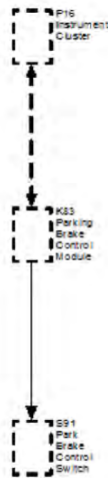


Electronic Parking Brake Control Module Description



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 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 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 park brake control switch. The red park brake light will momentarily flash while the parking brake is being applied. Once fully applied, the red park brake light will turn on. If the electric parking brake is applied while the vehicle is in motion, a chime will sound, and the message "Release Park Brake Switch" will be displayed.

If the red park 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 message "Service Park Brake" will be displayed.

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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 park brake control switch. When the electric parking brake is released the red park brake light turns off.

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 park brake control switch while the vehicle is in motion, this will keep the electric parking brake applied.

Manual 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 procedure.

Park Brake System Description and Operation

Note: Coated park brake cables do not need periodic lubrication.

Coated park brake cables are used to reduce apply effort and increase corrosion protection. The cables are coated with a plastic material which slides against nylon seals inside the conduit end fittings.

Mechanical Park Brake System

The park brake lever has an indicator switch which closes when the park brake is set, thus illuminating the red BRAKE lamp.

Park brake application is completely independent of the hydraulic brake system. The park brake system is a mechanical system which operates the rear disc brakes through the calipers. The system is activated by pulling the park brake lever upwards, which applies the rear disc brakes via cables. A mechanical stop in the lever will hold the lever in the chosen position. When the park brake is set and the ignition switch is on, the Park Brake warning lamp on the instrument panel will be on. The park brake is released by pushing the knob on the underside of the lever, raise it a few millimeters and then push it downwards to its lowest position. When the lever reaches its lowest position the Park Brake lamp in the instrument cluster will go out.

Electronic Park Brake System

In the electronic park brake (EPB) system the brake cables are pulled by the motor in the electric park brake control module (EPBCM). Refer to [Electronic Parking Brake Control Module Description](#).

Instead of a park brake lever there is an electric switch in the mid-console. By pulling the switch upwards the park brake is activated and the park brake warning lamp in the IPC is illuminated. By pushing it downwards the park brake is released and the warning lamp goes out.

The motor in the EPCM pulls the cable to the right-hand rear wheel caliper. An equalizer is mounted on the cable and pulls the cable to the left-hand rear wheel.

The function is divided into:

- Static apply/release
- Dynamic apply/release
- Automatic release

Static Apply/Release

Initial Vehicle Condition	Action Taken	Result
EPB released. Ignition OFF. Remove key and wait at least 30 seconds for the Bus to go to sleep	Lift switch	• EPB applies • Red tell-tale illuminates
EPB applied – Ignition OFF	Press switch	No operation
EPB applied – Ignition OFF, brake pedal applied	Press switch	No operation
	Press switch	• EPB does not release

Initial Vehicle Condition	Action Taken	Result
EPB applied – Ignition in ACC		- DIC display = Press Brake Pedal to Release Park Brake - Chime sounds
EPB applied – Ignition in ACC, brake pedal applied	Press switch	- EPB releases - Red tell-tale turns off
EPB applied – Ignition ON	Press switch	- EPB does not release - DIC display = Press Brake Pedal to Release Park Brake - Chime sounds
EPB applied – Ignition ON, brake pedal applied	Press switch	- EPB releases - Red tell-tale turns off
EPB released – Ignition ON	Lift switch	- EPB applies - Red tell-tale illuminates
EPB released – Ignition in ACC	Lift switch	- EPB applies - Red tell-tale illuminates
EPB applied – Ignition in ACC	Ignition is OFF	Park Brake Set DIC message disappears after delay
Engine on, speed above 15 km/h	Lift and hold switch	- If cruise control is on, cruise is disabled - ESC controlled deceleration down to 6 km/h (4 mph) - Red tell-tale illuminated - Brake light applied - Continuous chime above 15 km/h (9 mph) - DIC display = Release Park Brake Switch (above 15 km/h (9 mph))

Initial Vehicle Condition	Action Taken	Result
		• EPB static apply below 6 km/h (4 mph) • DIC display = Park Brake Set • Red tell-tale remains illuminated
Engine ON, speed between 6–15 km/h (4–9 mph)	Lift and hold switch	• ESC controlled deceleration down to 6 km/h (4 mph) • Red tell-tale illuminated • Brake light applied • No chime during vehicle motion • No DIC message during vehicle motion • EPB static apply below 6 km/h (4 mph) • DIC display = Park Brake Set • Red tell-tale remains illuminated
Engine ON, speed above 15 km/h (9 mph)	Lift and hold switch for several seconds	ESC controlled stop releases when switch is released. Tell-tale, brake light, chime and DIC go off after brief delay
ESC dynamic deceleration failed, but wheel speed available and pump working, vehicle speed above 15 km/h (9 mph)	Lift and hold switch	• If cruise control is on, cruise is disabled • ESC controlled deceleration down to 6 km/h (4 mph) • Red tell-tale illuminated • Brake light applied • Continuous chime above 15 km/h (9 mph) • DIC display = Release Park Brake Switch (above 15 km/h (9 mph)) • EPB static apply below 6 km/h (4 mph) • DIC display = Park Brake Set • Red tell-tale remains illuminated

Initial Vehicle Condition	Action Taken	Result
No wheel speed signals/ESC bus messages not valid, vehicle speed above 15 km/h (9 mph)	Lift switch and HOLD for at least 5 seconds, then release	• EPB Slow Ramp Up to specified force • Red tell-tale illuminated • Brake light applied • No chime due to missing speed signal • No DIC display • EPB statically applied after 5 seconds of continuous Apply button activation • DIC display = Park Brake Set • Red tell-tale remains illuminated
No brake pedal initial travel achieved signal/signal not valid, vehicle stopped, ignition ON, brake pedal NOT applied. EPB applied.	Press EPB switch for at least 2 seconds	EPB releases after pressing and holding switch for 2 seconds
Manual transmission, engine ON, clutch pedal applied. EPB applied.	Release clutch pedal Press accelerator pedal to drive forward/reverse	EPB releases for a smooth launch. Regulates according to grade.
Automatic transmission in gear, engine ON, brake pedal applied. EPB applied.	Release brake pedal Press accelerator pedal to drive forward/reverse	EPB releases for a smooth launch. Regulates according to grade.

DTC C028A, C028B, or C028F

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

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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](#)

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**
 - 2.1. Program the K83 Parking Brake Control Module. Refer to [Electronic Parking Brake Control Module Programming and Setup](#).
 - 2.2. Ignition ON.
 - 2.3. Apply and release the park brake.
 - 2.4. Verify the DTC is not set.
⇒ If the DTC is set, replace the K83 Parking Brake Control Module.
⇓ If the DTC is not set
 - 2.5. 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

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

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

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

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](#)

Description and Operation

[Electronic Parking Brake Control Module Description](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)

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- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

[Circuit/System Verification](#)

1. Ignition ON.
2. Verify 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 is not set.
⇒ **If the DTC is set**
 - 3.1. Verify the park brake cable is connected properly. Refer to [Park Brake System Diagnosis](#)
 - 3.2. Check park brake pads for excessive wear. Refer to [Disc Brake System Diagnosis](#)
 - 3.3. Program the K83 Parking Brake Control Module. Refer to [Electronic Parking Brake Control Module Programming and Setup](#).
 - 3.4. Ignition ON. Apply and release the park brake.
 - 3.5. Verify the DTC is not set.
⇒ If the DTC is set, replace the K83 Parking Brake Control Module.
⇓ If the DTC is not set
 - 3.6. 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 C028E

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 C028E 05

Park Brake Solenoid Actuator Current Sensor Circuit Short to Battery or Open Circuit

DTC C028E 08

Park Brake Solenoid Actuator Current Sensor 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

The parking brake control module detects an internal park brake current sensor malfunction.

Action Taken When the DTC Sets

- The parking brake will apply very slowly to avoid wheel lock up.
- 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

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Schematic Reference[Park Brake System Schematics](#)**Connector End View Reference**[Component Connector End Views](#)**Description and Operation**[Electronic Parking Brake Control Module Description](#)**Electrical Information Reference**

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference[Control Module References](#) for scan tool information**[Circuit/System Verification](#)**

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 C028E is not set.
⇒ **If the DTC is set**
Refer to Circuit/System Testing.
↓ **If the DTC is not set**
4. All OK.

[Circuit/System Testing](#)

1. Ignition OFF and all vehicle systems OFF, disconnect the harness at the K83 Parking Brake Control Module. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal H and ground.
⇒ **If 10 Ω or greater**
 - 2.1. Ignition OFF.
 - 2.2. Test for less than 2 Ω in the ground circuit end to end.
⇒ If 2 Ω or greater, repair the open high/resistance in the circuit.
⇒ If less than 2 Ω , repair open high/resistance in the ground connection.↓ **If less than 10 Ω**
3. Ignition ON.
4. Verify that a test lamp illuminates between the B+ circuit terminal A and ground.
⇒ **If the test lamp does not illuminate and the circuit fuse is good**
 - 4.1. Ignition OFF.
 - 4.2. Test for less than 2 Ω in the B+ circuit end to end.
⇒ If 2 Ω or greater, repair the open high/resistance in the circuit.
⇒ If less than 2 Ω , verify the fuse is not open and there is voltage at the fuse.

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

4.1. Ignition OFF.

4.2. Test for infinite resistance between the B+ circuit and ground.

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

↓ **If the test lamp illuminates**

5. Connect the harness connector at the K83 Parking Brake Control Module.

6. Verify the park brake cable is connected properly. Refer to [Park Brake System Diagnosis](#)

⇒ **If park brake cable is not connected properly**

Repair as necessary.

↓ **If park brake cable is connected properly**

7. Ignition ON.

8. Apply and release the park brake.

9. Verify DTC C028E is not set.

⇒ **If the DTC set**

Replace the K83 Parking Brake Control Module.

↓ **If the DTC is not set**

10. 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

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 Circuit Malfunction

DTC C0293 01

Park Brake Switch Circuit Short to Battery

DTC C0293 02

Park Brake Switch Circuit Short to Ground

DTC C0293 04

Park Brake Switch Circuit Open

DTC C0293 06

Park Brake Switch Circuit Low Voltage/Open

DTC C0293 08

Park Brake Switch Circuit Performance – Signal Invalid

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal 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 control switch diagnostic checks for failure conditions in the park brake control 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 control 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](#)

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

1. Ignition OFF, disconnect the harness connector at the K83 Parking Brake Control Module.
2. Test for less than 10 Ω between the ground circuit terminal H and ground.

⇒ **If 10 Ω or greater**

2.1. Ignition OFF.

2.2. Test for less than 2 Ω in the ground circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω , repair the open/high resistance in the ground connection.

⇓ **If less than 10 Ω**

3. Ignition ON.

4. Verify a test lamp illuminates between the B+ circuit terminal A and ground.

⇒ **If the test lamp does not illuminate and the circuit fuse is good**

4.1. Ignition OFF.

4.2. Test for less than 2 Ω in the B+ circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω , verify the fuse is not open and there is voltage at the fuse.

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

4.1. Ignition OFF.

4.2. 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, replace the K83 Parking Brake Control Module.

⇓ **If the test lamp illuminates**

5. Verify a test lamp illuminates between the ignition circuit terminal P and ground.

⇒ **If the test lamp does not illuminate and the circuit fuse is good**

5.1. Ignition OFF.

5.2. Test for less than 2 Ω in the ignition circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω , verify the fuse is OK and there is voltage at the fuse. Refer to [Power Mode Mismatch](#)

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

5.1. Ignition OFF.

5.2. Test for infinite resistance between the ignition circuit and ground.

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

⇒ If infinite resistance, replace the K83 Parking Brake Control Module.

⇓ **If the test lamp illuminates**

6. Test for less than 1 V between the circuit terminals listed below and ground;

- Terminal B
- Terminal C
- Terminal D

- Terminal N
- Terminal R
- Terminal S

⇒ **If 1 V or greater**

Repair the short to voltage on the circuit.

⇓ **If less than 1 V**

7. Ignition OFF.

8. Test for infinite resistance between the circuit terminals listed below and ground;

- Terminal B
- Terminal C
- Terminal D
- Terminal N
- Terminal R
- Terminal S

⇒ **If less than infinite resistance**

Repair the short to ground on the circuit.

⇓ **If infinite resistance**

9. Test for less than 5 Ω between the circuit terminal D and the circuit terminal R.

⇒ **If 5 Ω or greater**

9.1. Ignition OFF, disconnect the harness connector at the S91 Park Brake Control Switch.

9.2. Test for less than 2 Ω in the circuits end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω , replace the S91 Park Brake Control Switch.

⇓ **If less than 5 Ω**

10. Test for less than 5 Ω between the circuit terminal B and the circuit terminal S.

⇒ **If 5 Ω or greater**

10.1. Ignition OFF, disconnect the harness connector at the S91 Park Brake Control Switch.

10.2. Test for less than 2 Ω in the circuits end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω , replace the S91 Park Brake Control Switch.

⇓ **If less than 5 Ω**

11. Test for less than 5 Ω between the circuit terminal C and the circuit terminal N.

⇒ **If 5 Ω or greater**

11.1. Ignition OFF, disconnect the harness connector at the S91 Park Brake Control Switch.

11.2. Test for less than 2 Ω in the circuits end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω , replace the S91 Park Brake Control Switch.

⇓ **If less than 5 Ω**

12. Test for less than 5 Ω between the circuit terminal N and the circuit terminal R while closing the switch.

⇒ **If 5 Ω or greater**

Replace the S91 Park Brake Control Switch.

⇓ **If less than 5 Ω**

13. Test for less than 5 Ω between the circuit terminal N and the circuit terminal S while closing the switch.

⇒ **If 5 Ω or greater**

Replace the S91 Park Brake Control Switch.

↓ **If less than 5 Ω**

14. Replace the K83 Parking Brake Control Module.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Parking Brake Actuator Switch Replacement](#)
- [Control Module References](#) for parking brake control module replacement, programming and setup.

DTC C0298

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	–	C0293 00, C0293 08
B+ Terminal 5	C0298 02	C0298 04	C0298 01	C0293 00, C0293 08
Signal Terminal 2	C0298 08	C0298 08	–	C0293 00, C0293 08
Signal Terminal 3	C0298 02	C0298 04	C0298 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. 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

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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](#)

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

1. Ignition OFF, disconnect the harness connector at the K83 Parking Brake Control Module.

2. Test for less than 10 Ω between the ground circuit terminal H and ground.

⇒ **If 10 Ω or greater**

2.1. Ignition OFF.

2.2. Test for less than 2 Ω in the ground circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω , repair the open/high resistance in the ground connection.

⇓ **If less than 10 Ω**

3. Ignition ON.

4. Verify a test lamp illuminates between the B+ circuit terminal A and ground.

⇒ **If the test lamp does not illuminate and the circuit fuse is good**

4.1. Ignition OFF.

4.2. Test for less than 2 Ω in the B+ circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω , verify the fuse is not open and there is voltage at the fuse.

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

4.1. Ignition OFF.

4.2. 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, replace the K83 Parking Brake Control Module.

⇓ **If the test lamp illuminates**

5. Verify a test lamp illuminates between the ignition circuit terminal P and ground.

⇒ **If the test lamp does not illuminate and the circuit fuse is good**

5.1. Ignition OFF.

5.2. Test for less than 2 Ω in the ignition circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω , verify the fuse is OK and there is voltage at the fuse. Refer to [Power Mode Mismatch](#)

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

5.1. Ignition OFF.

5.2. Test for infinite resistance between the ignition circuit and ground.

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

⇒ If infinite resistance, replace the K83 Parking Brake Control Module.

⇓ **If the test lamp illuminates**

6. Test for less than 1 V between the circuit terminals listed below and ground;

◦ Terminal B

◦ Terminal C

◦ Terminal D

◦ Terminal N

◦ Terminal R

◦ Terminal S

⇒ **If 1 V or greater**

Repair the short to voltage on the circuit.

⇓ **If less than 1 V**

7. Ignition OFF.

8. Test for infinite resistance between the circuit terminals listed below and ground;

- Terminal B
- Terminal C
- Terminal D
- Terminal N
- Terminal R
- Terminal S

⇒ **If less than infinite resistance**

Repair the short to ground on the circuit.

⇓ **If infinite resistance**

9. Test for less than 5 Ω between the circuit terminal D and the circuit terminal R.

⇒ **If 5 Ω or greater**

9.1. Ignition OFF, disconnect the harness connector at the S91 Park Brake Control Switch.

9.2. Test for less than 2 Ω in the circuits end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω , replace the S91 Park Brake Control Switch.

⇓ **If less than 5 Ω**

10. Test for less than 5 Ω between the circuit terminal B and the circuit terminal S.

⇒ **If 5 Ω or greater**

10.1. Ignition OFF, disconnect the harness connector at the S91 Park Brake Control Switch.

10.2. Test for less than 2 Ω in the circuits end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω , replace the S91 Park Brake Control Switch.

⇓ **If less than 5 Ω**

11. Test for less than 5 Ω between the circuit terminal C and the circuit terminal N.

⇒ **If 5 Ω or greater**

11.1. Ignition OFF, disconnect the harness connector at the S91 Park Brake Control Switch.

11.2. Test for less than 2 Ω in the circuits end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω , replace the S91 Park Brake Control Switch.

⇓ **If less than 5 Ω**

12. Test for less than 5 Ω between the circuit terminal N and the circuit terminal R while closing the switch.

⇒ **If 5 Ω or greater**

Replace the S91 Park Brake Control Switch.

⇓ **If less than 5 Ω**

13. Test for less than 5 Ω between the circuit terminal N and the circuit terminal S while closing the switch.

⇒ **If 5 Ω or greater**

Replace the S91 Park Brake Control Switch.

⇓ **If less than 5 Ω**

14. Replace the K83 Parking Brake Control Module.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Parking Brake Actuator Switch Replacement](#)

- [Control Module References](#) for parking brake control module replacement, programming and setup.

DTC C0558

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](#)

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**
 - 2.1. Program the K83 Parking Brake Control Module. Refer to [Electronic Parking Brake Control Module Programming and Setup](#).
 - 2.2. Ignition ON.
 - 2.3. Apply and release the park brake.
 - 2.4. Verify the DTC is not set.
⇒ If the DTC is set, replace the K83 Parking Brake Control Module.
⇓ If the DTC is not set
 - 2.5. 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**
 - 3.1. Verify the park brake cable is connected properly. Refer to [Park Brake System Diagnosis](#)
 - 3.2. 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

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](#)

Description and Operation

[Electronic Parking Brake Control Module Description](#)

Electrical Information Reference

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- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

[Circuit/System Verification](#)

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

[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](#)

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

- 2.1. Program the K83 Parking Brake Control Module. Refer to [Electronic Parking Brake Control Module Programming and Setup](#).
- 2.2. Ignition ON.
- 2.3. Apply and release the park brake.
- 2.4. Verify the DTC is not set.
 - ⇒ If the DTC is set, replace the K83 Parking Brake Control Module.
 - ⇓ If the DTC is not set

2.5. 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

[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 47

Electronic Control Unit Software VIN Not Programmed

DTC C056E 5A

Electronic Control Unit Software Not Plausible

DTC C056E 71

Electronic Control Unit Software 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 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.

[Conditions for Running the DTC](#)

Ignition OFF, ACCESSORY, or RUN mode.

[Conditions for Setting the DTC](#)

The parking brake module has detected missing calibration data, calibration procedure not run or completed, missing VIN, or internal software malfunction.

[Actions Taken When DTC Sets](#)

C056E 41 or C056E 5A

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

C056E 42

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

C056E 47 or C056E 71

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The parking brake will function normally.

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](#)

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 C056E is not set.
⇒ **If the DTC is set**
 - 2.1. Program the K83 Parking Brake Control Module. Refer to [Electronic Parking Brake Control Module Programming and Setup](#).
 - 2.2. Verify the DTC is not set.
⇒ If the DTC is set, replace the K83 Parking Brake Control Module.
⇓ If the DTC is not set
 - 2.3. All OK.
- ⇓ **If the DTC is not 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 C0574

Diagnostic Instructions

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

DTC Descriptors

DTC C0574 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.

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[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](#)

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**
 - 3.1. Ignition OFF. Remove the parking brake control module fuse and reinstall. Ignition ON.
 - 3.2. 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
 - 3.3. 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 [Park Brake System Description and Operation](#).

Visual/Physical Inspection

- Inspect for aftermarket devices which may affect the operation of the park brake system.
- Inspect the easily accessible or visible system components for obvious damage or conditions which may 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 System Diagnosis](#)

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 Symptoms - Park Brake
2	Inspect the park brake system for proper operation. Refer to Park Brake System Diagnosis . 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 Disc Brake System Diagnosis . 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 Hydraulic Brake System Diagnosis . Did you find and correct a condition?	Go to Step 5	Go to Symptoms - Park Brake
5	Road test the vehicle in order to confirm proper operation. Refer to Brake System Vehicle Road Test . Is the condition still present?	Go to Step 2	System OK

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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 Diagnostic Starting Point - Vehicle
3	1. Raise and support the vehicle with the rear axle supported by jack stands. Refer to Lifting and Jacking the Vehicle . 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
4	1. Shift the transmission into NEUTRAL. 2. Apply the park brake. 3. Attempt to rotate the rear wheels to check the rear brakes for a significant amount of drag. Do the rear brakes have a significant amount of drag?	Go to Step 17	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 of 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: • Parking Brake Actuator Cable Replacement • Parking Brake Rear Cable Replacement - Left Side	Go to Step 17	—

Step	Action	Yes	No
	Parking Brake Rear Cable Replacement - Right Side Did you complete the repair and/or replacement?		
7	Check the adjustment of the park brake and adjust as necessary. Refer to Parking Brake Adjustment. Did you find and correct the condition?	Go to Step 17	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. - Remove the rear brake rotors. Refer to Rear Brake Rotor Replacement. - Inspect the park brake shoe hardware for looseness, damaged, broken or missing components. - 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	- Replace park brake hardware components as necessary. Refer to Parking Brake Shoe Replacement. - Replace the park brake actuators as necessary. Refer to Parking Brake Actuator Replacement. Did you complete the replacement?	Go to Step 17	—
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 Parking Brake Adjustment. Did you find and correct the condition?	Go to Step 17	Go to Step 12
12	- With the transmission still in NEUTRAL, apply the park brake. - Attempt to rotate the rear wheels to check the rear brakes for a significant amount of drag. - Release the park brake.	Go to Step 17	Go to Symptoms - Park Brake

Step	Action	Yes	No
	4. Rotate the rear wheels to check the rear brakes for a significant reduction of drag. Did the park brake apply and release properly?		
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
14	Replace any of the park brake cables that do not have free movement (not releasing properly). Refer to the following procedures as necessary: • Parking Brake Actuator Cable Replacement • Parking Brake Rear Cable Replacement - Left Side • Parking Brake Rear Cable Replacement - Right Side Did you complete the replacement?	Go to Step 17	—
15	Inspect the electronic parking brake control module for proper operation and replace as necessary. Refer to Electronic Parking Brake Control Module Replacement . Did you find and correct the condition?	Go to Step 17	Go to Step 16
16	1. Replace the component that is used to adjust the park brake system. Refer to Electronic Parking Brake Control Module Replacement . 2. Adjust the park brake. Refer to Parking Brake Adjustment . Did you complete the replacement and adjustment?	Go to Step 17	Go to Symptoms - Park Brake
17	Install or connect any components that were removed or disconnected during diagnosis. Did you complete the operation?	Park Brake System OK	Go to Symptoms - Park Brake

Parking Brake Shoe Inspection

Warning: Refer to [Brake Dust Warning](#).

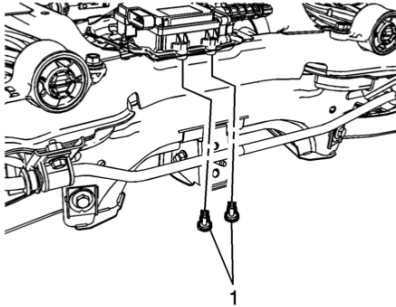
1. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
2. Remove the rear wheels. Refer to [Tire and Wheel Removal and Installation](#).
3. Remove the rear brake caliper and brake disc. Refer to [Rear Brake Rotor Replacement](#).
4. Inspect the park brake shoe and lining for the following conditions:
 - Substantial wear indicated by the park brake lining being worn down to the shoe
 - Brake lining cracking
 - Oil or fluid contamination of the brake lining
5. If any of the conditions listed are found, replace the park brake shoes. Refer to [Parking Brake Shoe Replacement](#).
6. Adjust the park brake shoe. Refer to [Parking Brake Adjustment](#).
7. Install the rear brake disc. Refer to [Rear Brake Rotor Replacement](#).
8. Install the rear brake caliper. Refer to [Rear Brake Caliper Replacement](#).
9. Install the rear wheels. Refer to [Tire and Wheel Removal and Installation](#).
10. Lower the vehicle.

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Electronic Parking Brake Control Module Replacement

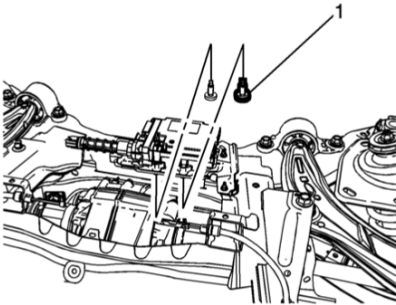
Removal Procedure

1. Disable the parking brake cable adjuster. Refer to [Parking Brake Cable Adjuster Disabling](#).
2. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
3. Remove the rear suspension support. Refer to [Rear Suspension Support Removal and Installation](#).
4. Disconnect the parking brake actuator cable spindle nut from the electronic parking brake control module. Refer to [Parking Brake Actuator Cable Replacement](#).
5. Disconnect the electronic parking brake control module electrical connector.

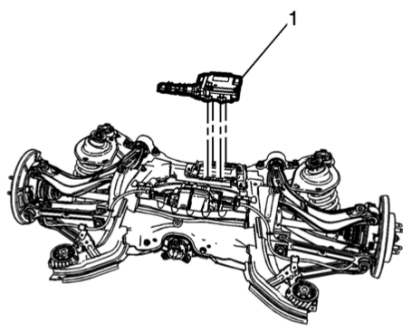


Note: Do not remove the electronic parking brake control module support bracket nuts. If the nuts are removed for any reason, discard and install new electronic parking brake control module support bracket nuts.

6. Remove the electronic parking brake control module rear bolts (1).

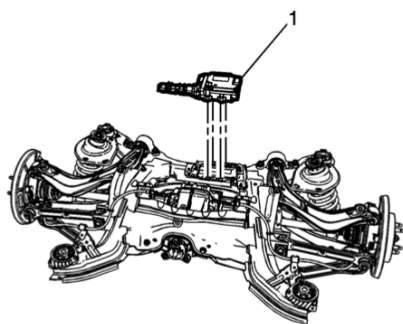


7. Remove the 2 electronic parking brake control module front bolts (1).



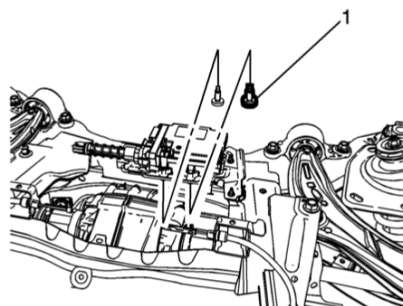
8. Remove the electronic parking brake control module (1) from the support bracket.

Installation Procedure

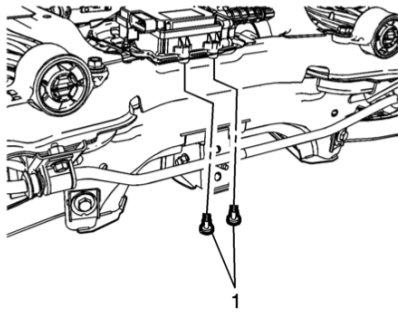


1. Install the electronic parking brake control module (1) from the support bracket.

Caution: Refer to [Fastener Caution](#).



2. Install the 2 electronic parking brake control module front bolts (1) and tighten to **5 N•m (44 lb in)**.



Note: Do not remove the electronic parking brake control module support bracket nuts. If the nuts are removed for any reason, discard and install new electronic parking brake control module support bracket nuts.

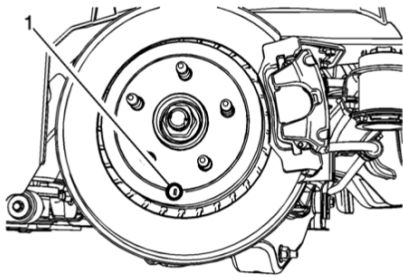
3. Install the electronic parking brake control module rear bolts (1) and tighten to **5 N•m (44 lb in)**.
4. Connect the electronic parking brake control module electrical connector.
- Note:** When installing the parking brake actuator cable nut to the electronic park brake module spindle, hold the spindle housing securely to avoid distorting the housing.
5. Connect the parking brake actuator cable spindle nut to the electronic parking brake control module. Refer to [Parking Brake Actuator Cable Replacement](#).
6. Install the rear suspension support. Refer to [Rear Suspension Support Removal and Installation](#).
7. Enable the parking brake cable adjuster. Refer to [Parking Brake Cable Adjuster Enabling](#).
8. Program the electronic parking brake control module. Refer to [Electronic Parking Brake Control Module Programming and Setup](#).

Parking Brake Shoe Replacement

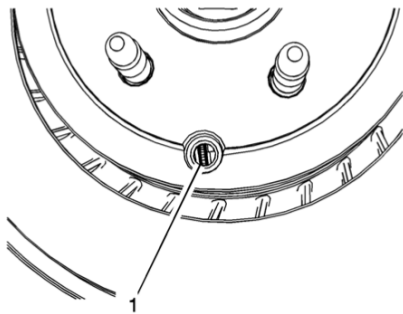
Removal Procedure

Warning: Refer to [Brake Dust Warning](#).

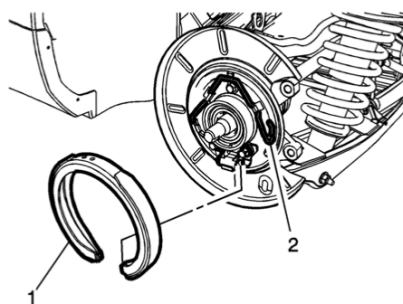
1. Disable the parking brake adjuster. Refer to [Parking Brake Cable Adjuster Disabling](#).
2. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
3. Remove the rear tire and wheel assembly. Refer to [Tire and Wheel Removal and Installation](#).



4. Rotate the brake rotor until the parking brake shoe adjuster access grommet (1) is in the 6 o'clock position.



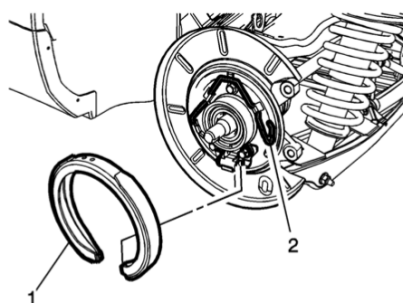
5. Remove the parking brake shoe adjuster access grommet and rotate the adjuster wheel (1) to retract the parking brake shoe.
6. Remove the brake rotor. Refer to [Rear Brake Rotor Replacement](#).



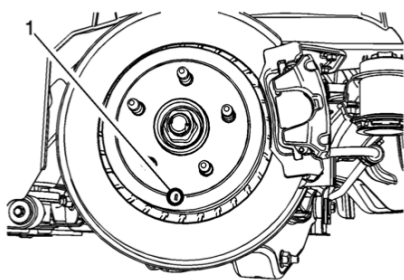
7. Grasp the parking brake shoe (1) near the adjuster and spread the parking brake shoe slightly to release it from the adjuster assembly.
8. Lift the parking brake shoe upward and release the shoe from the parking brake shoe retaining spring (2).
9. Clean the rear brake backing plate with denatured alcohol and allow to dry.

Installation Procedure

1. Apply a light coat of high temperature brake lubricant to the park brake shoe contact areas of the rear brake backing plate.



2. Grasp the parking brake shoe (1) near the adjuster and spread the parking brake shoe slightly to install on to the adjuster assembly.
3. Engage the parking brake shoe retaining spring (2) into the parking brake shoe channel.
4. Adjust the parking brake. Refer to [Parking Brake Adjustment](#).
5. Install the brake rotor. Refer to [Rear Brake Rotor Replacement](#).



6. Install the parking brake shoe adjuster access grommet (1).
7. Install the rear tire and wheel assembly. Refer to [Tire and Wheel Removal and Installation](#).
8. Enable the parking brake cable adjuster. Refer to [Parking Brake Cable Adjuster Enabling](#).

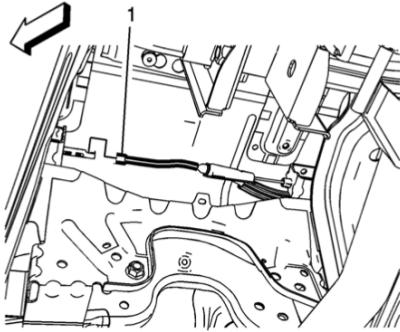
Parking Brake Rear Cable Replacement - Left Side

Special Tools

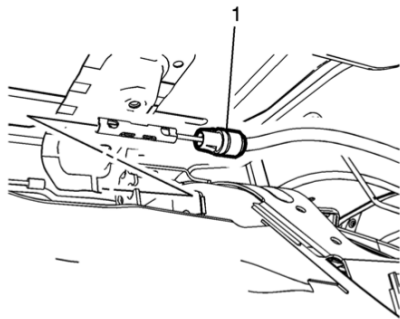
CH-37043 Parking Brake Cable Release Tool

Removal Procedure

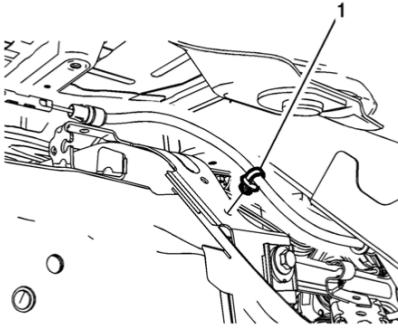
1. Block the rear drive wheels.
2. Disable the parking brake cable adjuster. Refer to [Parking Brake Cable Adjuster Disabling](#).
3. Turn the ignition to the OFF position.
4. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).



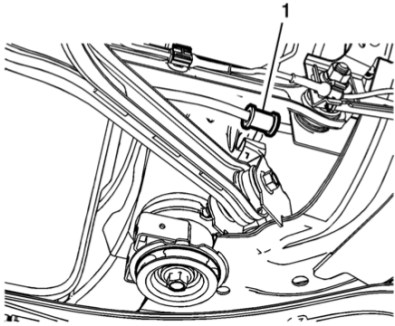
5. Disconnect the left rear parking brake cable connector from the parking brake actuator cable (1).



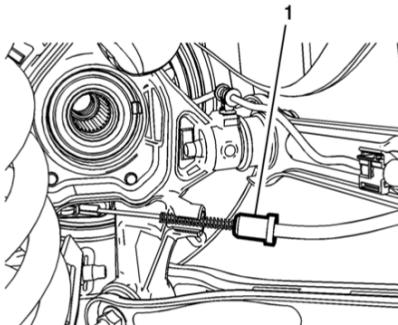
6. Using the CH-37043 Parking Brake Cable Release Tool, compress the locking fingers on the left rear parking brake cable conduit (1) and remove the left rear parking brake cable from the frame bracket.



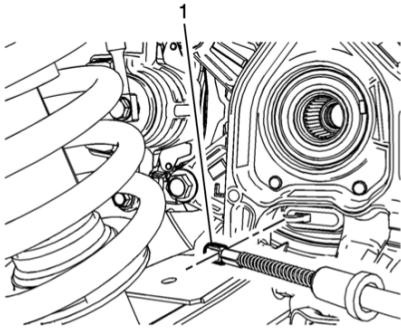
7. Release the left rear parking brake cable retaining clip (1) from the frame.



8. Release the left rear parking brake cable retainer (1) from the bracket on the frame.



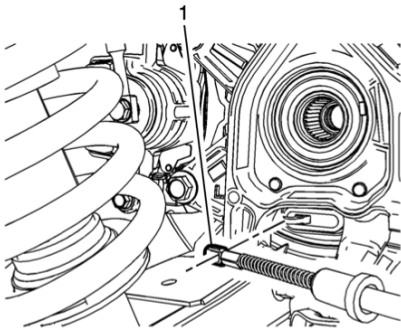
9. Pull the left rear parking brake cable conduit (1) toward the front of the vehicle to release the cable from the rear suspension knuckle.



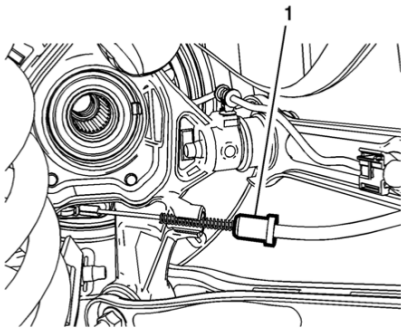
10. Disconnect the left rear parking brake cable eye (1)
11. Remove the left rear parking brake cable from the vehicle.

Installation Procedure

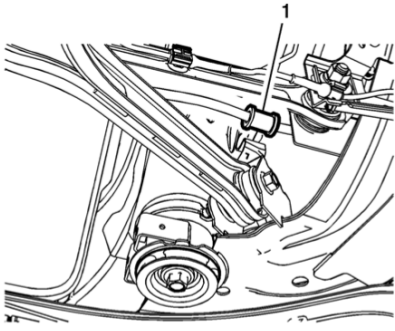
1. Install the left rear parking brake cable to the vehicle.



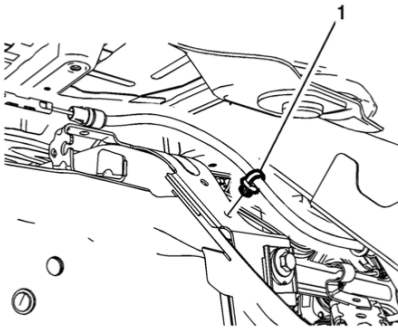
2. Connect the left rear parking brake cable eye (1)



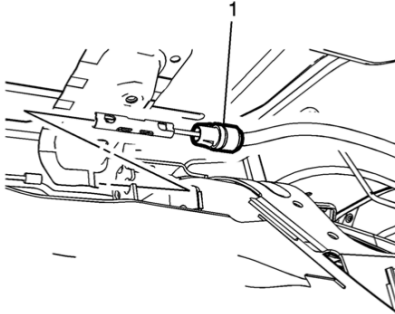
3. Pull the left rear parking brake cable conduit (1) toward the front of the vehicle and install the cable to the rear suspension knuckle.



4. Install the left rear parking brake cable retainer (1) to the bracket on the frame.

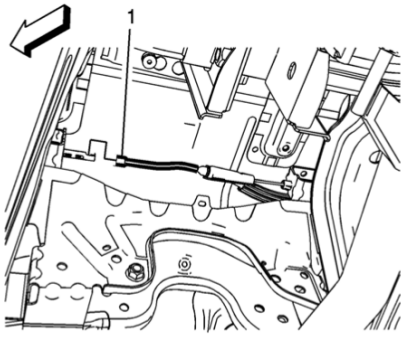


5. Secure the left rear parking brake cable retaining clip (1) to the frame.



6. Install the left rear parking brake cable (1) to the frame bracket.

7. Ensure the locking tabs on the left rear parking brake cable conduit are fully engaged in the frame bracket.



8. Connect the left rear parking brake cable connector to the parking brake actuator cable (1).
9. Enable the parking brake cable adjuster. Refer to [Parking Brake Cable Adjuster Enabling](#).

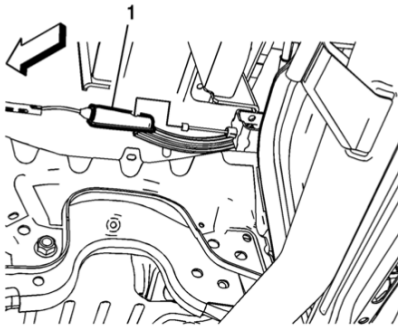
Parking Brake Rear Cable Replacement - Right Side

Special Tools

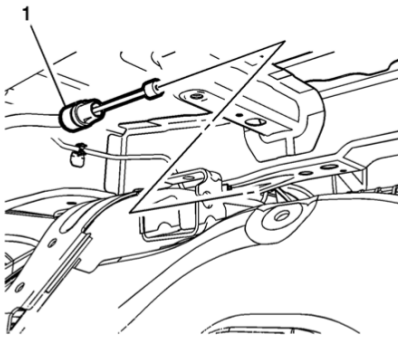
CH-37043 Parking Brake Cable Release Tool

Removal Procedure

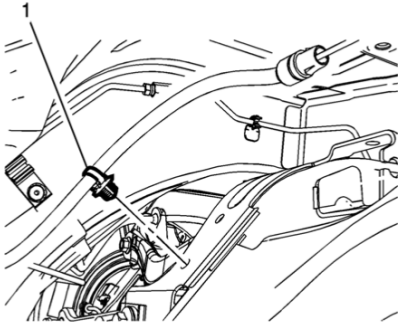
1. Block the rear drive wheels.
2. Disable the parking brake cable adjuster. Refer to [Parking Brake Cable Adjuster Disabling](#).
3. Turn the ignition to the OFF position.
4. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).



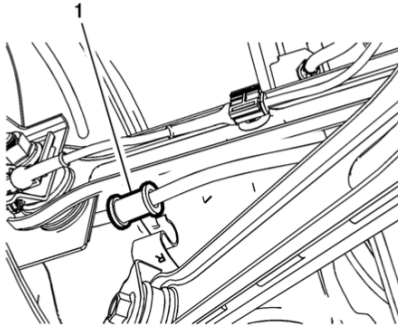
5. Disconnect the right rear parking brake cable equalizer from the parking brake actuator cable (1).



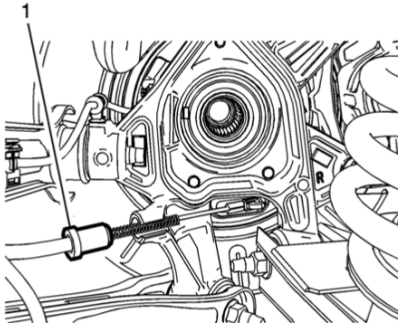
6. Using the CH-37043 Parking Brake Cable Release Tool, compress the locking fingers on the right rear parking brake cable conduit (1) and remove the right rear parking brake cable from the frame bracket.



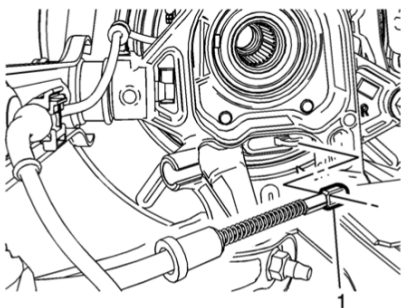
7. Release the right rear parking brake cable retaining clip (1) from the frame.



8. Release the right rear parking brake cable retainer (1) from the bracket on the frame.



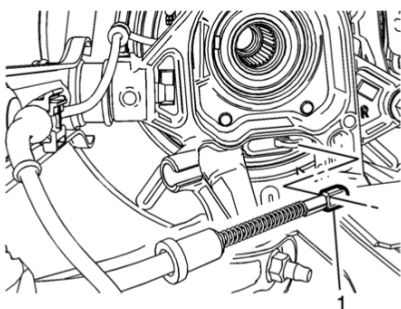
9. Pull the right rear parking brake cable conduit (1) toward the front of the vehicle to release the cable from the rear suspension knuckle.



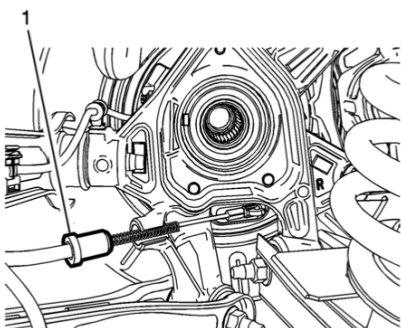
10. Disconnect the right rear parking brake cable eye (1)
11. Remove the right rear parking brake cable from the vehicle.

Installation Procedure

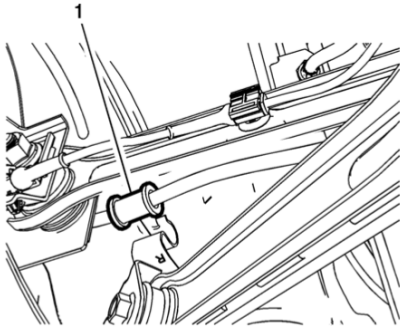
1. Install the right rear parking brake cable to the vehicle.



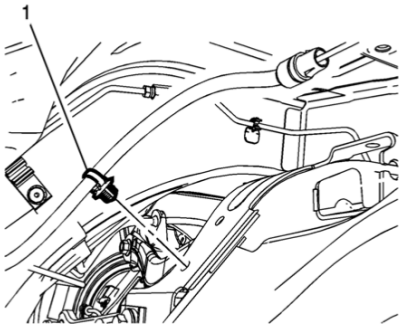
2. Connect the right rear parking brake cable eye (1)



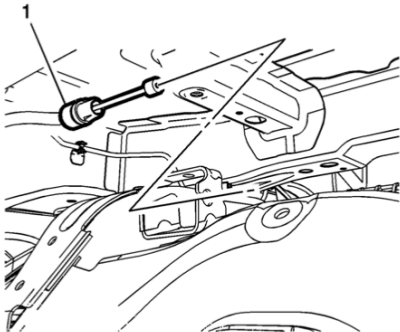
3. Pull the right rear parking brake cable conduit (1) toward the front of the vehicle and install the cable to the rear suspension knuckle.



4. Install the right rear parking brake cable retainer (1) to the bracket on the frame.

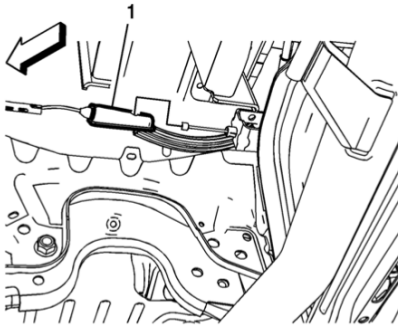


5. Secure the right rear parking brake cable retaining clip (1) to the frame.



6. Install the right rear parking brake cable (1) to the frame bracket.

7. Ensure the locking tabs on the right rear parking brake cable conduit are fully engaged in the frame bracket.



8. Connect the right rear parking brake cable equalizer to the parking brake actuator cable (1).
9. Enable the parking brake cable adjuster. Refer to [Parking Brake Cable Adjuster Enabling](#).

Parking Brake Cable Adjuster Disabling

The parking brake cable tension is controlled by the electronic parking brake (EPB) module. Tension can be fully released from the parking brake cables to allow for service of the parking 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. Select Control Functions from the scan tool menu.
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 parking brake cable tension release process.
5. Press and hold down the electronic parking 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. Remove the rear suspension support to gain access to the EPB module. Refer to [Rear Suspension Support Removal and Installation](#).
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.
5. Install the rear suspension support. Refer to [Rear Suspension Support Removal and Installation](#).

Parking Brake Cable Adjuster Enabling

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

Electronic Parking Brake Cable Tensioning

With Scan Tool - Preferred Method

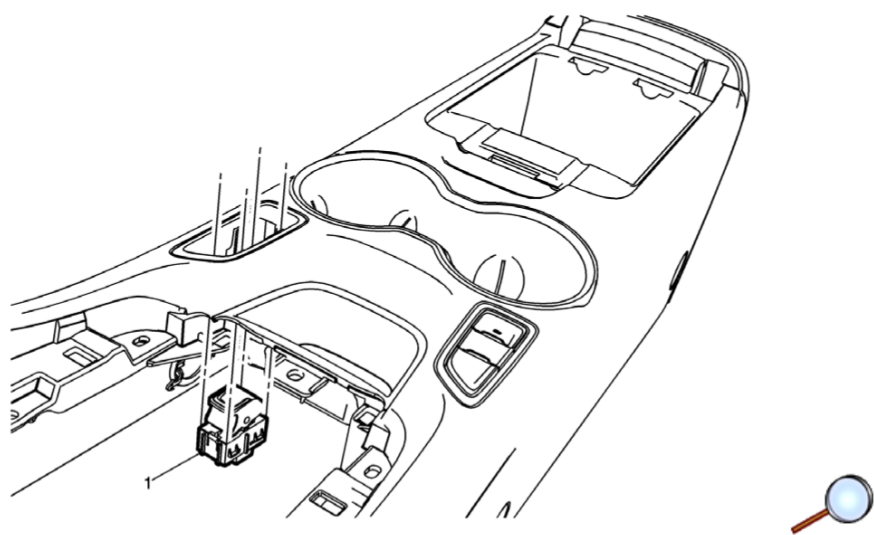
1. Block the drive wheels.
2. Install a scan tool to the vehicle.
3. Turn the ignition switch to the ON/RUN position with the engine OFF.
4. Select Configuration/Reset Functions from the scan tool menu.
5. Follow the instructions on the scan tool.

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.

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Parking Brake Actuator Switch Replacement



Parking Brake Actuator Switch Replacement

Callout	Component Name
Preliminary Procedure Remove the front floor console. Refer to Front Floor Console Replacement .	
1	Parking Brake Actuator Switch Procedure Depress the tabs to remove the switch from the front floor console accessory switch mount plate.

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Parking Brake Actuator Replacement

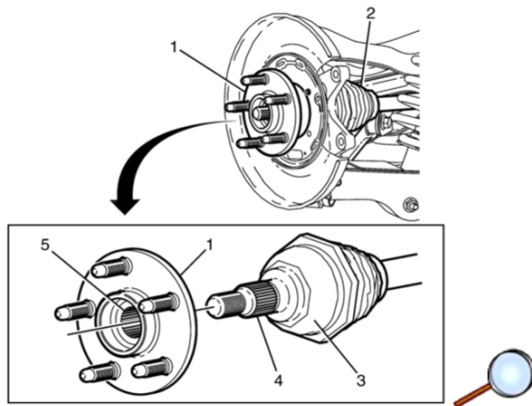
Removal Procedure

Danger: To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

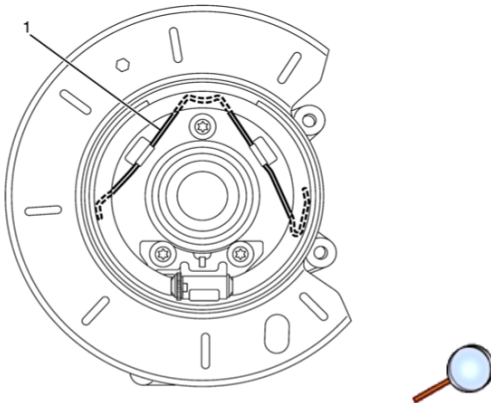
Warning: Refer to [Safety Glasses Warning](#).

Warning: Refer to [Brake Dust Warning](#).

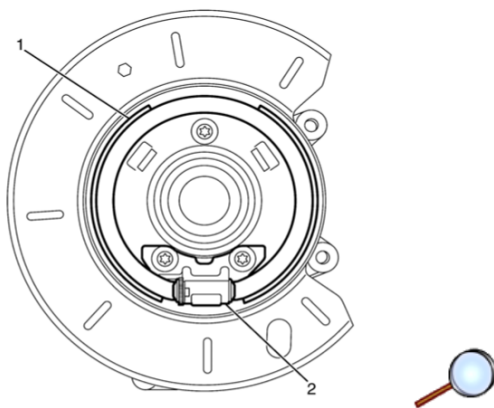
1. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
2. Remove the tire and wheel assembly. Refer to [Tire and Wheel Removal and Installation](#).
3. Remove the parking brake shoe. Refer to [Parking Brake Shoe Replacement](#).



4. Remove the rear wheel hub (1). Refer to [Rear Wheel Bearing Stud Replacement](#).
5. Rotate the park brake adjusting nut until all park brake shoe adjustment has been removed.

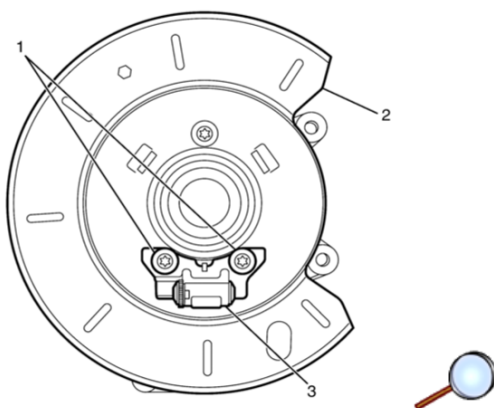


6. Remove the park brake shoe retaining spring (1).



Note: Detach the park brake shoe (1) from the actuator assembly (2) by grasping the shoe and pushing upwards.

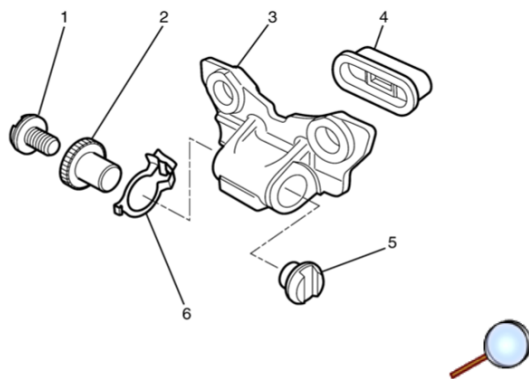
7. Detach the park brake shoe (1) from the actuator assembly (2).
8. Remove the park brake shoe (1).



9. Remove the actuator assembly / backing plate to knuckle retaining bolts (1).

Note: Slide the actuator assembly (3) downwards to detach the actuator assembly (3) from the locating tab on the backing plate (2).

10. Remove the actuator assembly (3) from the backing plate (2).



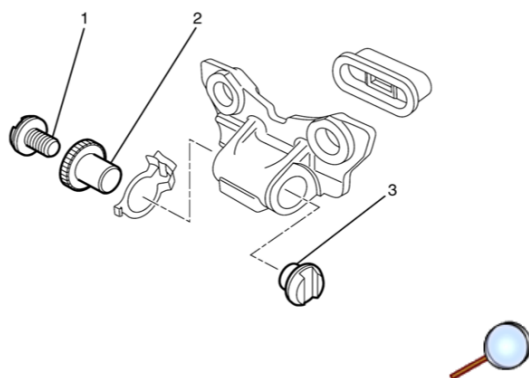
Note: Using a flat blade screwdriver remove the adjuster nut (2) from the abutment plate (3).

11. Remove the adjuster nut (2) from the abutment plate (3).
12. Remove the adjustment screw (1) from the adjuster nut (2).

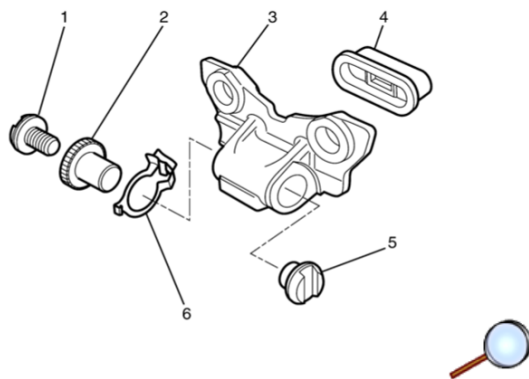
Note: Using a flat blade screwdriver remove the tappet (5) from the abutment plate (3).

13. Remove the tappet (5) from the abutment plate (3).
14. Remove the adjustment pawl (6).
15. Remove the dust cover (4) from the abutment plate (3).

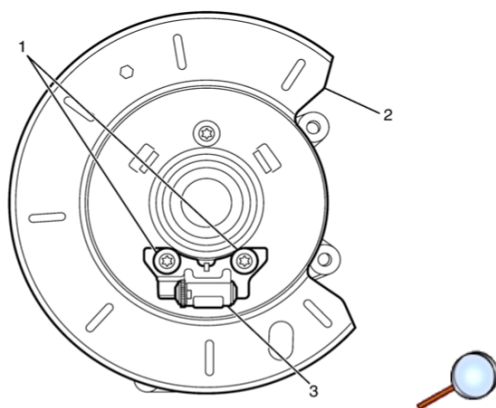
Installation Procedure



1. Apply a small amount of GM approved silicone grease to positions (2, 3). DO NOT apply grease to the bolt threads (1).



2. Install the dust cover (4) to the abutment plate (3).
3. Install the adjustment pawl (6).
4. Install the tappet (5) to the abutment plate (3).
5. Install the adjustment screw (1) to the adjuster nut (2).
6. Install the adjuster nut (2) to the abutment plate (3).

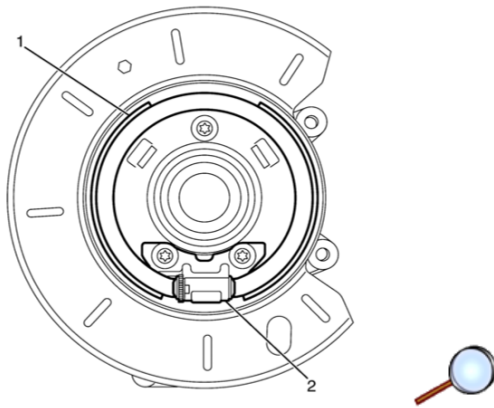


Note: Slide the actuator assembly (3) upwards to attach the actuator assembly (3) to the locating tab on the backing plate (2).

7. Install the actuator assembly (3) to the backing plate (2).

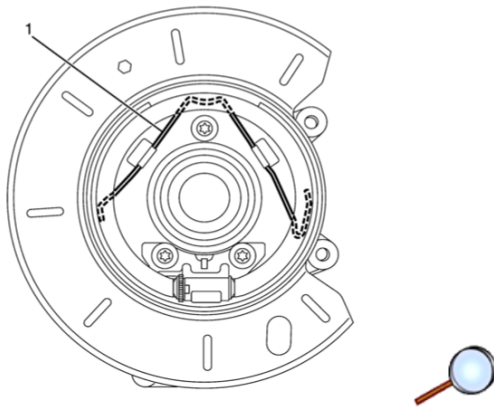
Caution: Refer to [Fastener Caution](#).

8. Install the actuator assembly/backing plate to knuckle retaining bolts (1) and tighten to **50 N·m (37 lb ft) + 60 degrees**.

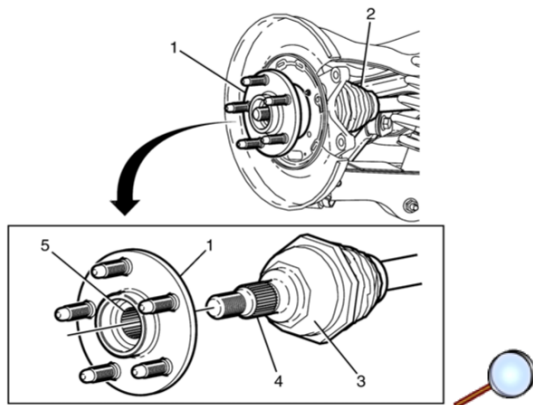


Note: Install the park brake shoe assembly (1) by grasping the shoe and spreading slightly while pulling the shoe over the actuator assembly (2).

9. Install the park brake shoe assembly (1) to the actuator assembly (2).



10. Install the park brake shoe retaining spring (1).



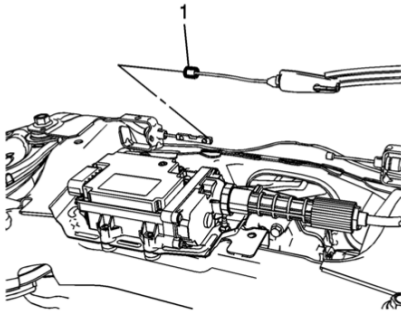
11. Install the rear wheel hub (1). Refer to [Rear Wheel Bearing Stud Replacement](#).

12. Install the parking brake shoe. Refer to [Parking Brake Shoe Replacement](#).
13. Install the tire and wheel assembly. Refer to [Tire and Wheel Removal and Installation](#).

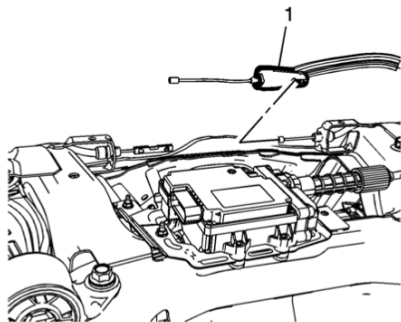
Parking Brake Actuator Cable Replacement

Removal Procedure

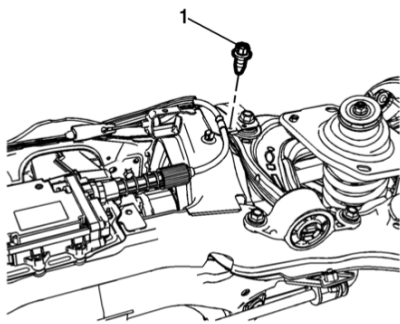
1. Disable the parking brake cable adjuster. Refer to [Parking Brake Cable Adjuster Disabling](#).
2. Turn the ignition to the OFF position.
3. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
4. Remove the rear suspension support. Refer to [Rear Suspension Support Removal and Installation](#).



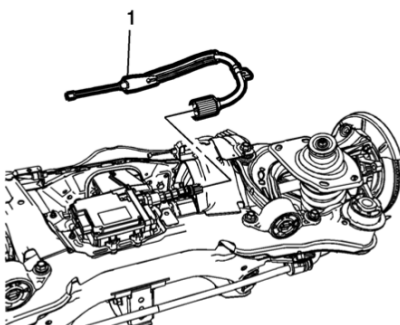
5. Disconnect the parking brake actuator cable (1) from the left parking brake rear cable connector.



6. Disconnect the parking brake actuator cable equalizer (1) from the right parking brake rear cable.



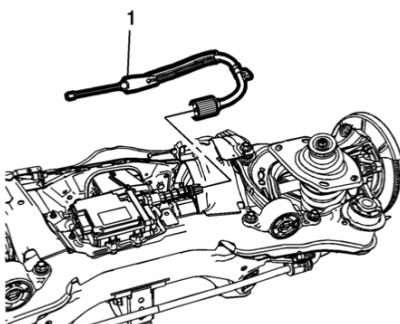
7. Remove the parking brake actuator cable clip bolt (1).



8. Loosen the parking brake actuator cable spindle nut and remove the parking brake actuator cable (1).

Installation Procedure

1. Inspect the O-ring seals on the spindle and the cable for damage and correct positioning and replace, if necessary.

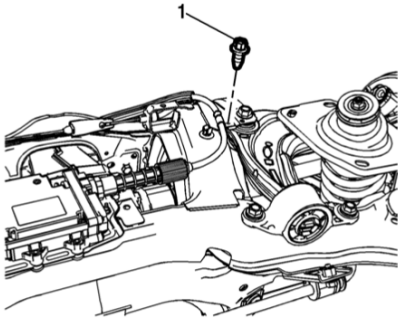


2. Install the parking brake actuator cable (1) fitting to the electronic parking brake control module spindle.
3. Ensure the parking brake actuator cable fitting is engaged in the actuator in the spindle.

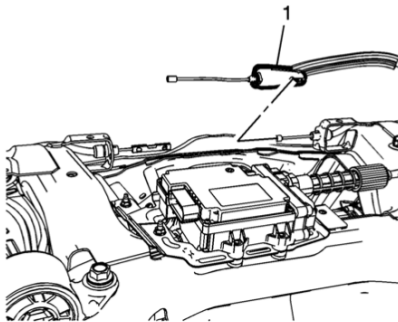
Caution: Refer to [Fastener Caution](#).

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

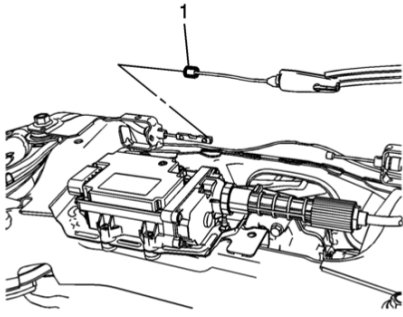
4. Install the parking brake actuator cable nut to the electronic park brake module spindle and tighten to **6 N·m (53 lb in)**.



5. Install the parking brake actuator cable clip bolt (1) and tighten to **9 N·m (80 lb in)**.



6. Connect the parking brake actuator cable equalizer (1) to the right parking brake rear cable.

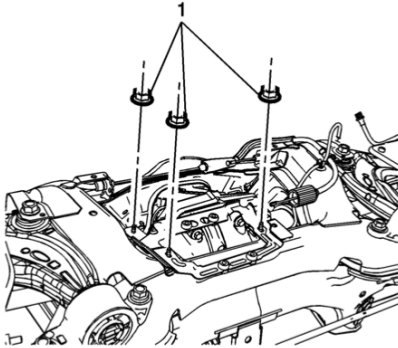


7. Connect the parking brake actuator cable (1) to the left parking brake rear cable connector.
8. Install the rear suspension support. Refer to [Rear Suspension Support Removal and Installation](#).
9. Enable the parking brake cable adjuster. Refer to [Parking Brake Cable Adjuster Enabling](#).

Parking Brake Actuator Support Bracket Replacement

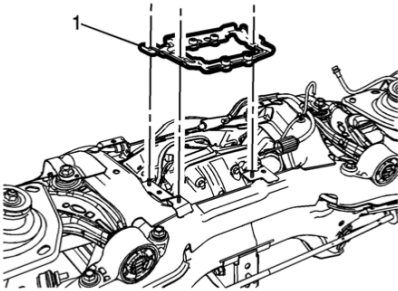
Removal Procedure

1. Remove the electronic parking brake control module. Refer to [Electronic Parking Brake Control Module Replacement](#).



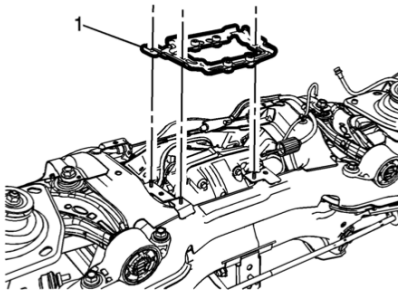
Note: Do not reuse the parking brake actuator support bracket nuts.

2. Remove and discard the parking brake actuator support bracket nuts (1).

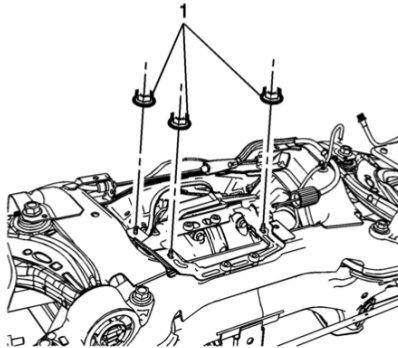


3. Remove the parking brake actuator support bracket (1).

Installation Procedure



1. Install the parking brake actuator bracket (1).



Caution: Refer to [Fastener Caution](#).

Note: Install new parking brake actuator support bracket nuts.

2. Install new parking brake actuator support bracket nuts (1) and tighten to **9 N·m (80 lb in)**.
3. Install the electronic parking brake control module. Refer to [Electronic Parking Brake Control Module Replacement](#).

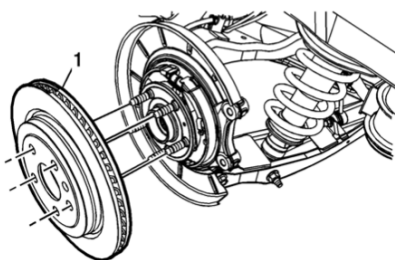
Parking Brake Adjustment

Special Tools

CH-230-A Gauge

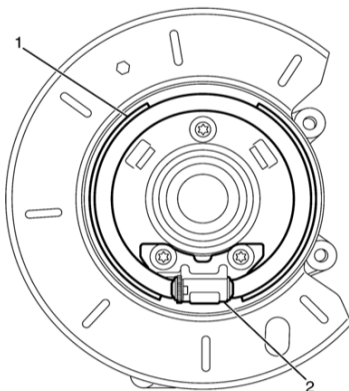
For equivalent regional tools, refer to [Special Tools](#).

1. Adjustments to the parking brake shoes are not necessary after replacing the electronic parking brake control module or parking brake cable.
2. Disable the parking brake cable adjuster. Refer to [Parking Brake Cable Adjuster Disabling](#).
3. Verify that the parking brake releases completely.
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](#).



Note: Do not operate the electronic parking brake with the rear disc brake rotor(s) removed.

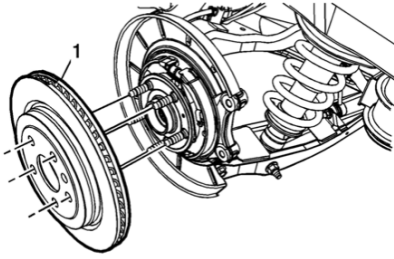
6. Remove the rear brake rotors (1). Refer to [Rear Brake Rotor Replacement](#).
7. Set the outside diameter measurement of the CH-230-A gauge to **189.6 mm (7.46 in)**.
8. Tighten the set screw.



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9. Position the CH-230-A gauge over the parking brake shoe (1) at the widest point.
10. Rotate the parking brake shoe adjuster (2) until the parking brake shoe diameter measures **189.6-189.8 mm (7.46-7.47 in)**.
11. Repeat steps 9 through 10 for the opposite side.



12. Install the rear brake rotors (1). Refer to [Rear Brake Rotor Replacement](#).
 13. Install the rear tire and wheel assemblies. Refer to [Tire and Wheel Removal and Installation](#).
 14. Lower the vehicle to curb height.
 15. Enable the parking brake cable adjuster. Refer to [Parking Brake Cable Adjuster Enabling](#).
- Note:** If the rear wheels rotate during the following test, readjust the parking brake shoes.
16. Apply the parking brake and inspect the rotation of the rear wheels:
 - The wheels should not rotate forward.
 - The wheels should not rotate rearward.
 17. Release the parking brake. Verify that the wheels rotate freely.
 18. Lower the vehicle.

Fastener Tightening Specifications

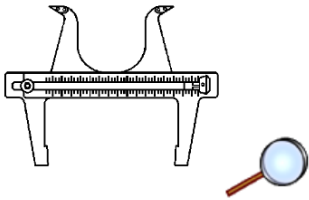
Fastener Tightening Specifications

Application	Specification	
	Metric	English
Electronic Parking Brake Control Module Bolt	5 N•m	44 lb in
Parking Brake Actuator Bolt	50 N•m plus 60 degrees	37 lb ft plus 60 degrees
Parking Brake Actuator Cable Nut	6 N•m	53 lb in
Parking Brake Actuator Cable Clip Bolt	9 N•m	80 lb in
Parking Brake Actuator Support Bracket Nut	9 N•m	80 lb in

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Special Tools

Illustration	Tool Number/ Description
	CH 230-A J 21177-A Gauge

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