

2008 Chevrolet Silverado 1500

2008 BRAKES Drum Brakes - Cab & Chassis Sierra, Cab & Chassis Silverado, Sierra & Silverado

2008 BRAKES

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SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Application	Specification	
	Metric	English
Backing Plate Bolts	135 N.m	100 lb ft
Bleeder Valve	9 N.m	80 lb in
Brake Pipe Fitting	19 N.m	14 lb ft
Wheel Cylinder Bolts	18 N.m	13 lb ft

DRUM BRAKE COMPONENT SPECIFICATIONS

Brake Drum Specifications	Specification	
	Metric	English
Maximum Allowable Diameter	296.5 mm	11.673 in
Maximum Allowable Radial Runout	0.06 mm	0.0024 in
Maximum Allowable Scoring	1.5 mm	0.06 in

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC STARTING POINT - DRUM BRAKES

Begin the drum brake system diagnosis with **Diagnostic Starting Point - Hydraulic Brakes** . The use of the Diagnostic Starting Point leads to the identification of the correct procedure for diagnosing the system and where the procedure is located.

BRAKE DRUM DIAMETER MEASUREMENT

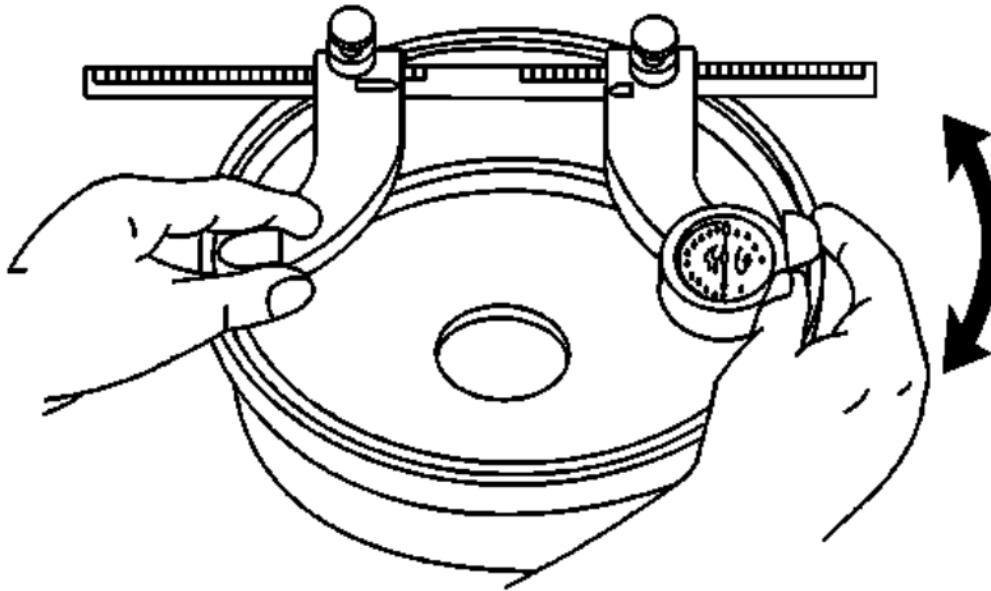


Fig. 1: Measuring Brake Drum
Courtesy of GENERAL MOTORS CORP.

1. Clean the brake shoe lining contact surface of the brake drum with denatured alcohol or an equivalent brake cleaner.
2. Using a brake drum micrometer calibrated in thousands of an inch, measure and record the largest diameter of the brake drum at 4 or more points, equally spaced around the drum.

Ensure that the measurements are only taken within the brake shoe lining contact area and that the micrometer is positioned the same distance from the outside edge of the drum for each measurement.

3. The maximum allowable diameter :

Specification: Maximum allowable measurement 296.5 mm (11.673 in)

4. If the largest diameter measurement of the brake drum is less than the maximum allowable diameter, the drum may be able to be resurfaced, depending upon surface and wear conditions which may be present.
5. If the largest diameter measurement of the brake drum is equal to or greater than the

maximum allowable measurement, the drum requires replacement.

BRAKE DRUM SURFACE AND WEAR INSPECTION

Tools Required

J 8001 Dial Indicator Set, or equivalent

Inspection

CAUTION: Refer to Brake Dust Caution .

1. With the brake drum removed, clean the braking (friction) surface of the brake drum with denatured alcohol or an equivalent approved brake cleaner.
2. Inspect the braking surface of the brake drum for the following braking surface conditions:
 - Heavy rust and/or pitting-Light surface rust can be removed with an abrasive disc. Heavy surface rust and/or pitting must be removed by refinishing the drum.
 - Cracks and/or heat spots
 - Excessive blueing discoloration
 - Missing balance weights
3. If the braking surface of the brake drum exhibits 1 or more of the braking surface conditions, the drum requires refinishing or replacement.

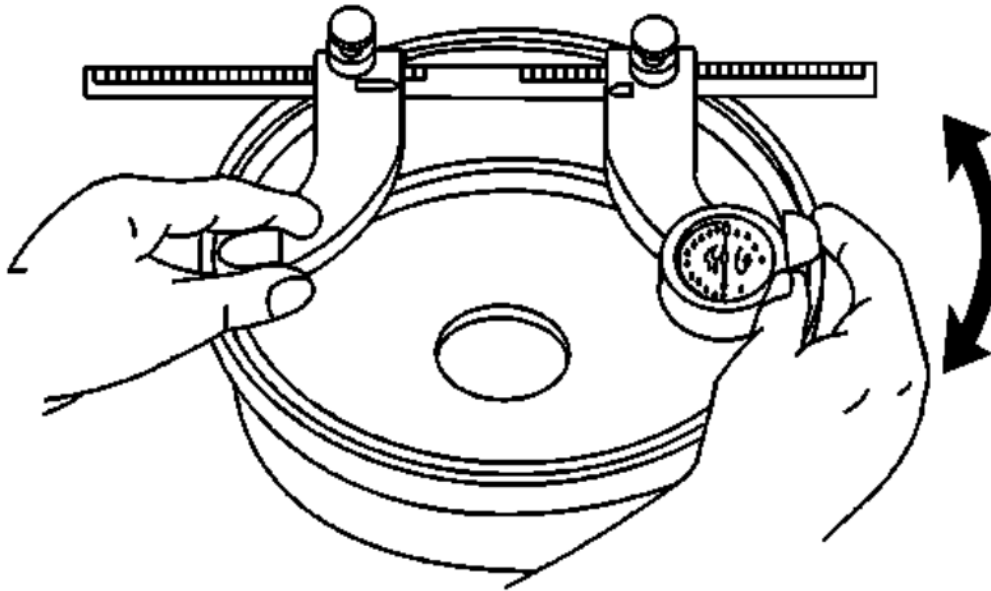


Fig. 2: Measuring Brake Drum
Courtesy of GENERAL MOTORS CORP.

4. Using a brake drum micrometer calibrated in thousands of an inch, measure and record any grooves present on the drum braking surface.

Ensure that the measurements are only taken within the brake shoe lining contact area.

5. Compare the groove, scoring, depth recorded to the following specification:

Specification: Brake drum maximum allowable scoring 1.5 mm (0.06 in).

6. If the brake drum scoring depth exceeds the specification, or if an excessive amount of scoring is present, the drum requires refinishing or replacement.
7. Mount the brake drum on a brake lathe.
8. Mount a dial indicator, **J 8001** or equivalent, and position the indicator button so it contacts the braking surface of the brake drum at a 90 degree angle, approximately 19 mm (0.75 in) from the drum's outer edge.
9. Measure and record the radial runout of the brake drum.

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1. Rotate the drum until the lowest reading is displayed on the indicator dial, then zero the dial.
2. Rotate the drum until the highest reading is displayed on the dial.
10. Compare the radial runout of the brake drum to the following specification:

Specification: Brake drum maximum allowable radial runout 0.06 mm (0.0024 in).

11. If the brake drum radial runout exceeds the specification, the drum requires refinishing or replacement.

DRUM BRAKE ADJUSTING HARDWARE INSPECTION

1. Inspect the drum brake adjusting hardware for the following:
 - Excessive corrosion
 - Damaged or broken adjuster spring
 - Damaged or broken adjuster lever
 - Damaged or broken adjuster star wheel and or adjuster thread
2. If components are found to be damaged, replace them.

REPAIR INSTRUCTIONS

BRAKE SHOE INSPECTION

Inspect the linings every 9 650 km (6,000 mi) and any time the wheels are removed (tire rotation, etc.). Inspect the lining for wear by removing the plug and using the inspection hole. Replace the shoe and lining assemblies when the thickness of any lining is worn within 0.72 mm (0.030 in) of the shoe. Replace riveted shoe and lining assemblies when the lining is worn to within 0.76 mm (0.030 in) of any rivet head. Always replace shoe and lining assemblies as a complete axle set.

BRAKE DRUM REPLACEMENT

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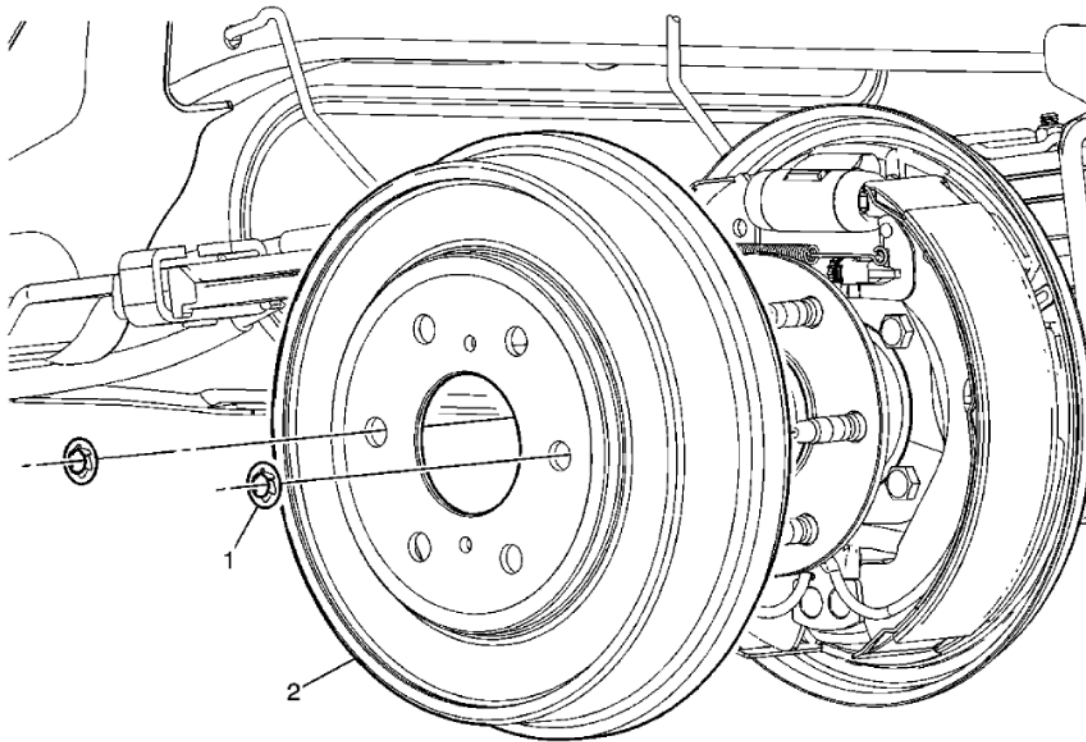


Fig. 3: View Of Brake Drum And Retainers
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
CAUTION: Refer to <u>Brake Dust Caution</u> .	
Preliminary Procedures	
1. Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> . 2. Remove the tire and wheel assembly. Refer to <u>Tire and Wheel Removal and Installation</u> .	
1	Brake Drum Retainer (Qty: 2)
2	Brake Drum
	Procedure
	1. If the brake drum will not slide over the brake shoes, retract the brake shoe adjuster. Refer to <u>Drum Brake Adjustment</u> . 2. Using the J 42450-A , clean the drum mating surface of the rear axle

flange.

3. Adjust the drum brakes. Refer to **Drum Brake Adjustment**.

Special Tools:

J 42450-A Wheel Hub Resurfacing Kit

BRAKE DRUM REFINISHING

Tools Required

J 41013 Rotor Resurfacing Kit

Refinishing

IMPORTANT: DO NOT refinish the brake drums in order to correct any of the following complaints:

- **Brake noise (growl/squeal)**
- **Premature brake lining wear**
- **Cosmetic or superficial corrosion of the drum braking surface**
- **Drum discoloration**

Refinish the brake drums ONLY when 1 or more of the following conditions exist:

- **Severe scoring of the drum braking surface (groove depth in excess of specification)**
- **Brake pulsation caused by the following:**
 - **Brake drum out of round (runout in excess of specification)**
 - **Corrosion or pitting that is deeper than the drum braking surface**

1. Use a micrometer in order to measure the largest diameter of the brake drum. If the largest diameter of the brake drum exceeds the brake drum maximum refinish diameter, **DO NOT** refinish the brake drum. Replace the brake drum.

2. Use the **J 41013** or an equivalent tool in order to THOROUGHLY clean the rust from the brake drum flange.
3. Refinish the brake drum. Refer to the brake lathe manufacturer's operating instructions.

IMPORTANT: Failure to obtain the best possible braking surface finish may cause the vehicle to stop with difficulty.

4. After machining the brake drum, use 120 grit aluminum oxide sandpaper in order to create a non-directional braking surface.
5. Clean the braking surfaces with GM P/N 12377981 (Canadian P/N 10953463) or equivalent brake parts cleaner.

BRAKE SHOE REPLACEMENT

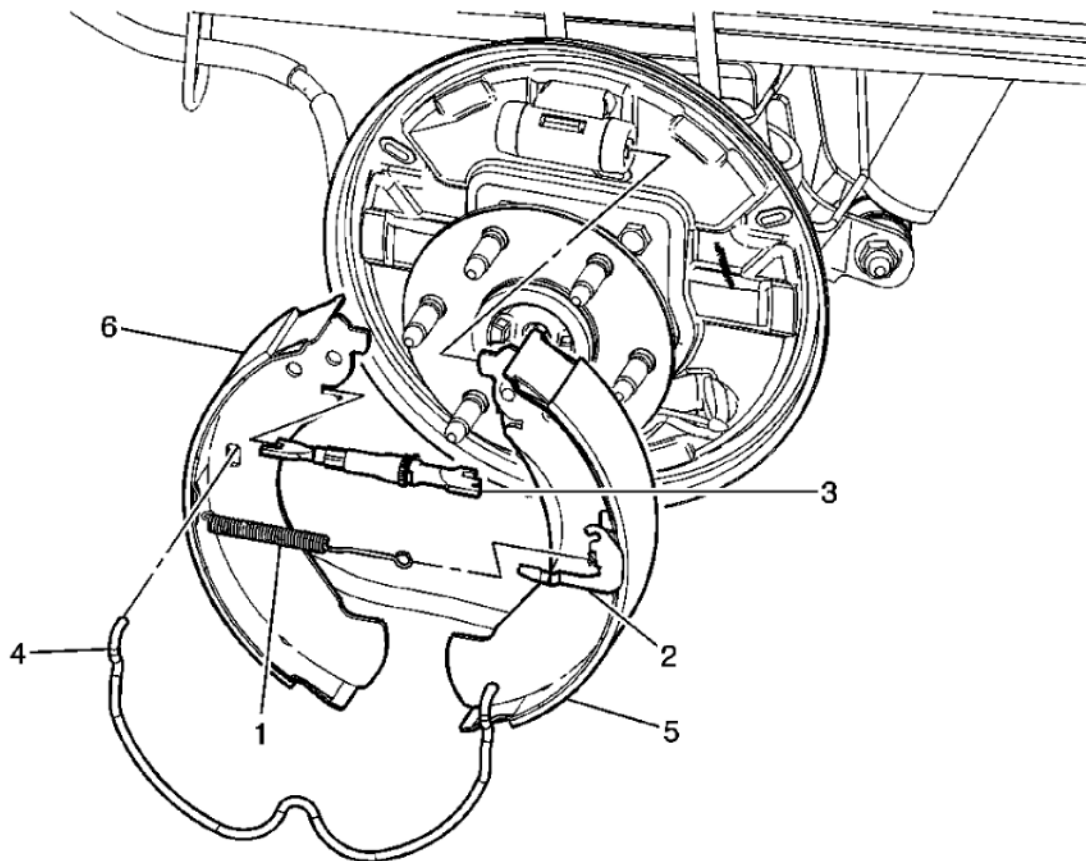


Fig. 4: Exploded View Of Brake Shoes And Components
Courtesy of GENERAL MOTORS CORP.

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Callout	Component Name
CAUTION: Refer to <u>Brake Dust Caution</u> .	
Preliminary Procedures 1. Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> . 2. Remove the tire and wheel. Refer to <u>Tire and Wheel Removal and Installation</u> . 3. Remove the brake drum. Refer to <u>Brake Drum Replacement</u>.	
1	Adjuster Spring Tip: Completely back off the brake shoe adjuster to ease removal of the adjuster spring.
2	Adjuster Lever
3	Brake Shoe Adjuster Procedure: Clean and apply high temperature brake lubricant to the adjuster threads.
4	Brake Shoe Retractor Spring Procedure: Using the J 38400 or equivalent, release the brake shoe retractor spring from the brake shoes. See <u>Special Tools</u> . Special Tools: J 38400 Brake Shoe Spanner and Spring Remover. See <u>Special Tools</u> .
5	Brake Primary Shoe Procedure 1. Using a flat-bladed tool, press the lock tab on the park brake cable at the lever. 2. When removing the park brake cable from the lever, the park brake return spring will remain attached to the lever. DO NOT remove the return spring from the lever. If the return spring separates from the lever, the brake shoes must be replaced. 3. Hold the lock tab while simultaneously pushing the park brake cable forward to release the park brake cable from the lever. 4. Remove the park brake cable from the lever. 5. Clean the backing plate and apply high temperature brake lubricant to the brake shoe contact surfaces of the backing plate.

Brake Secondary Shoe

Procedure

6

1. Clean the backing plate and apply high temperature brake lubricant to the brake shoe contact surfaces of the backing plate.
2. Adjust the drum brakes. Refer to **Drum Brake Adjustment**.

REAR BRAKE BACKING PLATE REPLACEMENT

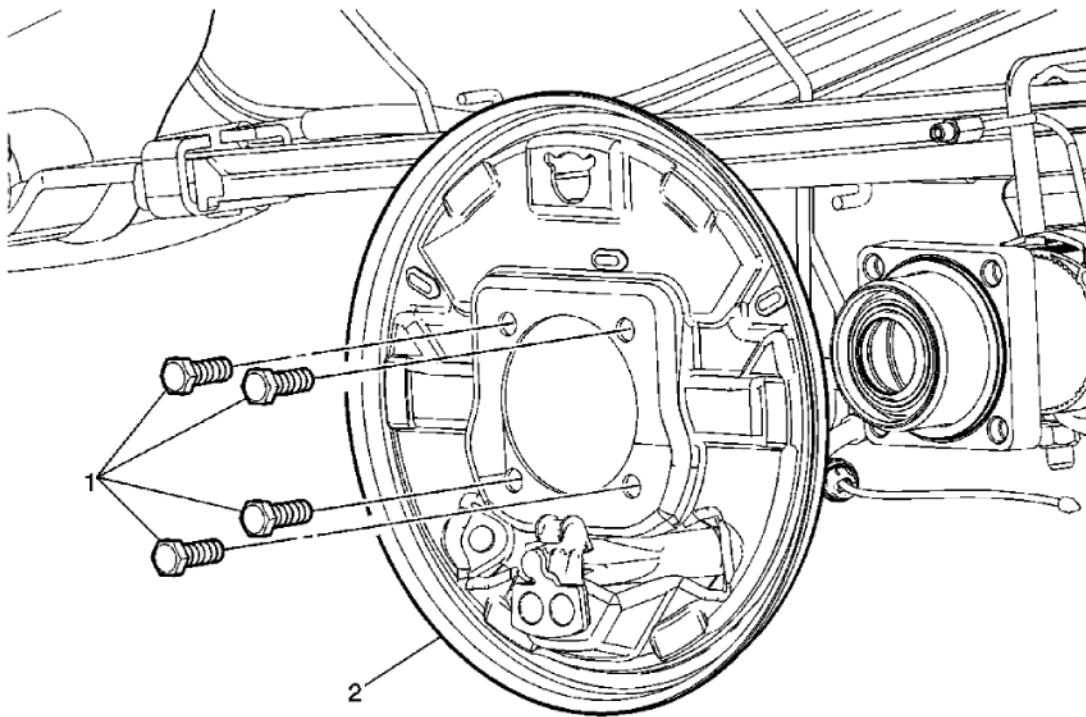


Fig. 5: View Of Rear Brake Backing Plate
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
CAUTION: Refer to <u>Brake Dust Caution</u> .	
Preliminary Procedures	
1. Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> . 2. Remove the tire and wheel assembly. Refer to <u>Tire and Wheel Removal and</u>	

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Installation .

3. Remove the brake shoes. Refer to **Brake Shoe Replacement**.
4. Remove the wheel cylinder. Refer to **Wheel Cylinder Replacement**.
5. Remove the park brake cable from the brake backing plate. Refer to **Parking Brake Rear Cable Replacement - Left Side (JF3, JF7)** or **Parking Brake Rear Cable Replacement - Left Side (JD9)** or **Parking Brake Rear Cable Replacement - Right Side (JF3, JF7)** or **Parking Brake Rear Cable Replacement - Right Side (JD9)** .
6. Remove the rear axle shaft. Refer to **Rear Axle Shaft Replacement (8.6 Inch Axle w/Drum Brake w/VSES)** or **Rear Axle Shaft Replacement (8.6 Inch Axle w/Drum Brakes w/o VSES)** or **Rear Axle Shaft Replacement (8.6, 9.5 Inch Axles w/VSES)** .

1	Brake Backing Plate Bolt (Qty: 4) NOTE: Refer to <u>Fastener Notice</u> . Tighten: 135 N.m (100 lb ft)
2	Brake Backing Plate

DRUM BRAKE ADJUSTING HARDWARE REPLACEMENT

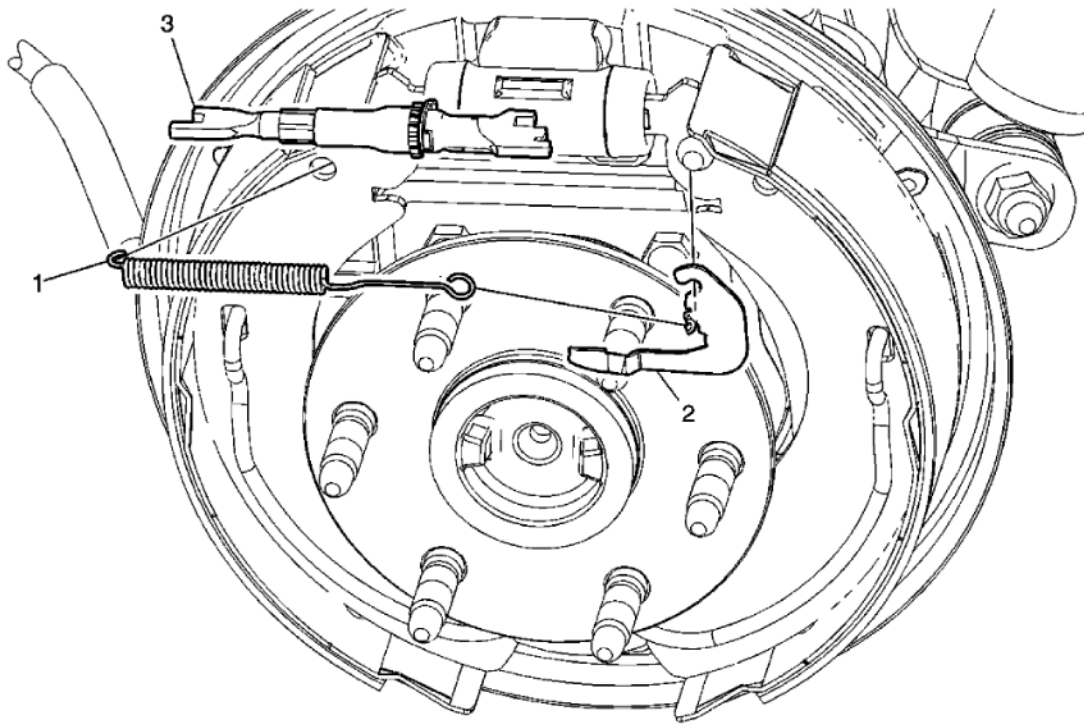


Fig. 6: View Of Drum Brake Adjusting Hardware
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
CAUTION: Refer to <u>Brake Dust Caution</u> .	
Preliminary Procedures	
1. Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> . 2. Remove the tire and wheel assembly. Refer to <u>Tire and Wheel Removal and Installation</u> . 3. Remove the brake drum. Refer to <u>Brake Drum Replacement</u> .	
1	Adjuster Spring Tip: Retract the brake shoe adjuster to ease removal of the adjuster spring. Refer to <u>Drum Brake Adjustment</u> .
2	Adjuster Lever
	Brake Shoe Adjuster
Procedure	

3

1. Clean and apply high temperature brake lubricant to the adjuster threads.
2. Adjust the drum brakes. Refer to **Drum Brake Adjustment**.

WHEEL CYLINDER REPLACEMENT

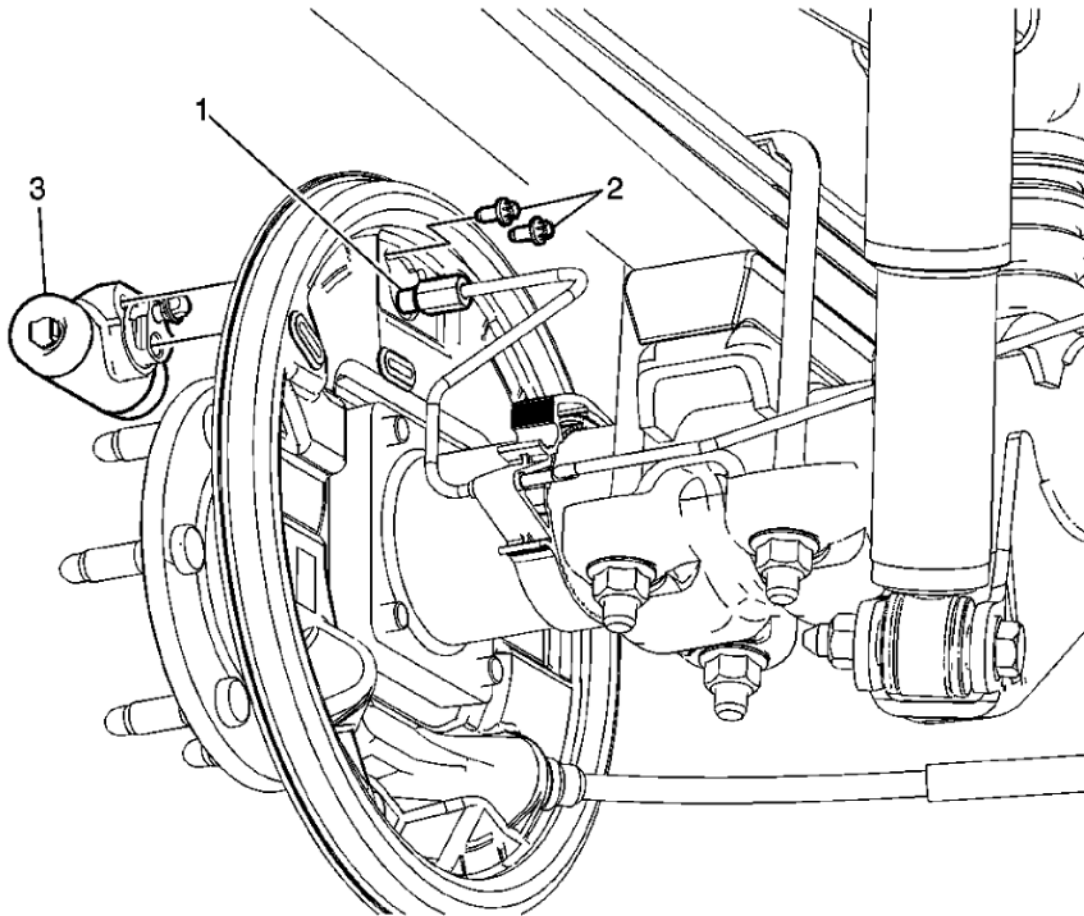


Fig. 7: View Of Wheel Cylinder
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
CAUTION: Refer to <u>Brake Dust Caution</u> .	
CAUTION: Refer to <u>Brake Fluid Irritant Caution</u> .	
Preliminary Procedures	

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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 brake shoes. Refer to **Brake Shoe Replacement**.

1	Brake Pipe Fitting NOTE: Refer to <u>Fastener Notice</u> . Tip: Cap the brake pipe fitting to prevent brake fluid loss and contamination. Tighten: 19 N.m (14 lb ft)
2	Wheel Cylinder Bolt (Qty: 2) Tighten: 18 N.m (13 lb ft)
3	Wheel Cylinder Procedure 1. Bleed the hydraulic brake system. Refer to <u>Hydraulic Brake System Bleeding (Pressure)</u> or <u>Hydraulic Brake System Bleeding (Manual)</u> . 2. Adjust the drum brakes. Refer to <u>Drum Brake Adjustment</u>. 3. Fill the master cylinder reservoir to the proper level. Refer to <u>Master Cylinder Reservoir Filling</u> .

DRUM BRAKE ADJUSTMENT

Tools Required

- **J 21177-A** Drum to Brake Shoe Clearance Gage. See **Special Tools**.
- **J 42450-A** Wheel Hub Resurfacing Kit

Adjustment

CAUTION: Refer to **Brake Dust Caution** .

IMPORTANT: This procedure must be performed after replacing the brake shoes or whenever the brake shoes have been removed.

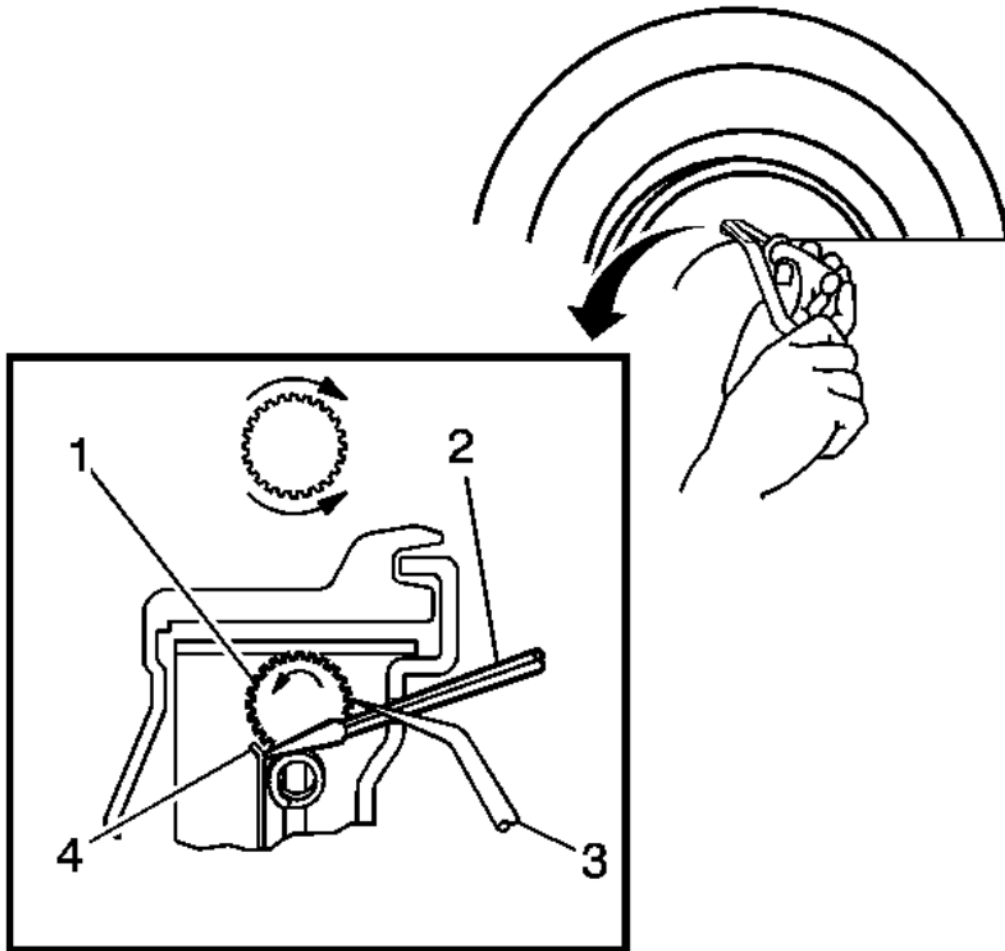


Fig. 8: Removing Brake Drum

Courtesy of GENERAL MOTORS CORP.

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle .
2. Remove the rear tire and wheel. Refer to Tire and Wheel Removal and Installation .
3. Disable the park brake cable automatic adjuster. Refer to Parking Brake Cable Adjuster Disabling .

4. Remove the brake shoe adjuster access plug from the backing plate.
5. Insert a thin bladed tool (2) through the adjuster access hole in the backing plate until it contacts the adjuster lever (4).
6. Push the adjuster lever away from the adjuster screw (1).
7. Using a suitable tool (3), rotate the adjuster screw upward.
8. Remove the brake drum. Refer to **Brake Drum Replacement**.

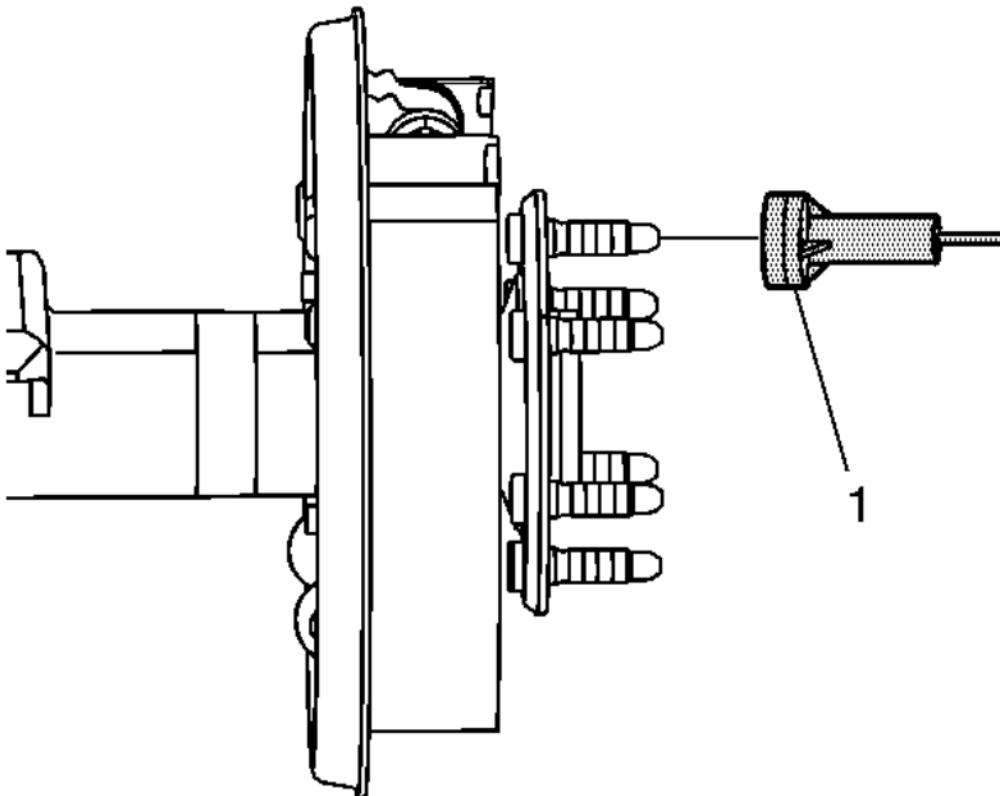


Fig. 9: Cleaning Mating Surface Of Rear Axle Flange
Courtesy of GENERAL MOTORS CORP.

9. Using the J 42450-A (1), clean the mating surface of the rear axle flange.

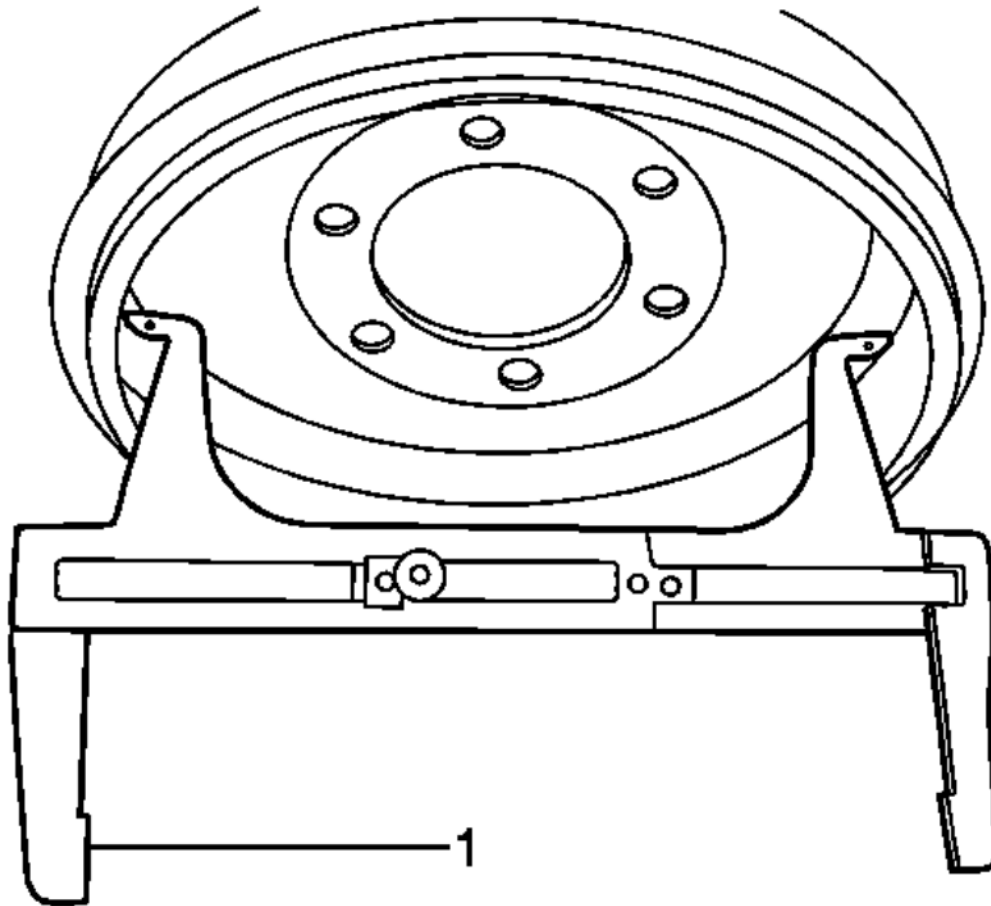


Fig. 10: Measuring Brake Drum
Courtesy of GENERAL MOTORS CORP.

10. Using the **J 21177-A** (1), measure the inside diameter of the brake drum. See **Special Tools**.

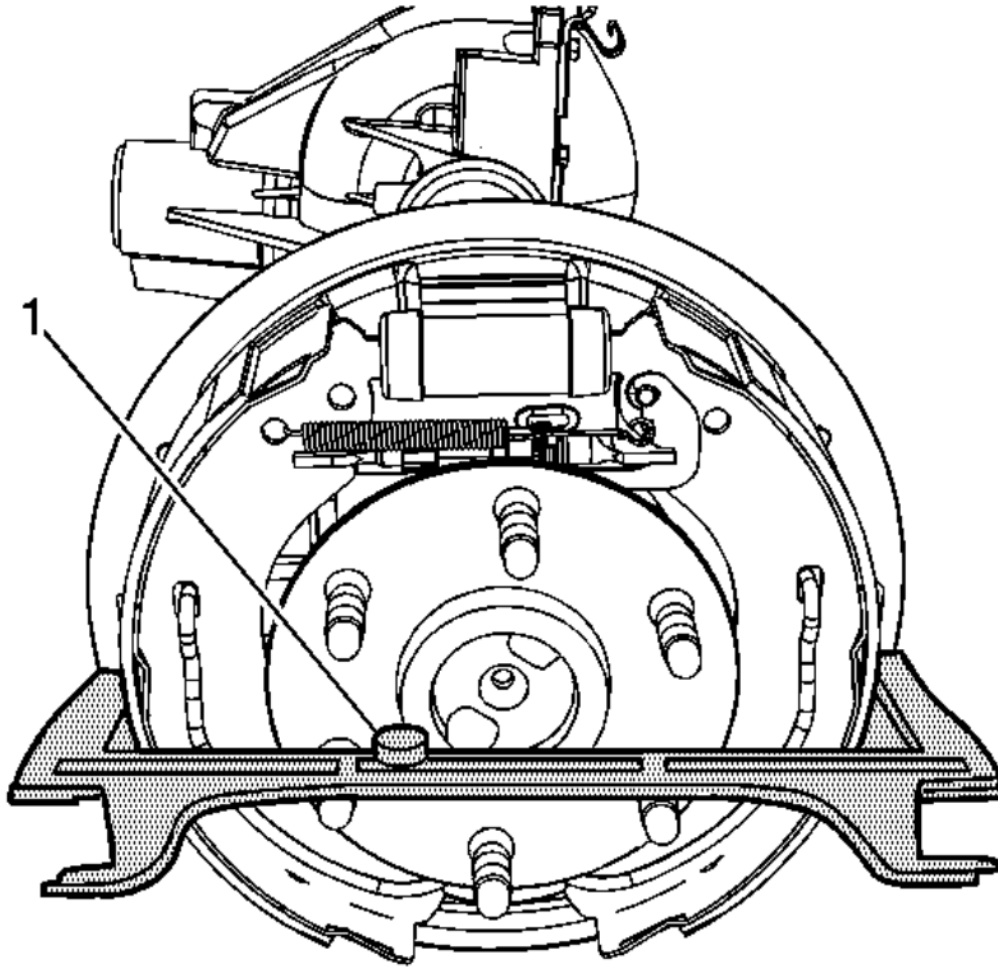


Fig. 11: Adjusting Rear Brake Shoes
Courtesy of GENERAL MOTORS CORP.

11. With the set screw (1) locked, place the opposite side of the **J 21177-A** over the brake shoes. See **Special Tools**.
12. Rotate the brake shoe adjuster screw until the brake shoes just contact the **J 21177-A** . See **Special Tools**.
13. Inspect the clearance between the brake shoes and the brake drum.

Specification: Approximately 0.76 mm (0.030 in)

14. Install the brake drum. Refer to **Brake Drum Replacement**.
15. Enable the park brake cable automatic adjuster. Refer to **Parking Brake Cable Adjuster Enabling**.
16. If necessary, adjust the park brake cable tension. Refer to **Park Brake Adjustment (Drum Brake)** or **Park Brake Adjustment (Disc Brake)**.
17. Install the tire and wheel. Refer to **Tire and Wheel Removal and Installation**.
18. Lower the vehicle.

DESCRIPTION AND OPERATION

DRUM BRAKE SYSTEM DESCRIPTION AND OPERATION

System Component Description

The drum brake system consists of the following:

Drum Brake Shoes

Applies mechanical output force (from hydraulic brake wheel cylinders) to friction surface of brake drums.

Brake Drums

Uses mechanical output force applied to friction surface from drum brake shoes to slow speed of tire and wheel assembly rotation.

Drum Brake Hardware

Secures drum brake shoes firmly in proper relationship to hydraulic brake wheel cylinders. Enables sliding motion of brake shoes needed to expand toward friction surface of drums when mechanical output force is applied; provides return of brake shoes when mechanical output force is relieved.

Drum Brake Adjusting Hardware

Provides automatic adjustment of brake shoes to brake drum friction surface whenever brake apply occurs during rearward motion of the vehicle.

System Operation

Mechanical output force is applied from the hydraulic brake wheel cylinder pistons to the top of

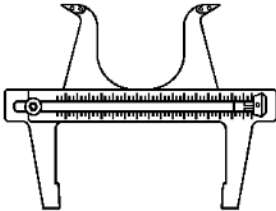
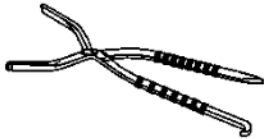
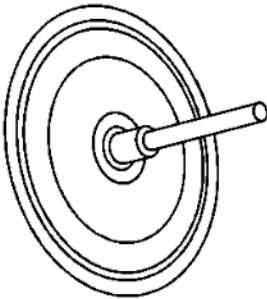
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the drum brake shoes. The output force is then distributed between the primary and secondary brake shoes as the shoes expand toward the friction surface of the brake drums. The brake shoes apply the output force to the friction surface of the brake drums, which slows the rotation of the tire and wheel assemblies. The proper function of both the drum brake hardware and adjusting hardware is essential to the proper distribution of braking force.

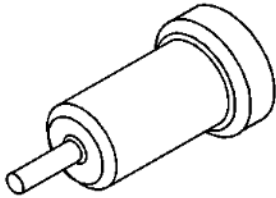
SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

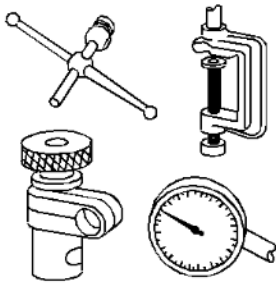
Illustration	Tool Number/ Description
	J 21177-A Drum to Brake Shoe Clearance Gage
	J 38400 Brake Shoe Spanner & Spring Remover
	J 41013 Rotor Resurfacing Kit

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J 42450-A
Wheel Hub Resurfacing Kit



J 8001
Dial Indicator Set