

Park Brake

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Description and Operation

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Park Brake System Description and Operation

System Component Description

The park brake system consists of the following:

Park Brake Lever Assembly

Receives, multiplies, and transfers park brake system apply input force from driver to park brake cable system. Releases applied park brake system when lever release button is depressed and lever is returned to the at-rest position.

Park Brake Cables

Transfers input force received from park brake lever, through park brake cable equalizer, to park brake apply levers.

Park Brake Cable Equalizer

Evenly distributes input force to both the left and right park brake units. Threaded front park brake cable adjuster is also used to remove slack in park brake cables.

Park Brake Apply Lever

Multiplies and transfers input force to park brake actuator/adjuster.

Drum Brake Actuator/Adjuster

Uses multiplied input force from park brake apply lever to expand drum brake shoes toward the friction surface of the brake drum. Threaded drum brake actuators/adjusters are also used to control clearance between the drum brake shoes and the friction surface of the brake drum.

System Operation

Park brake apply input force is received by the park brake lever assembly being applied. The input force is multiplied by the lever assembly, transferred and evenly distributed, through the park brake cables and the park brake cable equalizer, to the left and right park brake apply levers. The park brake apply levers multiply and transfer the apply input force to the drum brake actuators/adjusters which expand the drum brake shoes toward the friction surface of the brake drum in order to prevent the rotation of the rear tire and wheel assemblies. The park brake lever assembly releases an applied park brake system when it is released and returned to the at-rest position.

Diagnostic Information and Procedures

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Symptoms - Park Brake

Note:

Review the system operation in order to familiarize yourself with the system functions. Refer to [Park Brake System Description and Operation](#)

Visual/Physical Inspection

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

Symptom List

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

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

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Park Brake Will Not Hold or Release

Step	Action	Yes	No
1	Were you sent here from a Park Brake Symptom table?	Go to Stepâ€™%002	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 Stepâ€™%006	Go to Stepâ€™%003
3	Inspect the drum brake system for proper operation. Refer to Drum Brake System Diagnosis . Did you find and correct a condition?	Go to Stepâ€™%006	Go to Stepâ€™%004
4	Inspect the disc brake system for proper operation. Refer to Disc Brake System Diagnosis . Did you find and correct a condition?	Go to Stepâ€™%006	Go to Stepâ€™%005
5	Inspect the hydraulic brake system for proper operation. Refer to Hydraulic Brake System Diagnosis . Did you find and correct a condition?	Go to Stepâ€™%006	Go to Symptoms - Park Brake
6	Road test the vehicle in order to confirm correct operation. Refer to Brake System Vehicle Road Test . Is the condition still present?	Go to Stepâ€™%002	System OK

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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 4	Go to Step 2
2	Were you sent here from a Park Brake Symptom table?	Go to Step 4	Go to Step 3
3	Is the symptom related to the ability of the park brake system to hold and/or release?	Go to Symptoms - Park Brake	Go to Symptoms - Hydraulic Brakes
4	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 substantial amount of drag?	Go to Step 11	Go to Step 5
5	1. With the transmission still in NEUTRAL, apply the park brake. 2. Attempt to rotate the rear wheels to check the rear brakes for a significant amount of drag. Do the rear brakes have a significant amount of drag?	Go to Step 6	Go to Step 7
6	1. Release the park brake. 2. Rotate the rear wheels to check the rear brakes for a significant reduction in the amount of drag. Did the rear brakes exhibit a significant reduction in the amount of drag?	Go to Step 20	Go to Step 11
7	1. Remove the brake drums. Refer to Brake Drum Replacement. 2. Visually check the park brake cable connections and the cables that are accessible on the UNDERSIDE of the vehicle for disconnections and/or damage. Were any or the park brake cables disconnected and/or damaged?	Go to Step 8	Go to Step 9
8	Reconnect or replace the park brake cables as necessary. Refer to Parking Brake Cable Replacement. Did you complete the repair and/or replacement?	Go to Step 9	â€”
9	Check the adjustment of the park brake. Refer to Parking Brake Adjustment. Was the park brake adjusted properly?	Go to Step 11	Go to Step 10
10	Adjust the park brake. Refer to Parking Brake Adjustment. Were you able to attain adjustment of the park brake?	Go to Step 16	Go to Step 11
11	1. 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. 2. Remove the brake drums. Refer to Brake Drum Replacement. 3. Inspect the park brake hardware for loose, damaged, broken or missing components. Refer to Park Brake Hardware Inspection. 4. Check the drum brake adjusters for a seized condition. Do the park brake hardware and/or the drum brake adjusters require replacement?	Go to Step 12	Go to Step 13

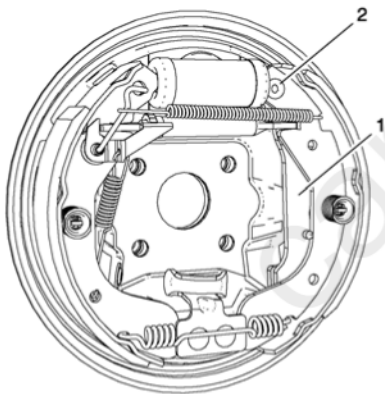
Step	Action	Yes	No
12	1. Replace park brake hardware components as necessary. Refer to Brake Shoe Replacement. 2. Replace the drum brake adjusting hardware as necessary. Refer to Drum Brake Adjusting Hardware Replacement. Did you complete the replacement?	Go to Step 13	â€”
13	Have an assistant apply and release the park brake, while you observe the park brake cables for free movement. Do the park brake cables move freely?	Go to Step 14	Go to Step 17
14	Check the adjustment of the park brake. Refer to Parking Brake Adjustment. Was the park brake adjusted properly?	Go to Step 16	Go to Step 15
15	Adjust the park brake. Refer to Parking Brake Adjustment. Were you able to attain adjustment of the park brake?	Go to Step 16	Go to Step 25
16	1. With the transmission still in NEUTRAL, apply the park brake. 2. Attempt to rotate the rear wheels to check the rear brakes for a significant amount of drag. 3. Release the park brake. 4. Rotate the rear wheels to check the rear brakes for a significant reduction of drag. Does the park brake apply and release properly?	Go to Step 27	Return to Symptom Table
17	1. Remove the brake drums. Refer to Brake Drum Replacement. 2. 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. Did any of the park brake cables accessible on the underside of the vehicle require replacement?	Go to Step 18	Go to Step 19
18	Replace any of the park brake cables that do not have free movement â€” not releasing properly. Refer to Parking Brake Cable Replacement. Did you complete the replacement?	Go to Step 23	â€”
19	Replace the park brake lever assembly â€” not releasing properly. Refer to Parking Brake Lever Replacement. Did you complete the replacement?	Go to Step 24	â€”
20	Check the adjustment of the park brake. Refer to Parking Brake Adjustment. Was the park brake adjusted properly?	Go to Step 27	Go to Step 21
21	Adjust the park brake. Refer to Parking Brake Adjustment. Were you able to attain adjustment of the park brake system?	Go to Step 26	Go to Step 22
22	1. Remove the brake drums. Refer to Brake Drum Replacement. 2. Check the drum brake adjuster for a seized condition. 3. Replace the drum brake adjusting hardware as necessary. Refer to Drum Brake Adjusting Hardware Replacement. Did you find and correct a condition?	Go to Step 23	Go to Step 25
23	Adjust the park brake. Refer to Parking Brake Adjustment. Were you able to attain adjustment of the park brake system?	Go to Step 26	Go to Step 25
24	Adjust the park brake. Refer to Parking Brake Adjustment. Were you able to attain adjustment of the park brake system?	Go to Step 26	Return to Symptom Table
25	1. Replace the component that is used to adjust the park brake system. Refer to Parking Brake Lever Replacement. 2. Adjust the park brake. Refer to Parking Brake Adjustment. Did you complete the replacement and adjustment?	Go to Step 26	Return to Symptom Table

Step	Action	Yes	No
26	1. With the transmission in NEUTRAL, apply the park brake. 2. Attempt to rotate the rear wheels to check the rear brakes for a significant amount of drag. 3. Release the park brake. 4. Rotate the rear wheels to check the rear brakes for a significant reduction of drag. Did the park brake apply and release properly?	Go to Step 27	Return to Symptom Table
27	Install or connect any components that were removed or disconnected during diagnosis. Did you complete the operation?	Park Brake System OK Return to Symptom Table	â€”

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Park Brake Hardware Inspection



1. [Click here for full size](#)

2. Warning:

Refer to [Brake Dust Warning](#).

3. Visually inspect the park brake lever(1) and the lever pivot pin(2) for the following conditions:

4.
 - The lever being bent or broken at any point – particularly at the cable attachment
 - A seized or binding condition at lever pivot pin
 - A broken lever pivot pin
5. Note:

The brake shoe and park brake lever are not serviced separately. If either component requires replacement, they must be replaced as an assembly.
6. If any of the conditions listed were found, the park brake lever and brake shoe assembly requires replacement.

Repair Instructions

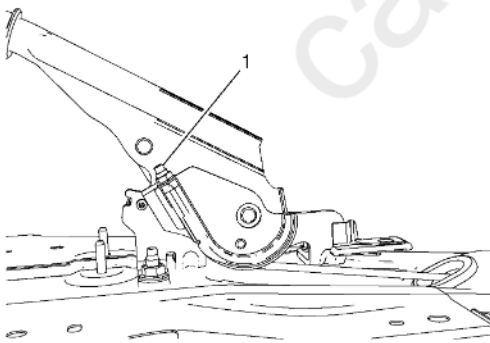
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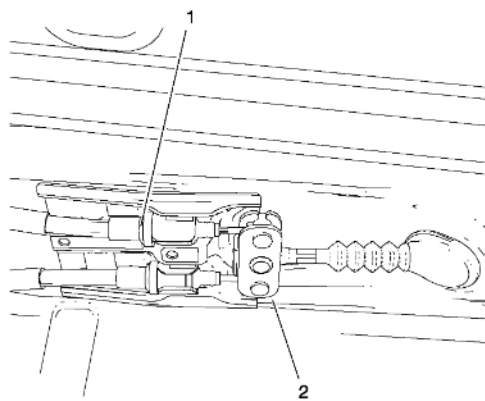
Parking Brake Lever Replacement

Removal Procedure

1. Remove the front floor console. Refer to [Front Floor Console Replacement](#).
2. Ensure that the park brake lever is in the fully released position.



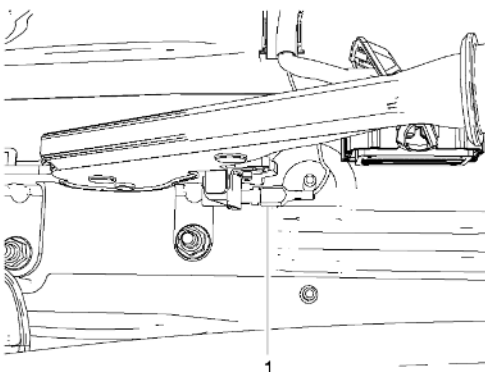
3. [Click here for full size](#)
4. Release the tension from the park brake cables.
5. Using ONLY HAND TOOL, loosen the adjusting nut(1) completely to the end of the front cable threaded rod.
6. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).



7.

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8. Disconnect the left and right parking brake cables(1) from the cable equalizer(2).

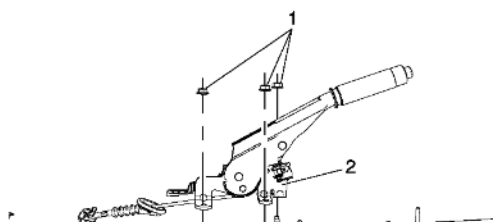


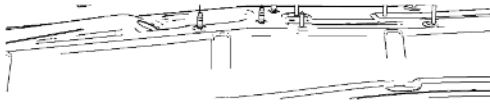
9.

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10. Lower the vehicle.

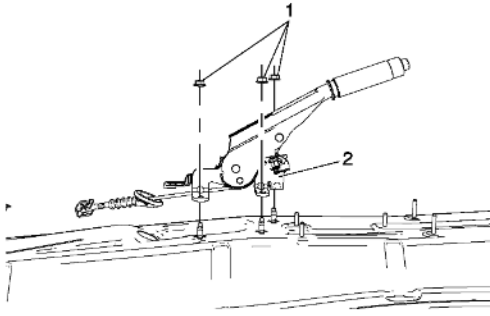
11. Disconnect the electrical connector(1) from the park brake indicator switch.



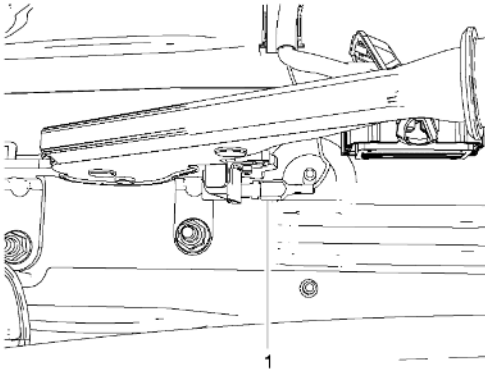


12. [Click here for full size](#)
13. Remove the park brake lever mounting nuts (1).
14. Disconnect the parking brake cable grommet from the floor panel and remove the park brake lever assembly (2) from the vehicle.

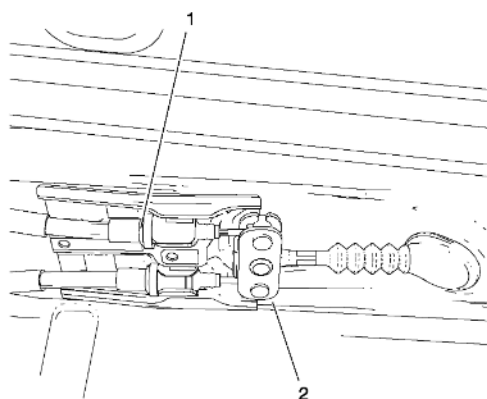
Installation Procedure



1. [Click here for full size](#)
2. Install the park brake lever assembly (2) to the vehicle and install the parking brake cable grommet to the floor panel.
3. Caution:
Refer to [Fastener Caution](#).
4. Install the park brake lever assembly mounting nuts (1) and tighten to 22 N-m (16 lb-ft).



5. [Click here for full size](#)
6. Connect the electrical connector (1) to the park brake indicator switch.
7. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).



8. [Click here for full size](#)
9. Install the left and right parking brake cables (1) to the cable equalizer (2).
10. Lower the vehicle.
11. Adjust the park brake cable tension. Refer to [Parking Brake Adjustment](#).
12. Install the front floor console. Refer to [Front Floor Console Replacement](#).

Related Part Information

Part Name	Catalog Name	Part Code
Parking Brake Lever	LEVER KIT,PARK BRK (W/BRKT)	0044Z
Parking Brake Lever	LEVER,PARK BRK (W/ BRKT)	0045A
Parking Brake Lever	LEVER,PARK BRK (W/BRKT & CBL)	0045B
Parking Brake Lever	LEVER,PARK BRK (W/ CBL & EQLZR)	0046A
Parking Brake Lever	LEVER,PARK BRK	0049Z
Parking Brake Lever	LEVER,PARK BRK	0050A
Parking Brake Lever	LEVER,PARK BRK	0050B
Parking Brake Lever	LEVER,PARK BRK (OTR HALF)	0050C
Parking Brake Lever	LEVER,PARK BRK (INR HALF)	0050D
Parking Brake Lever	LEVER,PARK BRK (W/O CABLE)	0051A
Parking Brake Lever	LEVER,PARK BRAKE	SJ427

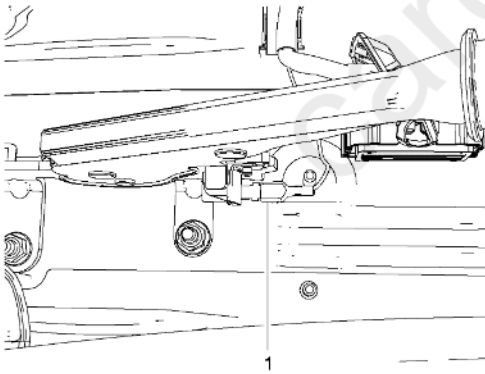
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Parking Brake Indicator Switch Replacement

Removal Procedure

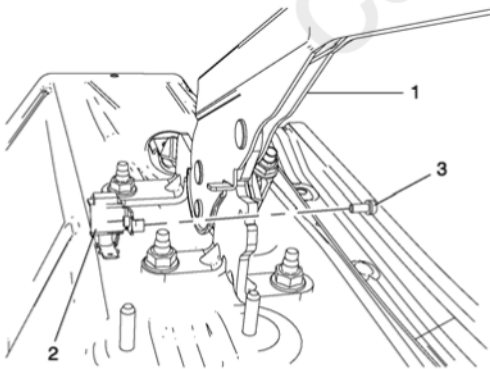
1. Remove the front floor console. Refer to [Front Floor Console Replacement](#).



2.

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3. Disconnect the electrical connector(1) from the parking brake indicator switch.



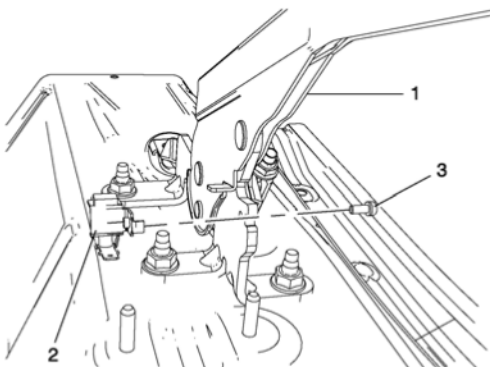
4.

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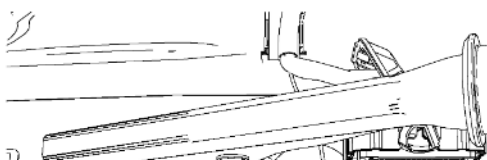
5. Remove the parking brake indicator switch screw(3).

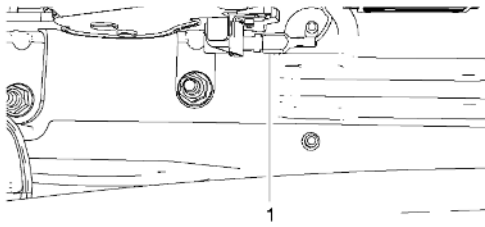
6. Remove the parking brake indicator switch(2) from the park brake lever assembly(1).

Installation Procedure



1. [Click here for full size](#)
2. Install the parking brake indicator switch(2) to the park brake lever assembly(1).
3. Caution:
Refer to [Fastener Caution](#).
4. Install the parking brake indicator switch screw(3) and tighten to 1.5N-m (13lb-in).





5. [Click here for full size](#)
6. Connect the electrical connector (1) to the parking brake indicator switch.
7. Install the front floor console. Refer to [Front Floor Console Replacement](#).
8. Check the operation of the parking brake indicator switch.

Related Part Information

Part Name	Catalog Name	Part Code
Parking Brake Indicator Switch	SWITCH,PARK BRK IND	8400A

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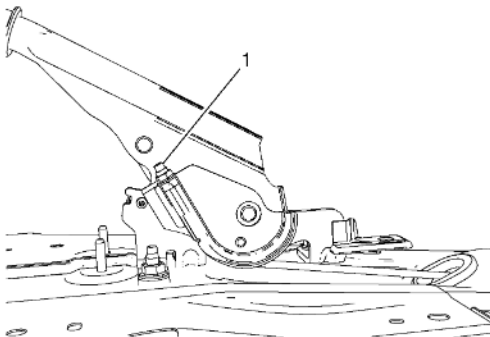
Parking Brake Cable Replacement

Removal Procedure

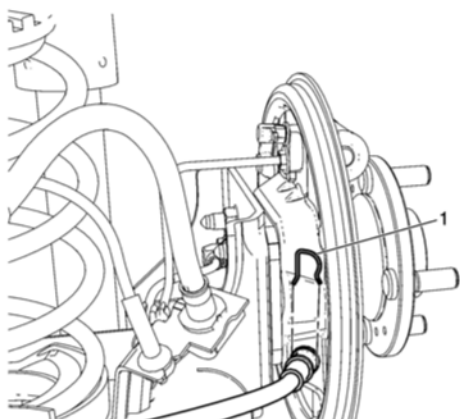
Warning:

Refer to [Brake Dust Warning](#).

1. Ensure that the park brake is in the fully released position.
2. Release the park brake lever boot from the floor console by applying light pressure inward on the sides of the boot retainer, and pull the boot back.



3.
[Click here for full size](#)
4. With the park brake lever in the released position, loosen the adjusting nut (1) enough to completely relieve tension on the front cable.
5. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
6. Remove the wheel and tire assembly. Refer to [Tire and Wheel Removal and Installation](#).
7. Remove the brake drum. Refer to [Brake Drum Replacement](#).

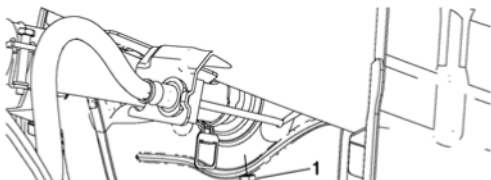


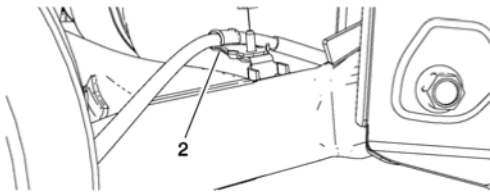


8.

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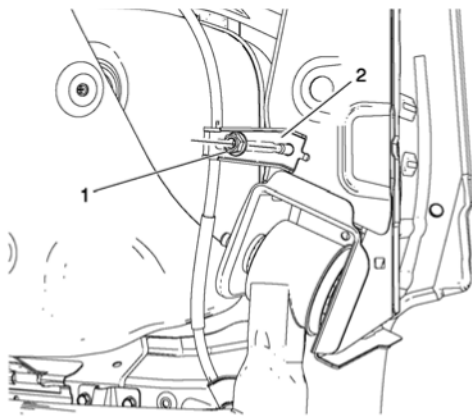
9. Remove the rear park brake cable retaining clip (1) from the drum brake backing plate.
10. Using a flat-bladed screwdriver, disconnect the park brake cable from the park brake lever of the drum brake shoe.





11. [Click here for full size](#)
12. Remove the park brake cable mounting clamp nut (1) and remove the park brake cable mounting clamp (2) from the rear axle bracket.

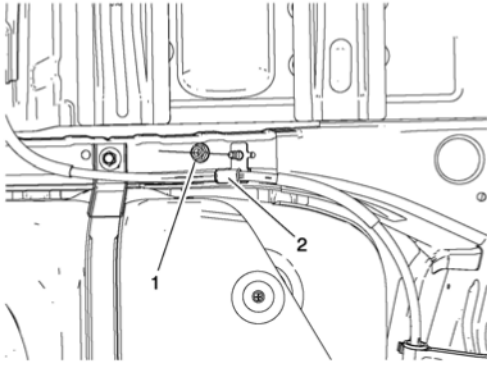




13.

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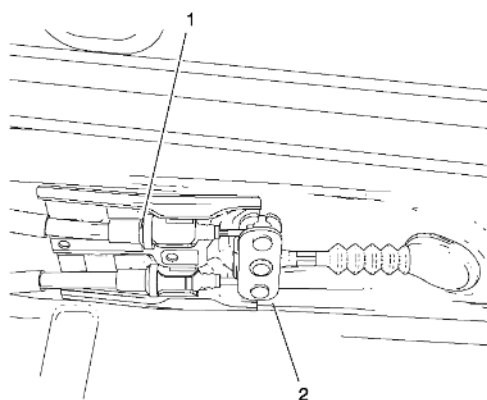
14. Remove the park brake cable mounting clamp nut(1) and remove the park brake cable mounting clamp(2) from the rear side rail.



15.

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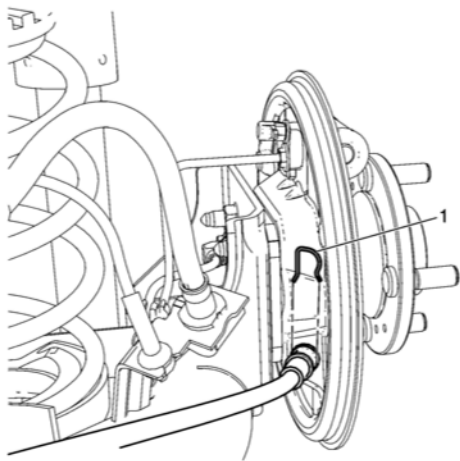
16. Remove the park brake cable mounting clamp nut(1) and remove the park brake cable mounting clamp(2) from the floor panel cross bar.



17. [Click here for full size](#)
18. Detach the park brake cable(1) from the bracket on the floor panel.
19. Separate the park brake cable(1) from the park brake cable equalizer(2) and remove the park brake cable from the vehicle.

Installation Procedure

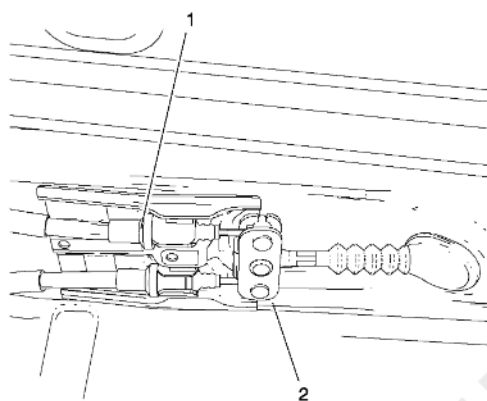
1. Using a flat-bladed screwdriver, connect the park brake cable from the park brake lever of the drum brake shoe.



2.

[Click here for full size](#)

3. Install the rear park brake cable retaining clip(1) to the drum brake backing plate.

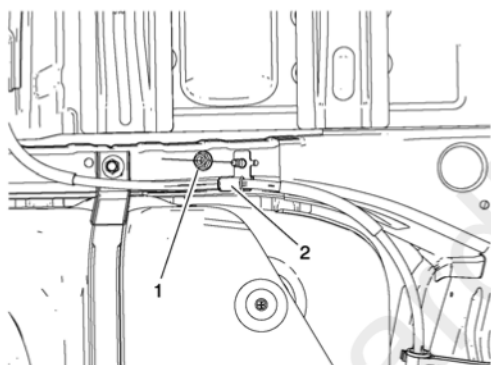


4.

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5. Connect the park brake cable(1) to the park brake cable equalizer(2) and install the park brake cable(1) to the mounting

bracket on the floor panel.



6.

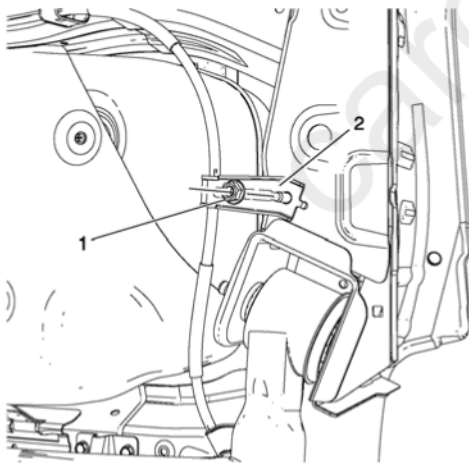
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7. Install the park brake cable mounting clamp (2) to the floor panel cross bar.

8. Caution:

Refer to [Fastener Caution](#).

9. Install the park brake cable mounting clamp nut (1) and tighten to 22 N-m (16 lb-ft).

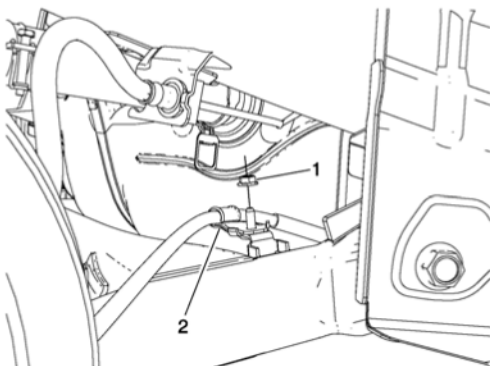


10.

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11. Install the park brake cable mounting clamp (2) to the rear side rail.

12. Install the park brake cable mounting clamp nut (1) and tighten to 22 N-m (16 lb-ft).



13. [Click here for full size](#)
14. Install the park brake cable mounting clamp (2) to the rear axle bracket.
15. Install the park brake cable mounting clamp nut (1) and tighten to 9 N-m (80 lb-in).
16. Install the brake drum. Refer to [Brake Drum Replacement](#).
17. Install the wheel and tire assembly. Refer to [Tire and Wheel Removal and Installation](#).
18. Adjust the park brake cable tension. Refer to [Parking Brake Adjustment](#).

Related Part Information

Part Name	Catalog Name	Part Code
Parking Brake Cable	CABLE,PARK BRK	2195A
Parking Brake Cable	CABLE,PARK BRK	2195B
Parking Brake Cable	CABLE,PARK BRK (RH PROC)	2204A

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Parking Brake Adjustment

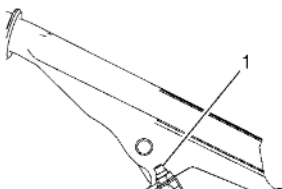
1. Warning:

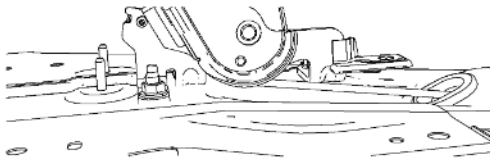
Refer to [Brake Dust Warning](#).

2. Note:

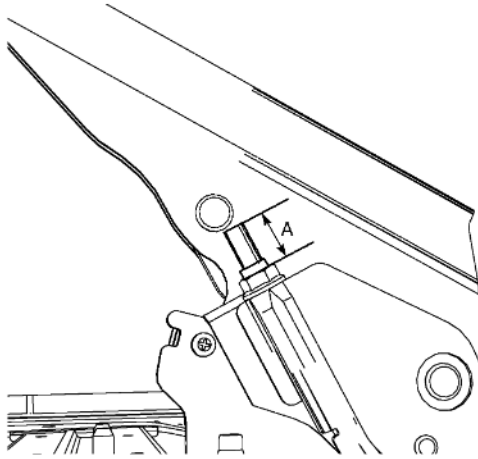
Use ONLY HAND TOOLS whenever tightening or loosening the adjusting nut.

3. Apply and fully release the park brake several times. Verify that the park brake lever releases completely.
4. Turn ON the ignition. Verify the red BRAKE warning lamp is not illuminated.
5. If the red BRAKE warning lamp is illuminated, verify the following:
6.
 - The park brake lever is in the fully released position and against the stop.
 - There is no slack in the park brake cables.
7. If the red BRAKE warning lamp remained illuminated and there were no other visible causes, refer to [Symptoms - Hydraulic Brakes](#).
8. Turn OFF the ignition.
9. Release the park brake lever boot from the floor console by applying light pressure inward on the sides of the boot retainer, and pull the boot back.





10. [Click here for full size](#)
11. With the park brake lever in the released position, loosen the adjusting nut (1) enough to completely relieve tension on the front cable.
12. Caution:
Refer to [Vehicle Lifting and Jacking Caution](#).
13. Raise and support the vehicle. Raise the vehicle just enough to allow rear tire and wheel assembly removal and rear drum adjustment.
14. Remove the rear tire and wheel assemblies. Refer to [Tire and Wheel Removal and Installation](#).
15. Adjust the rear drum brakes. Refer to [Drum Brake Adjustment](#).
16. Ensure there is no brake shoe drag after adjustment by rotating the brake drums. If drag exists, re-center the brake shoes and perform the brake shoe adjustment again.
17. Raise the park brake lever to detent positions.



18. [Click here for full size](#)
19. Caution:
Refer to [Fastener Caution](#).
20. Install the park brake cable adjusting nut until the projection amount (A) of the adjusting rod reaches 21 mm from the adjusting nut.
21. Attempt to rotate the rear brake drums. There should be no rotation forward or rearward.
22. Fully release the park brake lever.
23. Verify the park brake is released by rotating the rear brake drums. The drums should rotate freely and exhibit no brake shoe drag.
24. If the drums do not rotate freely, repeat the park brake cable adjustment procedure.
25. Raise the park brake lever 3 detent positions and attempt to rotate the rear brake drums:

26.

- One of the brake drums should not rotate forward or rearward.
- The other brake drum should not rotate forward or rearward, or should require substantial effort to rotate.

27. Raise the park brake lever one additional detent position and attempt to rotate the rear brake drums.

28. Verify that the left and right brake drums cannot be rotated.

29. Install the rear tire and wheel assemblies. Refer to [Tire and Wheel Removal and Installation](#).

30. Lower the vehicle.

31. Position the park brake lever boot to the floor console and press the boot retainer into place to secure.

32. Release the park brake lever.

Related Part Information

Part Name	Catalog Name	Part Code
Park Pawl Actuator	ACTUATOR,PARK PAWL	X0002

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Specifications

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Fastener Specifications

Reusable Threaded Fastener Tightening Specifications

Application	Specification
	Metric (English)
Note:	
All fasteners listed in this table can be reused after removal.	
Park Brake Cable Mounting Clamp to Floor Panel Cross Bar Retaining Nut	22â€‰N-mâ€‰(16â€‰lbâ€‰ft)
Park Brake Cable Mounting Clamp to Rear Axle Bracket Retaining Nut	9â€‰N-mâ€‰(80â€‰lbâ€‰in)
Park Brake Cable Mounting Clamp to Rear Side Rail Retaining Nut	22â€‰N-mâ€‰(16â€‰lbâ€‰ft)
Park Brake Indicator Switch Mounting Screw	1.5â€‰N-mâ€‰(13â€‰lbâ€‰in)
Park Brake Lever Assembly Mounting Nuts	22â€‰N-mâ€‰(16â€‰lbâ€‰ft)

DIAGNOSTIC OVERVIEW, STARTING POINT, AND PROGRAMMING