesy of GENERAL MOTORS COMPANY

5. Connect the park brake cable eye (1) to the park brake actuator lever.
6. Install the exhaust system. Refer to **Exhaust System Replacement (LSA-Coupe)** , **Exhaust System Replacement (LSA-Wagon)** , **Exhaust System Replacement (Single Exhaust)** , **Exhaust System Replacement (LFX/LFW-Coupe)** , **Exhaust System Replacement (LFX/LFW-Wagon)** .
7. Install the left rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
8. Set the electric park brake cable tension. Refer to **Parking Brake Cable Adjuster Enabling (Electric Park Brake)**.

PARKING BRAKE REAR CABLE REPLACEMENT - RIGHT SIDE (WITHOUT ELECTRONIC PARK BRAKE)

Special Tools

J-37043 Park Brake Cable Release Tool

Removal Procedure

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

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
2. Remove the right rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
3. Remove the exhaust system. Refer to **Exhaust System Replacement (LSA-Coupe)** , **Exhaust System Replacement (LSA-Wagon)** , **Exhaust System Replacement (Single Exhaust)** , **Exhaust System Replacement (LFX/LFW-Coupe)** , **Exhaust System Replacement (LFX/LFW-Wagon)** .

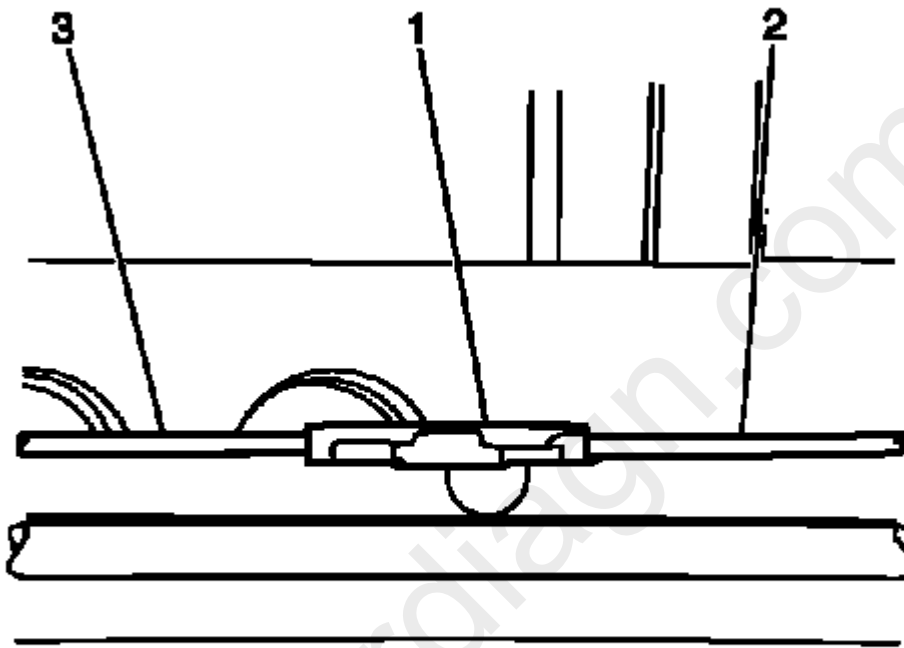


Fig. 72: View Of Park Brake Cable
Courtesy of GENERAL MOTORS COMPANY

4. Pull down on the intermediate park brake cable (2) near the park brake cable connector (1).
5. Disconnect the intermediate park brake cable (2) from the park brake connector (1).

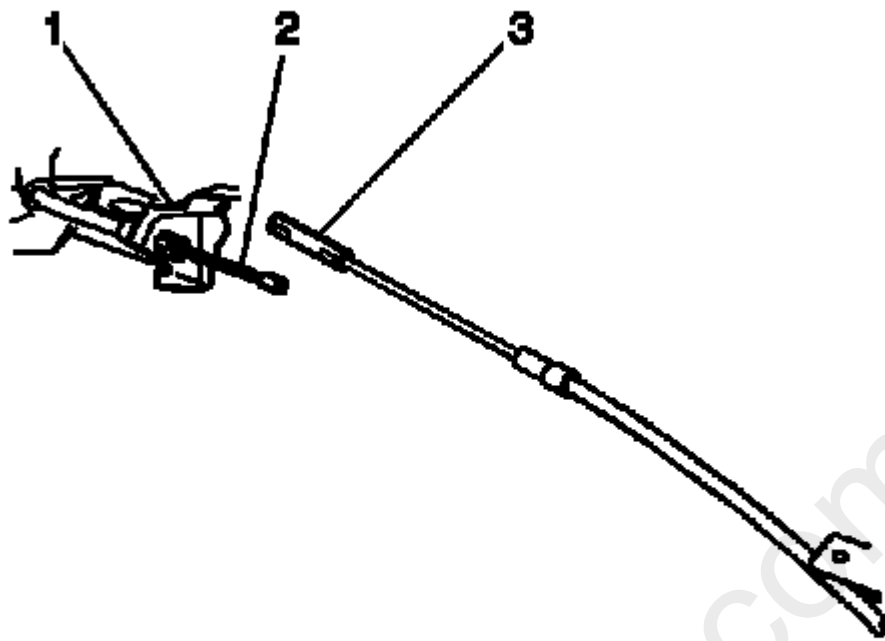


Fig. 73: Park Brake Cable And Intermediate Park Brake Cable Connector
Courtesy of GENERAL MOTORS COMPANY

6. Disconnect the right rear park brake cable (2) from the intermediate park brake cable connector (3).
7. Use the J-37043 Park Brake Cable Release Tool to compress the right rear brake cable retainer.
8. Remove the right rear park brake cable (2) from the right rear park brake cable bracket (1).

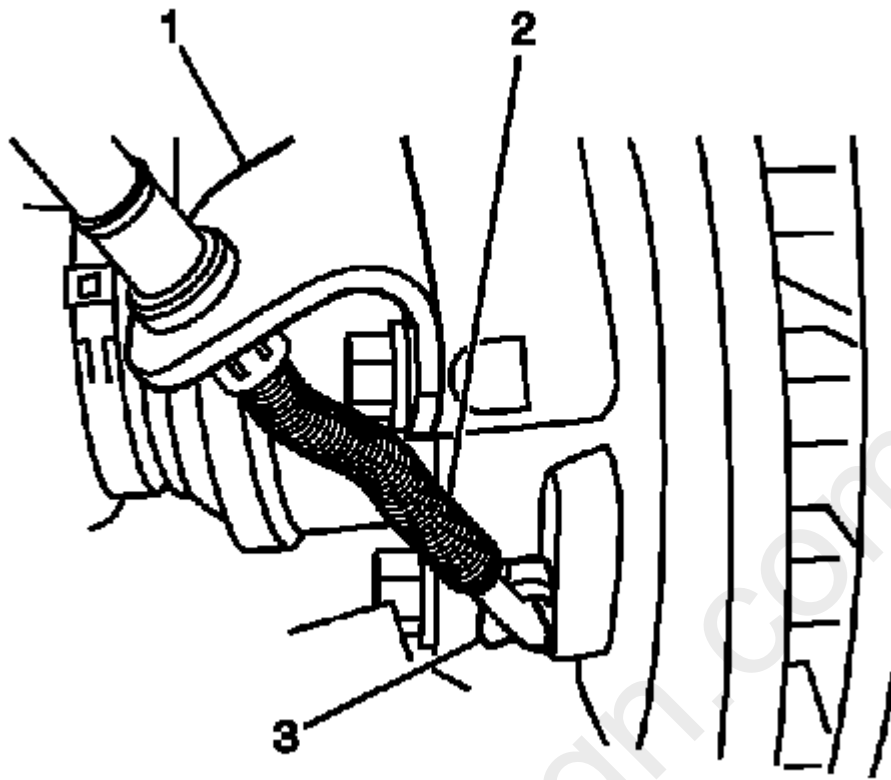


Fig. 74: View Of Left Rear Park Brake Cable, Support Bracket & Actuator Lever
Courtesy of GENERAL MOTORS COMPANY

9. Use the **J-37043** Park Brake Cable Release Tool to compress the right rear brake cable retainer.
10. Remove the right rear park brake cable from the right rear cable bracket (1).
11. Disconnect the right rear park brake cable (2) from the right rear park brake actuator lever (3).
12. Remove the right rear park brake rear cable (2).

Installation Procedure

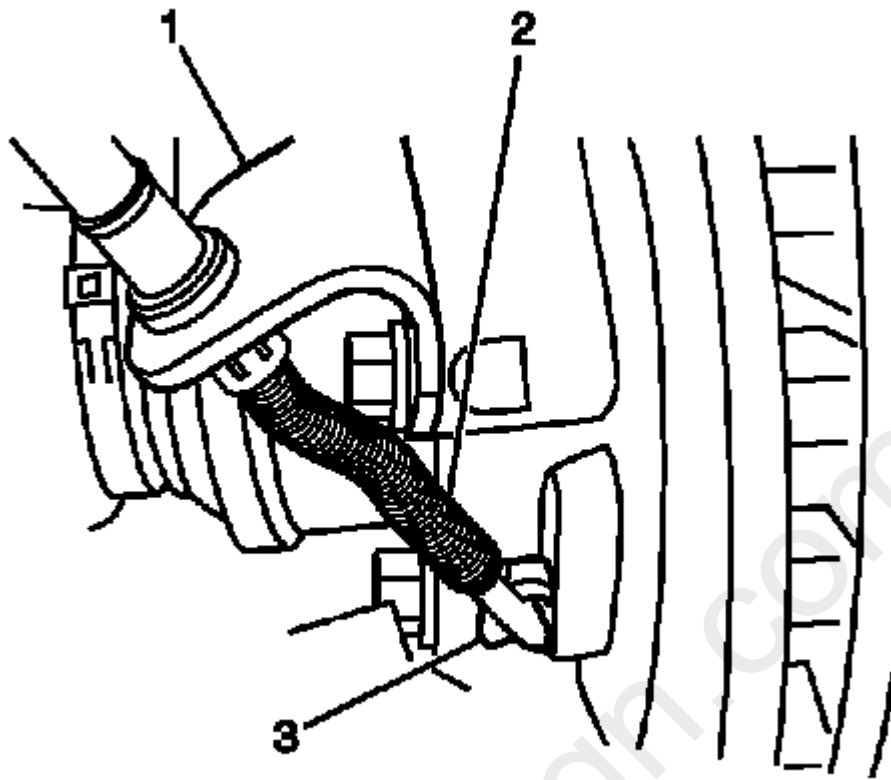


Fig. 75: View Of Left Rear Park Brake Cable, Support Bracket & Actuator Lever
Courtesy of GENERAL MOTORS COMPANY

1. Install the right rear park brake cable (2) to the right rear park brake cable bracket (1).
2. Ensure that the locking tabs are properly seated.
3. Connect the right rear park brake cable (2) to the right rear park brake actuator lever (3).

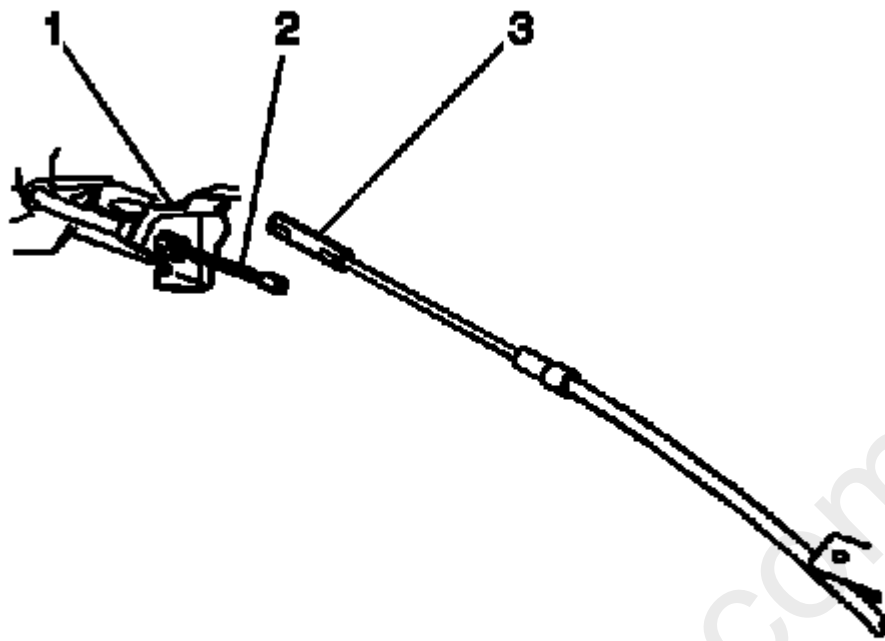


Fig. 76: Park Brake Cable And Intermediate Park Brake Cable Connector
Courtesy of GENERAL MOTORS COMPANY

4. Install the right rear park brake cable (2) to the mounting support bracket (1).
5. Ensure that the locking tabs are properly seated.
6. Connect the intermediate park brake cable connector (3) to the right rear park brake cable (2).

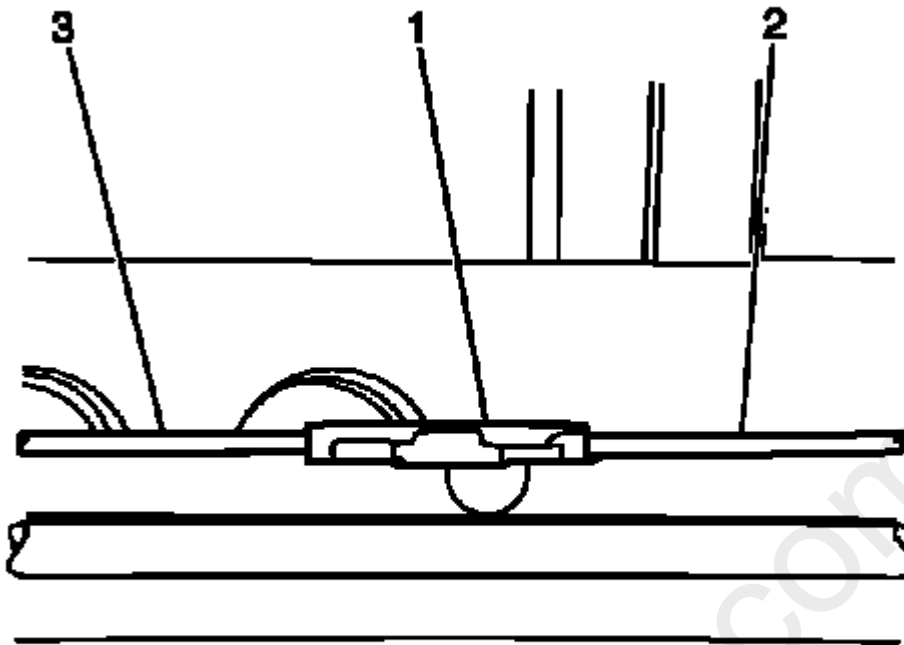


Fig. 77: View Of Park Brake Cable
Courtesy of GENERAL MOTORS COMPANY

7. Pull down on the intermediate park brake cable (2) near the park brake cable connector (1).
8. Connect the intermediate park brake cable (2) to the park brake connector (1).
9. Install the right rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
10. Install the exhaust system. Refer to **Exhaust System Replacement (LSA-Coupe)** , **Exhaust System Replacement (LSA-Wagon)** , **Exhaust System Replacement (Single Exhaust)** , **Exhaust System Replacement (LFX/LFW-Coupe)** , **Exhaust System Replacement (LFX/LFW-Wagon)** .
11. Lower the vehicle.
12. Cycle the park brake pedal 1 or 2 times.

PARKING BRAKE REAR CABLE REPLACEMENT - RIGHT SIDE (WITH ELECTRONIC PARK BRAKE)

Special Tools

J-37043 Parking Brake Cable Release Tool

Removal Procedure

1. Block the rear drive wheels.
2. Release the electronic park brake cable tension, if equipped. Refer to **Parking Brake Cable Adjuster Disabling (Electric Park Brake)**.
3. Turn the ignition to the OFF position.
4. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
5. Remove the exhaust system. Refer to **Exhaust System Replacement (LSA-Coupe)** , **Exhaust System Replacement (LSA-Wagon)** , **Exhaust System Replacement (Single Exhaust)** , **Exhaust System Replacement (LFX/LFW-Coupe)** , **Exhaust System Replacement (LFX/LFW-Wagon)** .
6. Remove the right rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .

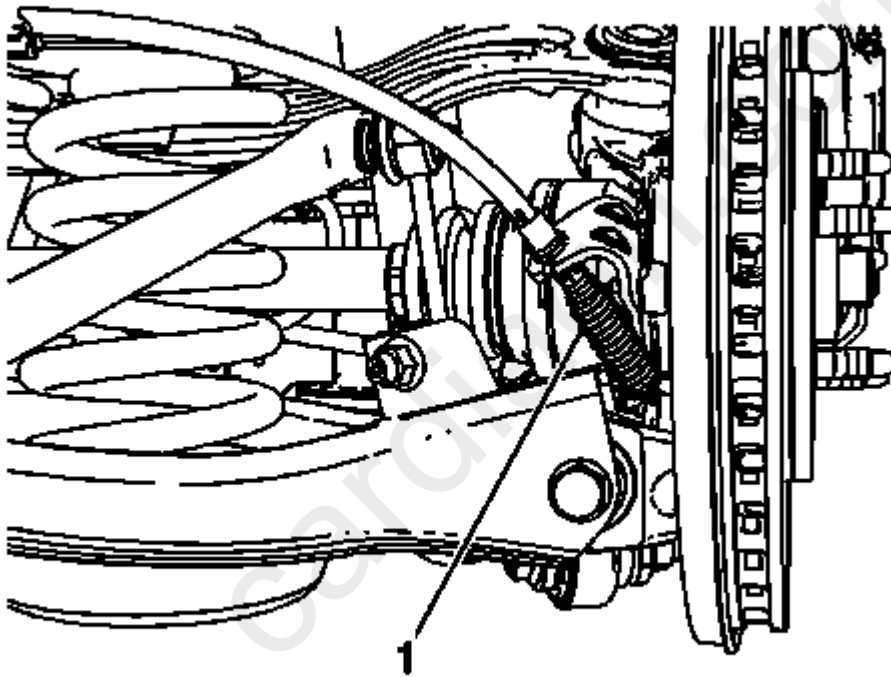


Fig. 78: Identifying Park Brake Cable Eye
Courtesy of GENERAL MOTORS COMPANY

7. Disconnect the park brake cable eye (1) from the park brake actuator lever.

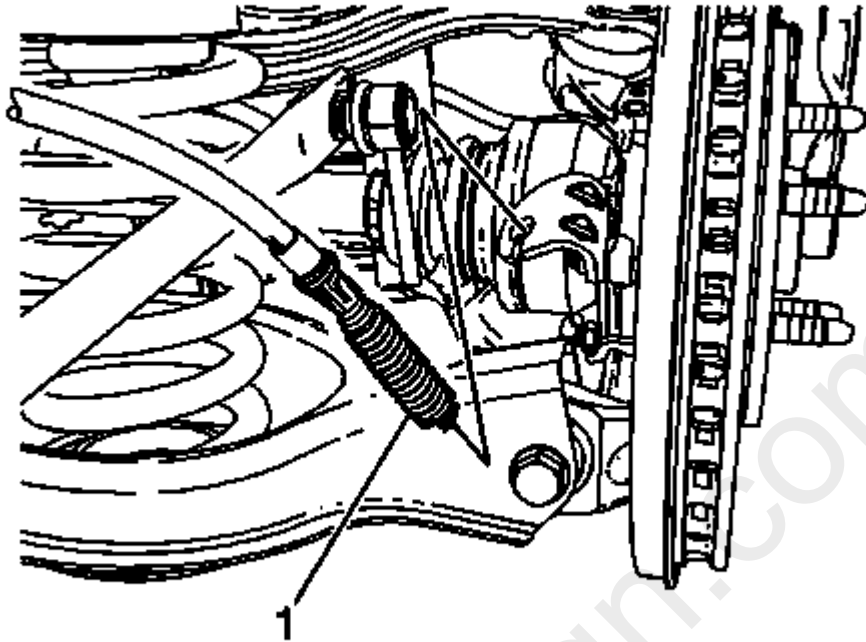


Fig. 79: Identifying Park Brake Cable Conduit
Courtesy of GENERAL MOTORS COMPANY

8. Using the **J-37043** Parking Brake Cable Release Tool , compress the locking fingers on the park brake cable conduit (1) and remove the park brake cable from the bracket.

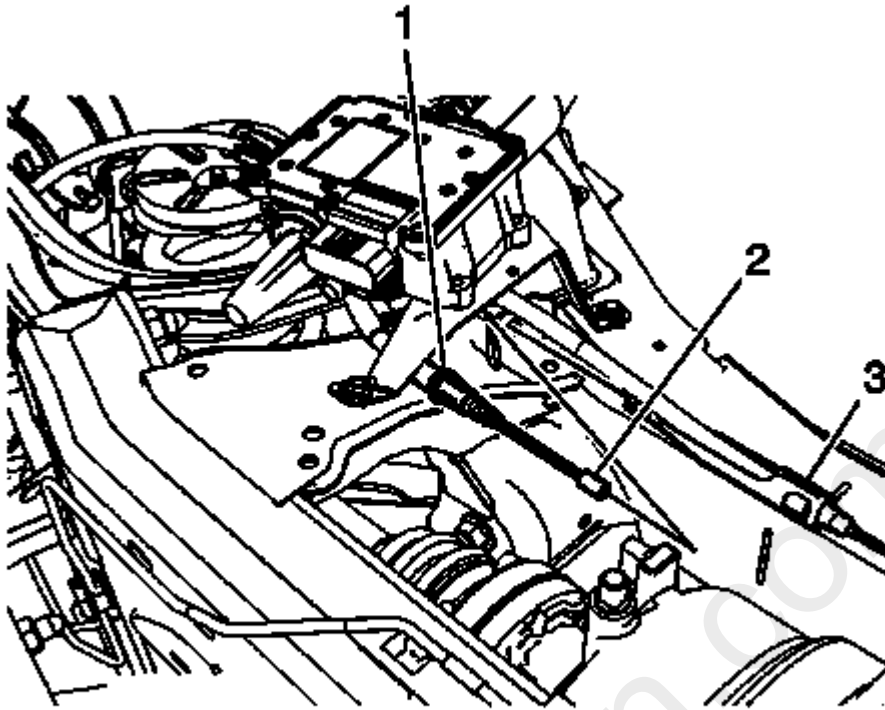


Fig. 80: Identifying Rear Park Brake Cable Components
Courtesy of GENERAL MOTORS COMPANY

9. Using the **J-37043** Parking Brake Cable Release Tool , compress the locking fingers on the park brake cable conduit (1) and remove the park brake cable from the rear frame assembly bracket.
10. Disconnect the rear park brake cable fitting (2) from the park brake cable equalizer (3).
11. Remove the rear park brake cable,

Installation Procedure

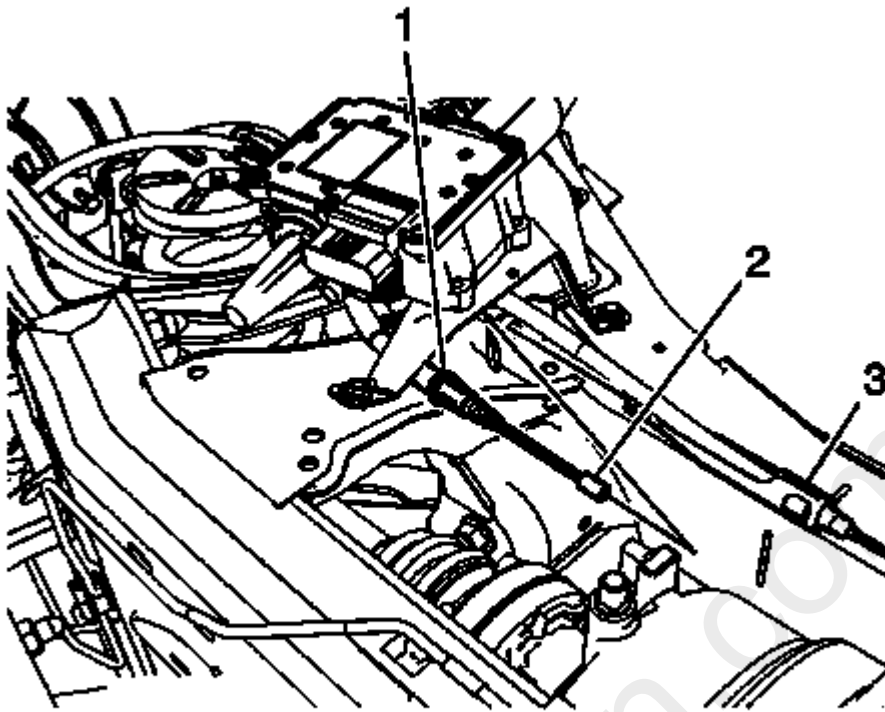


Fig. 81: Identifying Rear Park Brake Cable Components
Courtesy of GENERAL MOTORS COMPANY

1. Install the rear park brake cable,
2. Install the park brake cable conduit (1) to the rear frame assembly bracket.

Ensure the locking tabs on the park brake cable conduit are fully engaged to the bracket.

3. Connect the rear park brake cable fitting (2) the park brake cable equalizer (3).

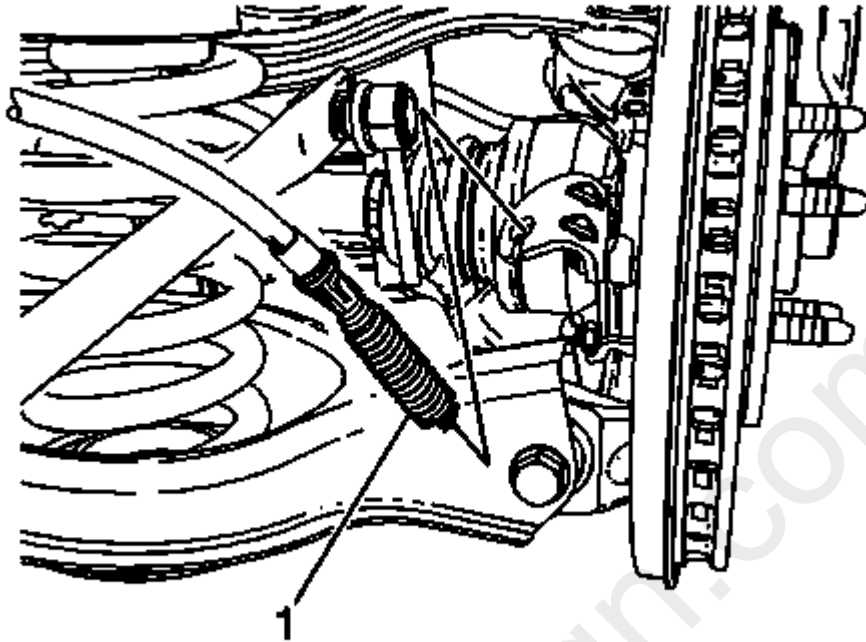


Fig. 82: Identifying Park Brake Cable Conduit
Courtesy of GENERAL MOTORS COMPANY

4. Install the right rear park brake cable (1) to the bracket.

Ensure the locking tabs on the park brake cable conduit are fully engaged to the bracket.

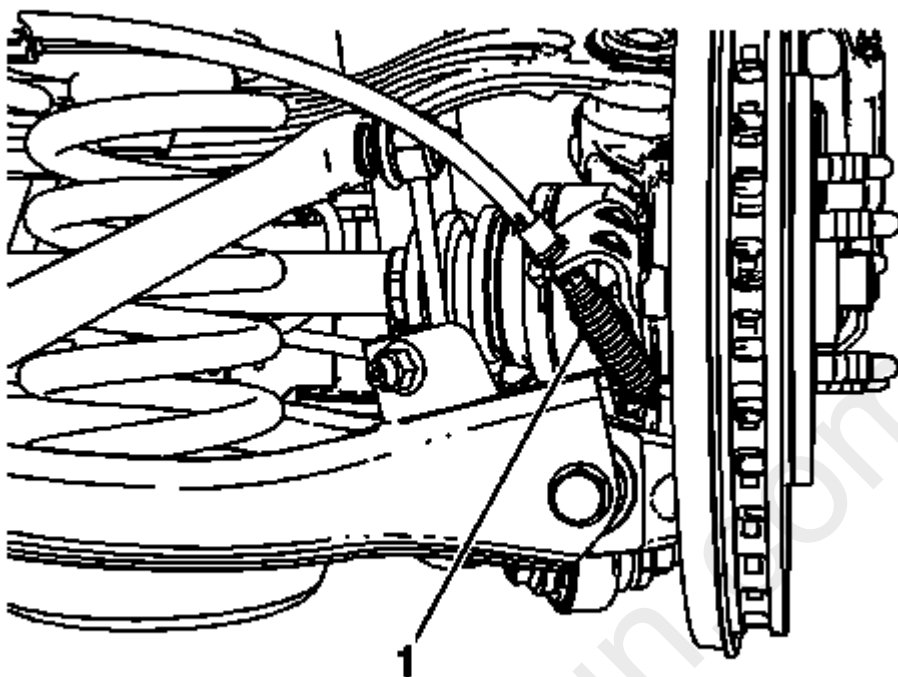


Fig. 83: Identifying Park Brake Cable Eye
Courtesy of GENERAL MOTORS COMPANY

5. Connect the park brake cable eye (1) to the park brake actuator lever.
6. Install the exhaust system. Refer to Exhaust System Replacement (LSA-Coupe) , Exhaust System Replacement (LSA-Wagon) , Exhaust System Replacement (Single Exhaust) , Exhaust System Replacement (LFX/LFW-Coupe) , Exhaust System Replacement (LFX/LFW-Wagon) .
7. Install the right rear tire and wheel assembly. Refer to Tire and Wheel Removal and Installation .
8. Set the electric park brake cable tension. Refer to Parking Brake Cable Adjuster Enabling (Electric Park Brake).

PARKING BRAKE CABLE BRACKET REPLACEMENT (WITHOUT ELECTRONIC PARKING BRAKE)

Special Tools

J-37043 Parking Brake Cable Release Tool

Removal Procedure

WARNING: Refer to Brake Dust Warning .

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
2. Remove the rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .

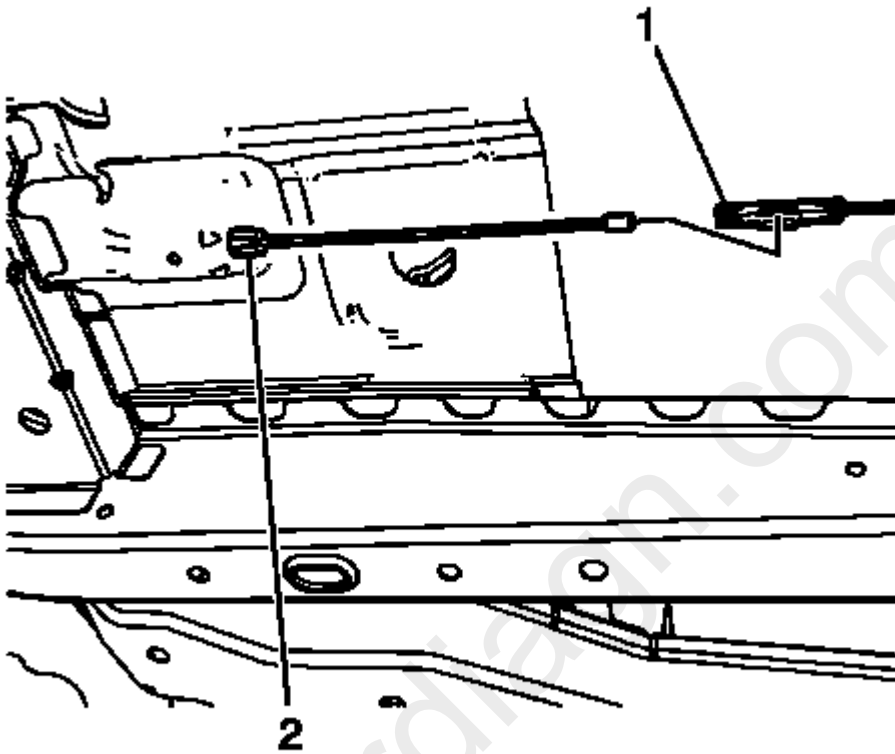


Fig. 84: View of Parking Brake Cable Retaining Bracket
Courtesy of GENERAL MOTORS COMPANY

3. Pull down on the intermediate park brake cable and disconnect the intermediate park brake cable connector (1) from the front park brake cable (2).

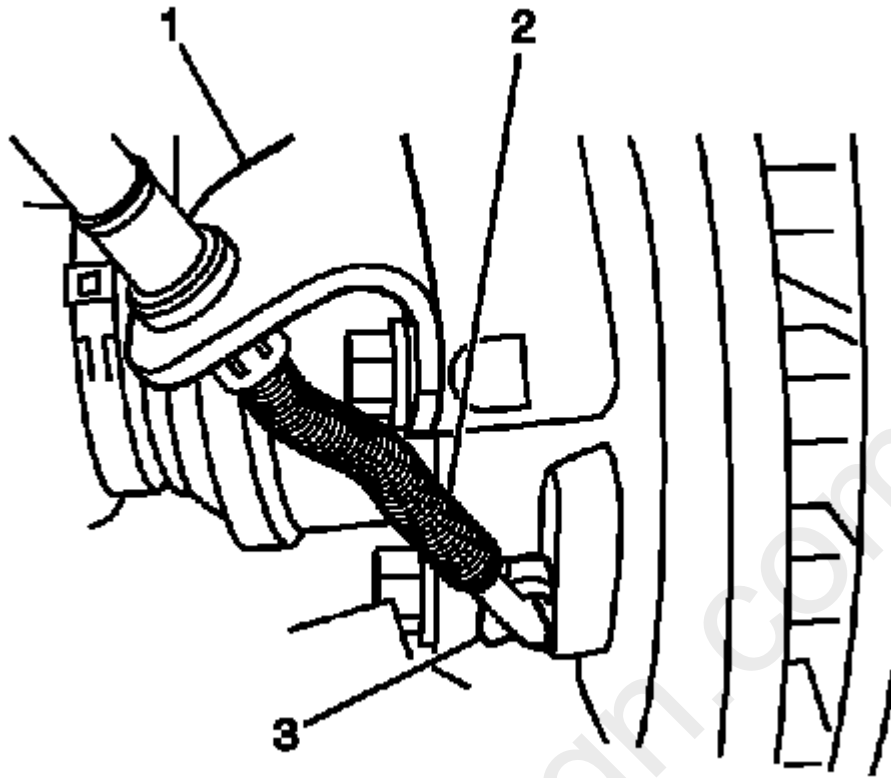


Fig. 85: View Of Left Rear Park Brake Cable, Support Bracket & Actuator Lever
Courtesy of GENERAL MOTORS COMPANY

4. Using the J-37043 Parking Brake Cable Release Tool , compress the rear brake cable retainer.
5. Remove the rear park brake cable from the cable bracket (1).
6. Disconnect the park brake cable (2) from the park brake actuator lever (3).

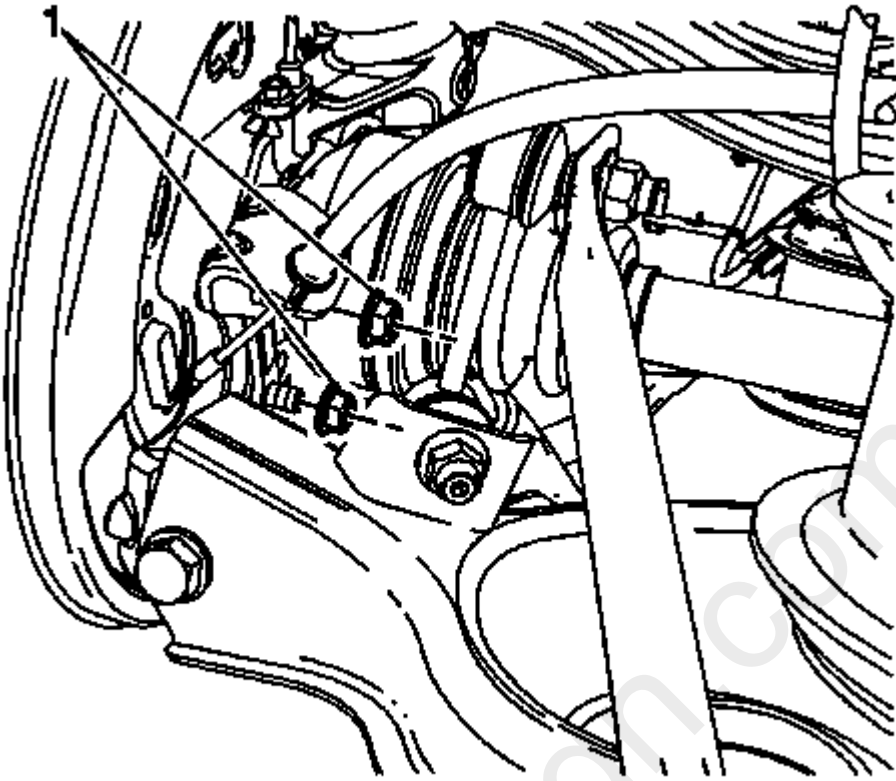


Fig. 86: View of Parking Brake Cable Bracket and Nuts
Courtesy of GENERAL MOTORS COMPANY

7. Remove the park brake cable bracket nuts (1).
8. Remove the park brake cable bracket.

Installation Procedure

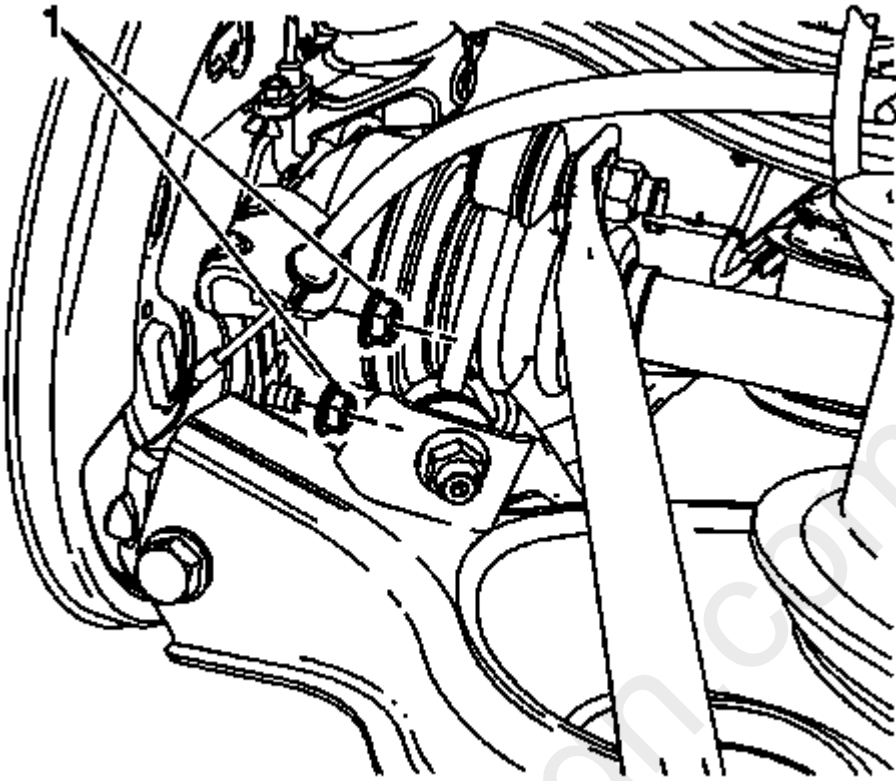


Fig. 87: View of Parking Brake Cable Bracket and Nuts
Courtesy of GENERAL MOTORS COMPANY

1. Install the park brake cable bracket.

CAUTION: Refer to Fastener Caution .

2. Install the park brake cable bracket nuts (1) and tighten to 60 N.m (44 lb ft).

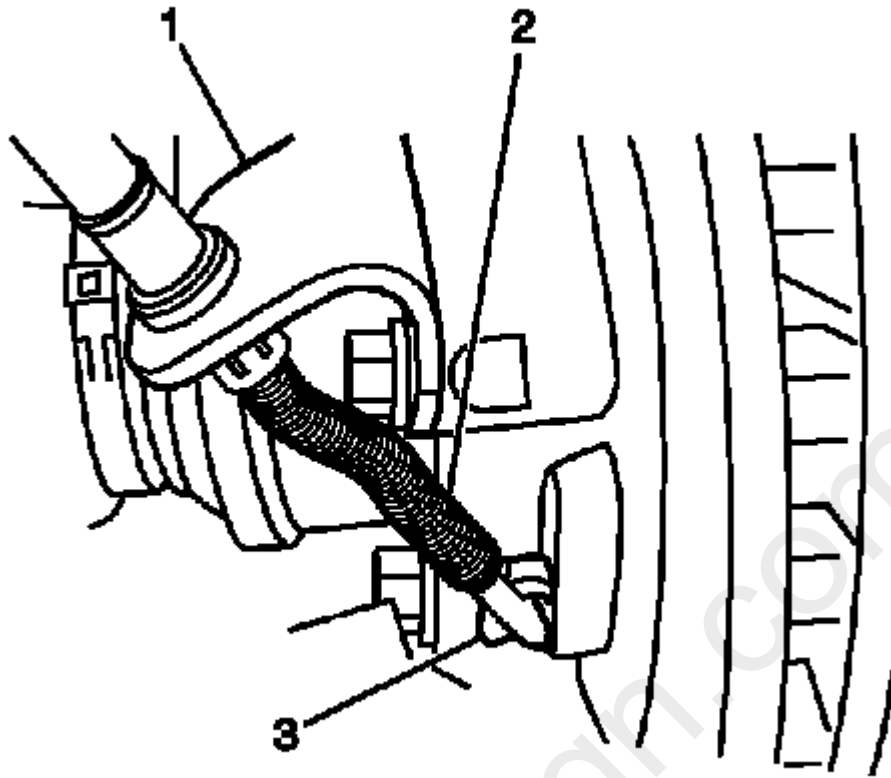


Fig. 88: View Of Left Rear Park Brake Cable, Support Bracket & Actuator Lever
Courtesy of GENERAL MOTORS COMPANY

3. Install the park brake cable to the park brake cable bracket (1).
4. Ensure the locking tabs are properly seated.
5. Connect the rear park brake cable (2) to the park brake actuator lever (3).

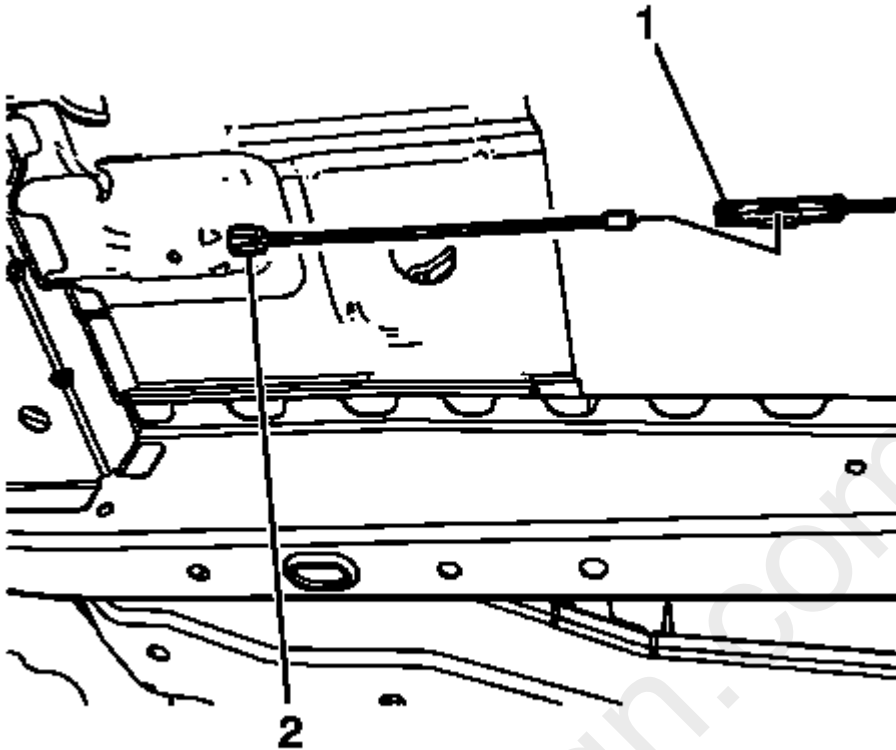


Fig. 89: View of Parking Brake Cable Retaining Bracket
Courtesy of GENERAL MOTORS COMPANY

6. Connect the intermediate park brake cable connector (1) to the front park brake cable (2).
7. Install the rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
8. Lower the vehicle.
9. Cycle the park brake pedal 1 to 2 times.

PARKING BRAKE CABLE BRACKET REPLACEMENT (WITH ELECTRONIC PARKING BRAKE)

Special Tools

J-37043 Parking Brake Cable Release Tool

Removal Procedure

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

1. Block the rear drive wheels.

2. Release the electronic park brake cable tension, if equipped. Refer to **Parking Brake Cable Adjuster Disabling (Electric Park Brake)**.
3. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle**.
4. Remove the rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation**.
5. Lower, but do not disconnect, the exhaust system enough to gain access to the parking brake cable. Refer to **Exhaust System Insulator, Hanger, Bracket Replacement**.

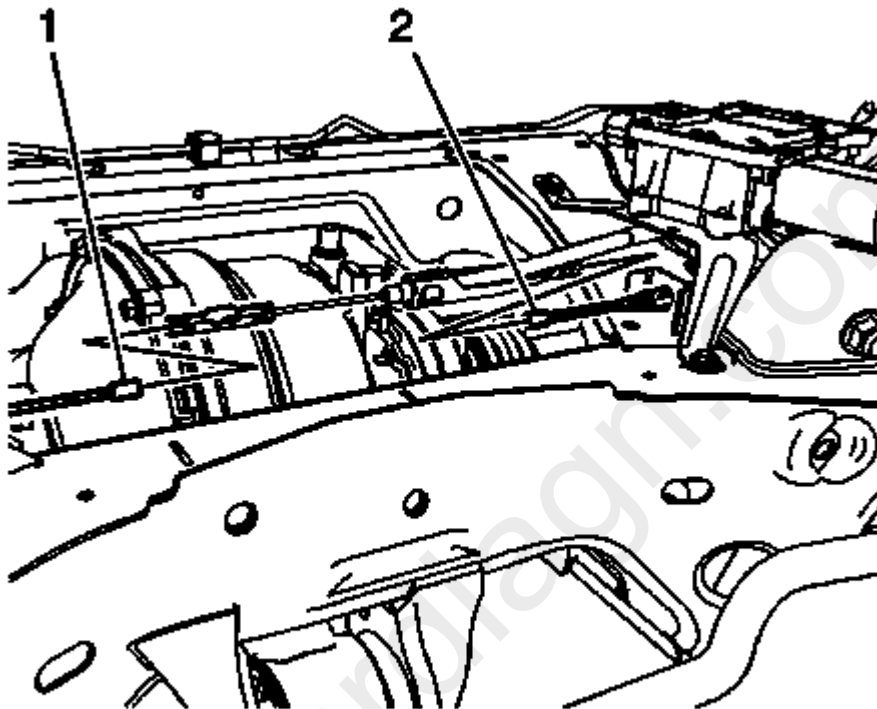


Fig. 90: Identifying Park Brake Cable Fittings
Courtesy of GENERAL MOTORS COMPANY

6. Pull down on the left parking brake rear cable (1) or the right parking brake rear cable (2) and disconnect the cable from the connector.

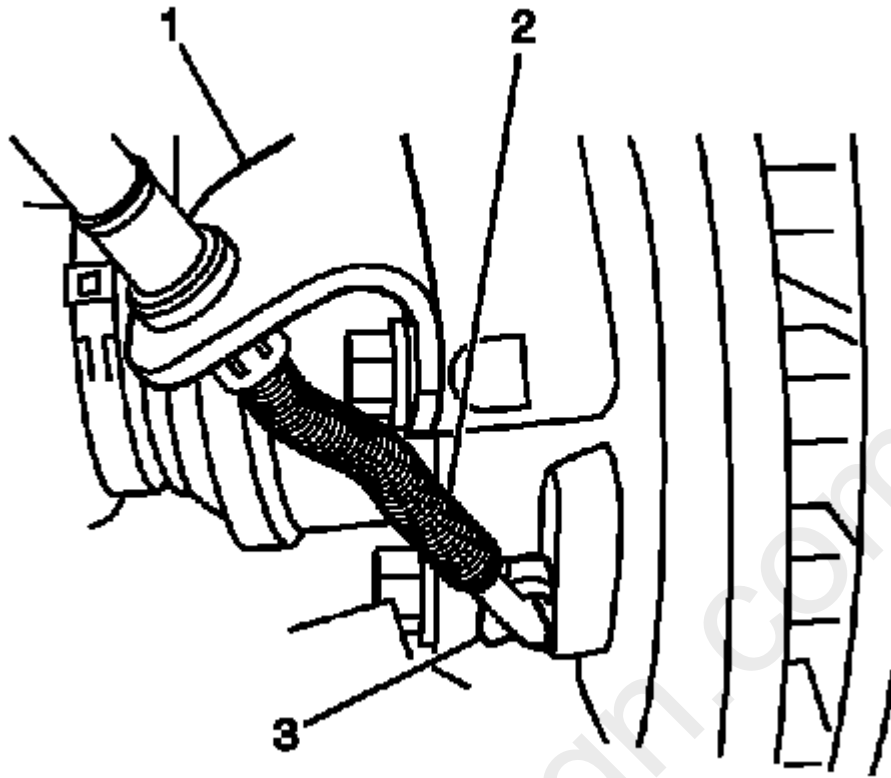


Fig. 91: View Of Left Rear Park Brake Cable, Support Bracket & Actuator Lever
Courtesy of GENERAL MOTORS COMPANY

7. Using the J-37043 Parking Brake Cable Release Tool , compress the rear brake cable retainer.
8. Remove the rear park brake cable from the cable bracket (1).
9. Disconnect the park brake cable (2) from the park brake actuator lever (3).

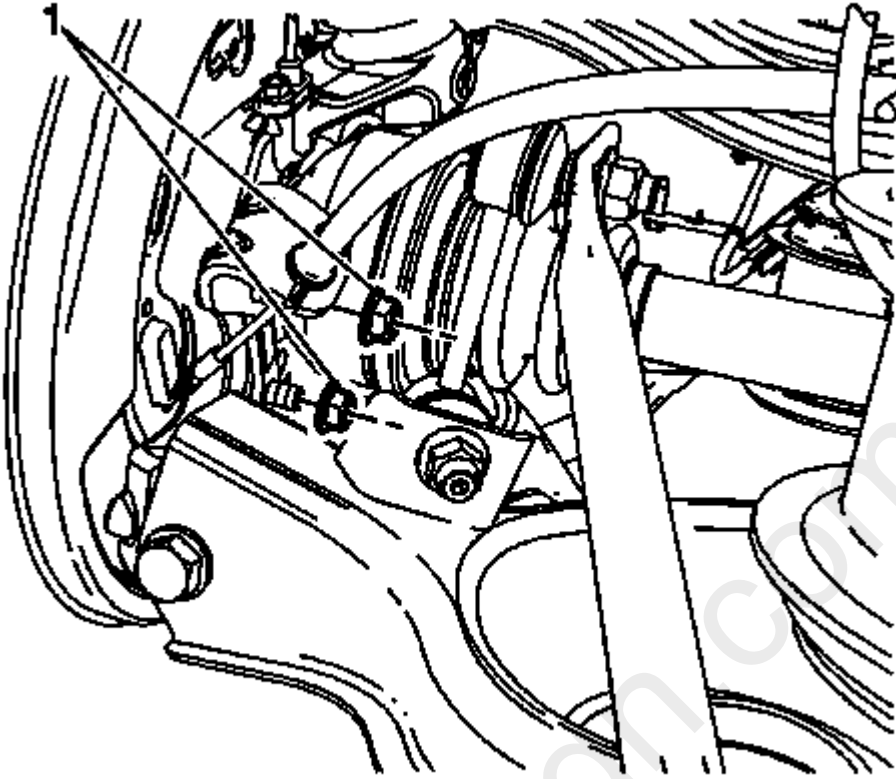


Fig. 92: View of Parking Brake Cable Bracket and Nuts
Courtesy of GENERAL MOTORS COMPANY

10. Remove the park brake cable bracket nuts (1).
11. Remove the park brake cable bracket.

Installation Procedure

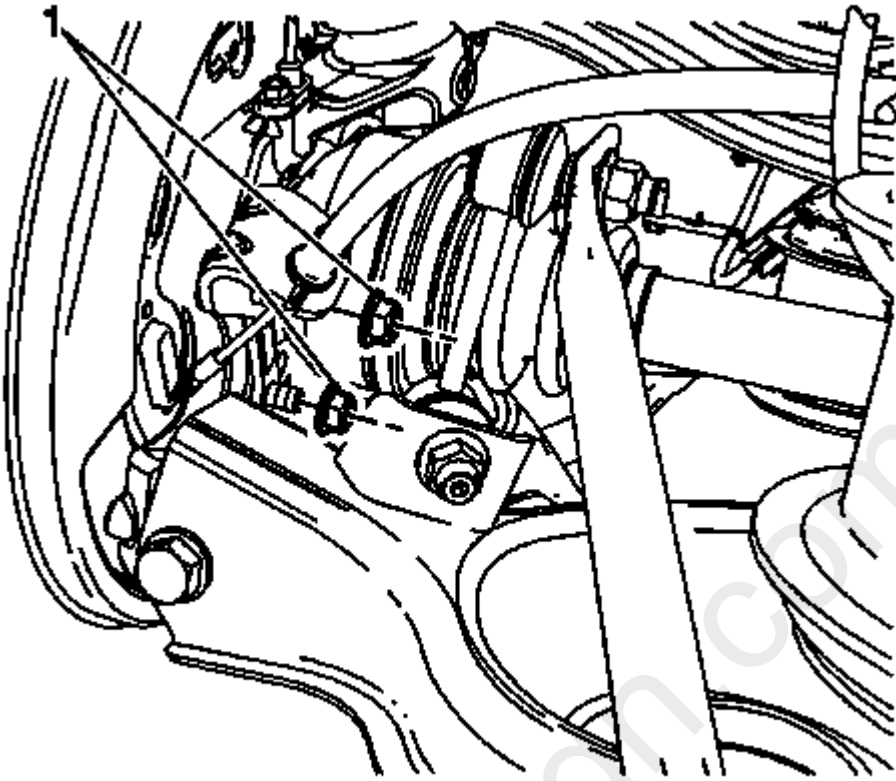


Fig. 93: View of Parking Brake Cable Bracket and Nuts
Courtesy of GENERAL MOTORS COMPANY

1. Install the park brake cable bracket.

CAUTION: Refer to Fastener Caution .

2. Install the park brake cable bracket nuts (1) and tighten to 60 N.m (44 lb ft).

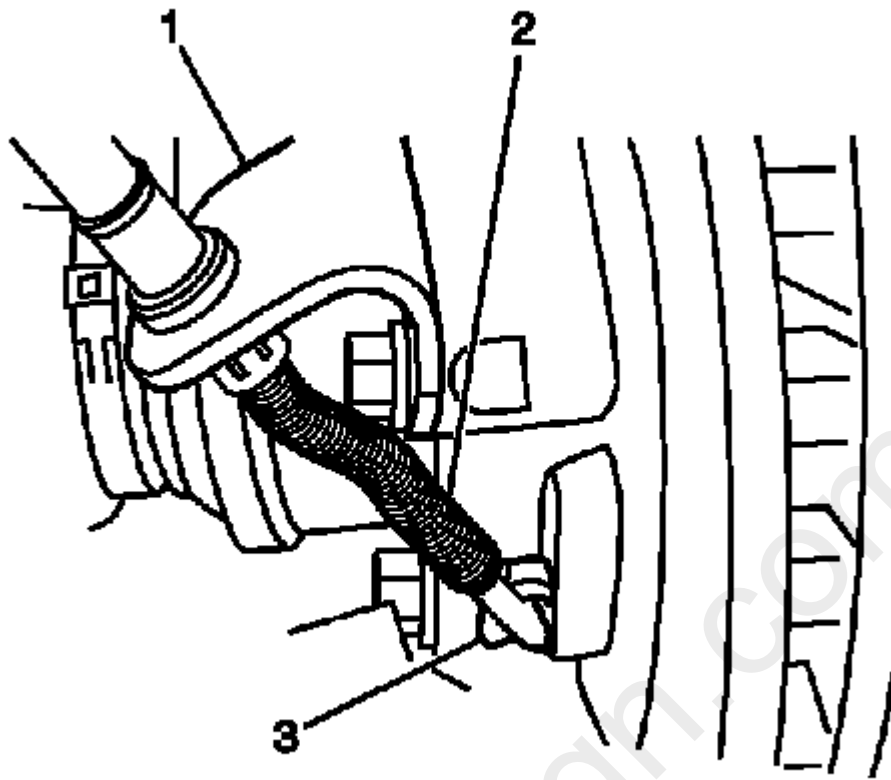


Fig. 94: View Of Left Rear Park Brake Cable, Support Bracket & Actuator Lever
Courtesy of GENERAL MOTORS COMPANY

3. Install the park brake cable to the park brake cable bracket (1).
4. Ensure the locking tabs are properly seated.
5. Connect the rear park brake cable (2) to the park brake actuator lever (3).

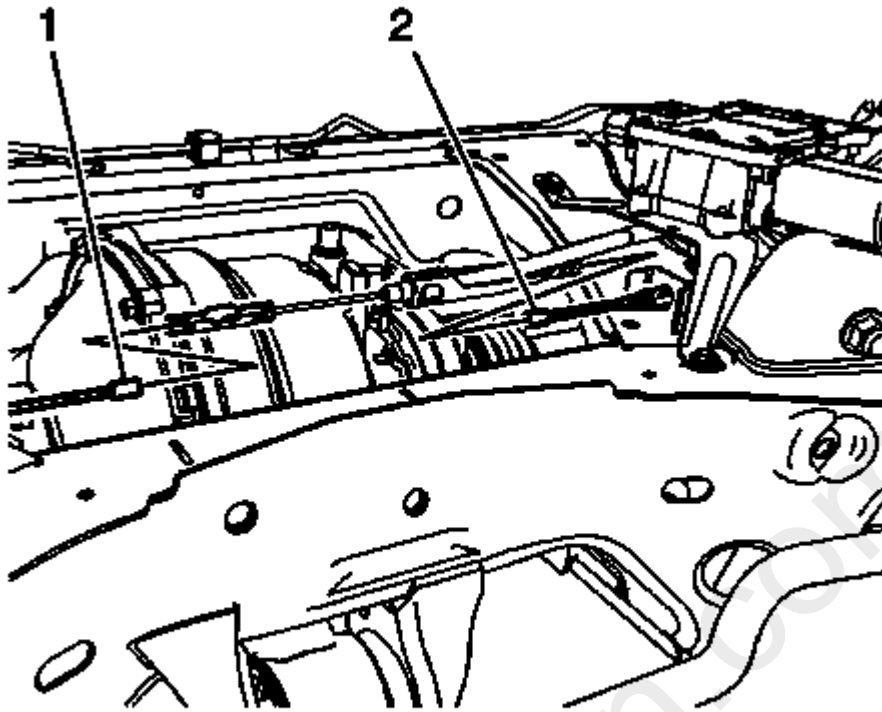


Fig. 95: Identifying Park Brake Cable Fittings
Courtesy of GENERAL MOTORS COMPANY

6. Connect the left parking brake rear cable (1) or the right parking brake rear cable (2) to the connector.
7. Install the exhaust system. Refer to **Exhaust System Insulator, Hanger, Bracket Replacement** .
8. Install the rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
9. Set the electric park brake cable tension. Refer to **Parking Brake Cable Adjuster Enabling (Electric Park Brake)**.
10. Lower the vehicle.

PARKING BRAKE CABLE ADJUSTER DISABLING (ELECTRIC PARK BRAKE)

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. Lower the vehicle rear frame enough to allow access to the electronic park brake (EPB) module. Refer to **Rear Frame Replacement** .
2. Remove the protective plug 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 (ELECTRIC PARK BRAKE)

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.
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

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

1. Block the rear drive wheels.
2. Release the electronic park brake cable tension, if equipped. Refer to **Parking Brake Cable Adjuster Disabling (Electric Park Brake)**.
3. Turn the ignition to the OFF position.

4. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle .
5. Remove the tire and wheel assembly. Refer to Tire and Wheel Removal and Installation .
6. Remove the parking brake shoes. Refer to Parking Brake Shoe Replacement.

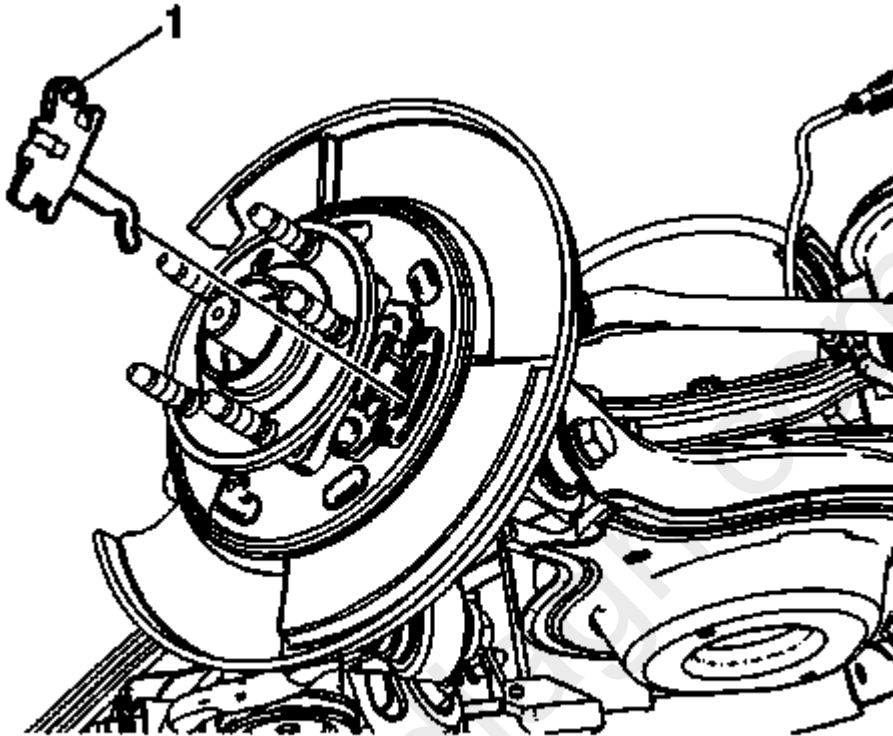


Fig. 96: View of Parking Brake Actuator
Courtesy of GENERAL MOTORS COMPANY

7. Disconnect the park brake cable from the actuator.
8. Remove the parking brake actuator (1).

Installation Procedure

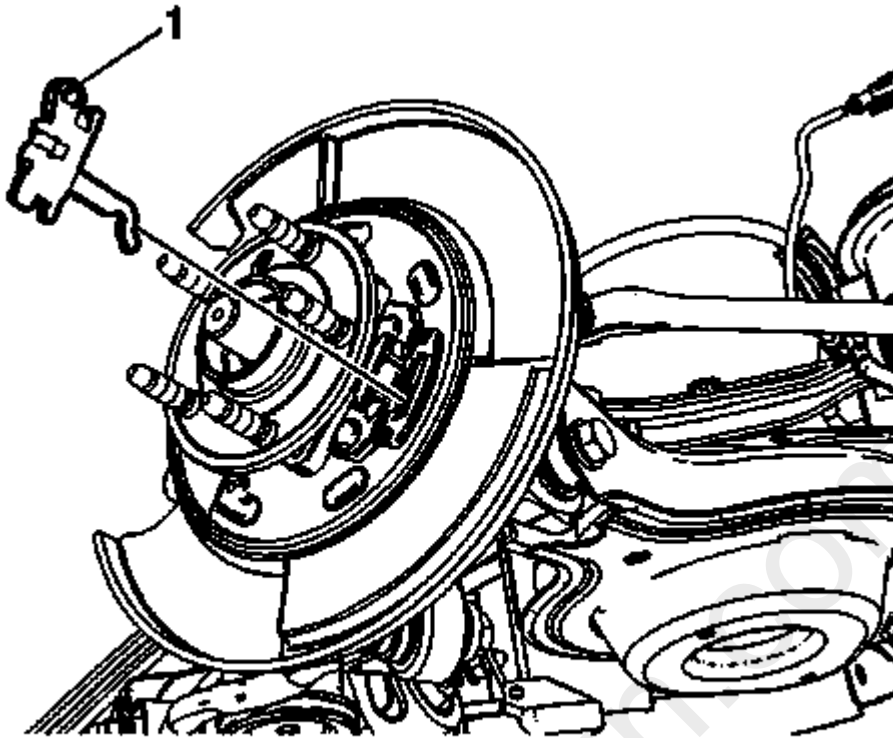


Fig. 97: View of Parking Brake Actuator
Courtesy of GENERAL MOTORS COMPANY

1. Install the parking brake actuator (1).
2. Connect the park brake cable to the actuator.
3. Install the parking brake shoes. Refer to **Parking Brake Shoe Replacement**.
4. Adjust the park brake. Refer to **Parking Brake Adjustment**.
5. Set the electric park brake cable tension. Refer to **Parking Brake Cable Adjuster Enabling (Electric Park Brake)**.
6. Install the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .

REAR PARKING BRAKE ANCHOR BACKING PLATE REPLACEMENT

Removal Procedure

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

1. Block the rear drive wheels.
2. Release the electronic park brake cable tension, if equipped. Refer to **Parking Brake Cable Adjuster**

Disabling (Electric Park Brake).

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 rear wheel bearing and hub assembly. Refer to **Rear Wheel Bearing and Hub Replacement** .
6. Remove the parking brake actuator. Refer to **Parking Brake Actuator Replacement**.

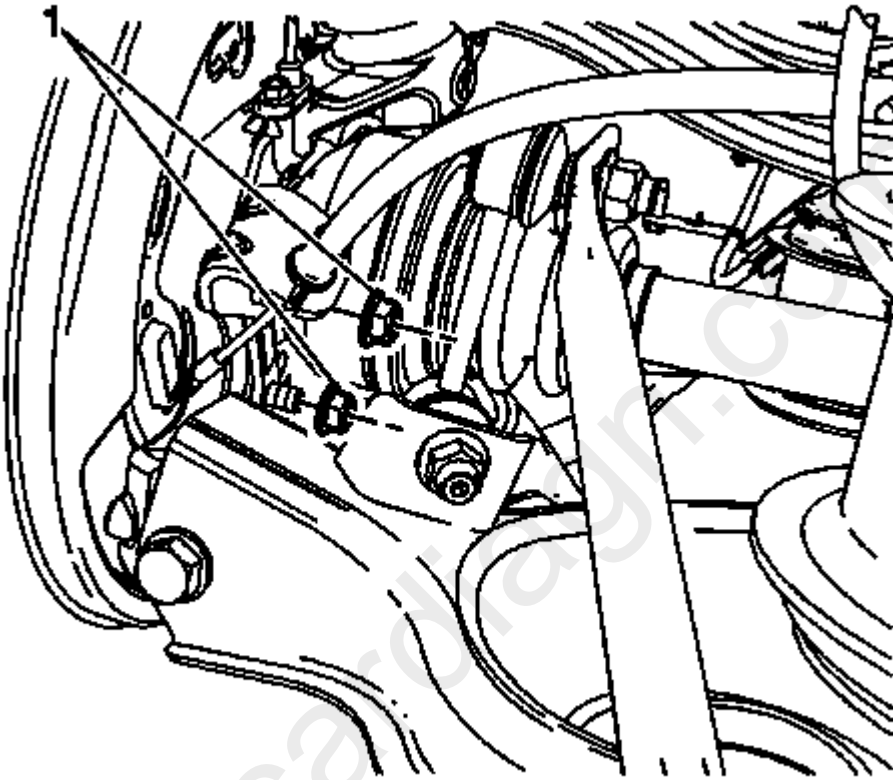


Fig. 98: View of Parking Brake Cable Bracket and Nuts
Courtesy of GENERAL MOTORS COMPANY

7. Remove the parking brake cable bracket nuts (1).

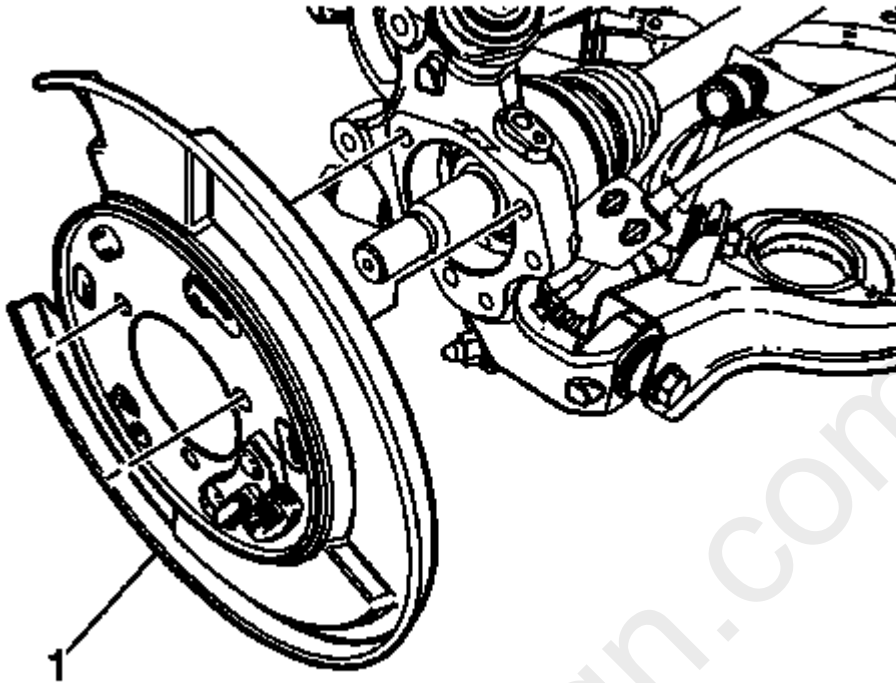


Fig. 99: Identifying Brake Backing Plate
Courtesy of GENERAL MOTORS COMPANY

8. Remove the parking brake backing plate (1).

Installation Procedure

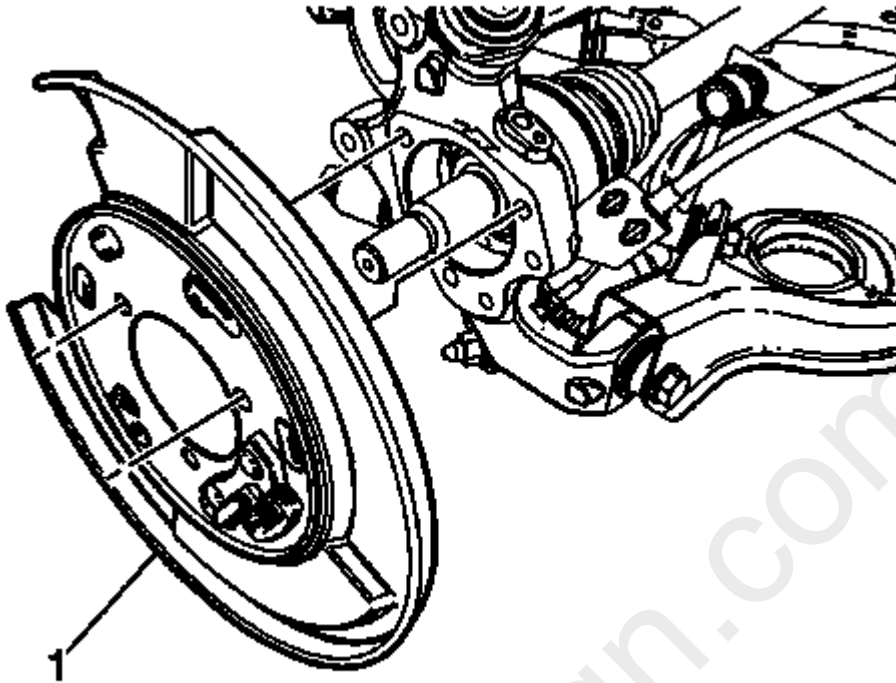


Fig. 100: Identifying Brake Backing Plate
Courtesy of GENERAL MOTORS COMPANY

1. Install the parking brake backing plate (1).

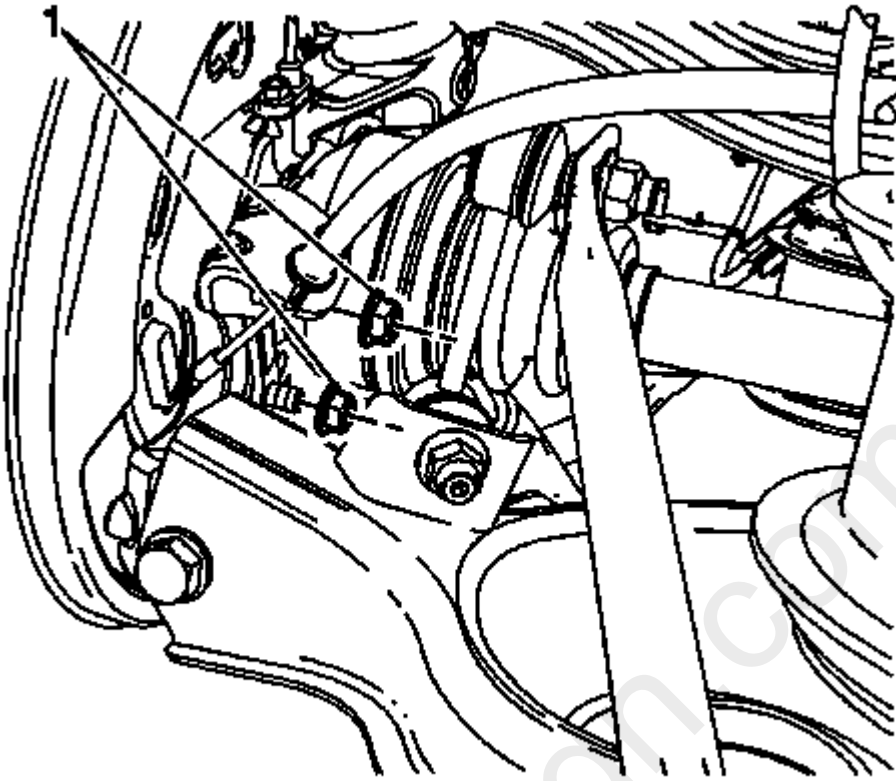


Fig. 101: View of Parking Brake Cable Bracket and Nuts
Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to Fastener Caution .

2. Install the parking brake cable bracket nuts (1) and tighten to 60 N.m (44 lb ft).

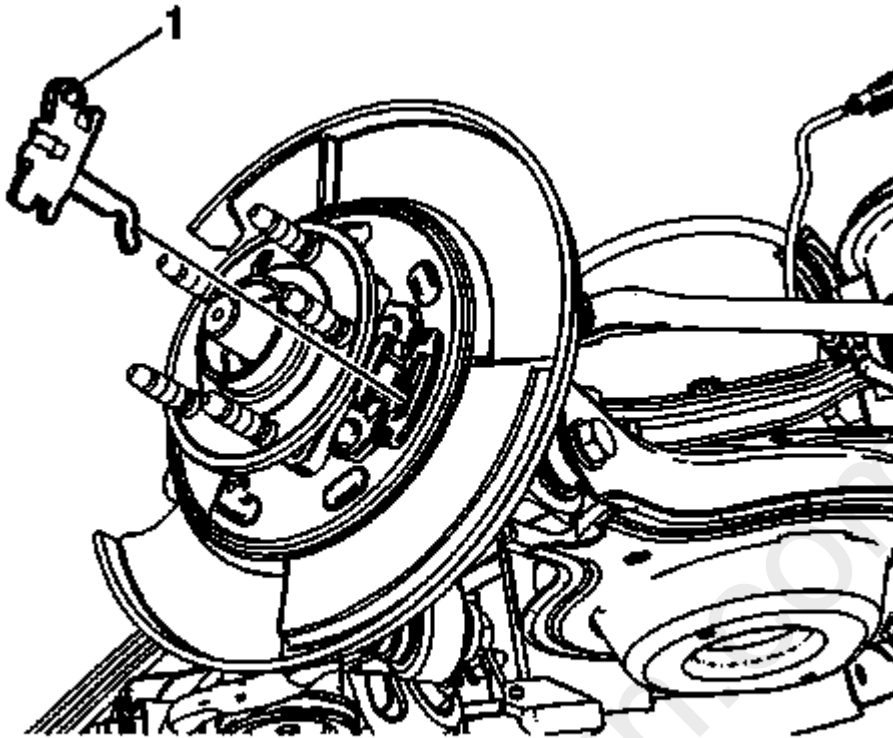


Fig. 102: View of Parking Brake Actuator
Courtesy of GENERAL MOTORS COMPANY

3. Install the parking brake actuator (1). Refer to **Parking Brake Actuator Replacement**.
4. Connect the park brake cable to the actuator.
5. Install the rear wheel bearing and hub assembly. Refer to **Rear Wheel Bearing and Hub Replacement**.
6. Install the parking brake shoes. Refer to **Parking Brake Shoe Replacement**.
7. Adjust the park brake. Refer to **Parking Brake Adjustment**.
8. Set the electric park brake cable tension. Refer to **Parking Brake Cable Adjuster Enabling (Electric Park Brake)**.
9. Install the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation**.

PARKING BRAKE ADJUSTMENT

Tools Required

J 21177-A Drum To Brake Shoe Clearance Gauge

1. Adjustments to the park brake shoe are not necessary after replacing the park brake lever or park brake cables. The park brake is adjusted automatically by cycling the park brake lever 3 times.

2. DO not operate the park brake lever with the rear disc brake rotor(s) removed.
3. Apply and fully release the parking brake 3 times.
4. Verify that the parking brake pedal releases completely.
5. Raise and suitably support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
6. Remove the rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
7. Remove the rear brake caliper brackets. Refer to **Rear Brake Caliper Bracket Replacement** .
8. Remove the rear brake rotors. Refer to **Rear Brake Rotor Replacement (J56)** , **Rear Brake Rotor Replacement (JE5, J55)** .

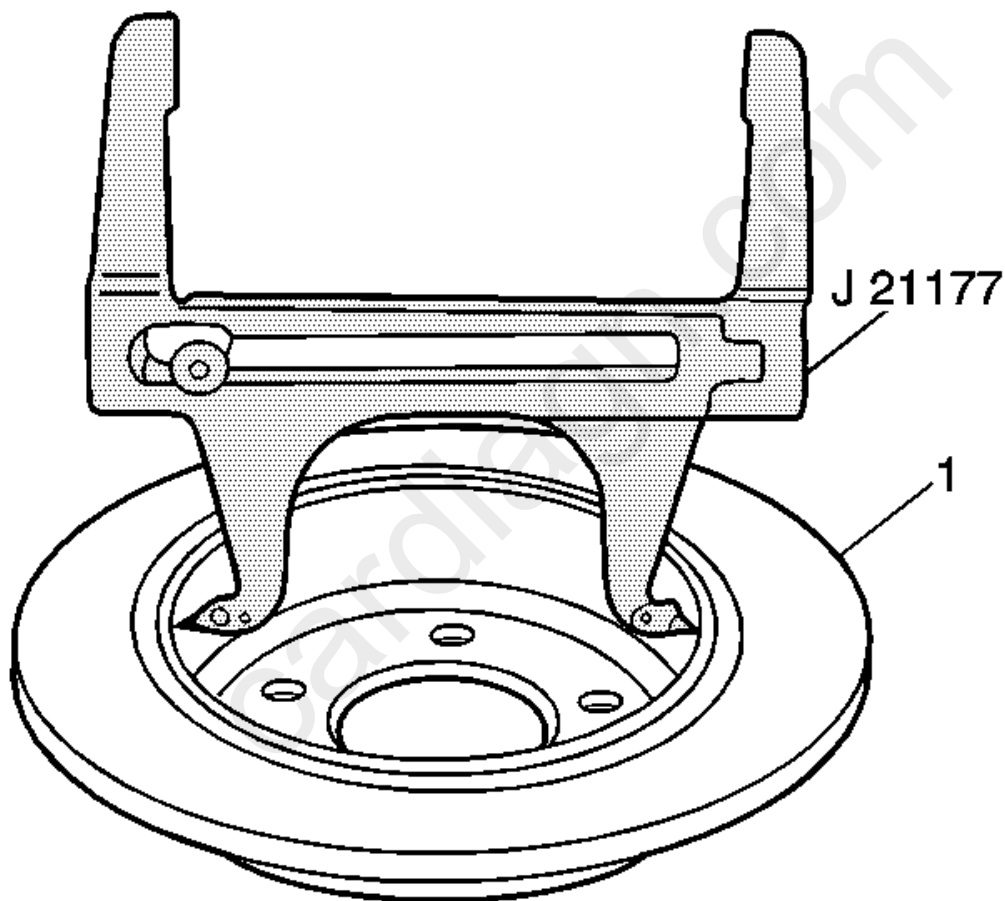


Fig. 103: Measuring Inside Of Rotor
Courtesy of GENERAL MOTORS COMPANY

9. Set the J 21177-A drum to brake shoe clearance gauge inside of the park brake drum at the widest point.
 - Place the contacts on the tool to the widest point of the drum (1).
 - Tighten the set screw on the tool to ensure the proper measurement when removing the tool from the drum.

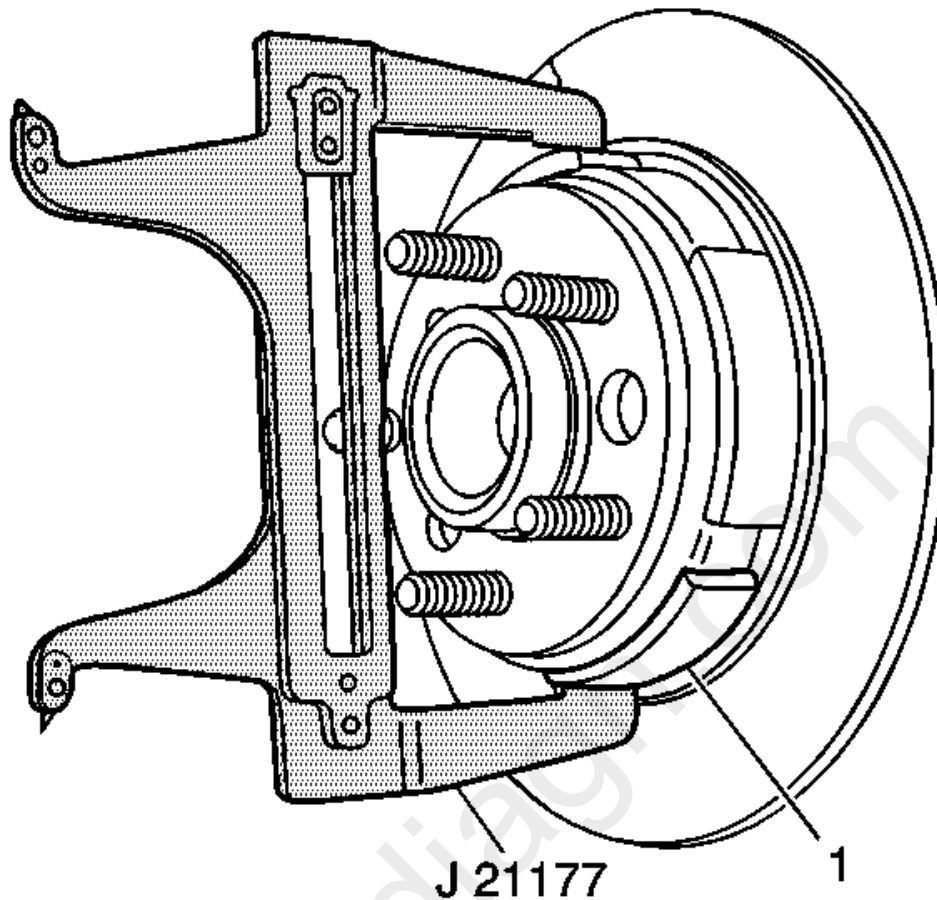


Fig. 104: Adjusting Parking Brake Shoes Using Special Tool
Courtesy of GENERAL MOTORS COMPANY

10. Position the **J 21177-A** drum to brake shoe clearance gauge over the park brake shoe (1) at the widest point.
11. Turn the adjuster on the actuator until the park brake shoe just contacts the **J 21177-A** drum to brake shoe clearance gauge.
12. Repeat steps 9 through 11 for the opposite side.
13. Install the rear brake rotors. Refer to **Rear Brake Rotor Replacement (J56)** , **Rear Brake Rotor Replacement (JE5, J55)** .
14. Install the rear caliper brackets. Refer to **Rear Brake Caliper Bracket Replacement** .
15. Install the rear tire and wheel. Refer to **Tire and Wheel Removal and Installation** .
16. Lower the vehicle to curb height.
17. Set and release the park brake lever 3 times.

IMPORTANT: If the rear wheels rotate during the following test, readjust the parking brake shoes.

18. Apply the parking brake. Inspect the rotation of the rear wheels:

- The wheels should not rotate forward.
- The wheels should not drag or rotate backward.

19. Release the parking brake. Verify that the wheels rotate freely.

20. Lower the vehicle.

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 Control 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.

The electric parking brake module receives hard wired signals from the apply/release switch and communication enable. The electric parking brake module receives wheel speed sensor signals, engine torque, gear information, brake pedal signal, and etc. through GM-LAN.

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

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.

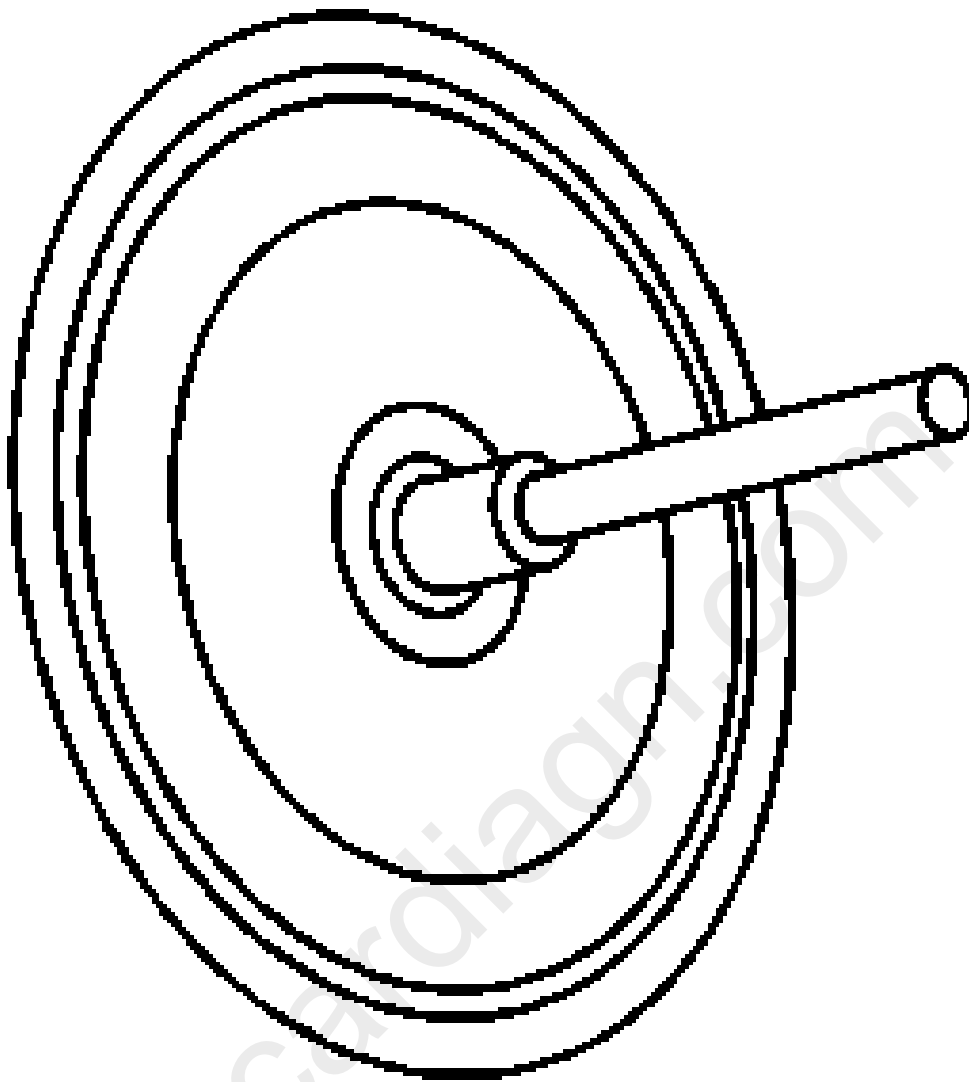
Electric Parking Brake Cable Tension Release

If the park brake cable tension cannot be released under normal mode of operation, it can be released manually. The manual release capability will make it possible for the driver to transfer the vehicle into a movable state in the case of a failure of the electric parking brake system. The procedure can be found in the Repair Instructions, Parking Brake Cable Adjuster Disabling.

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

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