

2017 BRAKES

Park Brake - Bolt EV

SPECIFICATIONS

FASTENER SPECIFICATIONS

Reusable Threaded Fastener Tightening Specifications

Application	Specification
	Metric (English)
NOTE: <i>All fasteners listed in this table can be reused after removal.</i>	
Park Brake Actuator Bolt	12 N.m (106 lb in)

SCHEMATIC WIRING DIAGRAMS

PARK BRAKE SYSTEM WIRING SCHEMATICS

Electric Park Brake

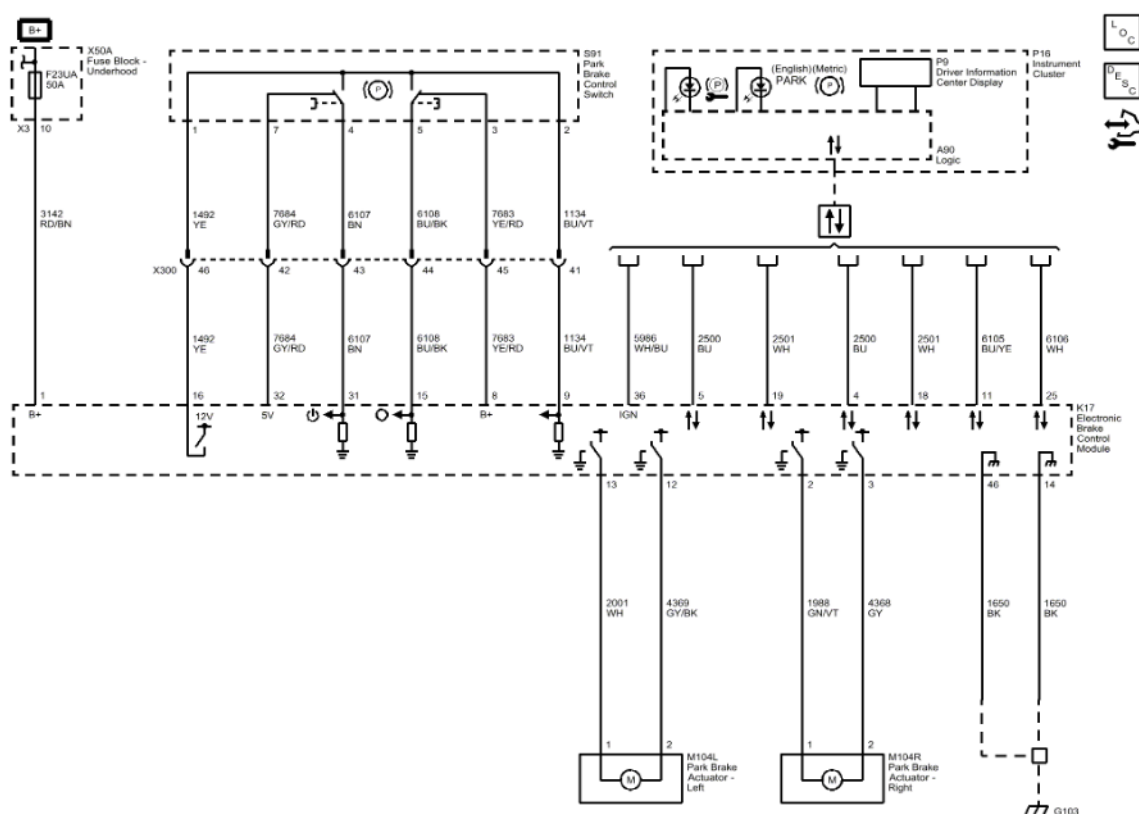


Fig. 1: Electric Park Brake

Courtesy of GENERAL MOTORS COMPANY

DIAGNOSTIC INFORMATION AND PROCEDURES

DTC C028B: PARK BRAKE MOTOR POSITION SENSOR - SIGNAL NOT PLAUSIBLE

Diagnostic Instructions

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- Perform the [Diagnostic System Check - Vehicle](#) prior to using this diagnostic procedure.

- Review [Strategy Based Diagnosis](#) for an overview of the diagnostic approach.
- [Diagnostic Procedure Instructions](#) provide an overview of each diagnostic category.

DTC Descriptors

DTC C028B 5A

Park Brake Motor Position Sensor - Signal Not Plausible

Circuit/System Description

The Electronic Brake Control Module will diagnose the park brake motor circuits to verify that they are functioning properly. The park brake motor circuits are used to command actuator motor operation, which will apply and release the parking brake. These circuits are used to activate the actuator, which applies or releases pressure on the rear caliper pistons, ultimately applying and releasing the park brake.

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

Conditions for Running the DTC

Ignition OFF, ACCESSORY, or RUN mode.

Conditions for Setting the DTC

The electronic brake control module detects a park brake actuator motor position sensor signal malfunction.

Action Taken When the DTC Sets

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

Conditions for Clearing the DTC

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

Reference Information

Schematic Reference

Park Brake System Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Electronic Parking Brake 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. Vehicle ON.
2. Verify that DTC C028B is not set.
 - **If the DTC is set**
 1. Perform the Park Brake Calibration learn procedure. Refer to [Park Brake Calibration](#).
 2. Vehicle ON.
 3. Apply and release the park brake.
 4. Verify the DTC is not set.
 - If the DTC is set, replace the K17 Electronic Brake Control Module.
 - If the DTC is not set
 5. All OK.
 - **If the DTC is not set**
3. All OK.

Repair Instructions

Perform the [Diagnostic Repair Verification](#)

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

DTC C028F: LEFT PARK BRAKE ACTUATOR CIRCUIT

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 C028F

Left Park Brake Actuator Circuit

For symptom byte information, refer to: [Symptom Byte List](#)

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Left Park Brake Actuator Apply Control	C028F 02	C028F 04	C028F 01 C028F 0B C028F 63	C028F 00 C028F 0B
Left Park Brake Actuator Release Control	C028F 02	C028F 04	C028F 01 C028F 0B C028F 63	C028F 00 C028F 0B

Circuit/System Description

The Electronic Brake Control Module will diagnose the park brake motor circuits to verify that they are functioning properly. The park brake motor circuits are used to command actuator motor operation, which will apply and release the parking brake. These circuits are used to activate the actuator, which applies or releases pressure on the rear caliper pistons, ultimately applying and releasing the park brake.

When the Park Brake Switch is pulled, a signal is sent to the Electronic Brake Control Module which will supply 12 V to the apply control circuits and ground to the release control circuits which will cause the left and right park brake actuators to activate causing the park brakes to engage. When the Park Brake Switch is pressed, a signal is sent to the Electronic Brake Control Module which will supply 12 V

to the released control circuits and ground to the apply control circuits which will cause the left and right park brake actuators to activate causing the park brakes to release.

Conditions for Running the DTC

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

Conditions for Setting the DTC

The Electronic Brake Control Module detects a malfunction in the left park brake actuator or its circuits.

Action Taken When the DTC Sets

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

Conditions for Clearing the DTC

- The Electronic 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.

Diagnostic Aids

After repairing any fault, the DTC will still be set as current and the park brakes will not function. It is necessary to clear the DTC with a scan tool in order to place the DTC in history and regain park brake function.

Reference Information

Schematic Reference

Park Brake System Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Electronic Parking Brake Description

Electrical Information Reference

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

Scan Tool Reference

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

Circuit/System Verification

1. Verify the M104L Park Brake Actuator - Left apply when pulling the S91 Park Brake Switch.
 - **If the M104L Park Brake Actuator - Left does not apply**

Refer to the Circuit/System Testing.

- **If the M104L Park Brake Actuator - Left does apply**
2. Verify the M104L Park Brake Actuator - Left release when pressing the S91 Park Brake Switch.

- **If the M104L Park Brake Actuator - Left does not release**

Refer to the Circuit/System Testing.

- **If the M104L Park Brake Actuator - Left does release**

3. All OK.

Circuit/System Testing

NOTE: It is necessary to clear the DTC after any repair is made to regain park brake output control and have the DTC to set as history.

1. Ignition OFF, disconnect the harness connector at the M104L Park Brake Actuator - Left and the harness connector at the K17 Electronic Brake Control Module. Ignition ON
2. Test for less than 1 V between the K17 Electronic Brake Control Module harness connector terminals listed below and ground:

- Terminal 12
- Terminal 13
- **If 1 V or greater**

Repair the short to voltage on the circuit.

- **If less than 1 V**

3. Ignition OFF.
4. Test for infinite resistance between the K17 Electronic Brake Control Module harness connector terminals listed below and ground:

- Terminal 12
- Terminal 13
- **If less than infinite resistance**

Repair the short to ground on the circuit.

- **If infinite resistance**

5. Test for less than 2 Ω between the M104L Park Brake Actuator - Left harness connector terminal 1 and the K17 Electronic Brake Control Module harness connector terminal 13

- **If 2 Ω or greater**

Repair the open/high resistance in the circuit.

- **If less than 2 Ω**

6. Test for less than 2 Ω between the M104L Park Brake Actuator - Left harness connector terminal 2 and the K17 Electronic Brake Control Module harness connector terminal 12

- **If 2 Ω or greater**

Repair the open/high resistance in the circuit.

- **If less than 2 Ω**

7. Install a 25 A fused jumper wire between one of the control terminals at the M104L Park Brake Actuator - Left and 12 V. Momentarily install a jumper wire between the other control terminal and ground. Reverse the jumper wires at least two times, the M104L Park Brake Actuator - Left should perform the apply and release function.

- **If the actuator does not perform the apply and release function**

Replace the M104L Park Brake Actuator - Left.

- **If the actuator performs the apply and release function**

8. Replace the K17 Electronic Brake Control Module.

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

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

DTC C0293: PARK BRAKE CONTROL SWITCH CIRCUIT

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

Park Brake Control Switch Circuit

For symptom byte information, refer to: [Symptom Byte List](#)

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Park Brake Control Switch Supply Voltage Terminal 16	C0293 02	C0293 04, C0293 05	C0293 01, C0293 05	C0293 08
Park Brake Apply Switch Voltage Reference Terminal 32	C0293 02	C0293 04, C0293 05	C0293 01, C0293 05	C0293 08
Park Brake Release Switch Voltage Reference Terminal 8	C0293 02	C0293 04, C0293 05	C0293 01, C0293 05	C0293 08
Park Brake Control Switch Signal Terminal 9	C0293 02	C0293 04, C0293 05	C0293 01, C0293 05	C0293 08
Park Brake Apply Switch Signal Terminal 31	C0293 02	C0293 04, C0293 05	C0293 01, C0293 05	C0293 08
Park Brake Release Switch Signal Terminal 15	C0293 02	C0293 04, C0293 05	C0293 01, C0293 05	C0293 08

Circuit/System Description

The parking brake function is integrated into the Electronic Brake Control Module. The Electronic Brake Control Module contains the logic for applying and releasing the parking brake when commanded by the Park Brake Control Switch. The Electronic Brake Control Module will perform diagnostics on the Park Brake Control Switch and its wiring harness to verify it is functioning properly.

The Park Brake Control Switch diagnostic checks for failure conditions in the Park Brake Control Switch and associated wiring into the Electronic Brake Control Module.

Conditions for Running the DTC

Ignition OFF, ACCESSORY, or RUN mode.

Conditions for Setting the DTC

The Electronic Brake Control Module detects a short to battery, short to ground, open circuit, or an internal Parking Brake Control Switch malfunction. The Electronic Brake Control Module detects the apply or release button was activated for more than 90 s.

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 Electronic Brake Control Module will clear the DTC after 40 consecutive ignition on/off cycles with at least one test pass in each ignition cycle and no test fail result.
- The condition for the DTC is no longer present.
- The Park Brake Control Switch button is INACTIVE using the scan tool without the switch being activated.

Reference Information

Schematic Reference

Park Brake System Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Electronic Parking Brake 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 Control Switch 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 K17 Electronic Brake Control Module. Ignition ON.
2. Test for less than 1 V between each circuit terminals listed below and ground;
 - Terminal 16
 - Terminal 32
 - Terminal 9
 - Terminal 15
 - Terminal 31
 - Terminal 8
 - **If 1 V or greater**

Repair the short to voltage on the circuit.

- **If less than 1 V**

3. Ignition OFF.

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

- Terminal 16
- Terminal 32
- Terminal 9
- Terminal 15
- Terminal 31
- Terminal 8

- **If less than infinite resistance**

Repair the short to ground on the circuit.

- **If infinite resistance**

5. Test for less than 5 Ω between the circuit terminal 32 and the circuit terminal 31.

- **If 5 Ω or greater**

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

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**

6. Test for less than 5 Ω between the circuit terminal 8 and the circuit terminal 15.

- **If 5 Ω or greater**

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

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**

7. Test for less than 5 Ω between the circuit terminal 16 and the circuit terminal 9.

- **If 5 Ω or greater**

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

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**

8. Test for less than 5 Ω between the circuit terminal 9 and the circuit terminal 31 while closing the switch.

- **If 5 Ω or greater**

Replace the S91 Park Brake Control Switch.

- **If less than 5 Ω**

9. Test for less than 5 Ω between the circuit terminal 9 and the circuit terminal 15 while closing the switch.

- **If 5 Ω or greater**

Replace the S91 Park Brake Control Switch.

- **If less than 5 Ω**

10. Ignition OFF, all access doors closed, all vehicle systems OFF, disconnect the harness connector at the S91 Park Brake Control Switch.

11. Test for less than 10 Ω between the ground circuit terminal 8 at the S91 Park Brake Control Switch and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
12. Replace the S91 Park Brake Control Switch.
13. Verify that DTC C0293 does not set while operating the vehicle within the Conditions for Running the DTC.
 - **If the DTC sets**
 Replace the K17 Electronic Brake Control Module.
 - **If DTC does not set**
14. All OK.

Repair Instructions

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

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

DTC C1280 OR C1281: ELECTRIC PARK BRAKE AVAILABILITY STATUS MESSAGE COUNTER INCORRECT

Diagnostic Instructions

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

DTC Descriptor

DTC C1280

Electric Park Brake Availability Status Message Counter Incorrect

DTC C1281

Electric Park Brake Availability Status Message Counter Incorrect

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
B+	C1280, C1281, U1803	C1280, C1281, U1803	-	-
Ignition	C1280, C1281, U1803	C1280, C1281, U1803	-	-
Accessory Wakeup Serial Data	C1280, C1281, U1803	C1280, C1281, U1803	-	-
Low Speed GMLAN Serial Data	1	C1280, C1281, U1803	1	-

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
High Speed GMLAN Serial Data (+)	2	C1280, C1281, U1803, U0073	2	-
High Speed GMLAN Serial Data (-)	2	C1280, C1281, U1803, U0073	2	-
Powertrain High Speed GMLAN Serial Data (+)	C1280, C1281, U0074	C1280, C1281, U1803, U0074	C1280, C1281, U0074	-
Powertrain High Speed GMLAN Serial Data (-)	C1280, C1281, U0074	C1280, C1281, U1803, U0074	C1280, C1281, U0074	-
High Voltage Energy Management High Speed GMLAN Serial Data (+)	C1280, C1281, U007A	C1280, C1281, U1803, U007A	C1280, C1281, U007A	-
High Voltage Energy Management High Speed GMLAN Serial Data (-)	C1280, C1281, U007A	C1280, C1281, U1803, U007A	C1280, C1281, U007A	-
Ground	-	C1280, C1281, U1803	-	-
1. Scan Tool Does Not Communicate With Low Speed GMLAN Device 2. Scan Tool Does Not Communicate With High Speed GMLAN Device				

Circuit/System Description

The serial data circuit is the means by which the devices in the vehicle communicate with each other. Once the scan tool is connected to the serial data circuit through the data link connector (DLC), the scan tool can be used to monitor each device for diagnostic purposes and to check for diagnostic trouble codes (DTC). When the vehicle is on, each device communicating on the serial data circuit sends a state of health message to ensure that the device is operating properly. When a device stops communicating on the serial data circuit, for example if the device loses power or ground, the state of health message it normally sends on the serial data circuit disappears. Other devices on the serial data circuit, which expect to receive that state of health message, detect its absence; those devices in turn set a DTC associated with the loss of state of health of the non communicating device. A loss of serial data communications DTC does not represent a failure of the devices that contain the stored DTC.

Conditions for Running the DTC

The system voltage is between 9 - 16 V.

Conditions for Setting the DTC

A supervised periodic message from the electronic brake control module has not been received or the hybrid/EV powertrain control module 2 has detected an incorrect message counter.

Action Taken When the DTC Sets

DTC C1280 and C1281 are type A DTCs.

Conditions for Clearing the DTC

- DTC C1280 and C1281 are type A DTCs.
- A current DTC clears when the malfunction is no longer present.
- A history DTC clears when the device ignition cycle counter reaches the reset threshold of 50, without a repeat of the malfunction.

Diagnostic Aids

- Sometimes, while diagnosing a specific customer concern or after a repair, you may notice a history U-code present. However, there is no associated "current" or "active" status. Loss of communication U-codes such as these can set for a variety of reasons. Many times, they are transparent to the vehicle operator and technician, and/or have no associated symptoms.

Eventually, they will erase themselves automatically after a number of fault-free ignition cycles. This condition would most likely be attributed to one of these scenarios:

- A device on the data communication circuit was disconnected while the communication circuit is awake.
- Power to one or more devices was interrupted during diagnosis.
- A low battery condition was present, so some devices stop communicating when battery voltage drops below a certain threshold.
- Battery power was restored to the vehicle and devices on the communication circuit did not all re-initialize at the same time.
- If a loss-of-communication U-code appears in history for no apparent reason, it is most likely associated with one of the scenarios above. These are all temporary conditions and should never be interpreted as an intermittent fault, causing you to replace a part.
- A device may have a U-code stored in history that does not require any repairs. Issues with late or corrupted messages between devices can be temporary with no apparent symptom or complaint; this does not mean the device is faulty. Do not replace a device based only on a history U-code.
- Do not replace a device reporting a U-code. The U-code identifies which device needs to be diagnosed for a communication issue.
- Communication may be available between the device and the scan tool with one or more GMLAN serial data systems inoperative. This condition is due to the device using multiple GMLAN busses.
- Use [Data Link References](#) to determine what GMLAN serial data communications the non communicating device uses.
- The device may not have internal protection for specific control circuits and may open a B+ or ignition fuse. If a fuse is open and the B+ or ignition circuit is not shorted to ground, ensure none of the control circuits are shorted to ground before replacing the non communicating device.

Reference Information

Schematic Reference

- [Data Communication Schematics](#)
- [Control Module References](#)

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Data Link Communications Description and Operation

Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Vehicle in Service Mode.
2. Verify that DTC U0073, U0074, U0077, U0078, U007A, U1814, U2099, B1325, B1330, B1370, B1380, B1424, B1428, B1440, B1441, B1517, C0800, C0899, C12E1, P0560, or P0562 is not set.
 - If any of the DTCs are set

- **If none of the DTCs are set**

3. Refer to Circuit/System Testing.

Circuit/System Testing

NOTE: Use the schematics and connector end views to identify the device's ground, B+, ignition, accessory wake up serial data, and serial data circuit terminals.

1. Vehicle OFF, all access doors closed, all vehicle systems OFF. It may take up to 2 minutes for all vehicle systems to power down. Disconnect the harness connector at the K17 Electronic Brake Control Module.
2. Test for less than 10 Ω between the following ground circuit terminals and ground:
 - Terminal 14
 - Terminal 46
 - **If 10 Ω or greater**
 1. Vehicle OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Vehicle in Service Mode.
4. Verify a test lamp illuminates between the B+ circuit terminal 1 and ground.
 - **If the test lamp does not illuminate and the circuit fuse is good**
 1. Vehicle OFF.
 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**
 1. Vehicle OFF.
 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 K17 Electronic Brake Control Module.
 - **If the test lamp illuminates**
5. Verify a test lamp illuminates between the ignition circuit terminal 36 and ground.
 - **If the test lamp does not illuminate**
 1. Vehicle OFF, disconnect the harness connectors at the K9 Body Control Module.
 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
 3. 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 , replace the K9 Body Control Module.
 - **If the test lamp illuminates**
6. Vehicle OFF, all access doors closed, all vehicle systems OFF. It may take up to 2 minutes for all vehicle systems to power down. Disconnect the harness connectors at the K114B Hybrid/EV Powertrain Control Module 2.
7. Test for less than 2 Ω in each serial data circuits end to end between the K17 Electronic Brake Control Module and the K114B Hybrid/EV Powertrain Control Module 2.
 - **If 2 Ω or greater**

Repair the open/high resistance in the serial data circuit.

- **If less than 2 Ω**

8. Reconnect all of the harness connectors at the K17 Electronic Brake Control Module and the K114B Hybrid/EV Powertrain Control Module 2. Vehicle in Service Mode.
9. Program the K17 Electronic Brake Control Module. Refer to [Electronic Brake Control Module Programming and Setup](#)
10. Vehicle in Service Mode. Apply and release the park brake.
11. Verify that DTC C1280 or C1281 is not set.
 - **If DTC C1280 or C1281 is set**
 1. Replace the K17 Electronic Brake Control Module.
 2. Vehicle in Service Mode.
 3. Verify that DTC C1280 or C1281 is not set.
 - If DTC C1280 or C1281 is set, replace the K114B Hybrid/EV Powertrain Control Module 2.
 - If DTC C1280 or C1281 is not set
 - **If DTC C1280 or C1281 is not set**
12. All OK.

Repair Instructions

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

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

DTC C1303: AUTOMATIC PARK BRAKE FUNCTION MALFUNCTION

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: [Diagnostic System Check - Vehicle](#)
- Review the description of Strategy Based Diagnosis: [Strategy Based Diagnosis](#)
- An overview of each diagnostic category can be found here: [Diagnostic Procedure Instructions](#)

DTC Descriptor

DTC C1303

Automatic Park Brake Function Malfunction

Circuit/System Description

For an overview of the component/system, refer to: [Electronic Parking Brake Description](#)

Conditions for Running the DTC

System Voltage= 9 to 16 V

Conditions for Setting the DTC

Electric Park Brake=Inoperative - When requested by the One-Pedal Driving function.

Actions Taken When the DTC Sets

One-Pedal Driving=Unavailable

Conditions for Clearing the DTC

- Malfunction=Not Present
- A history DTC will clear after 40 consecutive malfunction-free ignition cycles.

Schematic Reference

- [Park Brake System Schematics](#)
- [Hybrid/EV Controls Schematics](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX](#)

Electrical Information Reference

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

Scan Tool Reference

[Control Module References](#)

Circuit/System Verification

1. Ignition - On / Vehicle - In Service Mode
2. Verify no other DTCs are set.

- **If any other DTCs are set**

Refer to: [Diagnostic Trouble Code \(DTC\) List - Vehicle](#) .

- **If no other DTCs are set**

3. Perform all necessary programming and setup procedures for the control module:K17 Electronic Brake Control Module
4. Ignition - On / Vehicle - In Service Mode
5. Apply the parking brake.
6. Release the parking brake.
7. Verify the DTC does not set.
 - **If DTC C1303 is set**
 1. Replace the component:K17 Electronic Brake Control Module
 2. Ignition - On / Vehicle - In Service Mode
 3. Verify DTC C1303 is not set.
 - If the DTC sets - Replace the component:K114A Hybrid/EV Powertrain Control Module 1
 - If DTC C1303 is not set
 4. All OK.
 - **If DTC C1303 is not set**
8. All OK.

Repair Instructions

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

- For control module replacement, programming, and setup refer to: [Control Module References](#)

DTC C1586: RIGHT PARK BRAKE ACTUATOR CIRCUIT (HEV)

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 C1586

Right Park Brake Actuator Circuit

For symptom byte information, refer to: [Symptom Byte List](#)

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Right Park Brake Actuator Apply Control	C1586 0C	C1586 04	C1586 0B	C1586 00 C1586 0F
Right Park Brake Actuator Release Control	C1586 0C	C1586 04	C1586 0B	C1586 00 C1586 0F

Circuit/System Description

The Electronic Brake Control Module will diagnose the park brake motor circuits to verify that they are functioning properly. The park brake motor circuits are used to command actuator motor operation, which will apply and release the parking brake. These circuits are used to activate the actuator, which applies or releases pressure on the rear caliper pistons, ultimately applying and releasing the park brake.

When the Park Brake Switch is pulled, a signal is sent to the Electronic Brake Control Module which will supply 12 V to the apply control circuits and ground to the release control circuits which will cause the left and right park brake actuators to activate causing the park brakes to engage. When the Park Brake Switch is pressed, a signal is sent to the Electronic Brake Control Module which will supply 12 V to the released control circuits and ground to the apply control circuits which will cause the left and right park brake actuators to activate causing the park brakes to release.

Conditions for Running the DTC

- Vehicle ON or in SERVICE MODE.
- Battery voltage is between 9 - 16 V

Conditions for Setting the DTC

The Electronic Brake Control Module detects a malfunction in the right park brake actuator or its circuits.

Action Taken When the DTC Sets

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

Conditions for Clearing the DTC

- The Electronic 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.

Diagnostic Aids

After repairing any fault, the DTC will still be set as current and the park brakes will not function. It is necessary to clear the DTC with a scan tool in order to place the DTC in history and regain park brake function.

Reference Information

Park Brake System Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Electronic Parking Brake Description

Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Verify the M104R Park Brake Actuator - Right apply when pulling the S91 Park Brake Switch.
 - **If the M104R Park Brake Actuator - Right does not apply**
Refer to the Circuit/System Testing.
 - **If the M104R Park Brake Actuator - Right does apply**
2. Verify the M104R Park Brake Actuator - Right release when pressing the S91 Park Brake Switch.
 - **If the M104R Park Brake Actuator - Right does not release**
Refer to the Circuit/System Testing.
 - **If the M104R Park Brake Actuator - Right does release**
3. All OK.

Circuit/System Testing

NOTE: It is necessary to clear the DTC after any repair is made to regain park brake output control and have the DTC to set as history.

1. Ignition OFF, disconnect the harness connector at the M104R Park Brake Actuator - Right and the harness connector at the K17 Electronic Brake Control Module. Ignition ON
2. Test for less than 1 V between the K17 Electronic Brake Control Module harness connector terminals listed below and ground:
 - Terminal 2
 - Terminal 3
 - **If 1 V or greater**
Repair the short to voltage on the circuit.
 - **If less than 1 V**
3. Ignition OFF.
4. Test for infinite resistance between the K17 Electronic Brake Control Module harness connector terminals listed below and ground:
 - Terminal 2
 - Terminal 3

- **If less than infinite resistance**

Repair the short to ground on the circuit.

- **If infinite resistance**

5. Test for less than 2 Ω between the M104R Park Brake Actuator - Right harness connector terminal 1 and the K17 Electronic Brake Control Module harness connector terminal 2

- **If 2 Ω or greater**

Repair the open/high resistance in the circuit.

- **If less than 2 Ω**

6. Test for less than 2 Ω between the M104R Park Brake Actuator - Right harness connector terminal 2 and the K17 Electronic Brake Control Module harness connector terminal 3

- **If 2 Ω or greater**

Repair the open/high resistance in the circuit.

- **If less than 2 Ω**

7. Install a 25 A fused jumper wire between one of the control terminals at the M104R Park Brake Actuator - Right and 12 V. Momentarily install a jumper wire between the other control terminal and ground. Reverse the jumper wires at least two times, the M104R Park Brake Actuator - Right should perform the apply and release function.

- **If the actuator does not perform the apply and release function**

Replace the M104R Park Brake Actuator - Right.

- **If the actuator performs the apply and release function**

8. Replace the K17 Electronic Brake Control Module.

Repair Instructions

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

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

DTC C1587: LEFT PARK BRAKE ACTUATOR (HEV)

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 C1587

Left Park Brake Actuator

For symptom byte information, refer to: [Symptom Byte List](#)

Circuit/System Description

The Electronic Brake Control Module will diagnose the park brake motor circuits to verify that they are functioning properly. The park brake motor circuits are used to command actuator motor operation, which will apply and release the parking brake. These circuits are used to activate the actuator, which applies or releases pressure on the rear caliper pistons, ultimately applying and releasing the park brake.

When the Park Brake Switch is pulled, a signal is sent to the Electronic Brake Control Module which will supply 12 V to the apply control circuits and ground to the release control circuits which will cause

the left and right park brake actuators to activate causing the park brakes to engage. When the Park Brake Switch is pressed, a signal is sent to the Electronic Brake Control Module which will supply 12 V to the released control circuits and ground to the apply control circuits which will cause the left and right park brake actuators to activate causing the park brakes to release.

Conditions for Running the DTC

- Vehicle ON or in SERVICE MODE.
- Battery voltage is between 9 - 16 V

Conditions for Setting the DTC

The Electronic Brake Control Module detects a malfunction in the left park brake actuator.

Action Taken When the DTC Sets

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

Conditions for Clearing the DTC

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

Reference Information

Schematic Reference

Park Brake System Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Electronic Parking Brake 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. Vehicle ON.
2. Verify that DTC C1587 is not set.
 - **If the DTC is set**
 1. Perform the Park Brake Calibration learn procedure. Refer to [Park Brake Calibration](#).
 2. Ignition ON.
 3. Apply and release the park brake.
 4. Verify the DTC is not set.
 - If the DTC is set, replace the M104L Park Brake Actuator - Left.
 - If the DTC is not set

5. All OK.

- **If the DTC is not set**

3. All OK.

Repair Instructions

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

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

DTC C1588: RIGHT PARK BRAKE ACTUATOR (HEV)

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 C1588

Right Park Brake Actuator

For symptom byte information, refer to: [Symptom Byte List](#)

Circuit/System Description

The Electronic Brake Control Module will diagnose the park brake motor circuits to verify that they are functioning properly. The park brake motor circuits are used to command actuator motor operation, which will apply and release the parking brake. These circuits are used to activate the actuator, which applies or releases pressure on the rear caliper pistons, ultimately applying and releasing the park brake.

When the Park Brake Switch is pulled, a signal is sent to the Electronic Brake Control Module which will supply 12 V to the apply control circuits and ground to the release control circuits which will cause the left and right park brake actuators to activate causing the park brakes to engage. When the Park Brake Switch is pressed, a signal is sent to the Electronic Brake Control Module which will supply 12 V to the released control circuits and ground to the apply control circuits which will cause the left and right park brake actuators to activate causing the park brakes to release.

Conditions for Running the DTC

- Vehicle ON or in SERVICE MODE.
- Battery voltage is between 9 - 16 V

Conditions for Setting the DTC

The Electronic Brake Control Module detects a malfunction in the right park brake actuator.

Action Taken When the DTC Sets

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

Conditions for Clearing the DTC

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

Reference Information

Schematic Reference

Park Brake System Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Electronic Parking Brake 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. Vehicle ON.
2. Verify that DTC C1588 is not set.
 - **If the DTC is set**
 1. Perform the Park Brake Calibration learn procedure. Refer to **Park Brake Calibration**.
 2. Ignition ON.
 3. Apply and release the park brake.
 4. Verify the DTC is not set.
 - If the DTC is set, replace the M104R Park Brake Actuator - Right.
 - If the DTC is not set
 - **If the DTC is not set**
3. All OK.

Repair Instructions

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

- **Rear Parking Brake Actuator Replacement**
- **Control Module References** for control module replacement, programming and setup

SYMPTOMS - PARK BRAKE

NOTE: Review the system operation in order to familiarize yourself with the system functions. Refer to **Electronic Parking Brake Description**.

Visual/Physical Inspection

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

Symptom List

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

- [Park Brake Will Not Hold or Release](#)
- [Park Brake System Diagnosis](#)

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 4	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 4	Go to Symptoms - Park Brake
4	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

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	1. Raise and support the vehicle with the rear axle supported by jack stands. 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 4	Go to Step 2
2	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 4	Go to Step 3
3	Do the electronic park brake actuators working?	Go to Step 10	Go to Step 5
4	Calibrate the park brake. Park Brake Calibration Do the rear brakes have a significant amount of drag?	Go to Step 5	Go to Step 10

Step	Action	Yes	No
5	1. Check the fuse of the electronic park brake. 2. Check visual the electronic park brake actuators, the wiring harness and the electrical connectors. 3. Check visual the electronic brake control module, the wiring harness and the electrical connector. 4. Check the electronic park brake system with a scan tool. Did you find the condition?	Go to Step 6	Go to Step 7
6	• Replace the fuse as necessary. • Replace the wiring harness as necessary. • Replace the park brake actuator switch as necessary. <u>Parking Brake Actuator Switch Replacement</u> • Replace the parking brake actuators as necessary. <u>Rear Parking Brake Actuator Replacement</u> Did you correct the condition?	Go to Step 9	Go to Step 6
7	CAUTION: Do not depress the brake pedal with the brake rotors and/or the brake drums removed, or with the brake calipers repositioned away from the brake rotors, or damage to the brake system may result. 1. Remove the rear disc brake pads. <u>Rear Disc Brake Pads Replacement</u> . 2. Inspect the disc brake pads for looseness, damaged, broken or missing components. 3. Check the brake caliper piston seals for cracks. 4. Check the brake caliper pistons for movement 5. Check the electronic park brake actuators for a seized condition. Does the park brake hardware and/or the park brake actuators require replacement?	Go to Step 8	Go to Step 10
8	1. Replace the rear brake hardware components as necessary. <u>Rear Disc Brake Pads Replacement</u> 2. Replace the rear brake calipers as necessary. <u>Rear Brake Caliper Replacement</u> Did you complete the replacement?	Go to Step 9	-

Step	Action	Yes	No
9	1. Calibrate the electronic brake system. <u>Park Brake Calibration</u> Did you complete the replacement and adjustment?	Go to Step 10	Go to <u>Symptoms - Park Brake</u>
10	Install or connect any components that were removed or disconnected during diagnosis. Did you complete the operation?	Park Brake System OK	Go to <u>Symptoms - Park Brake</u>

REPAIR INSTRUCTIONS

PARK BRAKE CALIBRATION

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 electronic brake control module menu.
5. Perform the parking brake calibration procedure.

PARKING BRAKE ACTUATOR SWITCH REPLACEMENT

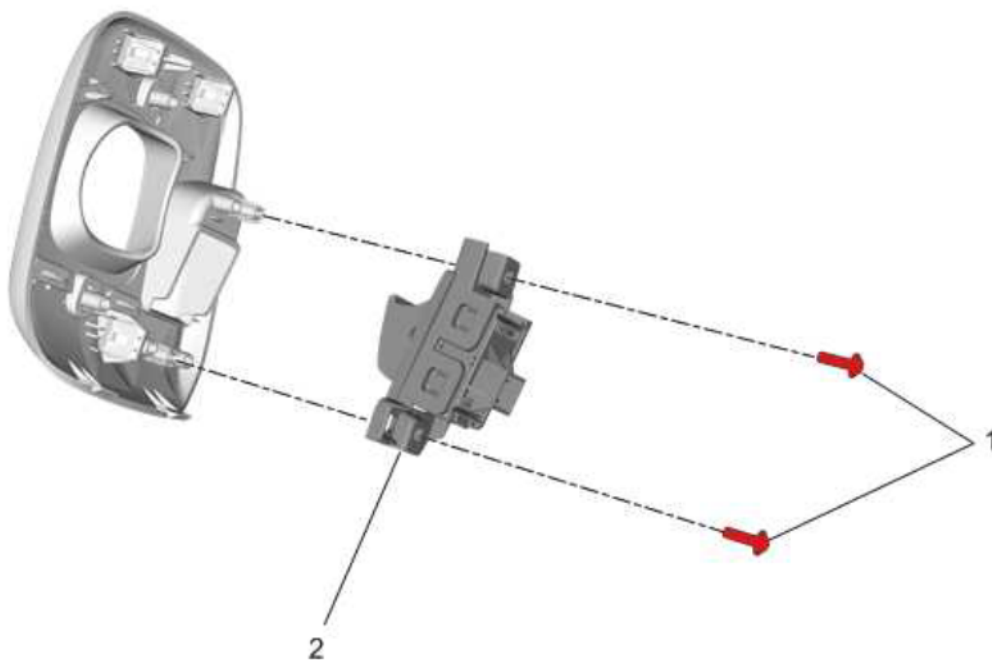


Fig. 2: Parking Brake Actuator Switch

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures <u>Front Floor Console Trim Plate Replacement</u>	
1	Park Brake Control Switch Bracket Bolt (Qty: 2)
2	Park Brake Control Switch

REAR PARKING BRAKE ACTUATOR REPLACEMENT

Removal Procedure

1. Set the parking brake in service mode. **Rear Parking Brake Service Mode Selection**

2. Turn OFF the vehicle.
3. Raise and support the vehicle. [Lifting and Jacking the Vehicle](#)
4. Remove the rear tire and wheel assembly. [Tire and Wheel Removal and Installation](#)

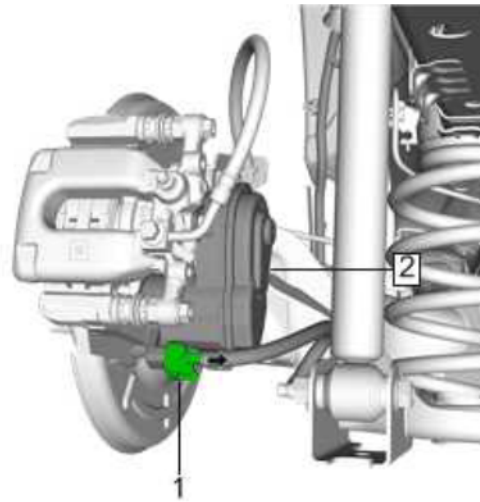


Fig. 3: Electrical Connector And Rear Park Brake Actuator
Courtesy of GENERAL MOTORS COMPANY

5. Disconnect Electrical Connector (1) @Rear Park Brake Actuator (2)

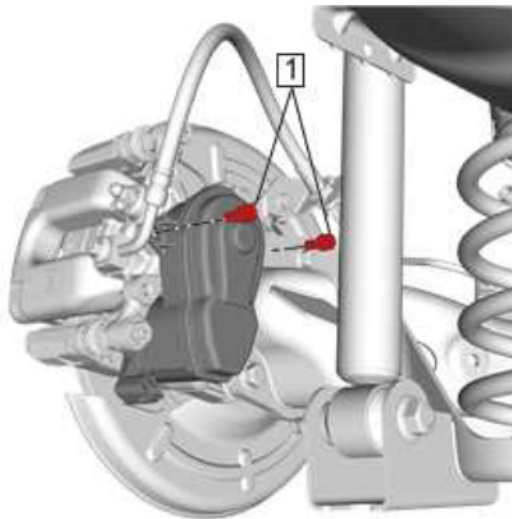


Fig. 4: Park Brake Actuator Bolt
Courtesy of GENERAL MOTORS COMPANY

6. Remove Park Brake Actuator Bolt (1) @Rear Brake Caliper

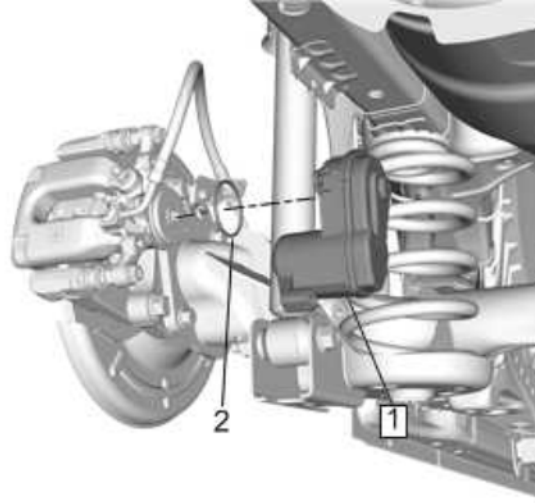


Fig. 5: Rear Park Brake Actuator Lever Seal
 Courtesy of GENERAL MOTORS COMPANY

7. Remove Rear Park Brake Actuator (1) @Rear Brake Caliper
8. Remove Rear Park Brake Actuator Lever Seal (2) and DISCARD

Installation Procedure

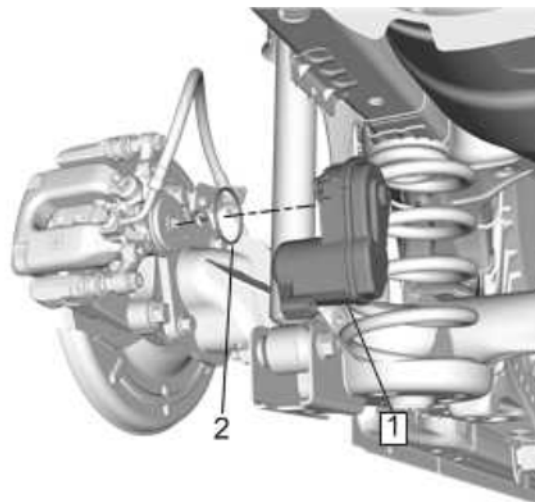
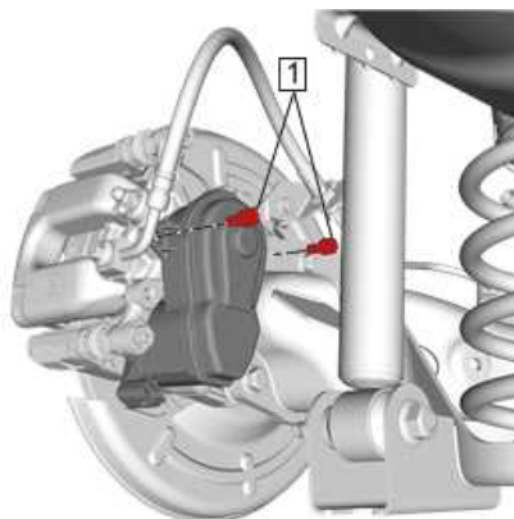


Fig. 6: Rear Park Brake Actuator Lever Seal
 Courtesy of GENERAL MOTORS COMPANY

1. Install NEW Rear Park Brake Actuator Lever Seal (2)
2. Install Rear Park Brake Actuator (1) @Rear Brake Caliper



CAUTION: Fastener Caution

3. Install Park Brake Actuator Bolt (1) @Rear Brake Caliper and tighten 12 N.m (106 lb in)

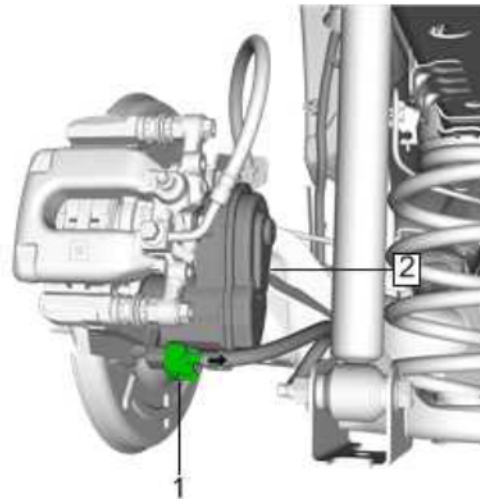


Fig. 8: Electrical Connector And Rear Park Brake Actuator
Courtesy of GENERAL MOTORS COMPANY

4. Connect Electrical Connector (1) @Rear Park Brake Actuator (2)
5. Install the rear tire and wheel assembly. Tire and Wheel Removal and Installation
6. Lower the vehicle.
7. Calibrate the park brake. Park Brake Calibration

REAR PARKING BRAKE SERVICE MODE SELECTION

In order to perform repairs on certain parts of the rear brake system, it is necessary to fully retract the park brake caliper pistons. There are two ways to set the park brake into service mode. The preferred method is with a scan tool.

With Scan Tool

1. Install a scan tool.
2. Turn the ignition ON with the engine OFF.
3. Select Electronic Brake Control Module.
4. Select Control Functions.

NOTE: Do NOT apply any brake pressure during this step.

5. Select Rear Brake Caliper Piston Retract.

Without Scan Tool

1. Turn the ignition ON with the engine OFF.
2. Press accelerator pedal halfway down.
3. Place the park brake switch in the release position and hold for 10 seconds. Release the park brake switch.
4. Within 5 seconds, place the park brake switch into the release position again.

Exiting Service Mode

The park brake can be taken out of service mode with either of the following methods:

- With a scan tool, select Rear Brake Caliper Piston Extend.
- Place the park brake switch in the apply position.

DESCRIPTION AND OPERATION

ELECTRONIC PARKING BRAKE DESCRIPTION

Vehicles with the electric parking brake have a switch in the center console or on the dash, 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.

Electronic Brake Control Module

The parking brake function is integrated into the Electronic Brake Control Module. The Electronic Brake Control Module contains the logic for applying and releasing the parking brake when commanded by the Park Brake Switch.

When the Park Brake Switch is pulled, a signal is sent to the Electronic Brake Control Module which will supply 12 V to the apply control circuits and ground to the release control circuits which will cause the left and right park brake actuators to activate causing the park brakes to engage. When the Park Brake Switch is pressed, a signal is sent to the Electronic Brake Control Module which will supply 12 V to the released control circuits and ground to the apply control circuits which will cause the left and right park brake actuators to activate causing the park brakes to release.

The Electronic Brake Control Module will diagnose the park brake motor circuits to verify that they are functioning properly. The park brake motor circuits are used to command actuator motor operation, which will apply and release the parking brake. These circuits are used to activate the actuator, which applies or releases pressure on the rear caliper pistons, ultimately applying and releasing the park brake.

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

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.

The vehicle may automatically apply the electric parking brake in some situations when the vehicle is not moving. This is normal, and is done to periodically check the correct operation of the electric parking brake system.

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.

One-Pedal Driving

The Electronic Brake Control Module contains the logic for the parking brake function. The EBCM sends out a EPB availability and application status signal on the high speed GMLAN which is monitored by the Hybrid Powertrain Control Module. The electronic parking brake can be automatically applied during One-Pedal Driving (OPD).

The vehicle provides One-Pedal Driving modes that are selectable using the drive unit shifter or Regen on Demand. One-Pedal Driving modes allow for increased deceleration without use of the brake and will bring the vehicle to a complete stop in many cases. The brake pedal should still be used to hold the vehicle at a stop, even when it may not seem necessary. The brake pedal may be required to bring the vehicle to a stop on sloped surfaces.

In One-Pedal Driving modes, the accelerator pedal can be used to control the deceleration rate of the car all the way to a stop. Completely lifting off of the accelerator pedal will result in an aggressive deceleration. However, by slowly lifting off of the accelerator pedal and making adjustments lightly on the accelerator pedal, the deceleration of the vehicle can be adjusted as desired.

If the vehicle begins to move after coming to a complete stop, the Electric Parking Brake may apply to prevent undesired movement. Applying the accelerator pedal will automatically release the Electric Parking Brake as the car moves forward.
