

2004 Cadillac SRX

2004 BRAKES Disc Brakes - SRX

2004 BRAKES**Disc Brakes - SRX****SPECIFICATIONS****FASTENER TIGHTENING SPECIFICATIONS****Fastener Tightening Specifications**

Application	Specification	
	Metric	English
Brake Caliper Bleeder Valve	14 N.m	124 lb in
Brake Hose to Caliper Bolt	50 N.m	37 lb ft
Brake Pipe Fitting Tube Nut	18 N.m	13 lb ft
Brake Rotor Mounting Screw	14 N.m	124 lb in
Front Brake Caliper Bracket Bolt	130 N.m	96 lb ft
Front Brake Caliper Pin Bolt	34 N.m	25 lb ft
Rear Brake Caliper Bracket Bolt	120 N.m	88 lb ft
Rear Brake Caliper Pin Bolt	60 N.m	44 lb ft

DISC BRAKE COMPONENT SPECIFICATIONS**Disc Brake Component Specifications**

Application	Specification	
	Metric	English
Front Brake Pads		
• Taper	0.15 mm	0.006 in
Front Brake Rotors		
• Rotor Diameter	323.0 mm	12.7 in
• Rotor Discard Thickness*	30.7 mm	1.209 in
• Rotor Maximum Allowable Assembled Lateral Runout	0.06 mm	0.002 in
• Rotor Maximum Allowable Scoring	1.50 mm	0.059 in
• Rotor Maximum Allowable Thickness Variation	0.025 mm	0.001 in
• Rotor Minimum Thickness after Refinishing	30.7 mm	1.209 in
• Rotor Thickness (New)	32.20 mm	1.267 in
Rear Brake Pads		

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• Rotor Thickness (New)	0.3530 mm	0.0139 in
Rear Brake Rotors		
• Rotor Diameter	320.0 mm	12.6 in
• Rotor Discard Thickness*	24.0 mm	0.94 in
• Rotor Maximum Allowable Assembled Lateral Runout	0.06 mm	0.002 in
• Rotor Maximum Allowable Scoring	1.50 mm	0.059 in
• Rotor Maximum Allowable Thickness Variation	0.025 mm	0.001 in
• Rotor Minimum Thickness after Refinishing	24.0 mm	0.944 in
• Rotor Thickness New	26.0 mm	1.02 in
* All brake rotors have a discard dimension cast into them. Replace any rotor that does not meet this specification. After refinishing the rotor, replace any rotor that does not meet the minimum thickness specification.		

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC STARTING POINT - DISC BRAKES

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

BRAKE ROTOR THICKNESS MEASUREMENT

CAUTION: Refer to Brake Dust Caution in Cautions and Notices.

1. If the inboard friction surface of the brake rotor is not accessible, reposition and support the caliper with the brake pads. Refer to **Brake Pads Replacement - Front** and/or **Brake Pads Replacement - Rear (JL9, JE5)**.
2. Clean the friction surfaces of the brake rotor with denatured alcohol, or an equivalent approved brake cleaner.

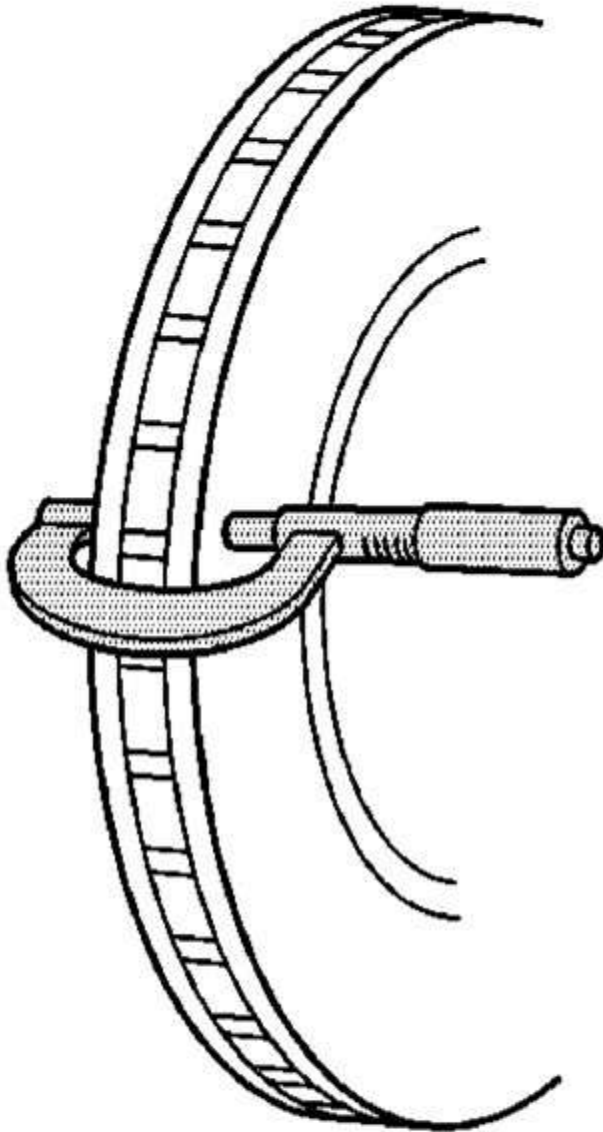


Fig. 1: Measuring Brake Rotor Thickness
Courtesy of GENERAL MOTORS CORP.

3. Using a micrometer calibrated in thousandths-of-a-millimeter, or ten-thousandths-of-an-inch, measure and record the thickness of the brake rotor at four or more points, evenly spaced around the rotor.

Ensure that the measurements are only taken within the friction surfaces and that the micrometer is positioned the same distance from the outer edge of the rotor, about 13 mm

(1/2 in), for each measurement.

4. Compare the lowest thickness measurement recorded to the following specifications:

Specification:

- Front brake rotor minimum allowable thickness after refinishing: 30.7 mm (1.209 in)
 - Front brake rotor (J56) minimum allowable thickness after refinishing: 31.0 mm (1.220 in)
 - Rear brake rotor minimum allowable thickness after refinishing: 24.0 mm (0.944 in)
 - Front brake rotor discard thickness: 30.7 mm (1.209 in)
 - Front brake rotor (J56) discard thickness: 30.00 mm (1.181 in)
 - Rear brake rotor discard thickness: 24.0 mm (0.944 in)
 - Rear brake rotor (J56) minimum allowable thickness after refinishing: 27.0 mm (1.062 in)
 - Rear brake rotor (J56) discard thickness: 26.00 mm (1.023 in)
5. If the lowest thickness measurement of the brake rotor is above the minimum allowable thickness after refinishing specification, the rotor may be able to be refinished, depending upon surface and wear conditions which may be present.
6. If the lowest thickness measurement of the brake rotor is at or below the minimum allowable thickness after refinishing specification, the rotor may not be refinished.
7. If the lowest thickness measurement of the brake rotor is at or below the discard thickness specification, the rotor requires replacement.

BRAKE ROTOR THICKNESS VARIATION MEASUREMENT

CAUTION: Refer to Brake Dust Caution in Cautions and Notices.

IMPORTANT: Any disc brake rotor that exhibits thickness variation exceeding the maximum acceptable level must be refinished or replaced. Thickness variation exceeding the maximum acceptable level can cause brake pulsation.

1. If the inboard friction surface of the brake rotor is not accessible, reposition and support the caliper with the brake pads. Refer to Brake Pads Replacement - Front and/or Brake Pads Replacement - Rear (JL9, JE5).
2. Clean the friction surfaces of the brake rotor with denatured alcohol, or an equivalent approved brake cleaner.

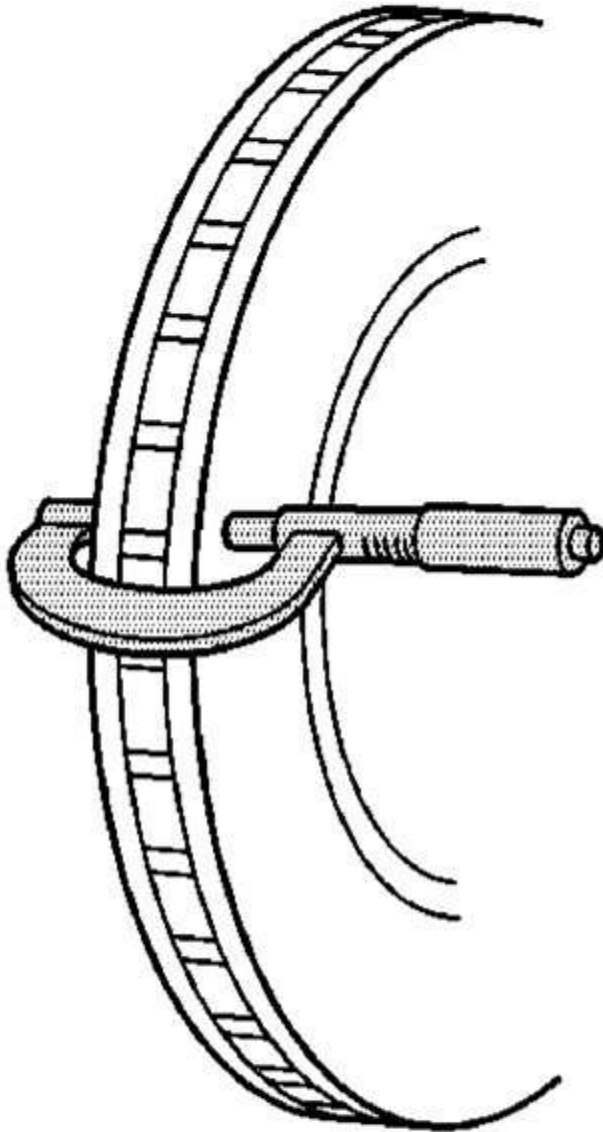


Fig. 2: Measuring Brake Rotor Thickness
Courtesy of GENERAL MOTORS CORP.

3. Using a micrometer calibrated in thousandths-of-a-millimeter, or ten-thousandths-of-an-inch, measure and record the thickness of the brake rotor at four or more points, evenly spaced around the rotor.

Ensure that the measurements are only taken within the friction surfaces and that the micrometer is positioned the same distance from the outer edge of the rotor, about 13 mm

(1/2 in), for each measurement.

4. Calculate the difference between the highest and lowest thickness measurements recorded to obtain the amount of thickness variation.
5. Compare the thickness variation measurement to the following specification:

Specification: Brake rotor maximum allowable thickness variation: 0.02 mm (0.001 in)

IMPORTANT: Whenever a brake rotor is refinished or replaced, the assembled lateral runout (LRO) of the rotor must be measured to ensure optimum performance of the disc brakes.

6. If the brake rotor thickness variation measurement exceeds the specification, the rotor requires refinishing or replacement.

BRAKE ROTOR SURFACE AND WEAR INSPECTION

CAUTION: Refer to Brake Dust Caution in Cautions and Notices.

1. If the inboard friction surface of the brake rotor is not accessible, reposition and support the caliper with the brake pads. Refer to Brake Pads Replacement - Front and/or Brake Pads Replacement - Rear (JL9, JE5).
2. Clean the friction surfaces of the brake rotor with denatured alcohol, or an equivalent approved brake cleaner.
3. Inspect the friction surfaces of the brake rotor 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 rotor.
 - Cracks and/or heat spots
 - Excessive blueing discoloration
4. If the friction surfaces of the brake rotor exhibit one or more of the Braking Surface Conditions, the rotor requires refinishing or replacement.

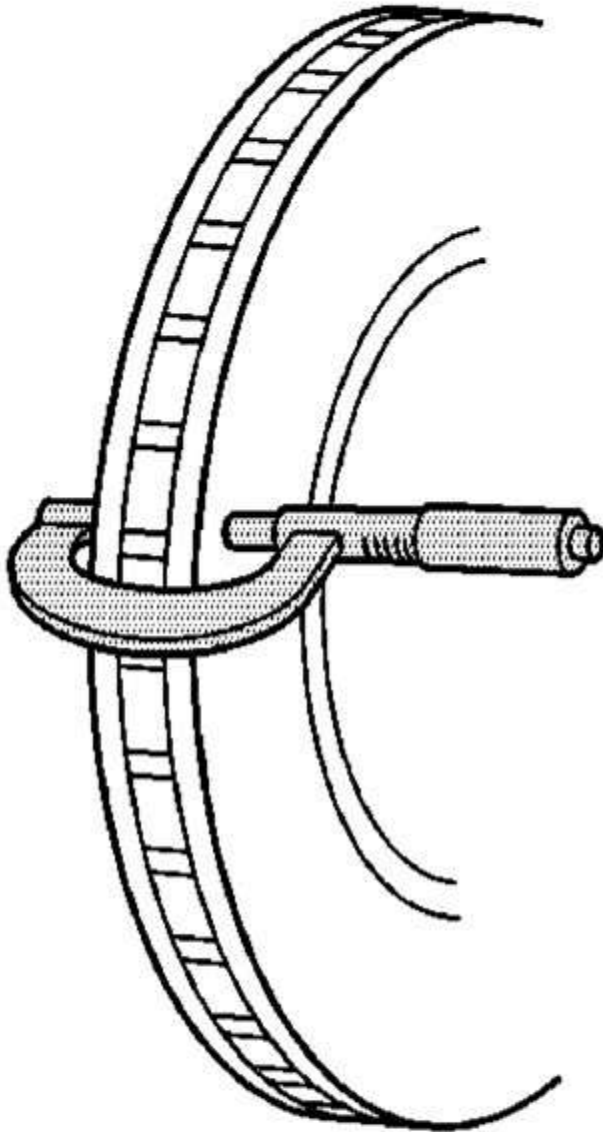


Fig. 3: Measuring Brake Rotor Thickness
Courtesy of GENERAL MOTORS CORP.

5. Using a micrometer calibrated in thousandths-of-a-millimeter, or ten-thousandths-of-an-inch, measure and record the scoring depth of any grooves present on the rotor friction surfaces.
6. Compare the groove scoring depth recorded to the following specification:

Specification: Brake rotor maximum allowable scoring: 1.50 mm (0.059 in)

7. If the brake rotor scoring depth exceeds the specification, or if an excessive amount of scoring is present, the rotor requires refinishing or replacement.

BRAKE ROTOR ASSEMBLED LATERAL RUNOUT (LRO) MEASUREMENT**Tools Required**

- **J 39544-KIT** Torque-Limiting Socket Set, or equivalent. See Special Tools and Equipment.
- **J 41013** Rotor Resurfacing Kit. See Special Tools and Equipment.
- **J 42450-A** Wheel Hub Resurfacing Kit. See Special Tools and Equipment.
- **J 45101** Hub and Wheel Runout Gage. See Special Tools and Equipment.
- **J 45101-100** Conical Brake Rotor Washers. See Special Tools and Equipment.

CAUTION: Refer to Brake Dust Caution in Cautions and Notices.

- IMPORTANT:**
- Brake rotor assembled lateral runout (LRO) exceeding the maximum allowable specification can cause thickness variation to develop in the brake rotor over time, usually between 4 800-11 300 km (3,000-7,000 mi).
 - Brake rotor thickness variation **MUST** be checked **BEFORE** checking for assembled lateral runout (LRO). Thickness variation exceeding the maximum acceptable level can cause brake pulsation. Refer to Brake Rotor Thickness Variation Measurement.

1. Matchmark the position of the brake rotor to the wheel studs if this has not been done already.

IMPORTANT: Whenever the brake rotor has been separated from the hub/axle flange, any rust or contaminants should be cleaned from the hub/axle flange and the brake rotor mating surfaces. Failure to do this may result in excessive assembled lateral runout (LRO) of the brake rotor, which could lead to brake pulsation.

2. Inspect the mating surface of the hub/axle flange and the brake rotor to ensure that there are no foreign particles, corrosion, rust, or debris remaining. If the wheel hub/axle flange and/or if the brake rotor mating surfaces exhibit these conditions, perform the following steps:

1. Remove the brake rotor from the vehicle. Refer to **Brake Rotor Replacement - Front** and/or **Brake Rotor Replacement - Rear**.
 2. Using the **J 42450-A** , thoroughly clean any rust or corrosion from the mating surface of the hub/axle flange. See **Special Tools and Equipment**.
 3. Using the **J 41013** , thoroughly clean any rust or corrosion from the mating surface of the brake rotor. See **Special Tools and Equipment**.
 4. Clean the friction surfaces of the brake rotor with denatured alcohol, or an equivalent approved brake cleaner.
3. Install the rotor to the hub/axle flange using the matchmark made prior to removal.

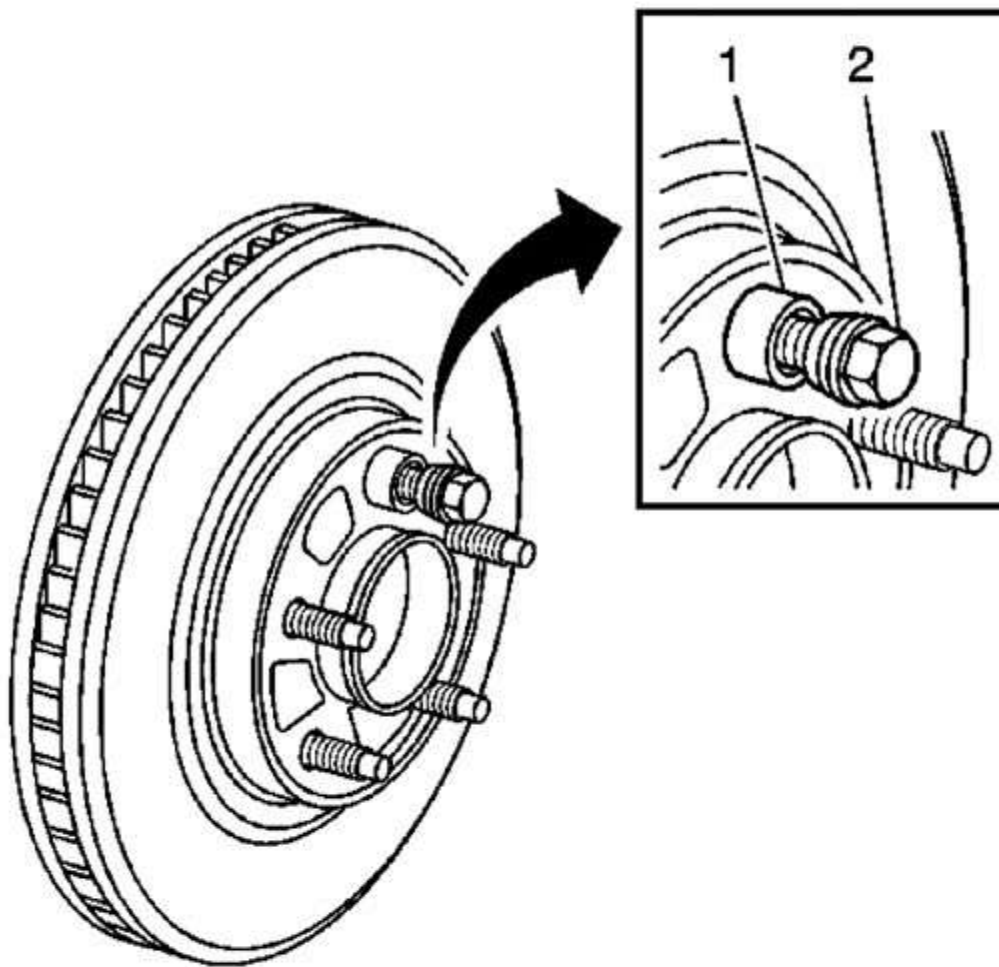


Fig. 4: Identifying J 45101-100 & Lug Nut
Courtesy of GENERAL MOTORS CORP.

4. Hold the rotor firmly in place against the hub/axle flange and install one of the **J 45101-100** (1), and one lug nut (2) onto the upper-most wheel stud. See **Special Tools and Equipment**.
5. Continue to hold the rotor secure and tighten the lug nut firmly by hand.

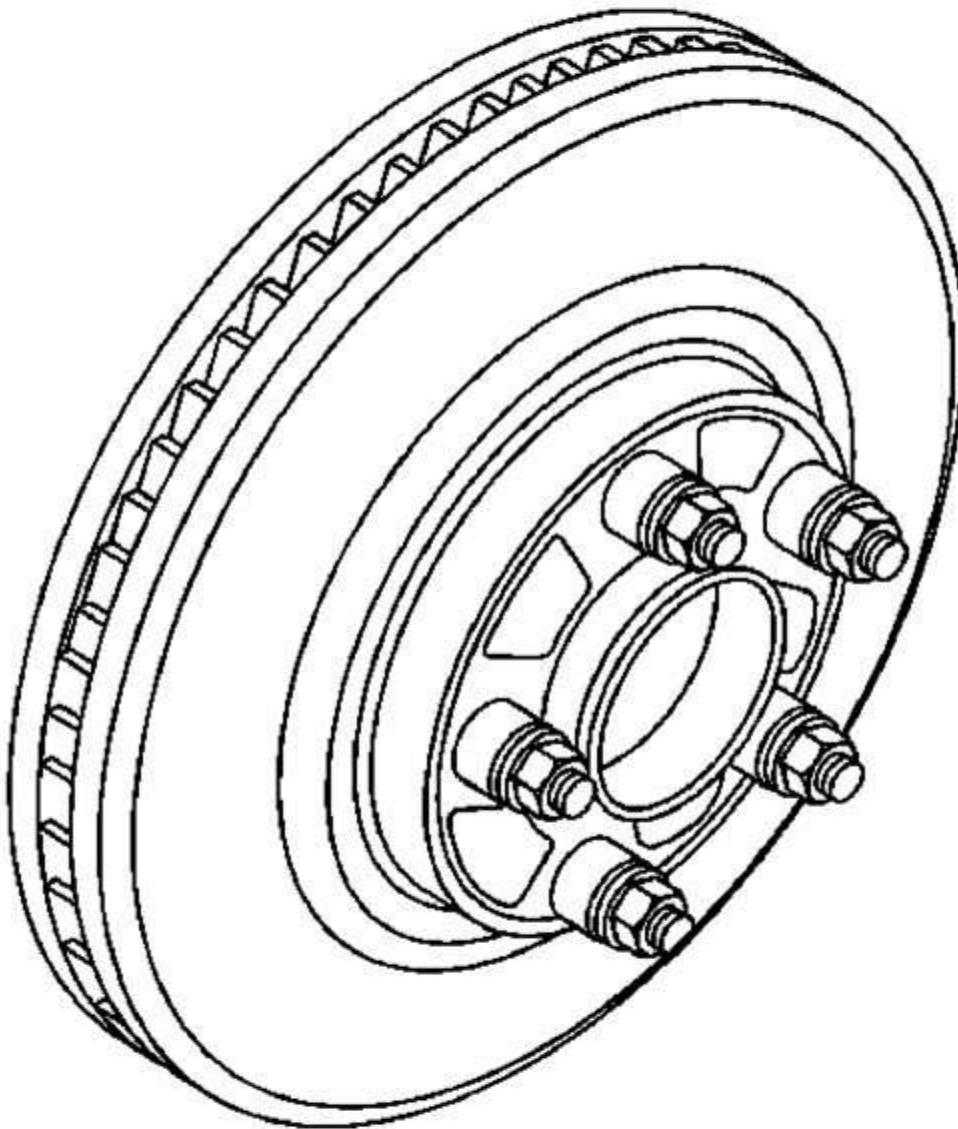


Fig. 5: Installing All J 45101-100s & Lug Nuts
Courtesy of GENERAL MOTORS CORP.

6. Install the remaining **J 45101-100** and lug nuts onto the wheel studs and tighten the nuts

firmly by hand in a star-pattern. See **Special Tools and Equipment**.

7. Using the **J 39544-KIT**, or equivalent, tighten the lug nuts in a star-pattern to specification, in order to properly secure the rotor. See **Special Tools and Equipment**. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
8. If the brake rotor has been REFINISHED or REPLACED with a new rotor, proceed to step 14.
9. If the brake rotor meets the following criteria, proceed to step 10.
 - The rotor is within specifications and is being REUSED
 - The rotor has NOT been refinished
 - The rotor does NOT exhibit thickness variation exceeding the maximum allowable level

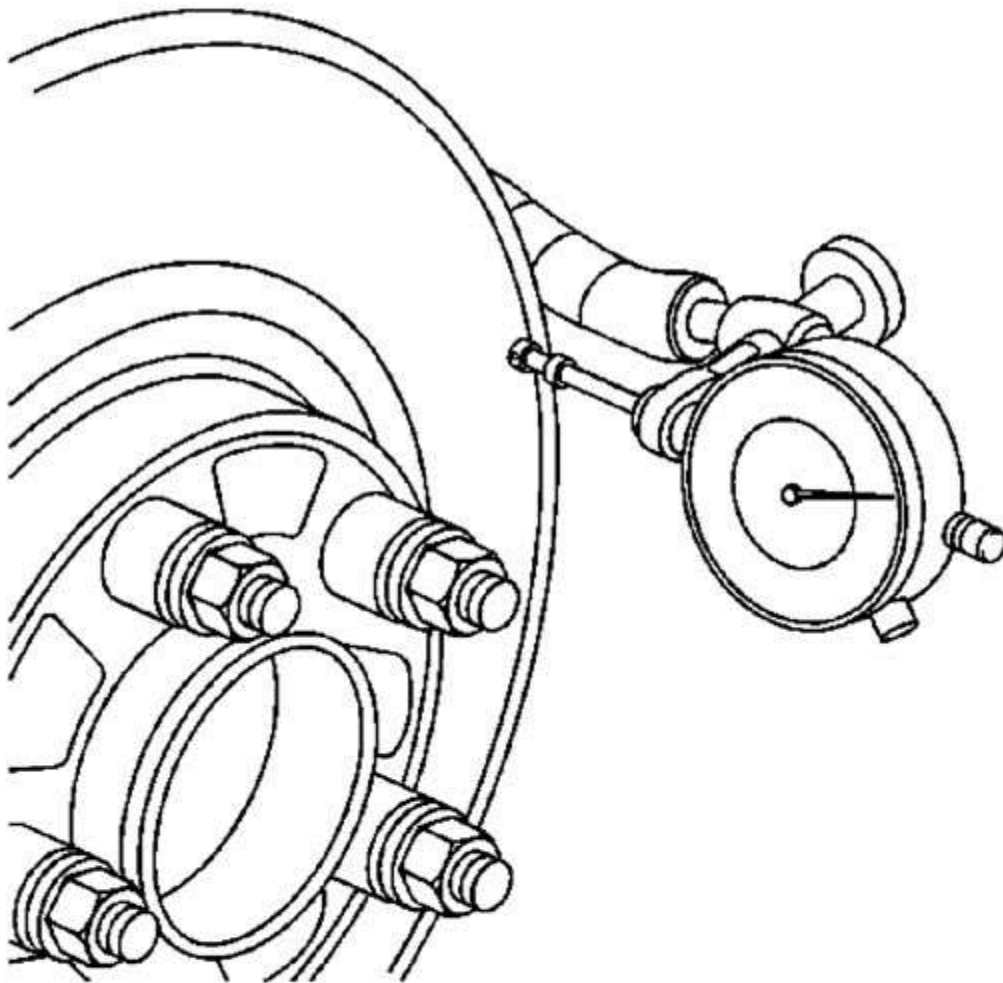


Fig. 6: Mounting Dial Indicator To Measure Lateral Runout
Courtesy of GENERAL MOTORS CORP.

10. Mount a dial indicator, **J 45101** , or equivalent, to the steering knuckle and position the indicator button so it contacts the brake rotor friction surface at a 90 degree angle, approximately 13 mm (0.5 in) from the outer edge of the rotor. See **Special Tools and Equipment**.
11. Measure and record the assembled LRO of the brake rotor.
 1. Rotate the rotor until the lowest reading is displayed on the indicator dial, then set the dial to zero.
 2. Rotate the rotor until the highest reading is displayed on the dial.
 3. Mark the location of the high spot relative to the nearest wheel stud, or studs.
 4. Measure and record the amount of LRO.
12. Compare the brake rotor assembled LRO to the following specification:

Specification:

- Front brake rotor maximum allowable assembled lateral runout: 0.05 mm (0.002 in)
 - Rear brake rotor maximum allowable assembled lateral runout: 0.05 mm (0.002 in)
13. If the brake rotor assembled LRO is within specifications, proceed to step 18.

If the brake rotor assembled LRO exceeds the specification, refinish the rotor to ensure true parallelism, refer to **Brake Rotor Refinishing**. After refinishing the rotor, proceed to step 14.

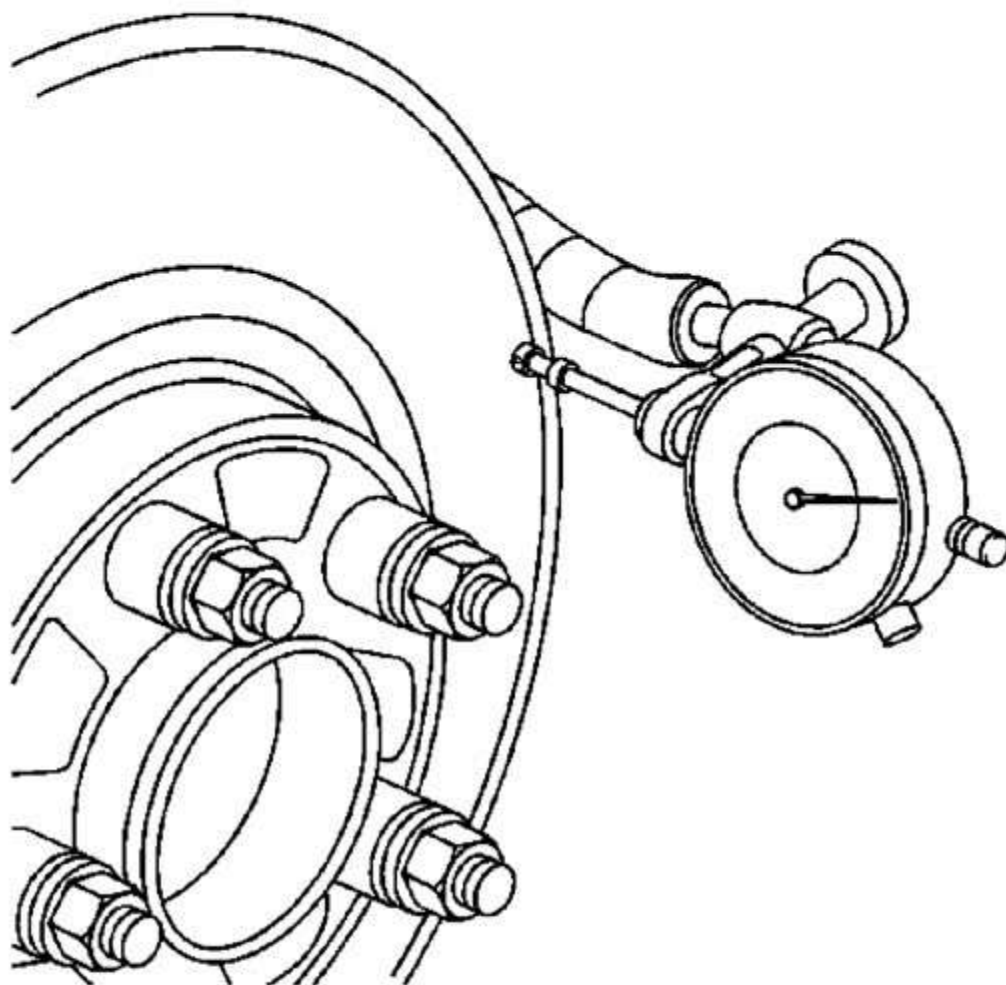


Fig. 7: Mounting Dial Indicator To Measure Lateral Runout
Courtesy of GENERAL MOTORS CORP.

14. Mount a dial indicator, **J 45101** , or equivalent, to the steering knuckle and position the indicator button so it contacts the brake rotor friction surface at a 90 degree angle, approximately 13 mm (0.5 in) from the outer edge of the rotor. See **Special Tools and Equipment**.
15. Measure and record the assembled LRO of the brake rotor.
 1. Rotate the rotor until the lowest reading is displayed on the indicator dial, then set the dial to zero.
 2. Rotate the rotor until the highest reading is displayed on the dial.
 3. Mark the location of the high spot relative to the nearest wheel stud, or studs.
 4. Measure and record the amount of LRO.

16. Compare the brake rotor assembled LRO to the following specification:

Specification:

- Front brake rotor maximum allowable assembled lateral runout: 0.05 mm (0.002 in)
- Rear brake rotor maximum allowable assembled lateral runout: 0.05 mm (0.002 in)

17. If the brake rotor assembled LRO measurement exceeds the specification, bring the LRO to within specifications. Refer to **Brake Rotor Assembled Lateral Runout (LRO) Correction**.

18. If the brake rotor assembled LRO measurement is within specification, install the brake caliper and depress the brake pedal several times to secure the rotor in place before removing the **J 45101-100** and the lug nuts. See **Special Tools and Equipment**.

BRAKE PAD INSPECTION

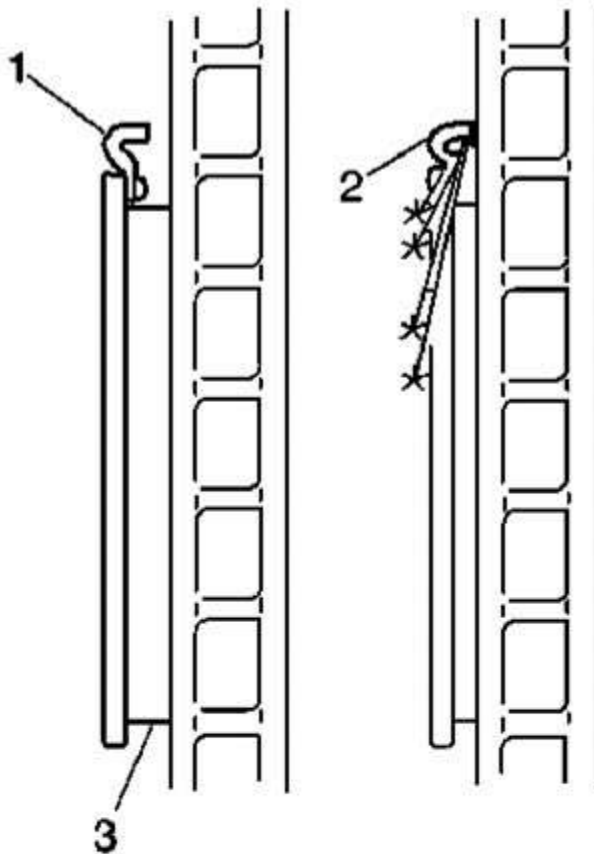


Fig. 8: View Of Brake Pads & Audible Wear Sensors
Courtesy of GENERAL MOTORS CORP.

CAUTION: Refer to Brake Dust Caution in Cautions and Notices.

- Inspect the disc brake pads at regular intervals, or whenever the tire and wheel assemblies are removed from the vehicle.
- If replacement is necessary, always replace disc brake pads in axle sets.
- Inspect both edges of the disc brake pad friction surfaces (3). The highest rate of wear normally occurs at the trailing edge of the disc brake pads.
- Inspect the thickness of the disc brake pads (3) in order to ensure that they have not worn excessively. The disc brake pad wear should be approximately even per axle set.
- Both front and rear disc brake pads have integral, audible wear sensors (1). When the disc brake pad wear reaches the minimum allowable thickness, the wear sensor contacts the disc brake rotor (2). The wear indicator will then produce an audible, high-pitched warning noise during wheel rotation.
- Replace the disc brake pads when the friction surface (3) is worn to within 1 mm (0.039 in) of the mounting plates.
- Remove the brake calipers and inspect the friction surfaces of the inner and outer disc brake pads to ensure that they are level. Place the disc brake pad friction surfaces together and measure the gap between the surfaces. If more than 0.5 mm (0.020 in) gap exists midway between the length of the disc brake pads, replace the disc brake pads.
- Verify that any disc brake pad shims that may be required are in place and not damaged or excessively corroded. Replace any missing or damaged shims in order to preserve proper disc brake performance.
- Replace the disc brake pads if any have separated from the mounting plates.
- Inspect the disc brake pads friction surfaces for cracks, fractures, or damage which may cause noise or otherwise impair disc brake performance.
- Inspect the noise insulators on the brake pad mounting plate. Replace the brake pads if the noise insulators have separated from the brake pad mounting plate.

BRAKE CALIPER INSPECTION (JL9, JE5)

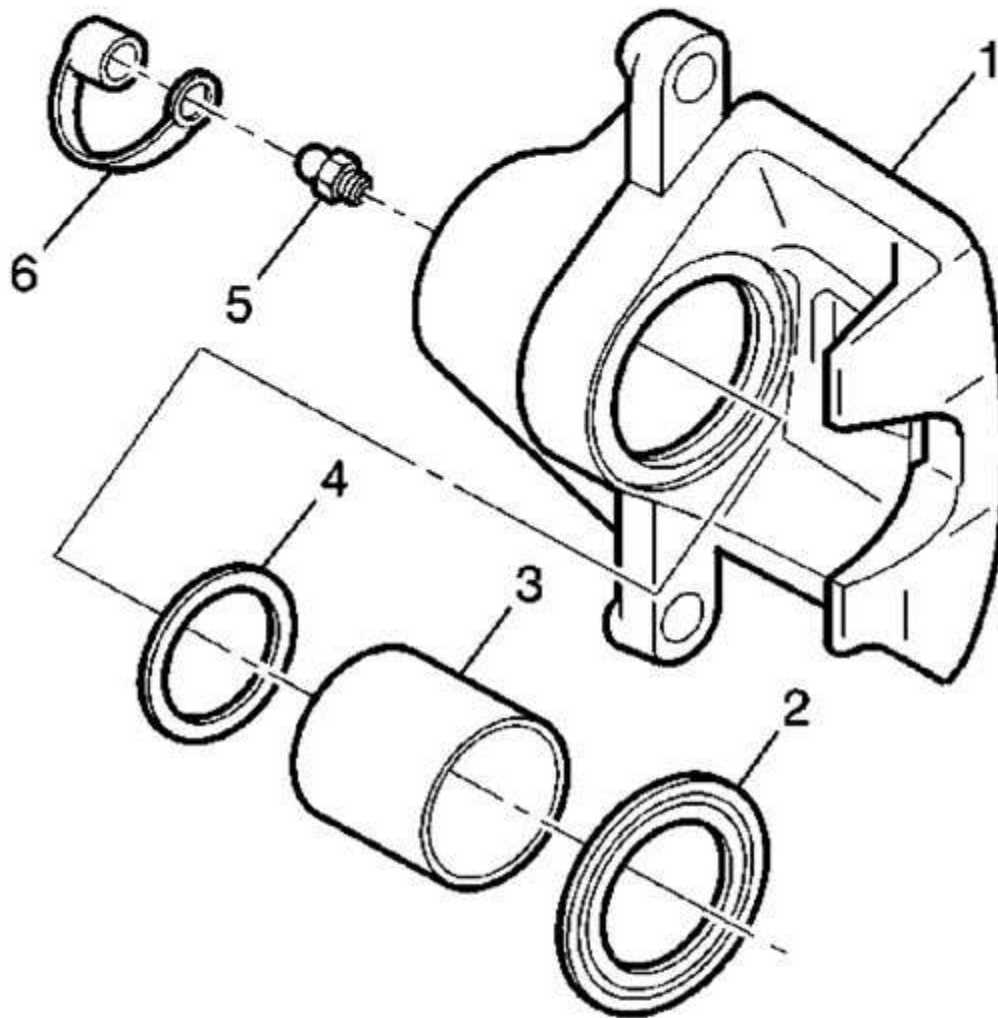


Fig. 9: Exploded View Of Brake Caliper
Courtesy of GENERAL MOTORS CORP.

CAUTION: Refer to Brake Dust Caution in Cautions and Notices.

1. Inspect the brake caliper housing (1) for cracks, excess wear, and/or damage. If any of these conditions are present, the brake caliper requires replacement.
2. Inspect the caliper piston dust boot seal (2) for cracks, tears, cuts, deterioration and/or improper seating in the caliper body. If any of these conditions are present, the brake caliper requires overhaul or replacement.
3. Inspect for brake fluid leakage around the caliper piston dust boot seal (2) and on the

disc brake pads. If there is any evidence of brake fluid leakage, the brake caliper requires overhaul or replacement.

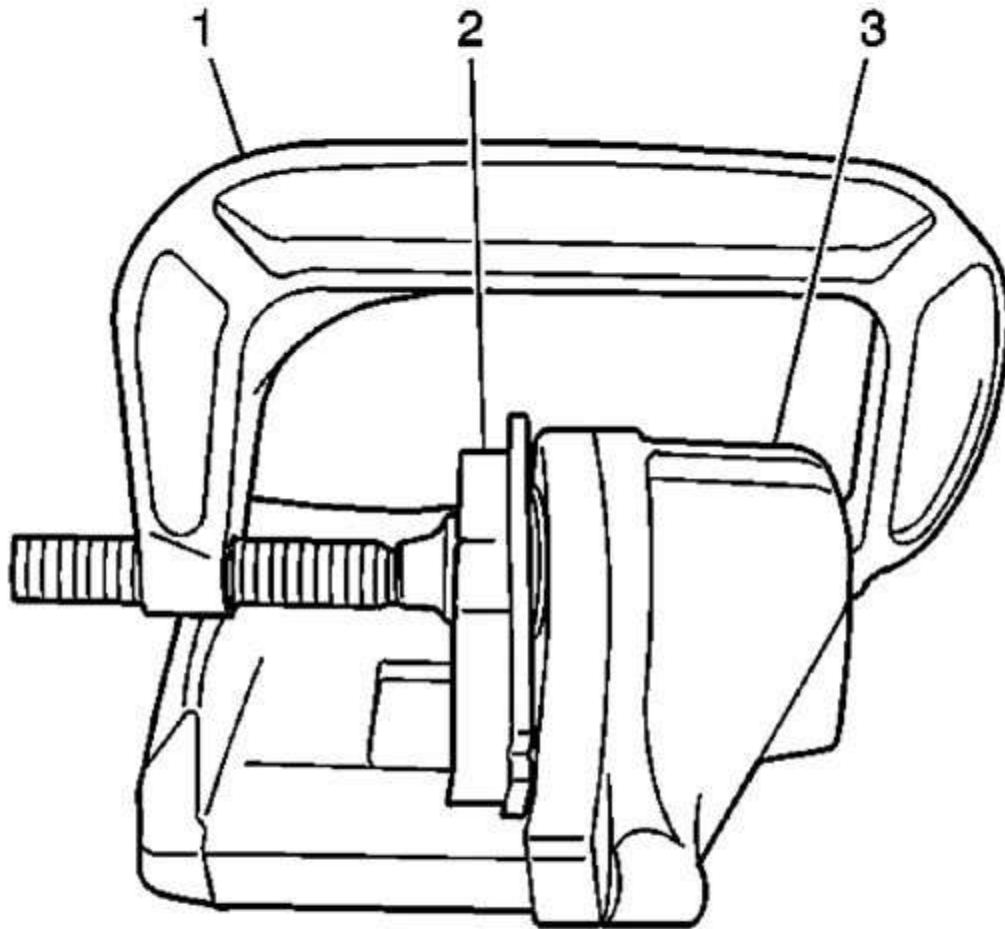


Fig. 10: Compressing Caliper Piston
Courtesy of GENERAL MOTORS CORP.

4. Inspect for smooth and complete travel of the caliper piston, or pistons, into the caliper bore, or bores:

The movement of a caliper piston into a caliper bore should be smooth and even. If a caliper piston is frozen or difficult to bottom, the caliper requires overhaul or replacement.

- For single piston caliper applications, insert a discarded inner brake pad (2) or block of wood in front of the piston. Using a large C-clamp (1) installed over the body of the caliper (3) and against the brake pad or block of wood, slowly bottom

the piston in the bore.

- For dual piston caliper applications, insert a discarded inner brake pad (2) or block of wood in front of the pistons. Using 2 large C-clamps (1) installed over the body of the caliper (3) and against the brake pad or block of wood, slowly bottom the pistons evenly into the bores.

DISC BRAKE MOUNTING AND HARDWARE INSPECTION - FRONT (JL9, JE5)

CAUTION: Refer to Brake Dust Caution in Cautions and Notices.

1. Inspect the fluid level in the brake master cylinder reservoir.
2. If the brake fluid level is midway between the maximum-full point and the minimum allowable level, no brake fluid needs to be removed from the reservoir before proceeding.
3. If the brake fluid level is higher than midway between the maximum-full point and the minimum allowable level, remove brake fluid to the midway point before proceeding.
4. Install a large C-clamp, over the body of the brake caliper with the C-clamp ends against the rear of the caliper body and against the outer brake pad.
5. Tighten the C-clamp until the caliper piston is compressed into the caliper bore enough to allow the caliper to slide past the brake rotor.
6. Remove the C-clamp from the caliper.
7. Grasp the brake caliper and try to move the brake caliper up or down. The brake caliper should not have excessive looseness.
8. Grasp the brake caliper and try to move the brake caliper in and out. The brake caliper should slide smoothly with minimal force.

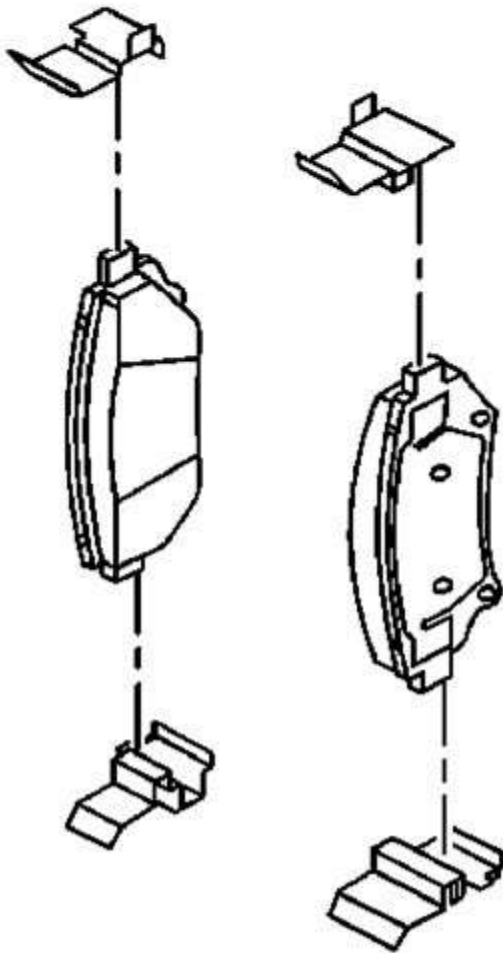


Fig. 11: Disc Brake Pad Mounting Hardware
Courtesy of GENERAL MOTORS CORP.

9. Inspect the brake caliper retainers.
10. Inspect the disc brake pad mounting hardware for the following:
 - Bent mounting tabs
 - Excessive corrosion
 - Looseness at the brake caliper mounting bracket
 - Looseness at the disc brake pads
 - Missing mounting hardware
11. If any of the conditions listed are found, the disc brake pad mounting hardware requires replacement.

12. Ensure the disc brake pads are held firmly in place on the brake caliper mounting bracket, yet slide easily on the mounting hardware without binding.

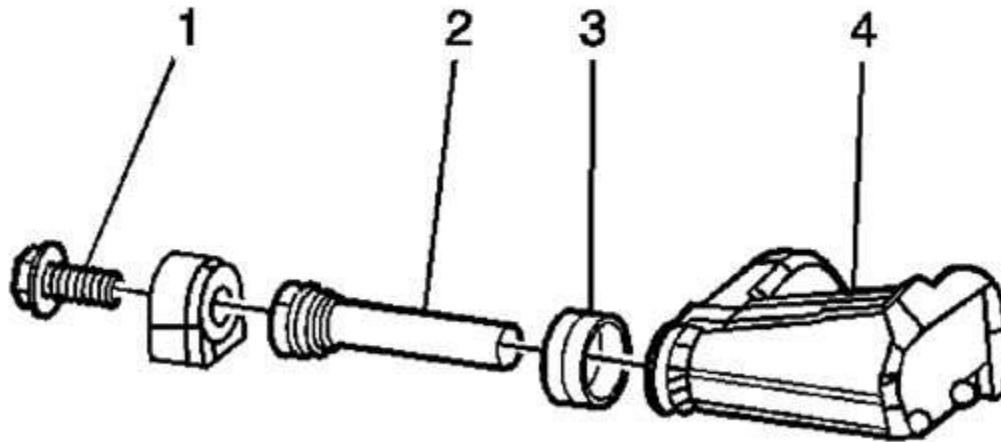


Fig. 12: Identifying Brake Caliper Components
Courtesy of GENERAL MOTORS CORP.

13. Inspect the brake caliper bolts (1) for the following:
- Bent or damaged brake caliper bolts (1)
 - Bent or damaged brake caliper mounting bracket (4)
 - Binding
 - Corrosion
 - Looseness in the brake caliper mounting bracket (4)
 - Seizing
14. If any of the conditions listed are found, the brake caliper mounting hardware requires replacement.
15. Inspect the brake caliper slides pins (2) by gently pulling outward (without disengaging the slides from the boot), then push inward, and observe for the following:
- Bent or damaged brake caliper bolts (1)
 - Bent or damaged brake caliper mounting bracket (4)
 - Binding
 - Corrosion
 - Cracked or torn boots (3)
 - Missing boots

- Looseness in the brake caliper mounting bracket (4)
- Seizing

16. If any of the conditions listed are found, the brake caliper mounting hardware requires replacement.

DISC BRAKE MOUNTING AND HARDWARE INSPECTION - REAR (JL9, JE5)

CAUTION: Refer to Brake Dust Caution in Cautions and Notices.

1. Inspect the fluid level in the brake master cylinder reservoir.
2. If the brake fluid level is midway between the maximum-full point and the minimum allowable level, no brake fluid needs to be removed from the reservoir before proceeding.
3. If the brake fluid level is higher than midway between the maximum-full point and the minimum allowable level, remove brake fluid to the midway point before proceeding.
4. Install a large C-clamp, over the body of the brake caliper with the C-clamp ends against the rear of the caliper body and against the outer brake pad.
5. Tighten the C-clamp until the caliper piston is compressed into the caliper bore enough to allow the caliper to slide past the brake rotor.
6. Remove the C-clamp from the caliper.
7. Grasp the brake caliper and try to move the brake caliper up or down. The brake caliper should not have excessive looseness.
8. Grasp the brake caliper and try to move the brake caliper in and out. The brake caliper should slide smoothly with minimal force.

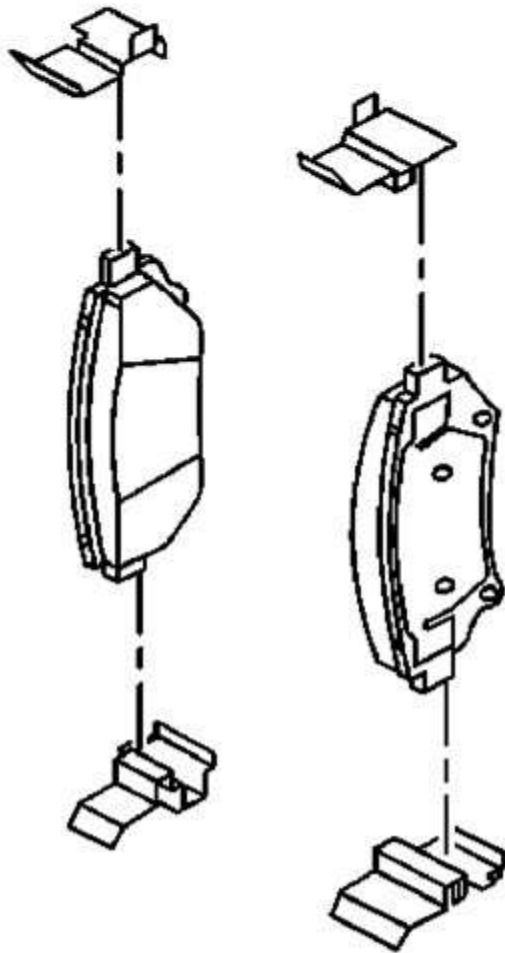


Fig. 13: Disc Brake Pad Mounting Hardware
Courtesy of GENERAL MOTORS CORP.

9. Inspect the brake caliper retainers.
10. Inspect the disc brake pad mounting hardware for the following:
 - Bent mounting tabs
 - Excessive corrosion
 - Looseness at the brake caliper mounting bracket
 - Looseness at the disc brake pads
 - Missing mounting hardware
11. If any of the conditions listed are found, the disc brake pad mounting hardware requires replacement.

12. Ensure the disc brake pads are held firmly in place on the brake caliper mounting bracket, yet slide easily on the mounting hardware without binding.

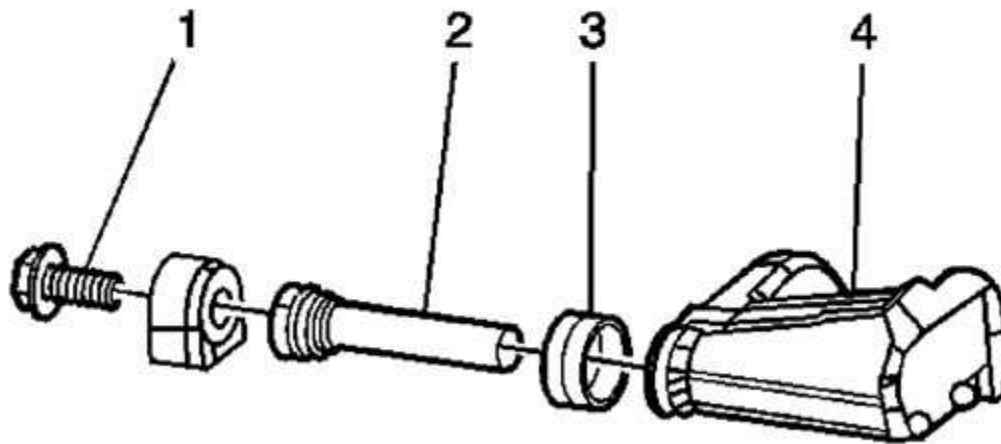


Fig. 14: Identifying Brake Caliper Components
Courtesy of GENERAL MOTORS CORP.

13. Inspect the brake caliper bolts (1) for the following:
- Bent or damaged brake caliper bolts (1)
 - Bent or damaged brake caliper mounting bracket (4)
 - Binding
 - Corrosion
 - Looseness in the brake caliper mounting bracket (4)
 - Seizing
14. If any of the conditions listed are found, the brake caliper mounting hardware requires replacement.
15. Inspect the brake caliper slides pins (2) by gently pulling outward (without disengaging the slides from the boot), then push inward, and observe for the following:
- Bent or damaged brake caliper bolts (1)
 - Bent or damaged brake caliper mounting bracket (4)
 - Binding
 - Corrosion
 - Cracked or torn boots (3)
 - Missing boots

- Looseness in the brake caliper mounting bracket (4)
- Seizing

16. If any of the conditions listed are found, the brake caliper mounting hardware requires replacement.

REPAIR INSTRUCTIONS

BRAKE PADS REPLACEMENT - FRONT

CAUTION: Refer to Brake Dust Caution in Cautions and Notices.

Removal Procedure

1. Inspect the fluid level in the brake master cylinder reservoir.
2. If the brake fluid level is midway between the maximum-full point and the minimum allowable level, no brake fluid needs to be removed from the reservoir before proceeding.
3. If the brake fluid level is higher than midway between the maximum-full point and the minimum allowable level, remove brake fluid to the midway point before proceeding.
4. Raise and suitably support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
5. Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.

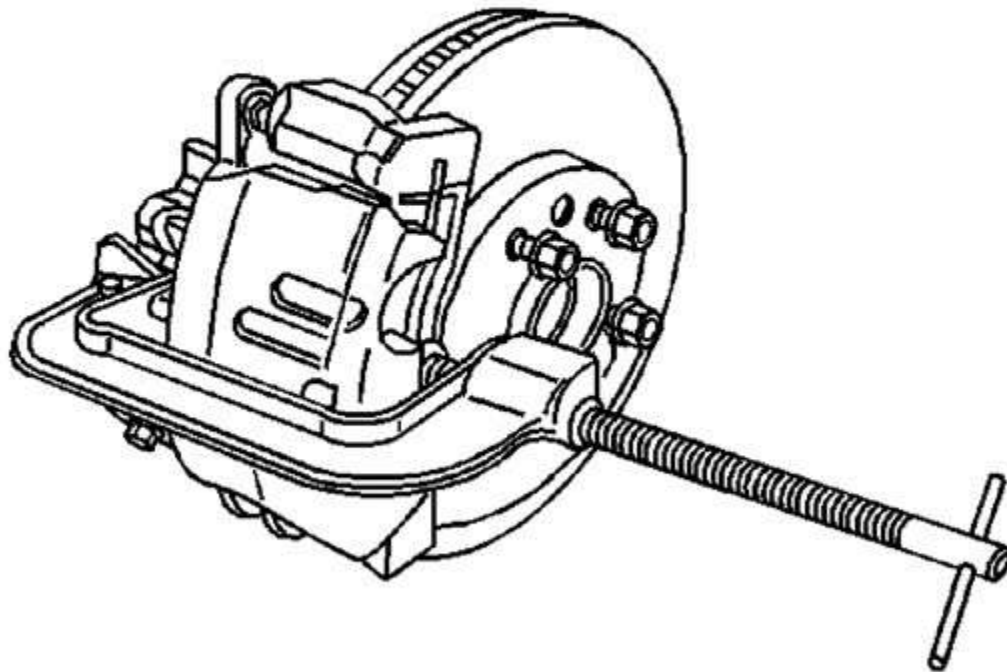


Fig. 15: Installing C-Clamp Over Body Of Brake Caliper
Courtesy of GENERAL MOTORS CORP.

6. Install large C-clamp over the body of the brake caliper with the C-clamp ends against the rear of the caliper body and against the outboard brake pad.
7. Tighten the C-clamp evenly until the caliper pistons are compressed into the caliper bores enough to allow the caliper to slide past the brake rotor.
8. Remove the C-clamp from the caliper.

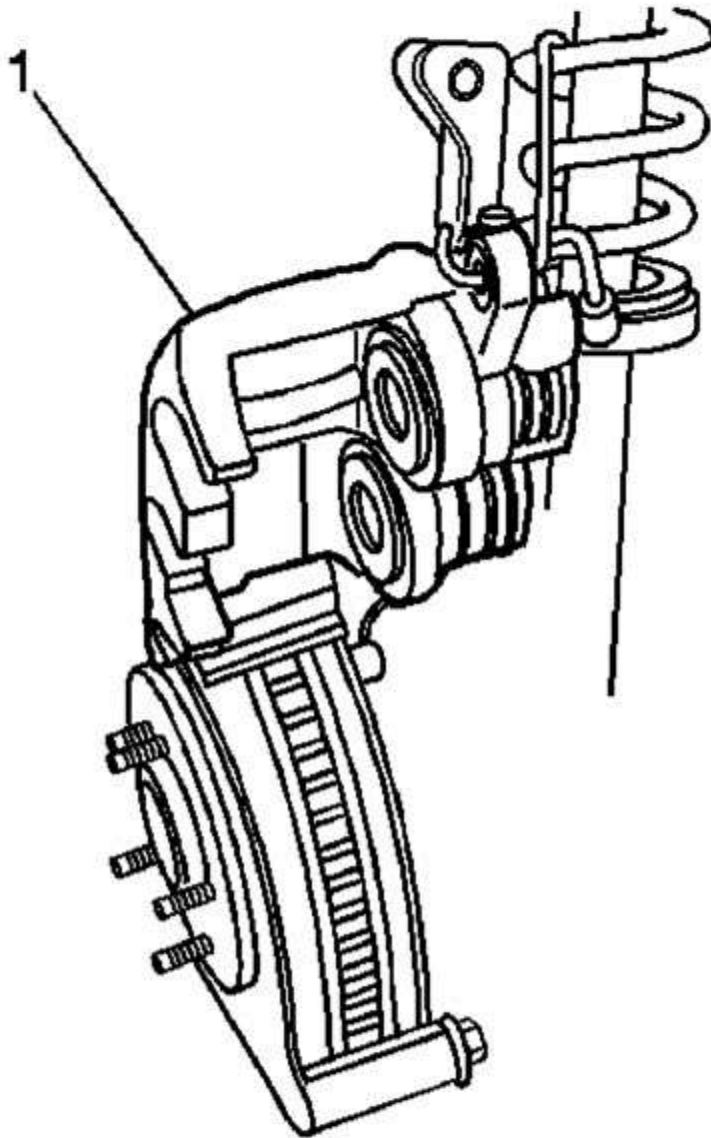


Fig. 16: Supporting Brake Caliper With Heavy Mechanic's Wire
Courtesy of GENERAL MOTORS CORP.

9. To loosen the brake caliper lower pin bolt, hold the brake caliper guide pin with a wrench.
10. Remove the brake caliper pin bolt.

NOTE: Support the brake caliper with heavy mechanic's wire, or equivalent, whenever it is separated from its mount and the

hydraulic flexible brake hose is still connected. Failure to support the caliper in this manner will cause the flexible brake hose to bear the weight of the caliper, which may cause damage to the brake hose and in turn may cause a brake fluid leak.

11. Pivot the brake caliper body (1) upward and secure the caliper out of the way with heavy mechanic's wire or equivalent; ensure that there is no tension on the hydraulic brake flexible hose. Do NOT disconnect the hydraulic brake flexible hose from the caliper.

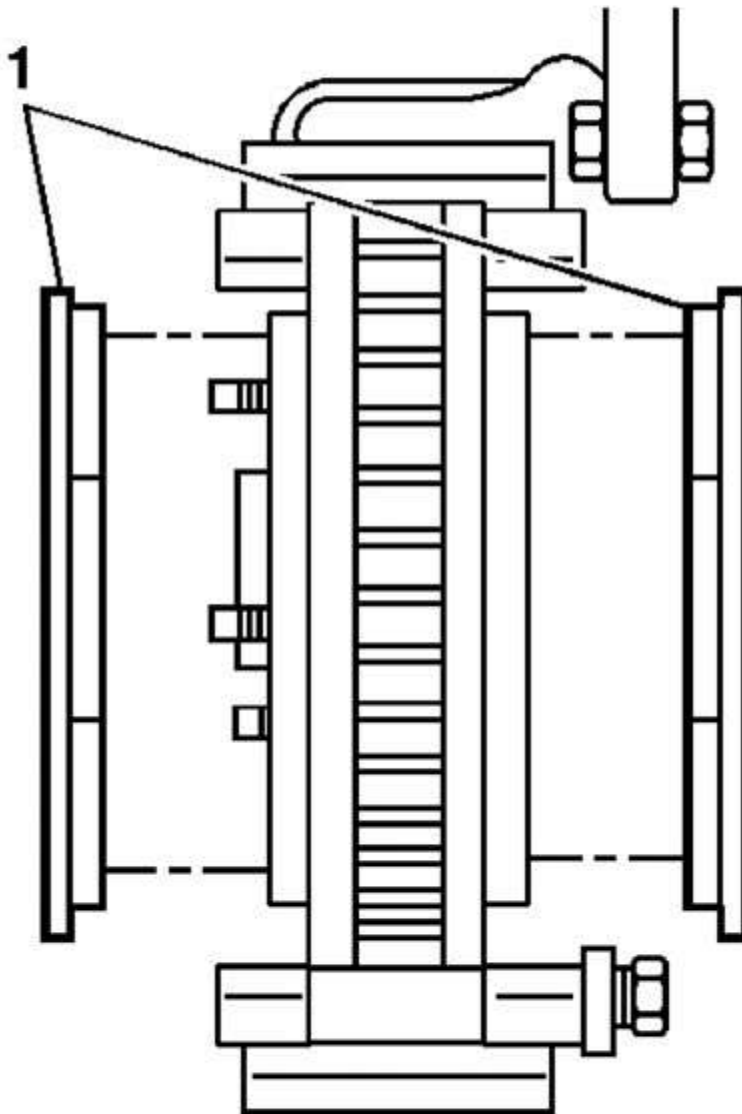


Fig. 17: Locating Brake Pads
Courtesy of GENERAL MOTORS CORP.

12. Remove the brake pads (1) from the caliper bracket.
13. Remove and inspect the brake pad retainers from the caliper bracket.

Installation Procedure

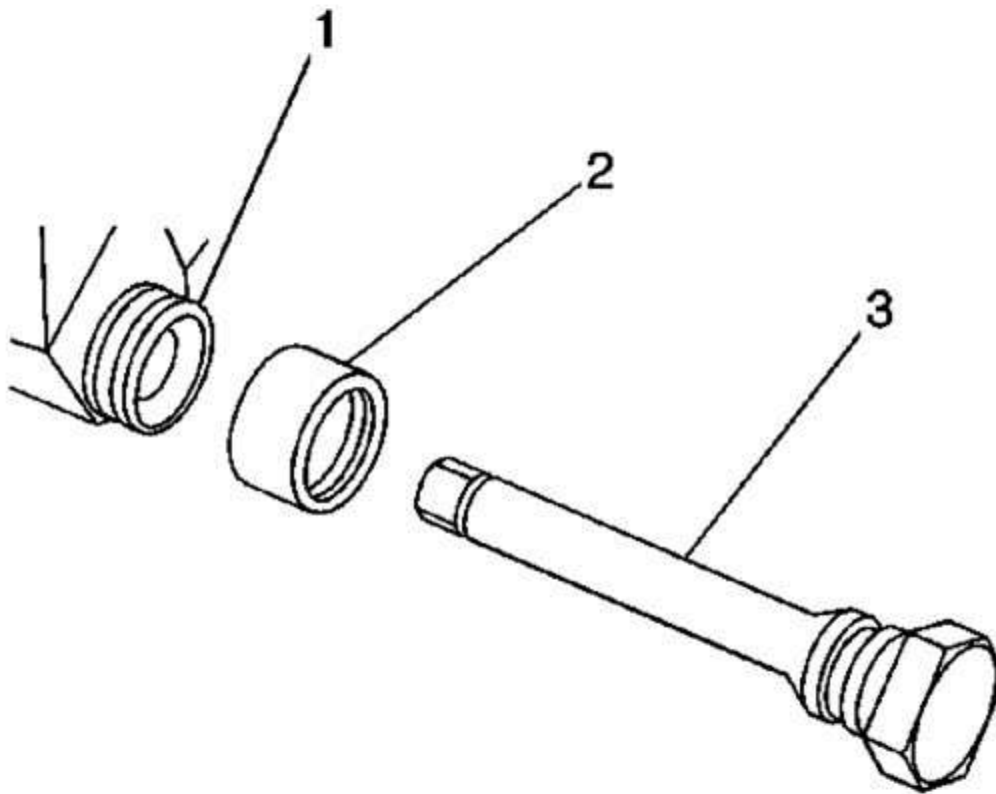
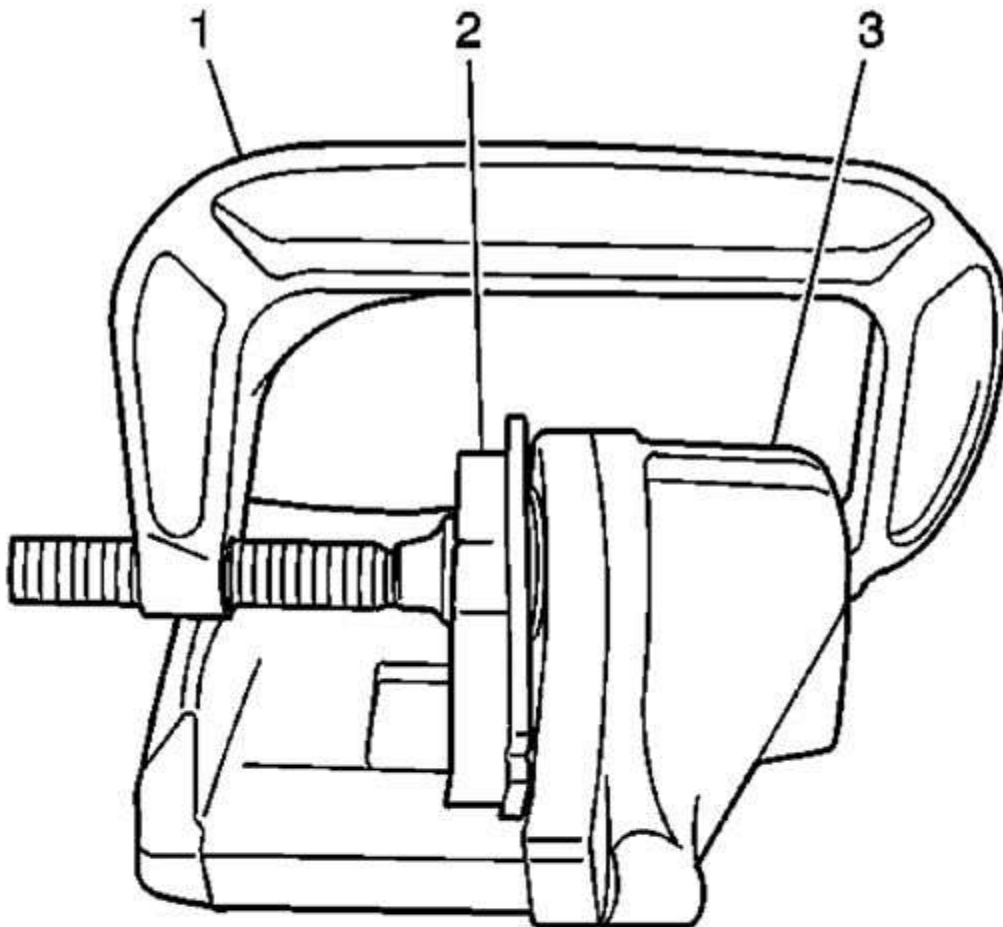


Fig. 18: View Of Caliper Guide Pin Retaining Seat, Pin Boots & Boot Seal
Courtesy of GENERAL MOTORS CORP.

IMPORTANT:

- Ensure that the caliper guide pin boots (2) are fully seated to the caliper guide pin retaining seat (3) of the caliper pin.
- Ensure that the caliper guide pin boots (2) are fully seated to the caliper boot seal retaining seat (1) of the brake caliper mounting bracket.

1. Inspect the brake caliper guide pin bolts. If damaged or corroded replace the brake caliper guide bolts.
2. Inspect the brake caliper guide pins. If damaged, or corroded replace the brake caliper guide pin. Do not attempt to clean away any corrosion. Refer to **Disc Brake Hardware Replacement - Front**.
3. Inspect the brake caliper guide pin boots for cuts, tears, or deterioration. If damaged, replace the brake caliper guide pin boots. Refer to **Disc Brake Hardware Replacement - Front**.
4. Carefully pull outward on the caliper guide pin (3) to ensure that the caliper guide pin retaining seat is fully seated to the caliper guide pin boot (2).
5. Inspect the brake caliper piston boot for deterioration, replace if damaged. Refer to **Brake Caliper Overhaul - Front**.

**Fig. 19: Compressing Caliper Piston**

Courtesy of GENERAL MOTORS CORP.

6. Install a large C-clamp (1) over the body of the brake caliper (3), with the C-clamp ends against the rear of the caliper body and against an old inboard brake pad (2) or a wood block installed against the caliper pistons.
7. Tighten the C-clamp (1) evenly until the caliper pistons are compressed completely into the caliper bores.
8. Remove the C-clamp and the old brake pad or wood block from the caliper.

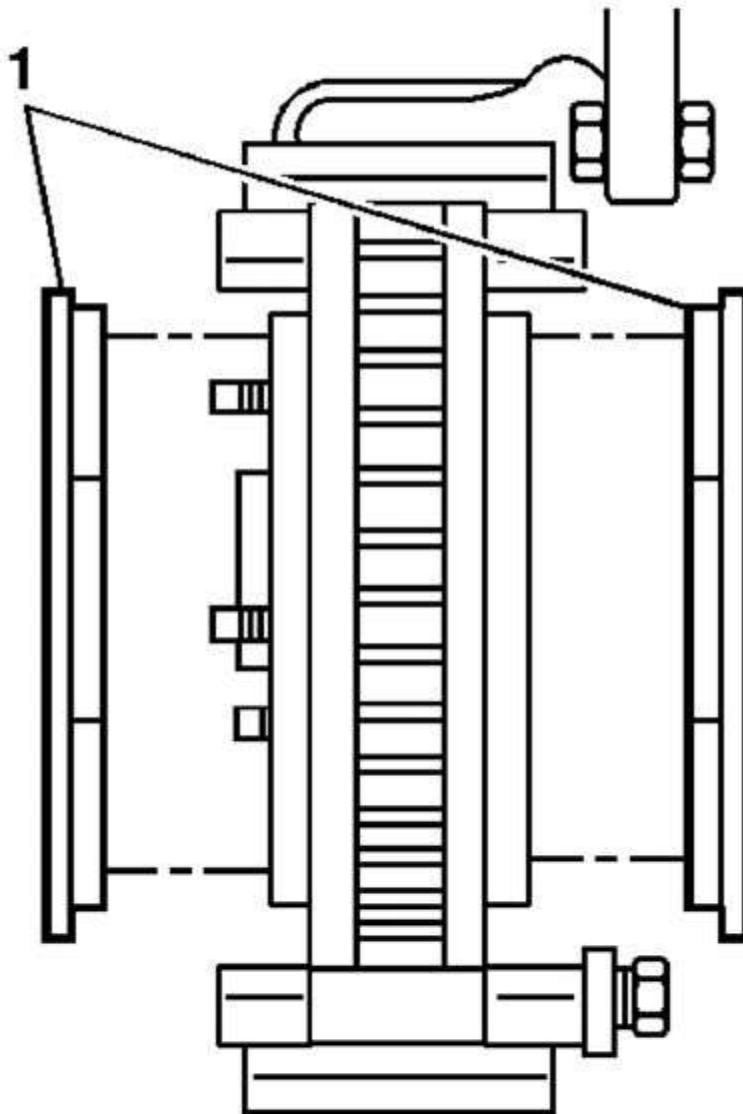


Fig. 20: Locating Brake Pads
Courtesy of GENERAL MOTORS CORP.

9. Install the brake pad retainers to the caliper bracket.
10. Install the brake pads (1) to the caliper bracket.
11. Pivot the brake caliper (1) downward, over the brake pads and into the caliper bracket.

IMPORTANT: If reusing the lower caliper pin bolt, the threads of the lower caliper pin bolt and the threads of the caliper bracket mounting holes must be free of residue and debris prior to application of threadlocker in order to ensure proper adhesion and fastener retention.

12. If reusing the caliper pin bolts prepare the bolt and the threaded hole for assembly:
 - Thoroughly clean the residue from the bolt threads by using denatured alcohol or equivalent and allow to dry.
 - Thoroughly clean the residue from the threaded holes by using denatured alcohol or equivalent and allow to dry.
13. Apply threadlocker GM P/N 12345493 (Canadian P/N 10953488), or equivalent to two-thirds of the threaded length of the lower caliper pin bolt. Ensure that there are no gaps in the threadlocker along the length of the filled area of the bolt.
14. Allow the threadlocker to cure approximately ten minutes before installation.
15. Apply a thin coat of Niglube® GM P/N 18046532 grease or equivalent, to the front brake caliper guide pin.

NOTE: Refer to Fastener Notice in Cautions and Notices.

16. Install the lower brake caliper pin bolt.

Tighten: Hold the lower brake caliper guide pin with a wrench and tighten the lower brake caliper pin bolt to 34 N.m (25 lb ft).

17. Install the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
18. Lower the vehicle.
19. With the engine OFF, gradually apply the brake pedal to approximately 2/3 of its travel distance.
20. Slowly release the brake pedal.
21. Wait 15 seconds, then repeat steps 15 and 16 until a firm brake pedal apply is obtained; this will properly seat the brake caliper pistons and brake pads.

22. Fill the brake master cylinder reservoir to the proper level. Refer to **Master Cylinder Reservoir Filling** in Hydraulic Brakes.
23. Burnish the pads and rotors. Refer to **Burnishing Pads and Rotors**.

BRAKE PADS REPLACEMENT - REAR (JL9, JE5)

CAUTION: Refer to **Brake Dust Caution** in Cautions and Notices.

Removal Procedure

1. Inspect the fluid level in the brake master cylinder reservoir.
2. If the brake fluid level is midway between the maximum-full point and the minimum allowable level, no brake fluid needs to be removed from the reservoir before proceeding.
3. Raise and suitably support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
4. Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.

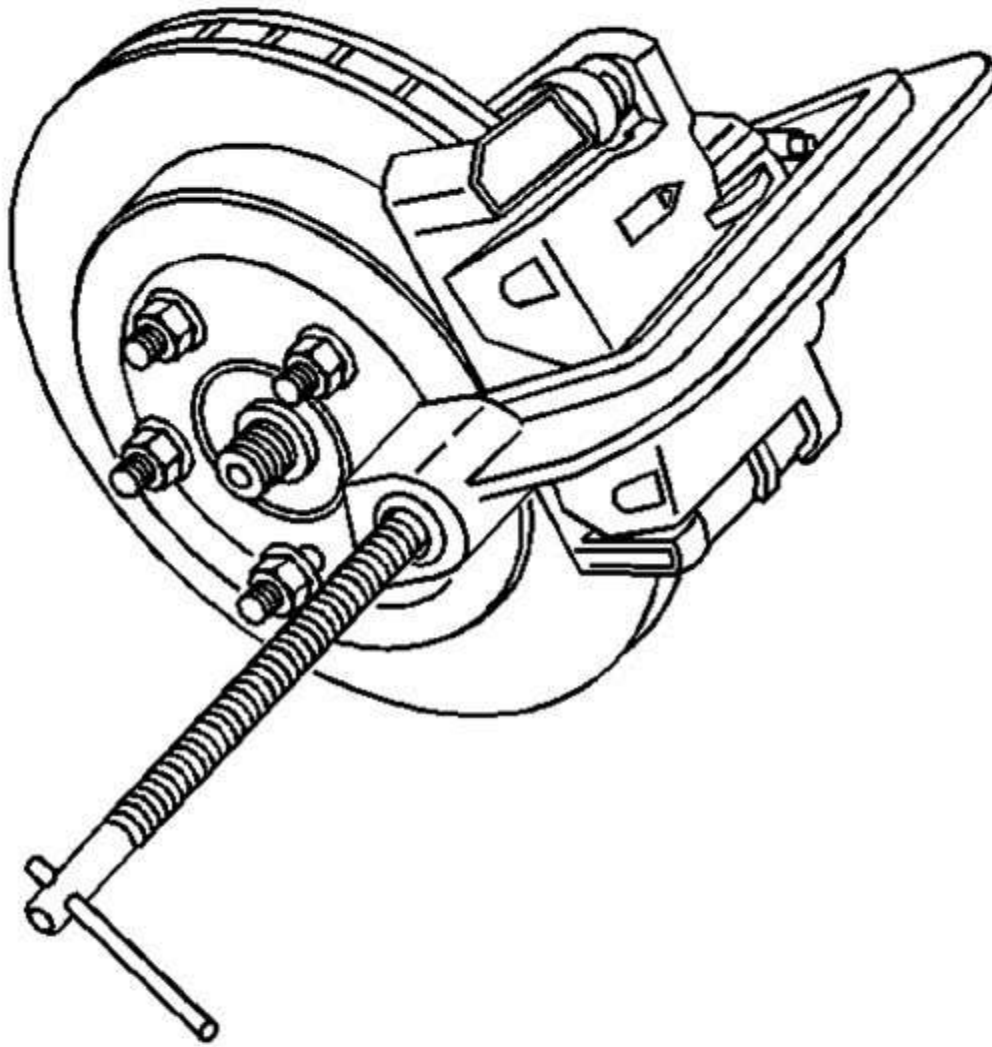


Fig. 21: Installing Large C-Clamp Over The Body Of Brake Caliper
Courtesy of GENERAL MOTORS CORP.

5. Install a large C-clamp over the body of the brake caliper with the C-clamp ends against the rear of the caliper body and against the outboard brake pad.
6. Tighten the C-clamp until the caliper piston is compressed into the caliper bore enough to allow the caliper to slide past the brake rotor.
7. Remove the C-clamp from the caliper.

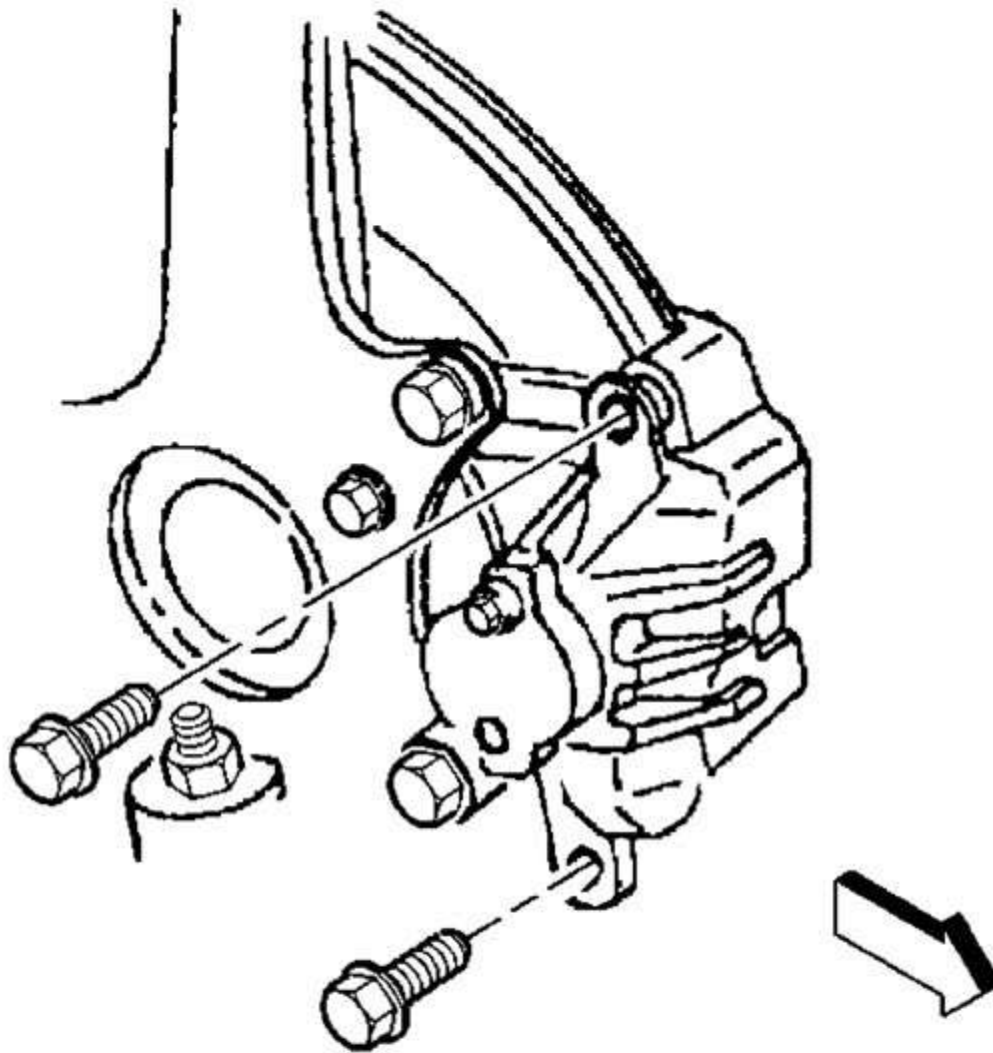


Fig. 22: View Of Caliper Assembly & Retainers
Courtesy of GENERAL MOTORS CORP.

8. To loosen the brake caliper lower pin bolt, hold the brake caliper guide pin with a wrench.
9. Loosen the lower brake caliper pin bolt and remove the lower brake caliper pin bolt.

NOTE: Support the brake caliper with heavy mechanic's wire, or equivalent, whenever it is separated from its mount and the hydraulic flexible brake hose is still connected. Failure to support the caliper in this manner will cause the flexible

brake hose to bear the weight of the caliper, which may cause damage to the brake hose and in turn may cause a brake fluid leak.

10. Pivot the brake caliper upward from the caliper bracket and support the caliper out of the way with heavy mechanic's wire or equivalent; ensure that there is no tension on the hydraulic brake flexible hose. Do NOT disconnect the hydraulic brake flexible hose from the caliper.
11. Remove the brake pads from the caliper bracket.
12. Remove and inspect the brake pad retainers from the caliper bracket.

Installation Procedure

1. Inspect the brake caliper guide pin bolts. If damaged or corroded replace the brake caliper guide bolts.
2. Inspect the brake caliper guide pins. If damaged, or corroded replace the brake caliper guide pin. Do not attempt to clean away any corrosion. Refer to **Disc Brake Hardware Replacement - Rear (JL9, JE5)**.
3. Inspect the brake caliper guide pin seals for cuts, tears, or deterioration. If damaged, replace the brake caliper guide pin seals. Refer to **Disc Brake Hardware Replacement - Rear (JL9, JE5)**.
4. Inspect the brake caliper piston boot for deterioration, replace if damaged. Refer to **Brake Caliper Overhaul - Rear**.

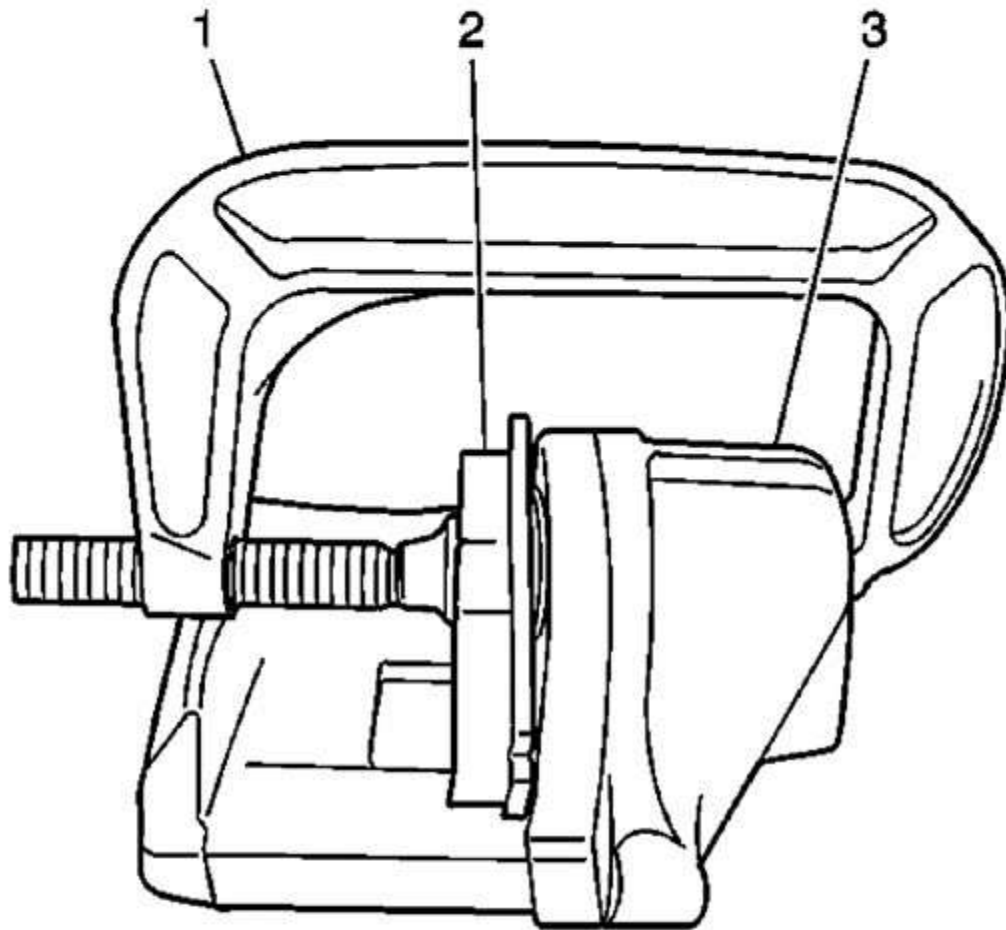


Fig. 23: Compressing Caliper Piston
Courtesy of GENERAL MOTORS CORP.

5. Install a large C-clamp (1) over the body of the brake caliper (3) with the C-clamp ends against the rear of the caliper body and against an old inboard brake pad (2) or a wood block installed against the caliper piston.
6. Tighten the C-clamp (1) until the caliper piston is compressed completely into the caliper bore.
7. Remove the C-clamp and the old brake pad or wood block from the caliper.

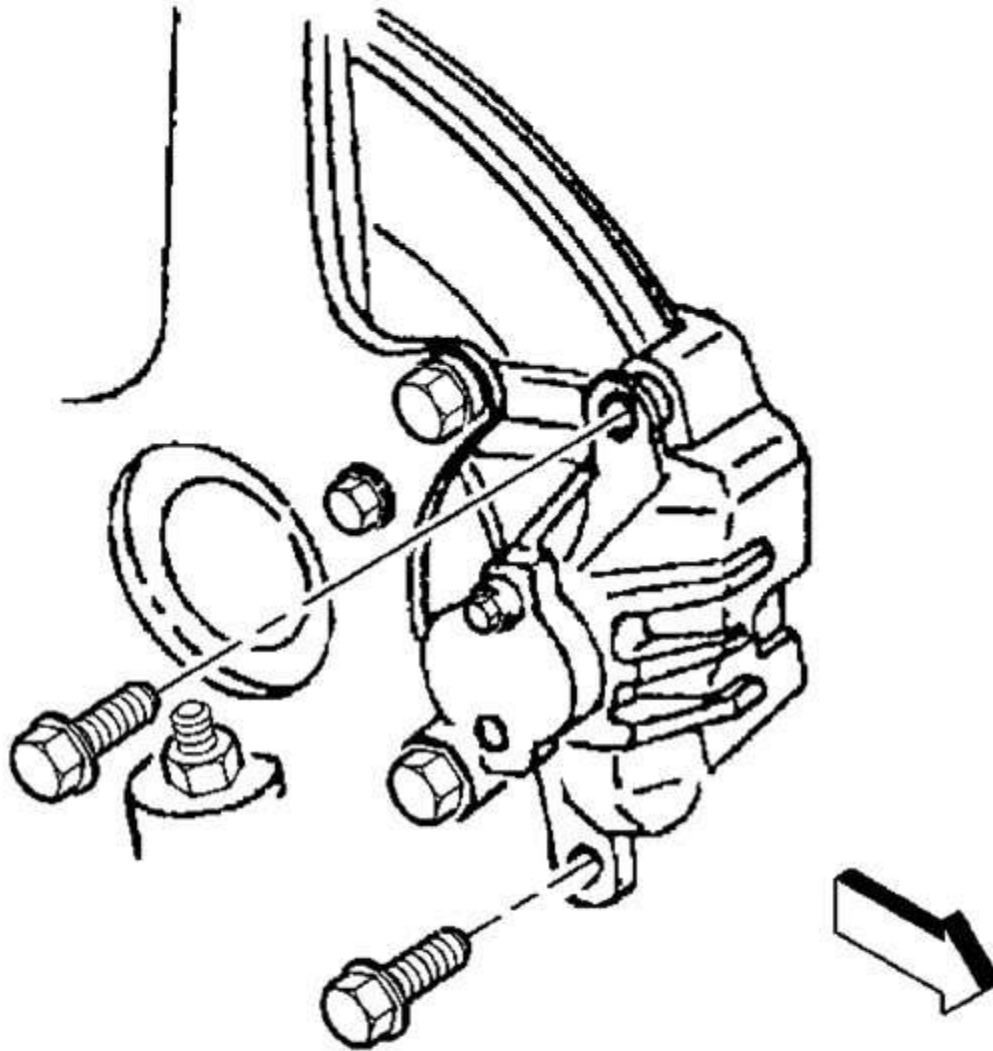


Fig. 24: View Of Caliper Assembly & Retainers
Courtesy of GENERAL MOTORS CORP.

8. Install the brake pad retainers to the caliper bracket.
9. Install the brake pads to the caliper bracket. The brake pad wear sensor, mounted on the inboard brake pad, must be positioned so that it is in the trailing position during forward rotation of the brake rotor.
10. Pivot the brake caliper downward, over the brake pads and into the caliper bracket.

IMPORTANT: If reusing the lower caliper pin bolt, the threads of the lower caliper pin bolt and the threads of the caliper

bracket mounting holes must be free of residue and debris prior to application of threadlocker in order to ensure proper adhesion and fastener retention.

11. Prepare the bolt and the threaded hole for assembly:
 - Thoroughly clean there residue from the fastener threads using denatured alcohol or equivalent and allow to dry.
 - Thoroughly clean residue from the threaded holes using denatured alcohol or equivalent and allow to dry.
12. Apply threadlocker GM 12345493 (Canadian P/N 10953488), or equivalent to two-thirds of the threaded length of the lower caliper pin bolt. Ensure that there are no gaps in the threadlocker along the length of the filled area of the bolt.
13. Allow the threadlocker to cure approximately ten minutes before installation.
14. Apply a thin coat of high temperature silicone lube to the front brake caliper guide pin.

NOTE: Refer to Fastener Notice in Cautions and Notices.

15. Install the lower brake caliper pin bolt.

Tighten: Hold the lower caliper guide pin with a wrench and tighten the lower brake caliper pin bolt to 60 N.m (44 lb ft).

16. Install the tire and wheel assembly. Refer to Tire and Wheel Removal and Installation in Tires and Wheels.
17. Lower the vehicle.
18. With the engine OFF, gradually apply the brake pedal to approximately 2/3 of its travel distance.
19. Slowly release the brake pedal.
20. Wait 15 seconds, then repeat steps 15 and 16 until a firm brake pedal apply is obtained; this will properly seat the brake caliper pistons and brake pads.
21. Fill the brake master cylinder reservoir to the proper level. Refer to Master Cylinder Reservoir Filling in Hydraulic Brakes.
22. Burnish the pads and rotors. Refer to Burnishing Pads and Rotors.

BURNISHING PADS AND ROTORS

CAUTION: Road test a vehicle under safe conditions and while obeying all traffic laws. Do not attempt any maneuvers that could jeopardize vehicle control. Failure to adhere to these precautions could lead to serious personal injury and

vehicle damage.

CAUTION: Refer to Brake Dust Caution in Cautions and Notices.

Burnishing the brake pads and brake rotors is necessary in order to ensure that the braking surfaces are properly prepared after service has been performed on the disc brake system.

This procedure should be performed whenever the disc brake rotors have been refinished or replaced, and/or whenever the disc brake pads have been replaced.

1. Select a smooth road with little or no traffic.
2. Accelerate the vehicle to 48 km/h (30 mph).

IMPORTANT: Use care to avoid overheating the brakes while performing this step.

3. Using moderate to firm pressure, apply the brakes to bring the vehicle to a stop. Do not allow the brakes to lock.
4. Repeat steps 2 and 3 until approximately 20 stops have been completed. Allow sufficient cooling periods between stops in order to properly burnish the brake pads and rotors.

BRAKE CALIPER REPLACEMENT - FRONT

CAUTION: Refer to Brake Fluid Irritant Caution in Cautions and Notices.

CAUTION: Refer to Brake Dust Caution in Cautions and Notices.

NOTE: Refer to Brake Fluid Effects on Paint and Electrical Components Notice in Cautions and Notices.

Removal Procedure

1. Inspect the fluid level in the brake master cylinder reservoir.
2. If the brake fluid level is midway between the maximum-full point and the minimum allowable level, no brake fluid needs to be removed from the reservoir before proceeding.
3. If the brake fluid level is higher than midway between the maximum-full point and the minimum allowable level, remove brake fluid to the midway point before proceeding.
4. Raise and suitably support the vehicle. Refer to **Lifting and Jacking the Vehicle** in

General Information.

5. Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.

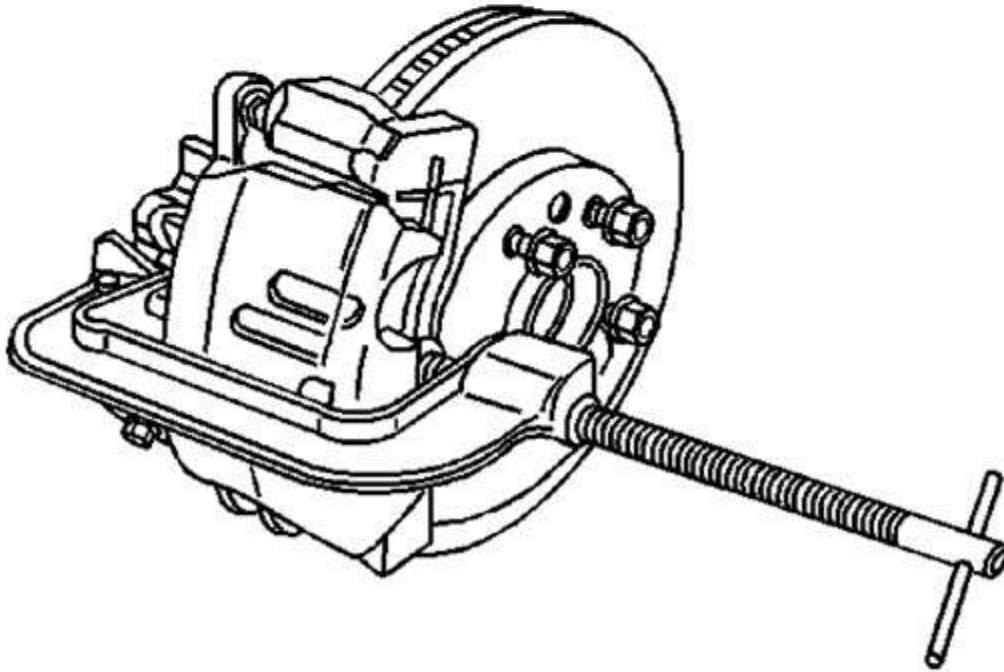


Fig. 25: Installing C-Clamp Over Body Of Brake Caliper
Courtesy of GENERAL MOTORS CORP.

6. Install a large C-clamp over the body of the brake caliper with the C-clamp ends against the rear of the caliper body and against the outer brake pad.
7. Tighten the C-clamp until the caliper piston is compressed into the caliper bore enough to allow the caliper to slide past the brake rotor.
8. Remove the C-clamp from the caliper.

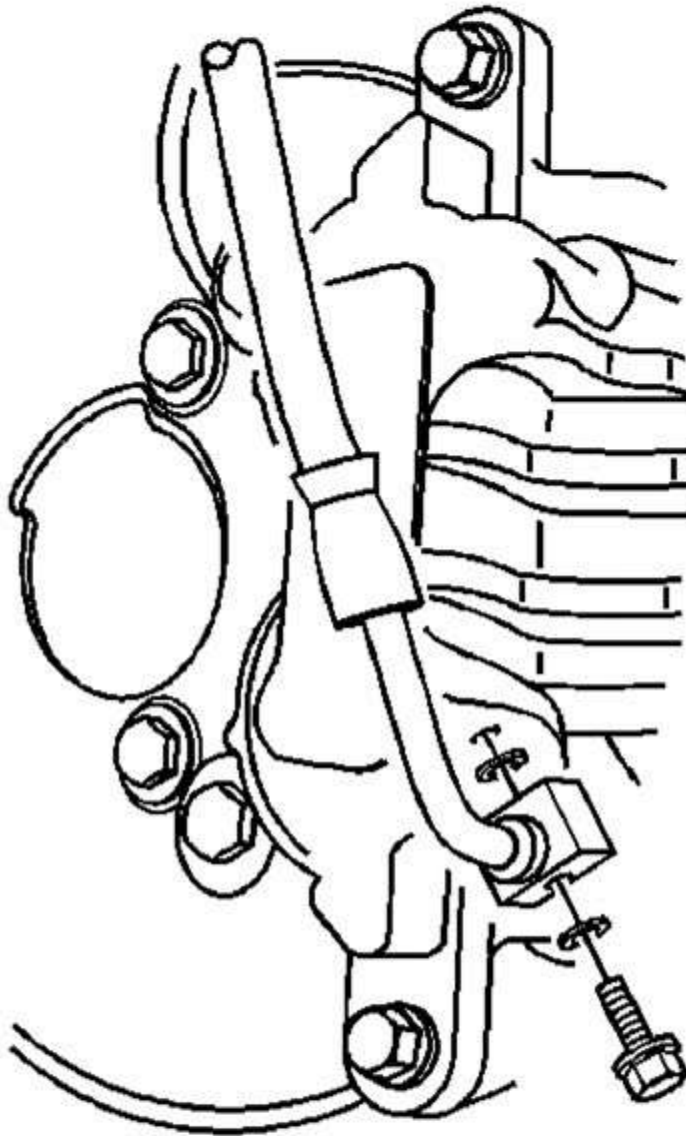


Fig. 26: View Of Front Brake Hose
Courtesy of GENERAL MOTORS CORP.

9. Remove the brake hose to caliper bolt attaching the brake hose to the brake caliper.
10. Remove the brake hose from the brake caliper.
11. Remove and discard the two copper brake hose gaskets. These gaskets may be stuck to the brake caliper and/or the brake hose end.
12. Plug the opening in the brake caliper and the brake hose to prevent fluid loss and contamination.

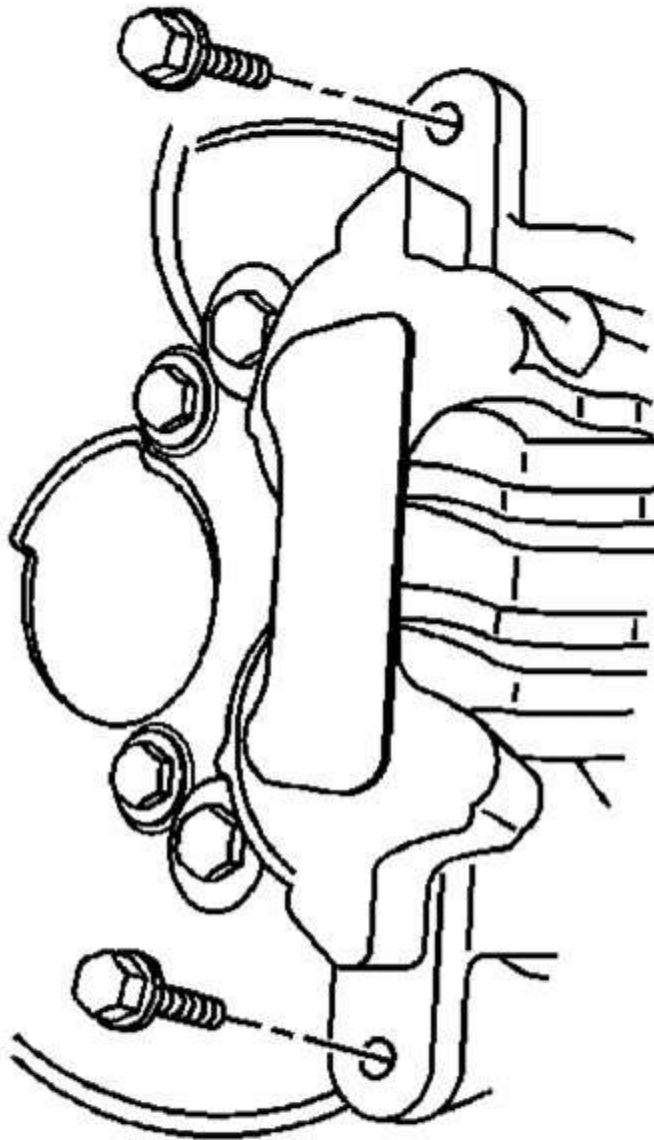


Fig. 27: View Of Brake Caliper Pin Bolts
Courtesy of GENERAL MOTORS CORP.

13. Remove the brake caliper pin bolts.
14. Remove the brake caliper from the brake caliper bracket.

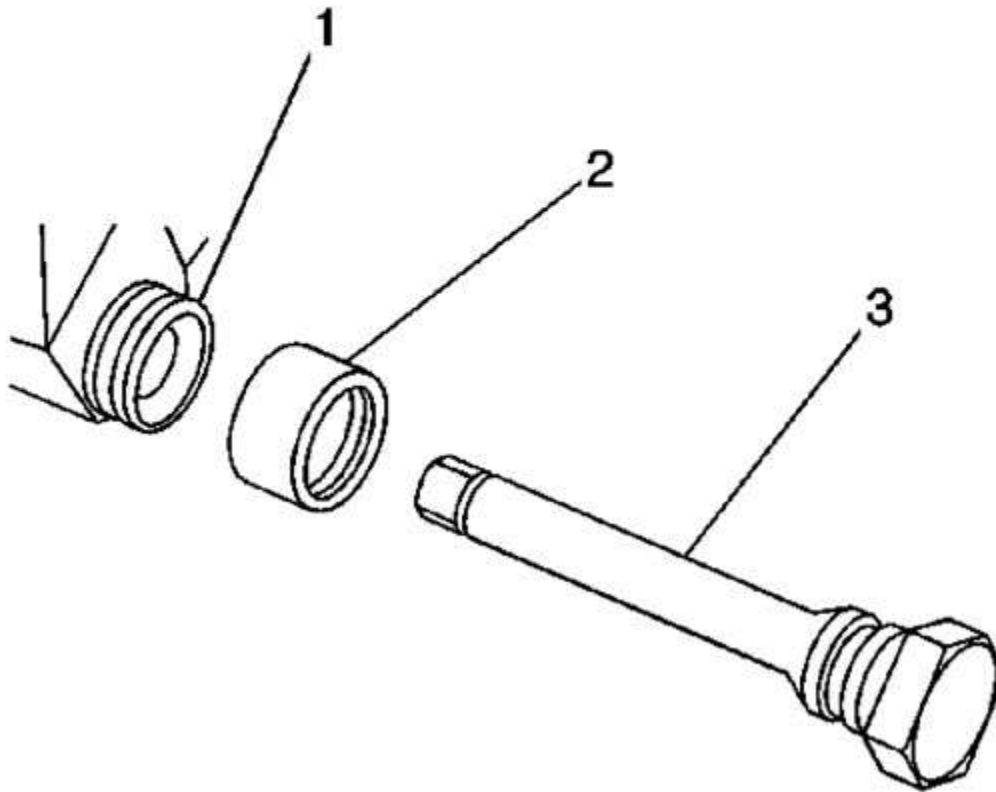


Fig. 28: View Of Caliper Guide Pin Retaining Seat, Pin Boots & Boot Seal Retaining Seat

Courtesy of GENERAL MOTORS CORP.

IMPORTANT:

- Ensure that the caliper guide pin boots (2) are fully seated to the caliper guide pin retaining seat (3) of the caliper guide pin.
- Ensure that the caliper guide pin boots (2) are fully seated to the caliper boot seal retaining seat (1) of the brake caliper mounting bracket.

1. Inspect the caliper guide pin boots (2) for cuts, tears, or deterioration. If damaged, replace the slides and boots. Refer to **Disc Brake Hardware Replacement - Front**.

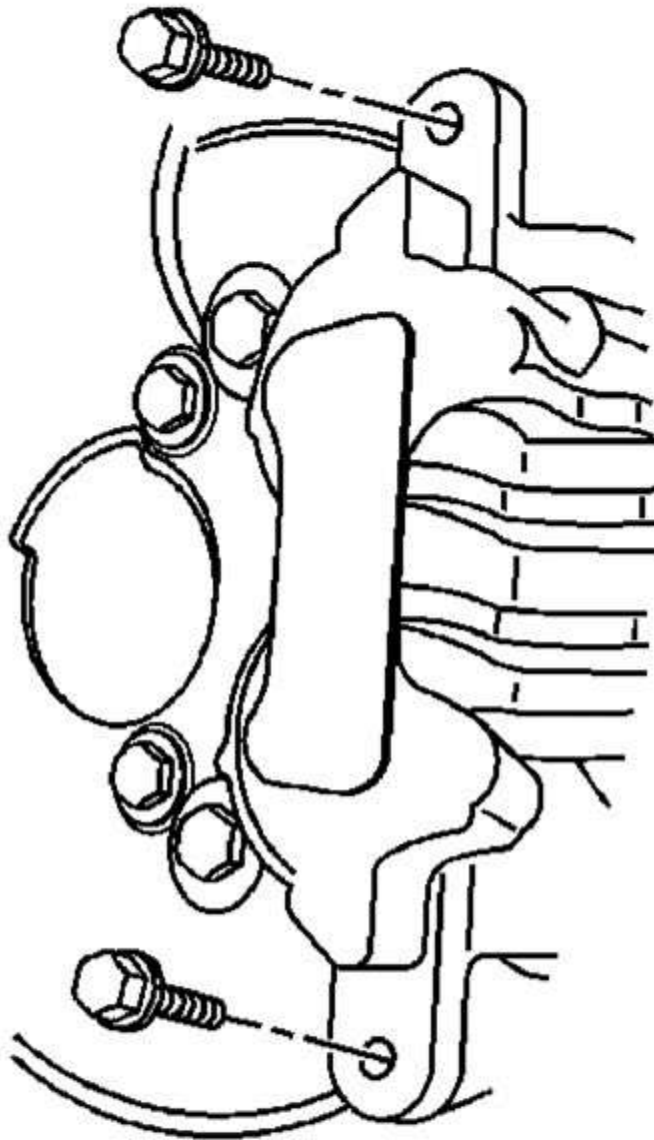


Fig. 29: View Of Brake Caliper Pin Bolts
Courtesy of GENERAL MOTORS CORP.

2. Install the brake caliper to the brake caliper bracket.

IMPORTANT: If reusing the brake caliper pin bolts the threads of the caliper pin bolts and the threads of the caliper bracket mounting holes must be free of residue and debris prior to application of threadlocker in order to ensure proper

adhesion and fastener retention.

3. Prepare the bolts and the threaded holes for assembly:
 - Thoroughly clean the residue from the bolt threads by using denatured alcohol or equivalent and allow to dry.
 - Thoroughly clean the residue from the threaded holes by using denatured alcohol or equivalent and allow to dry.
4. Apply threadlocker GM P/N 12345493 (Canadian P/N 10953488), or equivalent to two-thirds of the threaded length of the lower caliper bracket bolts. Ensure that there are no gaps in the threadlocker along the length of the filled area of the bolts.
5. Allow the threadlocker to cure approximately ten minutes before installation.
6. Apply a thin coat of high temperature silicone brake lubricant to the brake caliper pin bolts.

NOTE: Refer to Fastener Notice in Cautions and Notices.

7. Install the brake caliper pin bolts.

Tighten: Tighten the brake caliper pin bolts to 34 N.m (25 lb ft).

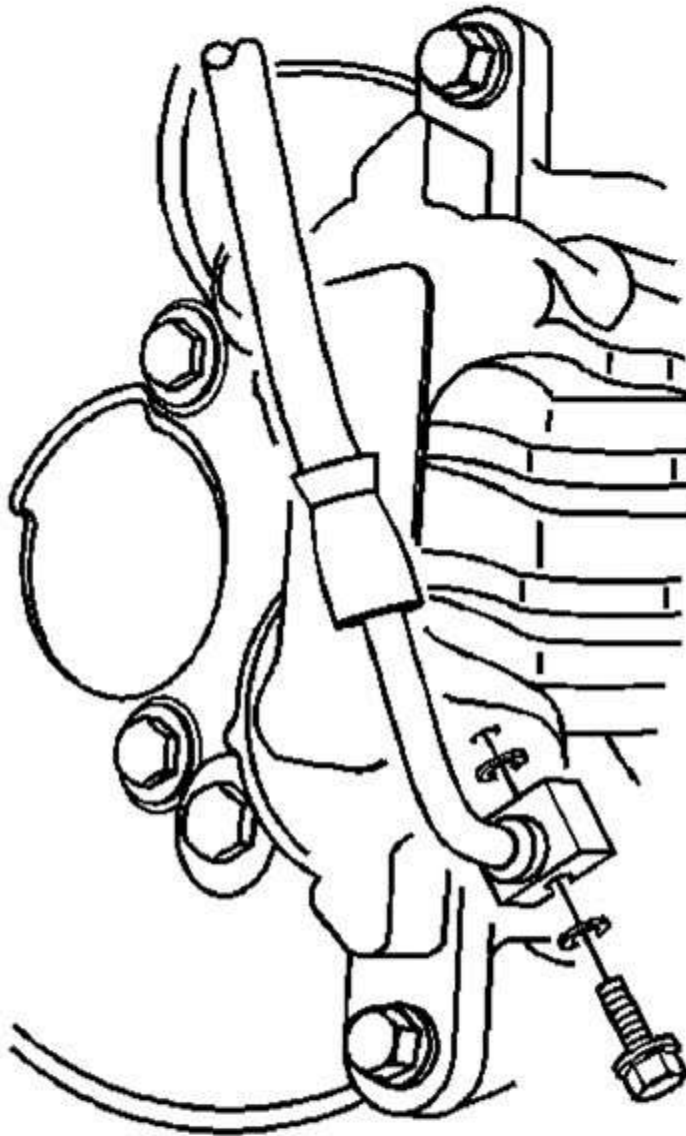


Fig. 30: View Of Front Brake Hose
Courtesy of GENERAL MOTORS CORP.

8. Remove the plug from the brake caliper opening and the brake hose.

IMPORTANT: Install NEW copper brake hose gaskets.

9. Assemble the NEW copper brake hose gaskets, and the brake caliper bolt to the brake hose.

NOTE: Refer to Fastener Notice in Cautions and Notices.

10. Install the brake hose and the brake caliper bolt to the brake caliper.

Tighten: Tighten the brake hose to caliper bolt to 50 N.m (37 lb ft).

11. Bleed the hydraulic brake system. Refer to Hydraulic Brake System Bleeding (Manual) or Hydraulic Brake System Bleeding (Pressure) in Hydraulic Brakes.
12. With the engine OFF, gradually apply the brake pedal to approximately 2/3 of its travel distance.
13. Slowly release the brake pedal.
14. Wait 15 seconds, then repeat steps 11 and 12 until a firm brake pedal apply is obtained; this will properly seat the brake caliper pistons and brake pads.
15. Install the tire and wheel assembly. Refer to Tire and Wheel Removal and Installation in Tires and Wheels.
16. Lower the vehicle.

BRAKE CALIPER REPLACEMENT - REAR (JL9, JE5)

CAUTION: Refer to Brake Fluid Irritant Caution in Cautions and Notices.

CAUTION: Refer to Brake Dust Caution in Cautions and Notices.

NOTE: Refer to Brake Fluid Effects on Paint and Electrical Components Notice in Cautions and Notices.

Removal Procedure

1. Inspect the fluid level in the brake master cylinder reservoir.
2. If the brake fluid level is midway between the maximum-full point and the minimum allowable level, no brake fluid needs to be removed from the reservoir before proceeding.
3. If the brake fluid level is higher than midway between the maximum-full point and the minimum allowable level, remove brake fluid to the midway point before proceeding.
4. Raise and suitably support the vehicle. Refer to Lifting and Jacking the Vehicle in General Information.
5. Remove the tire and wheel assembly. Refer to Tire and Wheel Removal and Installation in Tires and Wheels.

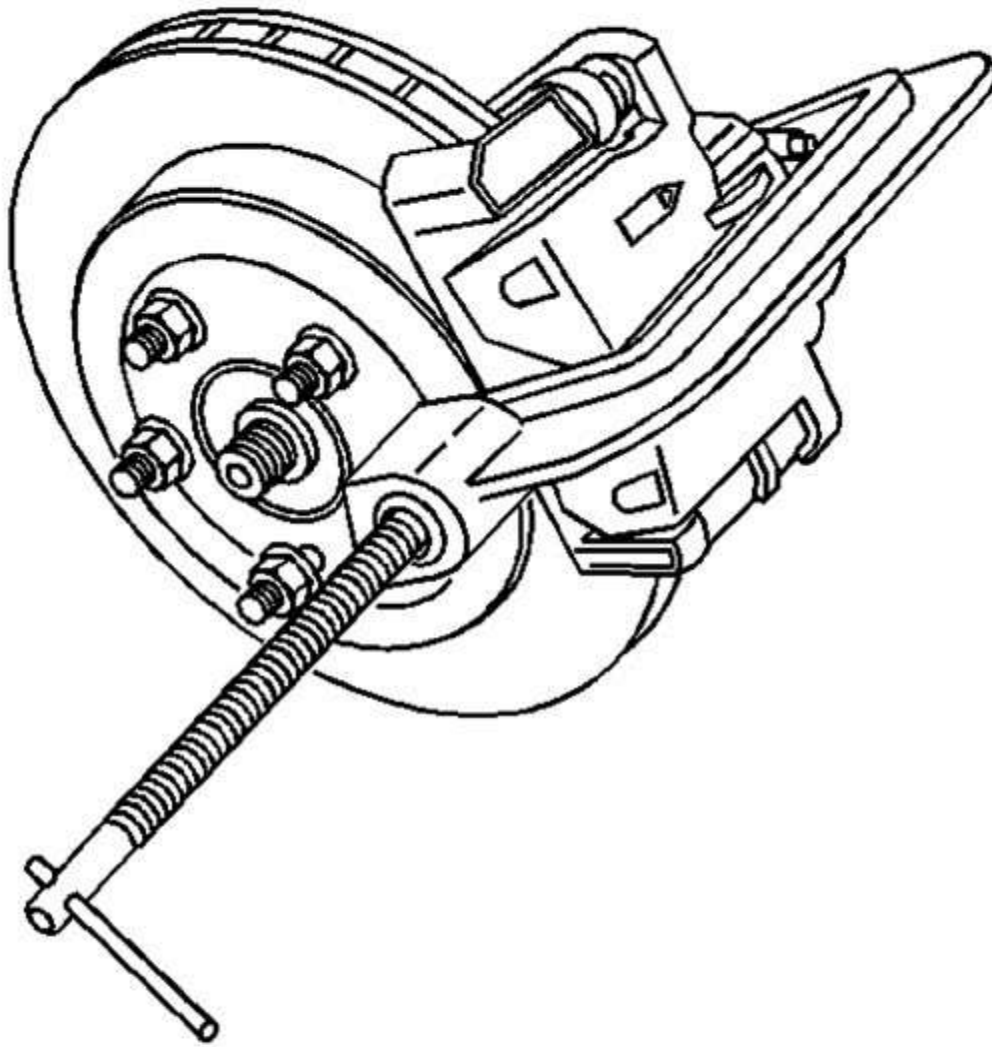


Fig. 31: Installing Large C-Clamp Over The Body Of Brake Caliper
Courtesy of GENERAL MOTORS CORP.

6. Install a large C-clamp over the body of the brake caliper with the C-clamp ends against the rear of the caliper body and against the outer brake pad.
7. Tighten the C-clamp until the caliper piston is compressed into the caliper bore enough to allow the caliper to slide past the brake rotor.
8. Remove the C-clamp from the caliper.

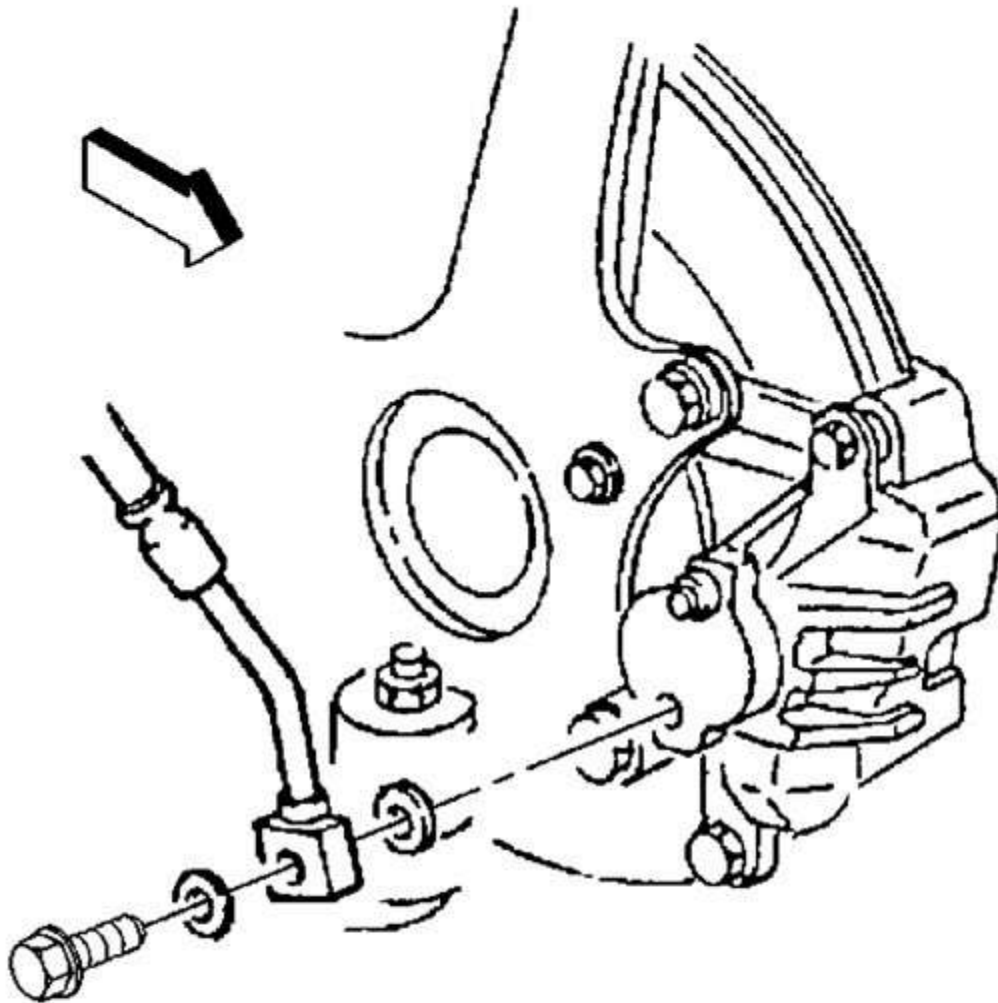


Fig. 32: View Of Brake Caliper & Brake Hose
Courtesy of GENERAL MOTORS CORP.

9. Remove the brake hose to caliper bolt attaching the brake hose to the brake caliper.
10. Remove the brake hose from the brake caliper.
11. Remove and discard the two copper brake hose gaskets. These gaskets may be stuck to the brake caliper and/or the brake hose end.
12. Plug the opening in the brake caliper and the brake hose to prevent fluid loss and contamination.

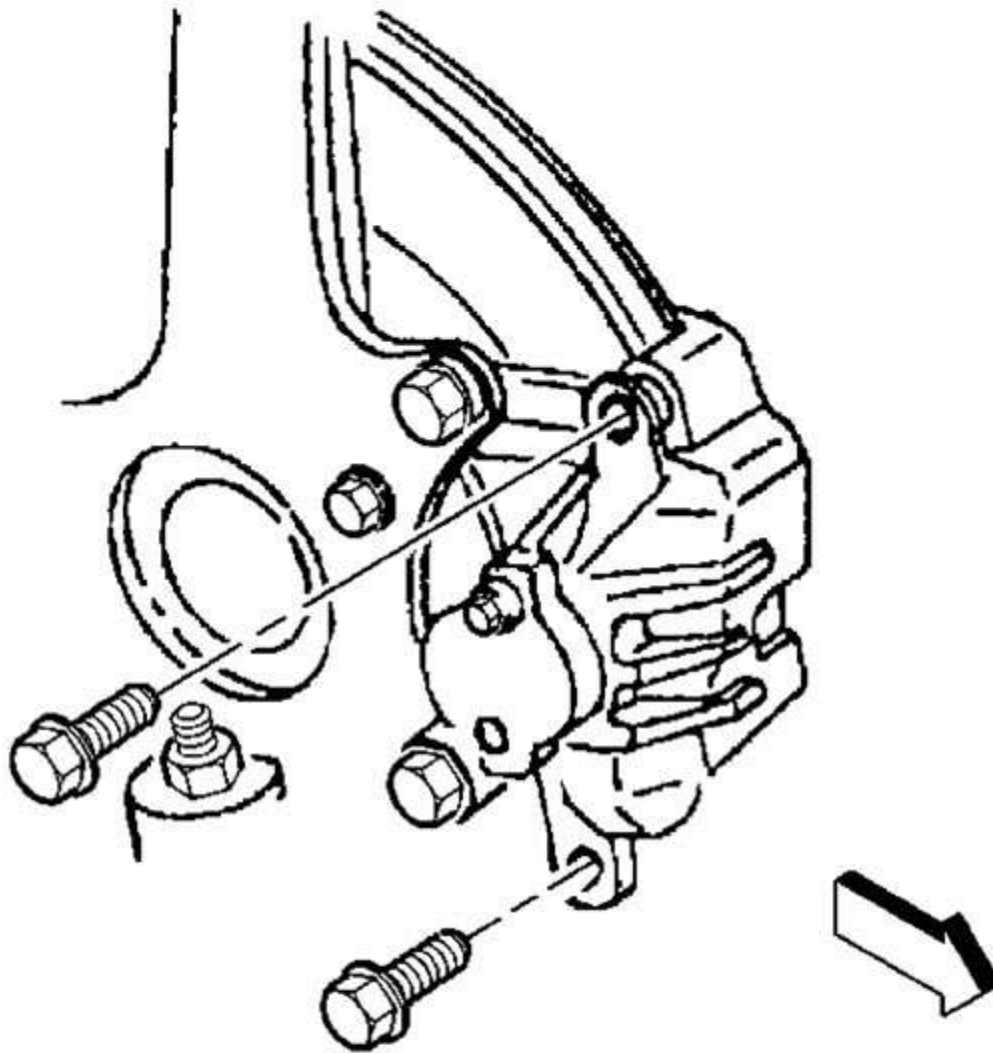


Fig. 33: View Of Caliper Assembly & Retainers
Courtesy of GENERAL MOTORS CORP.

13. Remove the brake caliper pin bolts.
14. Remove the brake caliper from the brake caliper bracket.

Installation Procedure

1. Inspect the caliper slide boots for cuts, tears, or deterioration. If damaged, replace the slides and boots. Refer to **Disc Brake Hardware Replacement - Rear (JL9, JE5)**.

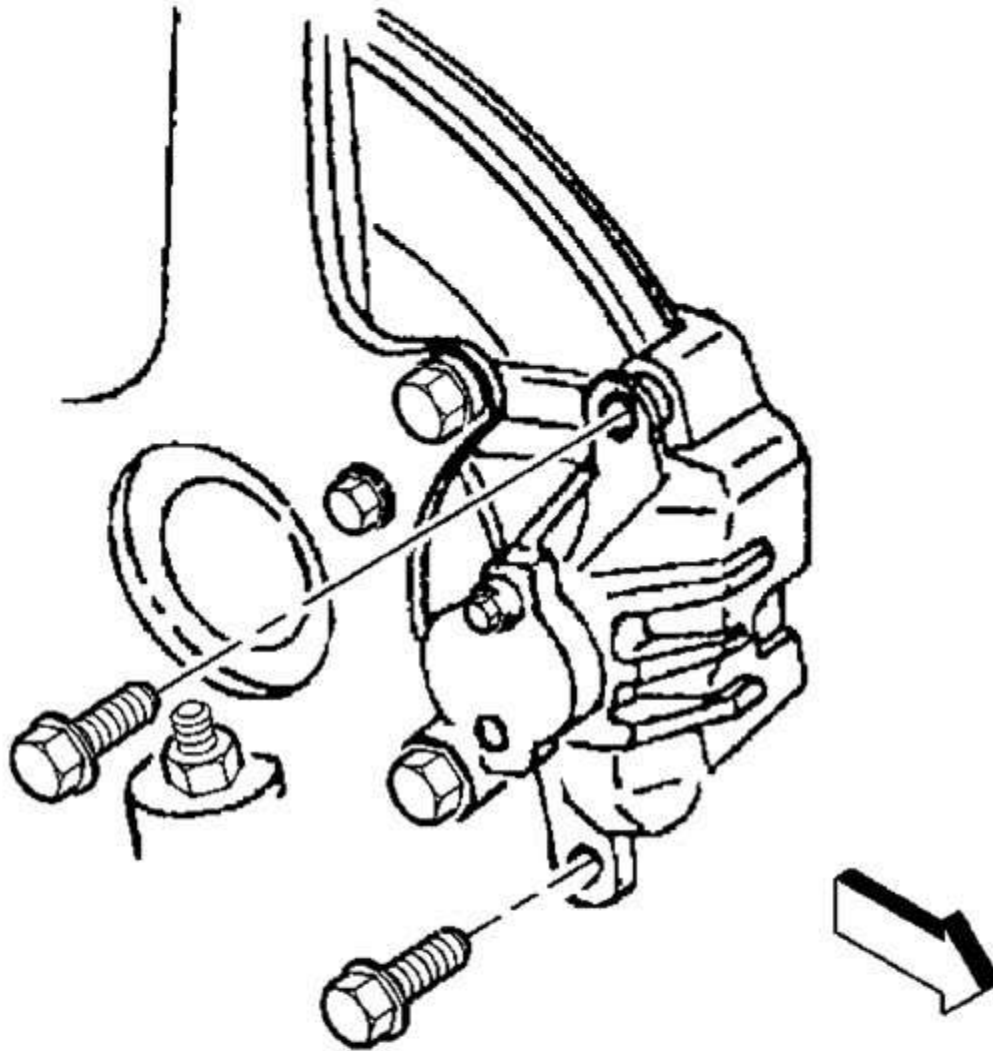


Fig. 34: View Of Caliper Assembly & Retainers
Courtesy of GENERAL MOTORS CORP.

2. Install the brake caliper to the brake caliper bracket.

IMPORTANT: If reusing the brake caliper pin bolts the threads of the caliper pin bolts and the threads of the caliper bracket mounting holes must be free of residue and debris prior to application of threadlocker in order to ensure proper adhesion and fastener retention.

3. Prepare the bolts and the threaded holes for assembly:

2004 Cadillac SRX

2004 BRAKES Disc Brakes - SRX

- Thoroughly clean the residue from the bolt threads by using denatured alcohol or equivalent and allow to dry.
 - Thoroughly clean the residue from the threaded holes by using denatured alcohol or equivalent and allow to dry.
4. Apply threadlocker GM P/N 12345493 (Canada P/N 10953488), or equivalent to two-thirds of the threaded length of the lower caliper bracket bolts. Ensure that there are no gaps in the threadlocker along the length of the filled area of the bolts.
 5. Allow the threadlocker to cure approximately ten minutes before installation.
 6. Apply a thin coat of high temperature silicone brake lubricant to the brake caliper pin bolts.

NOTE: Refer to Fastener Notice in Cautions and Notices.

7. Install the brake caliper pin bolts.

Tighten: Tighten the brake caliper pin bolts to 60 N.m (44 lb ft).

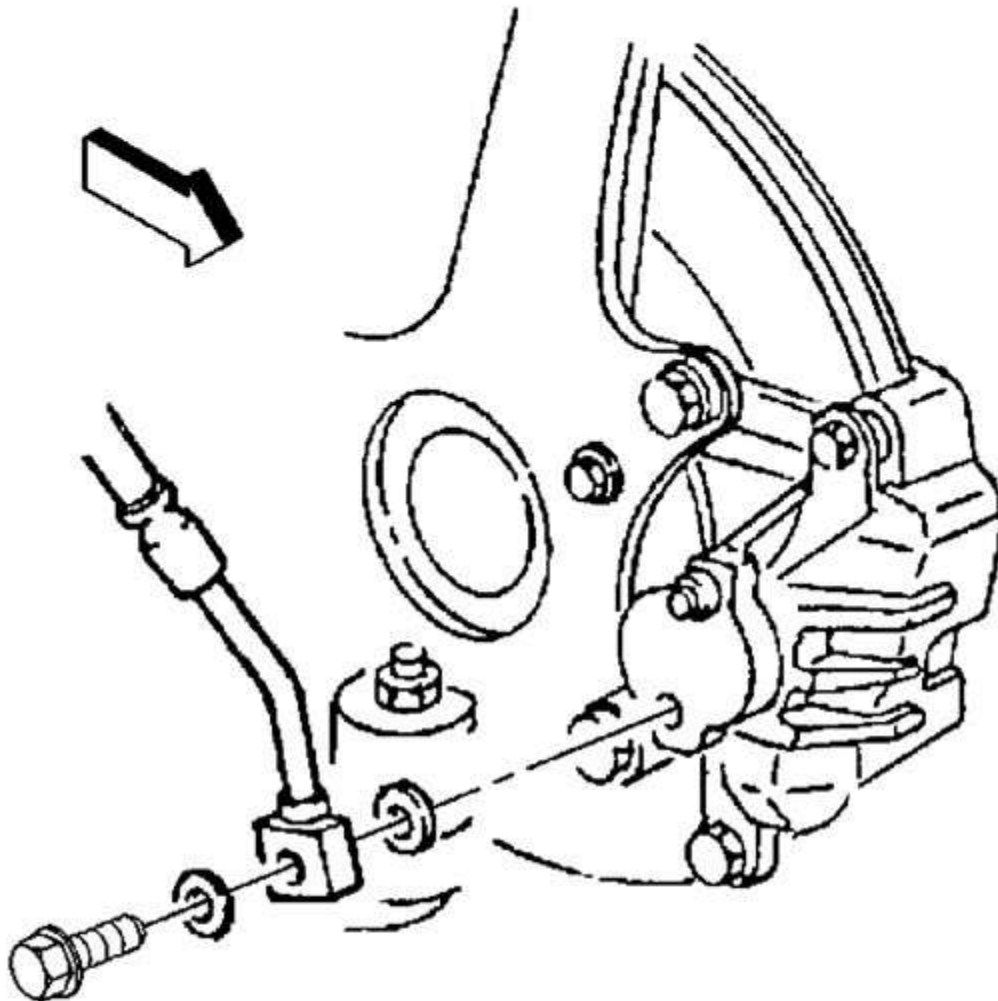


Fig. 35: View Of Brake Caliper & Brake Hose
Courtesy of GENERAL MOTORS CORP.

8. Remove the plug from the brake caliper opening and the brake hose.

IMPORTANT: Install NEW copper brake hose gaskets.

9. Assemble the NEW copper brake hose gaskets, and the brake caliper bolt to the brake hose.

NOTE: Refer to Fastener Notice in Cautions and Notices.

10. Install the brake hose and the brake caliper bolt to the brake caliper.

Tighten: Tighten the brake caliper bolt to 50 N.m (37 lb ft).

11. Bleed the hydraulic brake system. Refer to **Hydraulic Brake System Bleeding (Manual)** or **Hydraulic Brake System Bleeding (Pressure)** in Hydraulic Brakes.
12. With the engine OFF, gradually apply the brake pedal to approximately 2/3 of its travel distance.
13. Slowly release the brake pedal.
14. Wait 15 seconds, then repeat steps 11 and 12 until a firm brake pedal apply is obtained; this will properly seat the brake caliper pistons and brake pads.
15. Install the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
16. Lower the vehicle.

BRAKE CALIPER OVERHAUL - FRONT

CAUTION: Refer to **Brake Fluid Irritant Caution** in Cautions and Notices.

CAUTION: Refer to **Brake Dust Caution** in Cautions and Notices.

NOTE: Refer to **Brake Fluid Effects on Paint and Electrical Components Notice** in Cautions and Notices.

Disassembly Procedure

CAUTION: Do not place your fingers in front of the piston in order to catch or protect the piston while applying compressed air. This could result in serious injury.

- IMPORTANT:**
- Replace all the components included in the repair kits used to service this brake caliper.
 - Lubricate the rubber parts with new Delco Supreme 11®, GM P/N 12377967 (Canadian P/N 992667) or equivalent DOT-3 brake fluid to make assembly easier.
 - If any hydraulic component is removed or disconnected, it may be necessary to bleed all or part of the brake system.
 - The torque values specified are for dry, non-lubricated fasteners.
 - Perform the service operations on a clean bench, free from

all mineral oil materials.

1. Remove the brake caliper from the vehicle. Refer to **Brake Caliper Replacement - Front**.
2. Drain the brake fluid from the brake caliper.

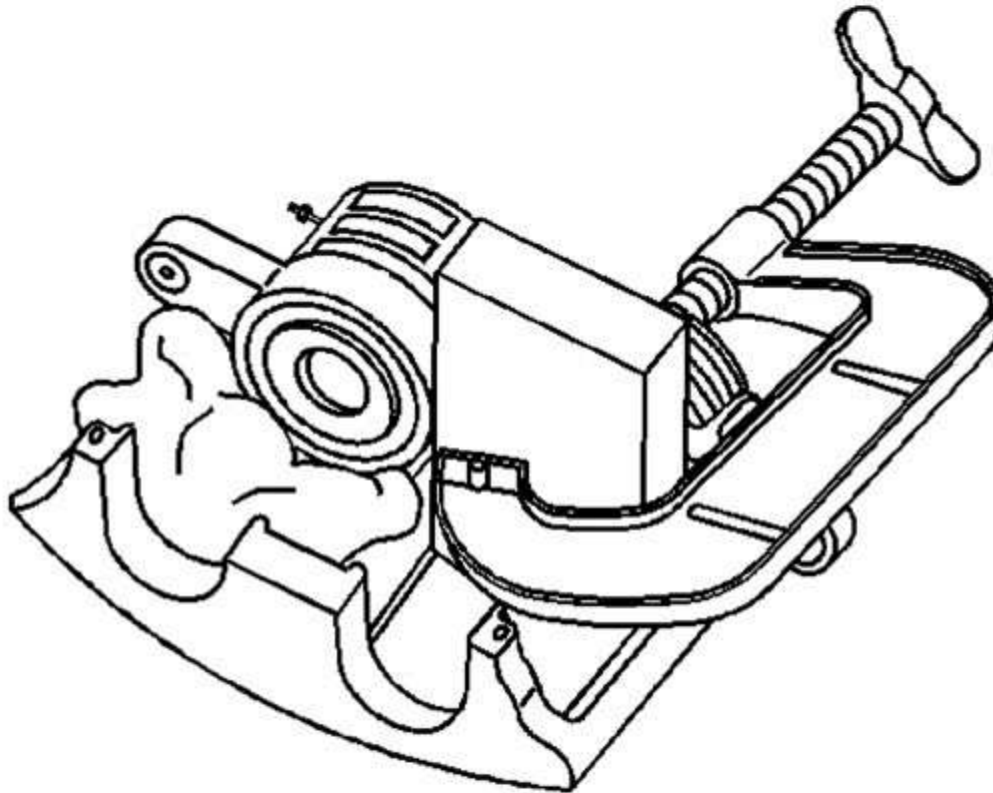


Fig. 36: View Of C-Clamp Over Body Of Brake Caliper
Courtesy of GENERAL MOTORS CORP.

NOTE: Use clean cloths to pad interior of caliper housing during piston removal. Use just enough air to ease the pistons out of the bores. If the pistons are blown out, even with the padding provided, it may be damaged.

3. Place a 25 mm (1 in) block of wood between the caliper and the piston.
4. Install a large C-clamp over the body of the brake caliper with the C-clamp ends against the rear of the caliper body and against the block of wood.

5. Carefully remove the brake caliper piston by directing low pressure compressed air into the brake caliper inlet hole.
6. Remove the C-clamp from the caliper.
7. Remove the block of wood from the caliper.
8. Install clean cloths to pad the interior of the caliper housing between the remaining caliper piston and the caliper body.
9. To cover the open caliper bore place a 25 mm (1 in) block of wood between the caliper body and the brake caliper dust boot seal.
10. Install a large C-clamp over the body of the brake caliper with the C-clamp ends against the rear of the caliper body and against the block of wood.
11. Carefully remove the brake caliper piston by directing low pressure compressed air into the brake caliper inlet hole.
12. Remove the C-clamp from the caliper.
13. Remove the block of wood from the caliper.

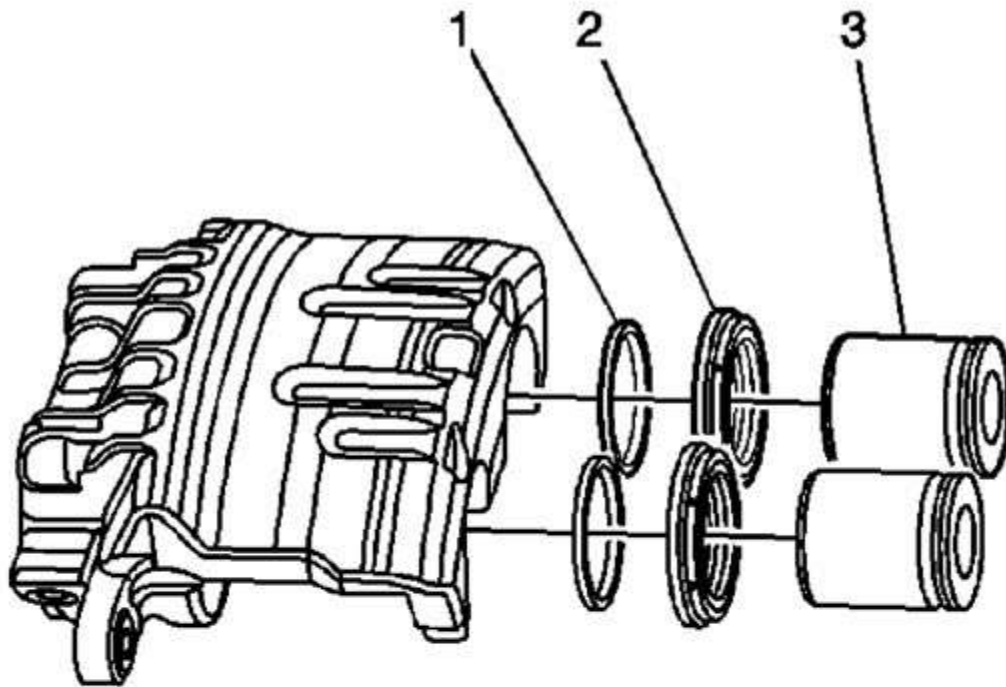


Fig. 37: View Of Piston Seals - Front
Courtesy of GENERAL MOTORS CORP.

14. Remove the piston dust boot seals (2) from the seal counter-bores in the brake caliper

and discard the boot seals.

15. Using a small wooden or plastic tool, remove the piston seals (1) from the brake caliper bores and discard the piston seals.

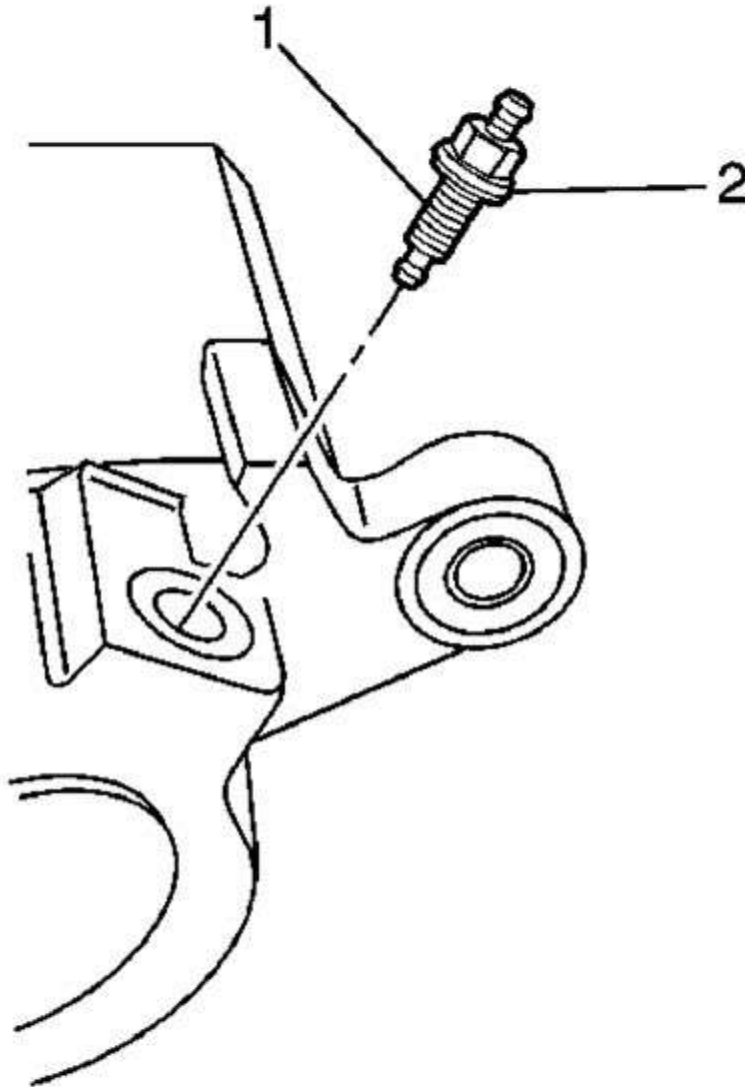


Fig. 38: View Of Brake Caliper Bleeder Valve
Courtesy of GENERAL MOTORS CORP.

16. Remove the brake caliper bleeder valve cap.
17. Remove the brake caliper bleeder valve (1).
18. Remove the brake caliper bleeder valve seal (2) and discard.

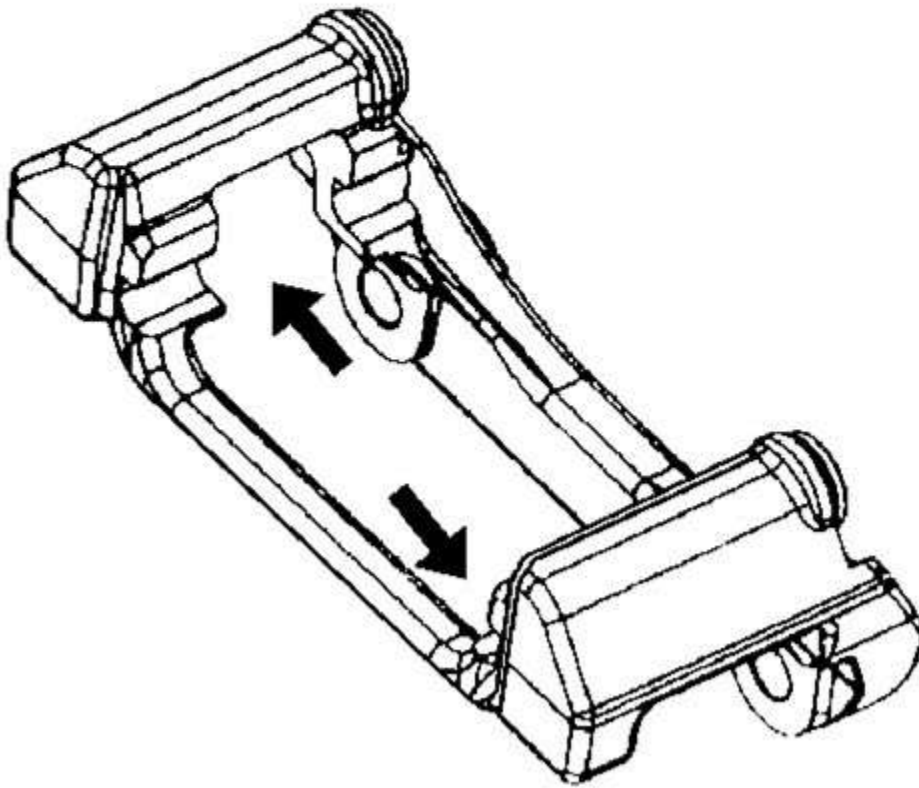


Fig. 39: Inspecting Brake Caliper Mounting Bracket Guide Surfaces
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Do not use abrasives to clean the brake caliper pistons.

19. Inspect the brake caliper mounting bracket guide surfaces for corrosion and wear. Remove and replace the brake caliper mounting bracket if damaged or worn.
20. Clean the brake caliper piston bores and seal counter-bores with denatured alcohol, or equivalent.
21. Clean the brake caliper pistons with denatured alcohol, or equivalent.
22. Dry the caliper piston bores and counter-bores with non-lubricated, filtered air.
23. Dry the brake caliper pistons with non-lubricated, filtered air.
24. Inspect the caliper bores for cracks, scoring, pitting, excessive corrosion.
25. If light corrosion is present in the caliper bores, attempt to remove the imperfection with a fine emery paper. If the imperfection cannot be removed, replace the caliper assembly.
26. If cracks, scoring, pitting, and excessive corrosion are present in the caliper bores,

replace the caliper assembly.

27. Inspect the caliper pistons for cracks, scoring, and/or damage. Replace the caliper pistons if any of these conditions exist.

Assembly Procedure

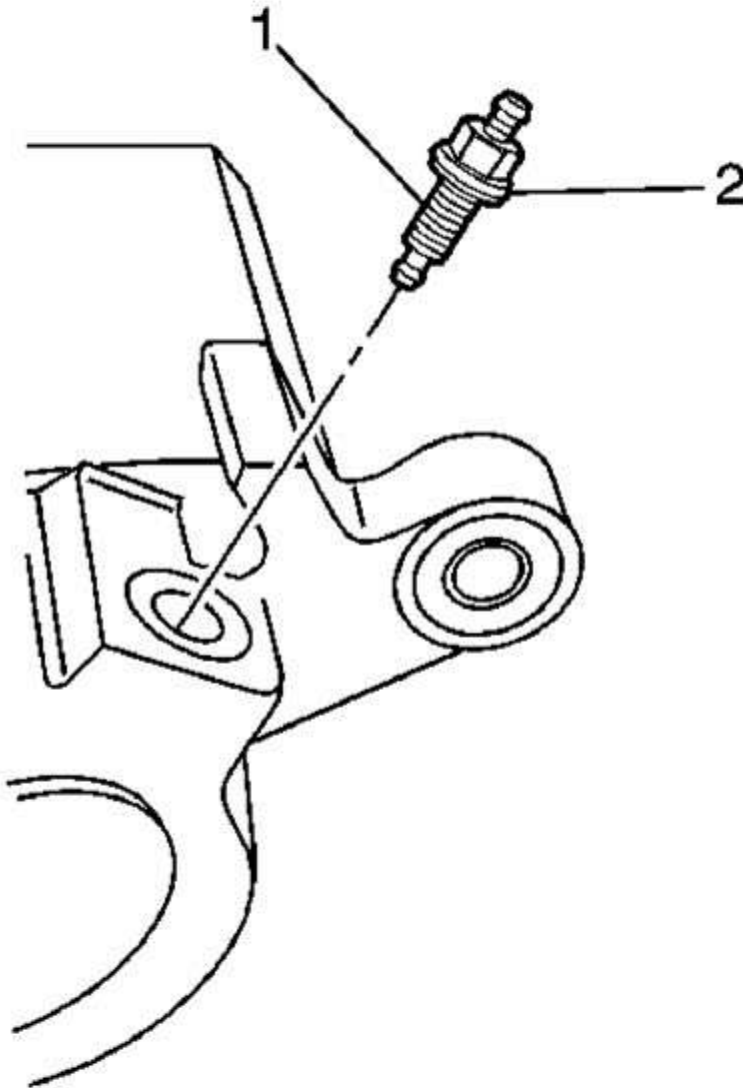


Fig. 40: View Of Brake Caliper Bleeder Valve
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

1. Install the valve stem seal (2) over the threaded end of the bleeder valve (1).
2. Install the brake caliper bleeder valve (1).

Tighten: Tighten the brake caliper bleeder valve to 14 N.m (124 lb in).

3. Install the brake caliper bleeder valve cap.

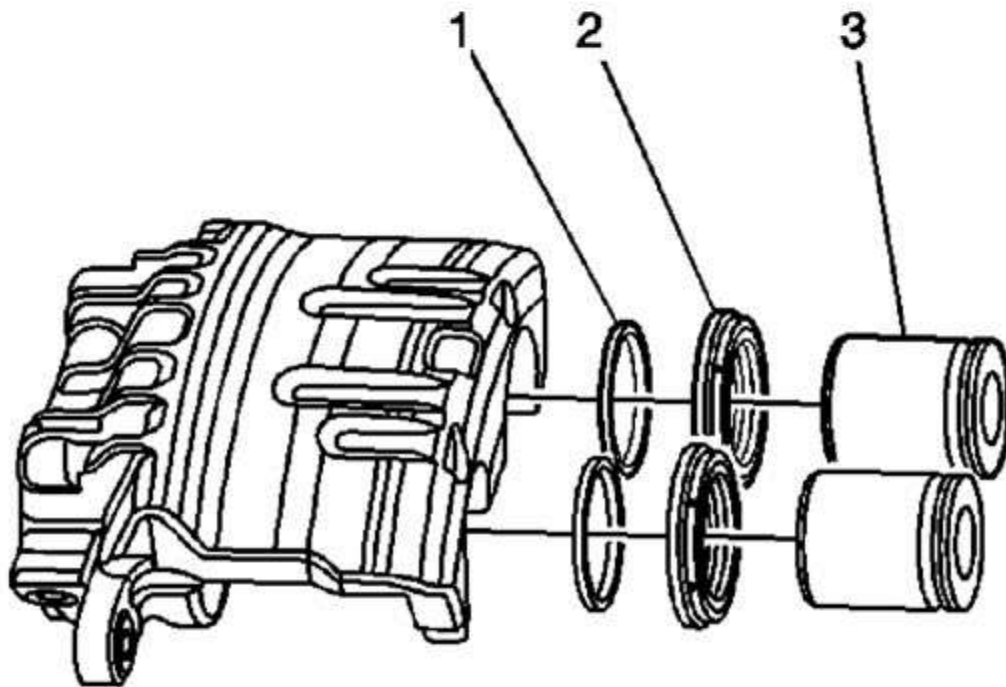


Fig. 41: View Of Piston Seals - Front
Courtesy of GENERAL MOTORS CORP.

4. Lubricate the new piston seals (1) with Delco Supreme 11®, GM P/N 12377967 (Canadian P/N 992667) or equivalent DOT-3 brake fluid from a clean, sealed brake fluid container.
5. Install lubricated piston seals (1) into the brake caliper bore seal grooves.
6. Make sure the seals are not twisted.

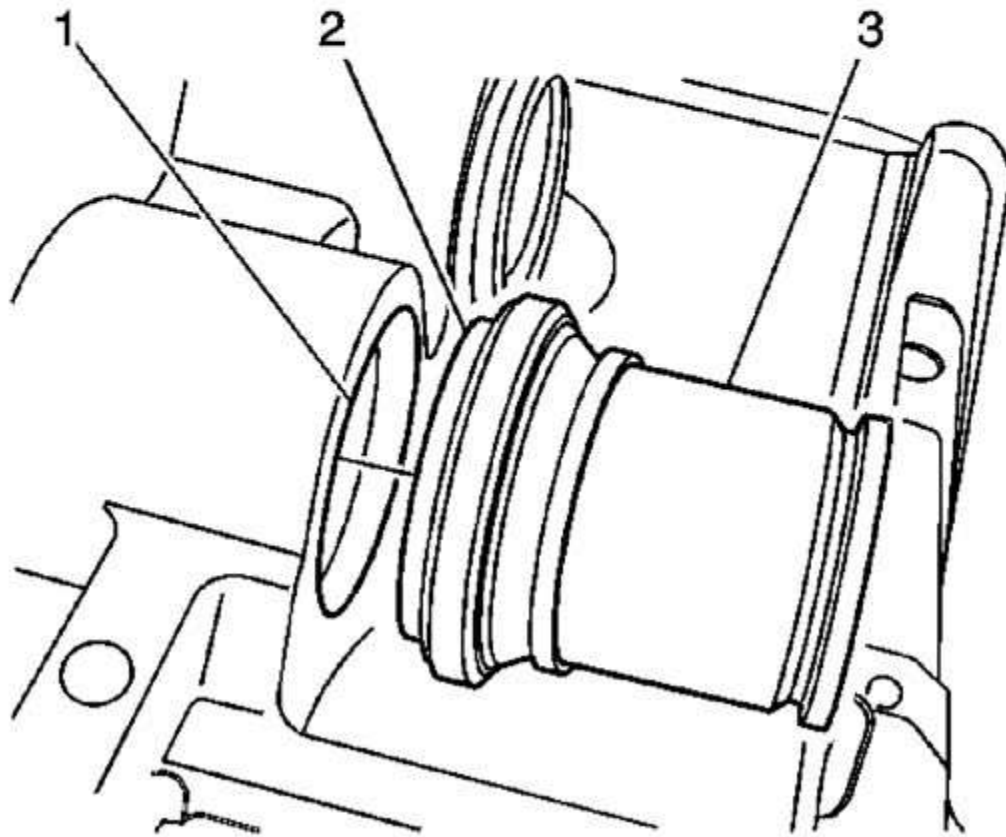


Fig. 42: View Of Piston & Dust Boot
Courtesy of GENERAL MOTORS CORP.

7. Install the piston dust boot (2) over the end of the piston (3) so that the fold will face toward the brake caliper housing piston bore opening.
8. Seat the caliper dust boot into the brake caliper bore groove (1) and slide the piston into the brake caliper bore.

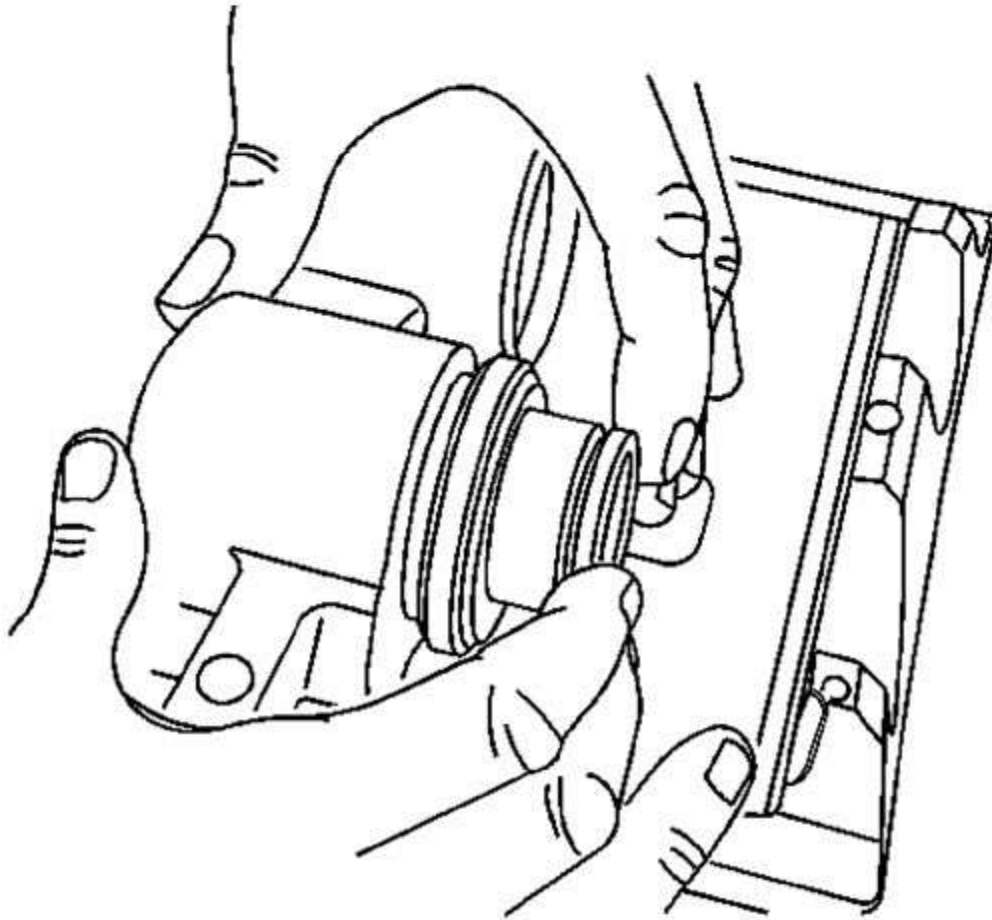


Fig. 43: Pushing Piston To Bottom Of Brake Caliper Bore
Courtesy of GENERAL MOTORS CORP.

9. Using your fingers, carefully push the piston to the bottom of the brake caliper bore.
10. Ensure that the caliper dust boot is properly seated into the piston groove and into the groove in the brake caliper bore.
11. Repeat steps 5 and 6 for the remaining piston.
12. Install the brake caliper to the vehicle. Refer to **Brake Caliper Replacement - Front.**

BRAKE CALIPER OVERHAUL - REAR

Tools Required

- **J 8092** Universal Driver. See **Special Tools and Equipment.**

- **J 46275** Caliper Boot Seal Installer. See Special Tools and Equipment.

CAUTION: Refer to Brake Fluid Irritant Caution in Cautions and Notices.

NOTE: Refer to Brake Fluid Effects on Paint and Electrical Components Notice in Cautions and Notices.

Disassembly Procedure

CAUTION: Do not place your fingers in front of the piston in order to catch or protect the piston while applying compressed air. This could result in serious injury.

- IMPORTANT:**
- Replace all the components included in the repair kits used to service this brake caliper.
 - Lubricate the rubber parts with Delco Supreme 11®, GM P/N 12377967 (Canadian P/N 992667) or equivalent DOT-3 brake fluid from a clean, sealed brake fluid container to make assembly easier.
 - If any hydraulic component is removed or disconnected, it may be necessary to bleed all or part of the brake system.
 - The torque values specified are for dry, non-lubricated fasteners.
 - Perform the service operations on a clean bench, free from all mineral oil materials.

1. Remove the brake caliper from the vehicle. Refer to Brake Caliper Replacement - Rear (JL9, JE5)

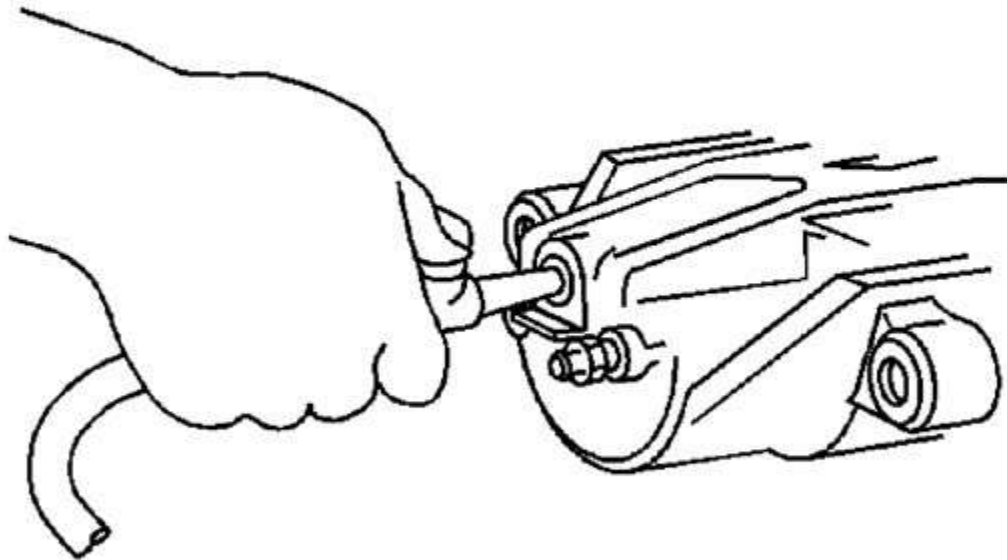


Fig. 44: Removing Brake Caliper Piston
Courtesy of GENERAL MOTORS CORP.

NOTE: Use clean cloths to pad interior of caliper housing during piston removal. Use just enough air to ease the pistons out of the bores. If the pistons are blown out, even with the padding provided, it may be damaged.

2. Remove the brake caliper piston from the caliper bore by directing low pressure compressed air into the caliper bore through the brake fluid inlet hole.

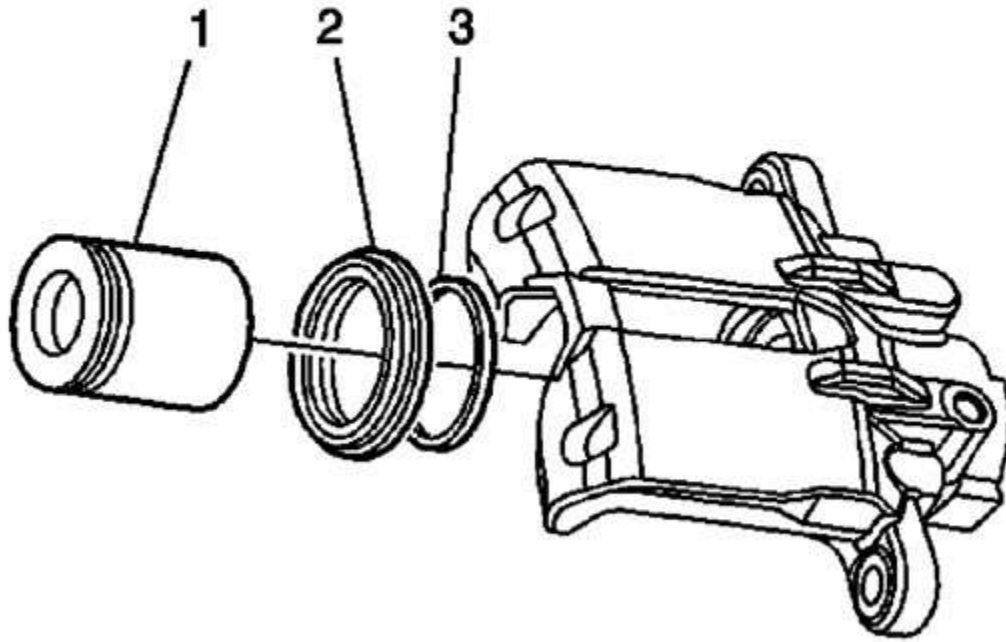


Fig. 45: View Of Piston Seals - Rear
Courtesy of GENERAL MOTORS CORP.

3. Using a small wooden or plastic tool, remove the piston dust boot seal (2) from the seal counter-bore in the caliper and discard the boot seal.
4. Using a small wooden or plastic tool, remove the piston seal (1) from the caliper bore and discard the piston seal.

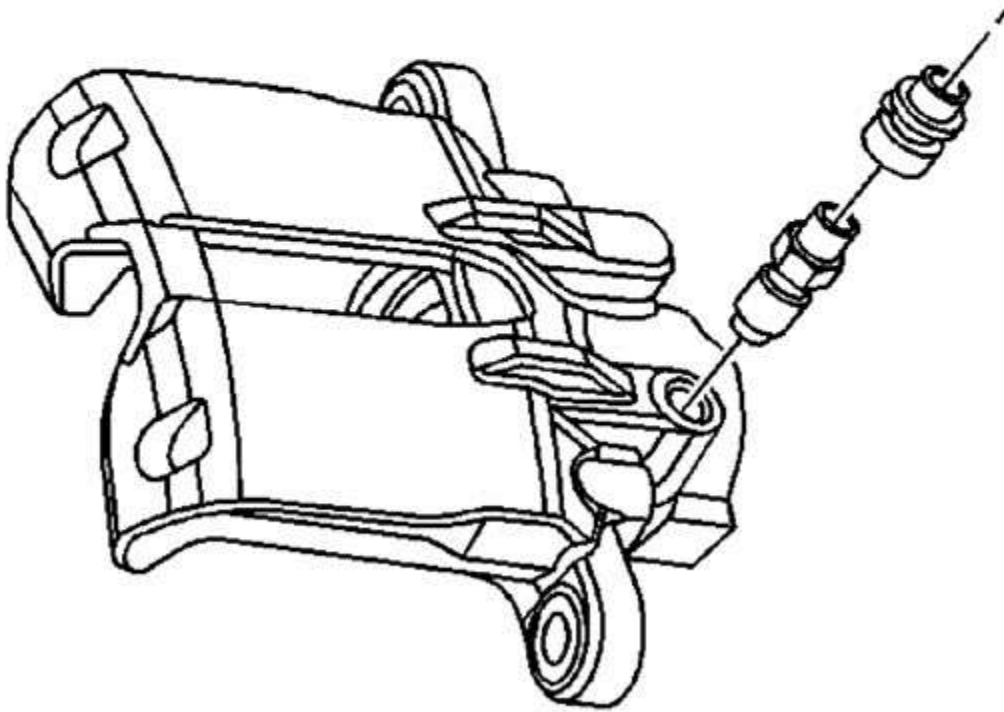


Fig. 46: Identifying Brake Caliper Bleeder Valve
Courtesy of GENERAL MOTORS CORP.

5. Remove the brake caliper bleeder valve cap.
6. Remove the brake caliper bleeder valve.

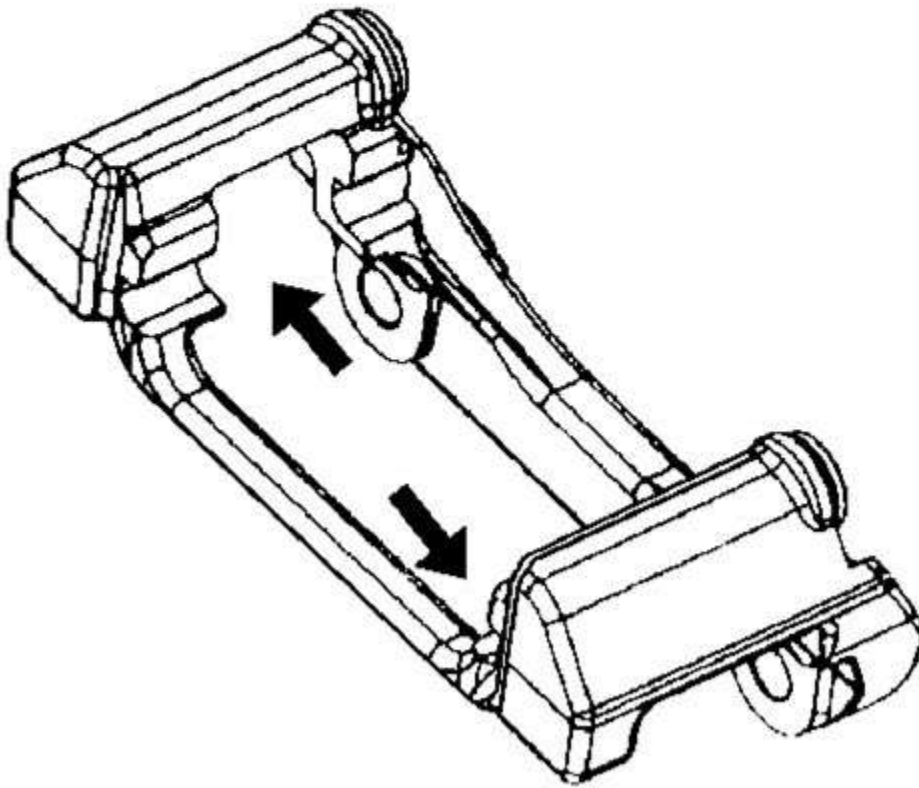


Fig. 47: Inspecting Brake Caliper Mounting Bracket Guide Surfaces
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Do not use abrasives to clean the brake caliper piston.

7. Inspect the brake caliper mounting bracket guide surfaces for corrosion and wear. Remove and replace the brake caliper mounting bracket if damaged or worn.
8. Clean the brake caliper piston bore and seal counter-bore, with denatured alcohol, or equivalent.
9. Clean the brake caliper piston with denatured alcohol, or equivalent.
10. Dry the caliper piston bore and counter-bore, with non-lubricated, filtered air.
11. Dry the caliper piston with non-lubricated, filtered air.
12. Inspect the caliper bore for cracks, scoring, pitting and excessive corrosion.
13. If light corrosion is present in the caliper bore, attempt to remove the imperfection with a fine emery paper. If the imperfection cannot be removed, replace the caliper assembly.
14. If cracks, scoring, pitting and excessive corrosion are present in the caliper bore, replace

the caliper assembly.

15. Inspect the caliper piston for cracks, scoring, and/or damage. Replace the caliper piston if any of these conditions exist.

Assembly Procedure

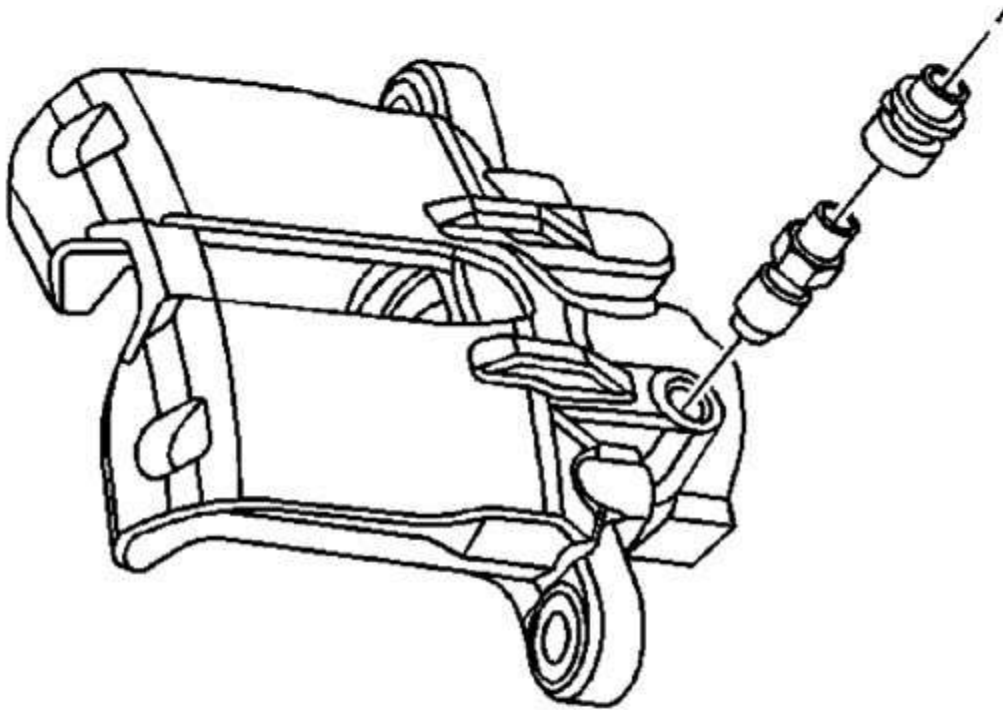


Fig. 48: Identifying Brake Caliper Bleeder Valve
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

1. Install the brake caliper bleeder valve (1).

Tighten: Tighten the brake caliper bleeder valve to 14 N.m (124 lb in).

2. Install the brake caliper bleeder valve cap.

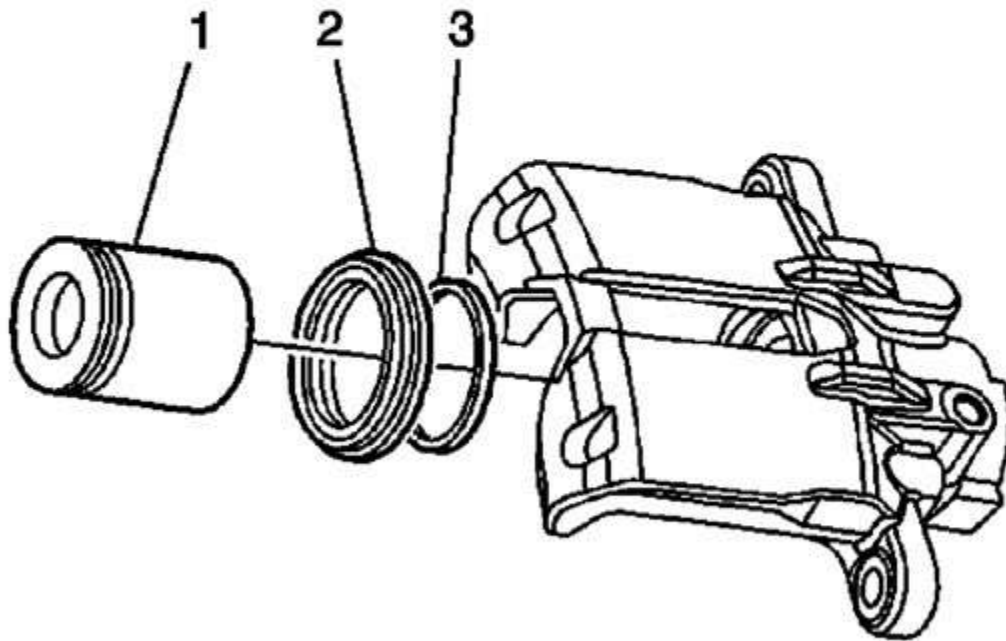


Fig. 49: View Of Piston Seals - Rear
Courtesy of GENERAL MOTORS CORP.

3. Lubricate the new piston seal (3) with Delco Supreme 11®, GM P/N 12377967 (Canadian P/N 992667) or equivalent DOT-3 brake fluid from a clean, sealed brake fluid container.
4. Install the new lubricated piston seal (3) into the caliper bore seal groove.
5. Make sure the seal is not twisted.
6. Lubricate the brake caliper bore and the piston (1) with brake fluid.
7. Install the caliper piston (1) into the caliper bore.
8. Install the new piston dust boot seal (2) over the piston.
9. Assemble the **J 8092** and the **J 46275**. See **Special Tools and Equipment**.
 1. Using **J 8092** and **J 46275** fully seat the dust boot seal (2) into the caliper. See **Special Tools and Equipment**.
 2. Make sure the caliper piston dust boot (2) is properly seated into the groove in the brake caliper bore.
10. Install the caliper to the vehicle. Refer to **Brake Caliper Replacement - Rear (JL9, JE5)**.

CAUTION: Refer to Brake Dust Caution in Cautions and Notices.

Removal Procedure

1. Inspect the fluid level in the brake master cylinder reservoir.
2. If the brake fluid level is midway between the maximum-full point and the minimum allowable level, then no brake fluid needs to be removed from the reservoir before proceeding. If the brake fluid level is higher than midway between the maximum-full point and the minimum allowable level, then remove brake fluid to the midway point before proceeding.
3. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle in General Information.
4. Remove the tire and wheel. Refer to Tire and Wheel Removal and Installation in Tires and Wheels.

IMPORTANT: The upper caliper guide pin has a bushing as part of the pin guide. The lower caliper guide pin is of a solid design.

5. Remove the brake caliper. Refer to Brake Caliper Replacement - Front.

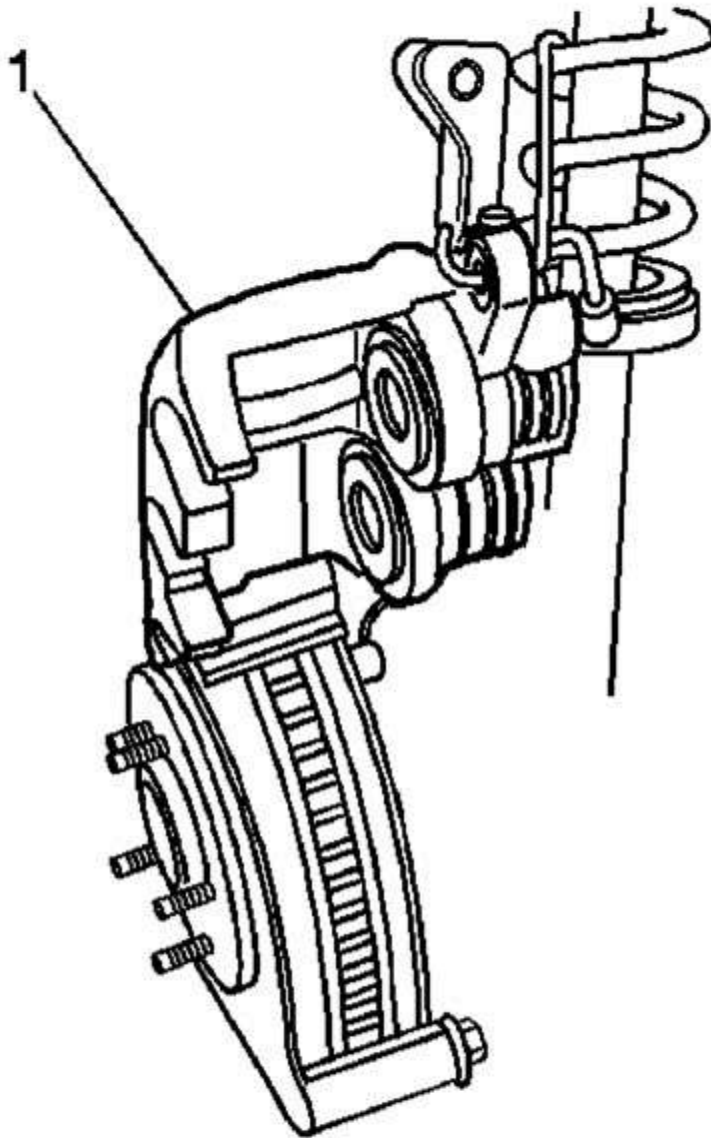


Fig. 50: Supporting Brake Caliper With Heavy Mechanic's Wire
Courtesy of GENERAL MOTORS CORP.

NOTE: Support the brake caliper with heavy mechanic's wire, or equivalent, whenever it is separated from its mount and the hydraulic flexible brake hose is still connected. Failure to support the caliper in this manner will cause the flexible brake hose to bear the weight of the caliper, which may cause damage to the brake hose and in turn may cause a

brake fluid leak.

6. To loosen the brake caliper pin bolts, hold the brake caliper guide pin with a wrench.
7. Remove the brake caliper pin bolts.
8. Remove the brake caliper (1) from the mounting bracket.
9. Remove the brake pads from the disc brake caliper bracket.
10. Remove the brake pad retainers from the disc brake caliper bracket.

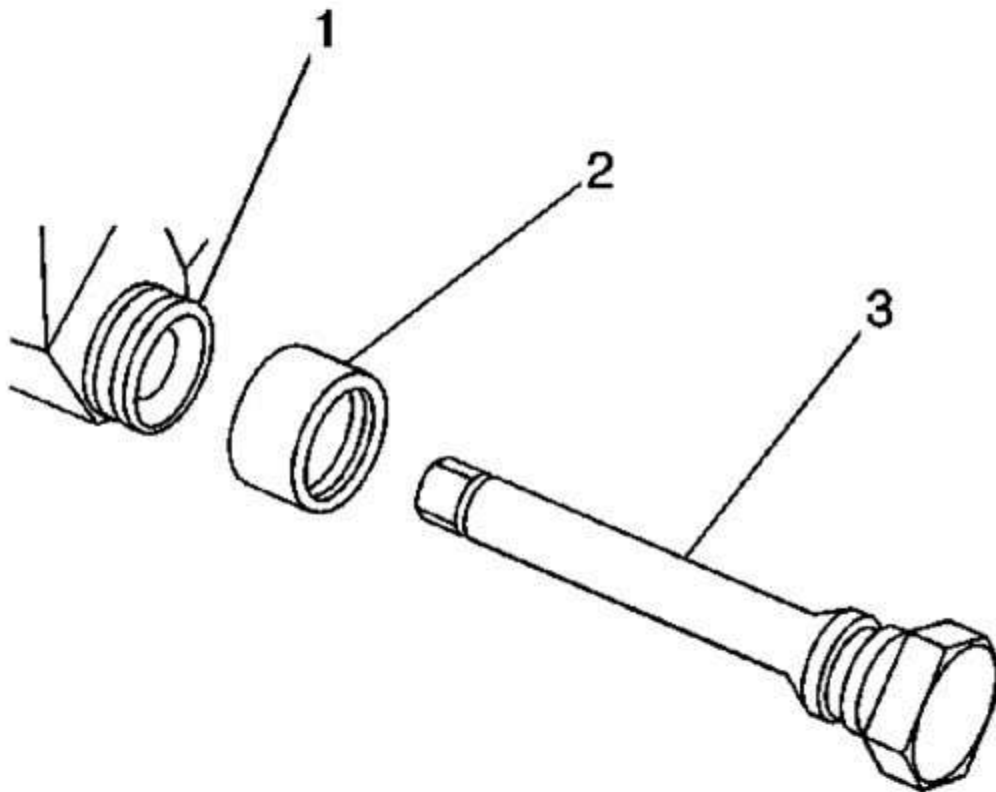


Fig. 51: View Of Caliper Guide Pin Retaining Seat, Pin Boots & Boot Seal Retaining Seat

Courtesy of GENERAL MOTORS CORP.

11. Remove the brake caliper guide pins (3) from the brake caliper mounting bracket (1).
12. Remove the brake caliper pin boots (2) from the brake caliper mounting bracket (1).

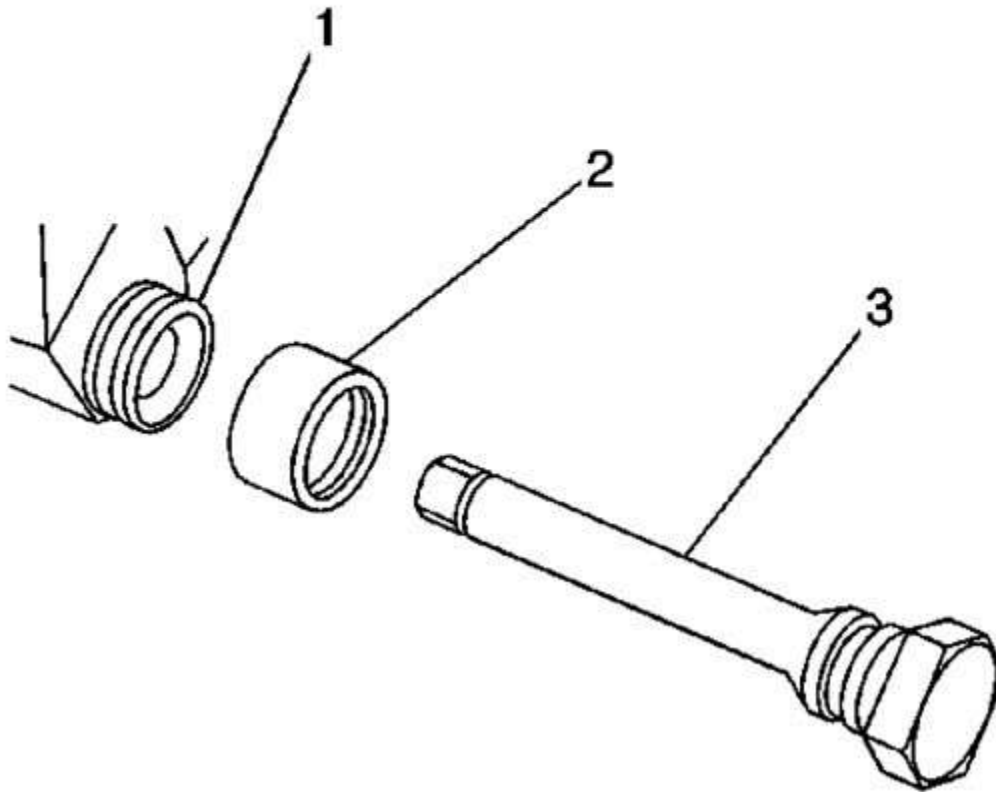


Fig. 52: View Of Caliper Guide Pin Retaining Seat, Pin Boots & Boot Seal Retaining Seat

Courtesy of GENERAL MOTORS CORP.

IMPORTANT:

- Ensure that the caliper guide pin boots (2) are fully seated to the caliper guide pin retaining seat (3) of the caliper pin.
- Ensure that the caliper guide pin boots (2) are fully seated to the caliper boot seal retaining seat (1) of the brake caliper mounting bracket.

1. Apply a thin coat of Niglube® GM P/N 18046532 grease to the brake caliper guide pin boots.

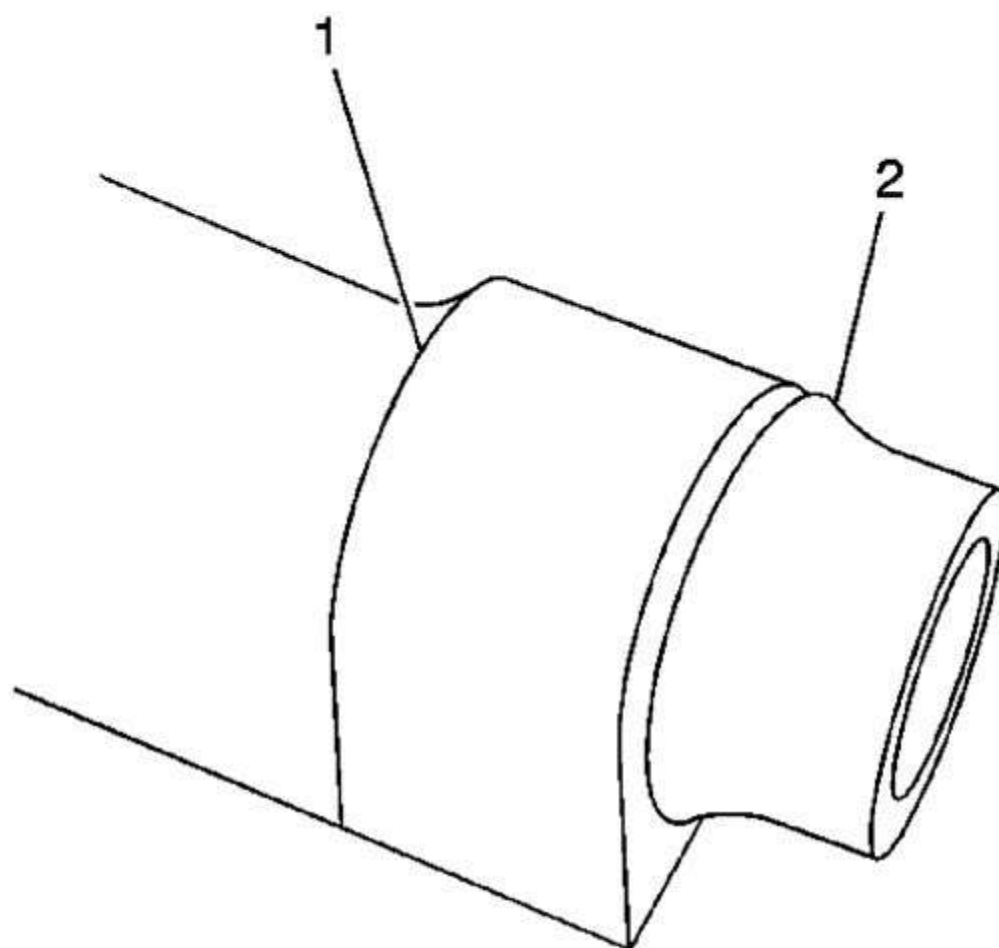


Fig. 53: View Of Brake Caliper Mounting Bracket Retaining Seat & Guide Pin Boots

Courtesy of GENERAL MOTORS CORP.

2. Install the caliper guide pin boots (2) to the brake caliper mounting bracket retaining seat (1).

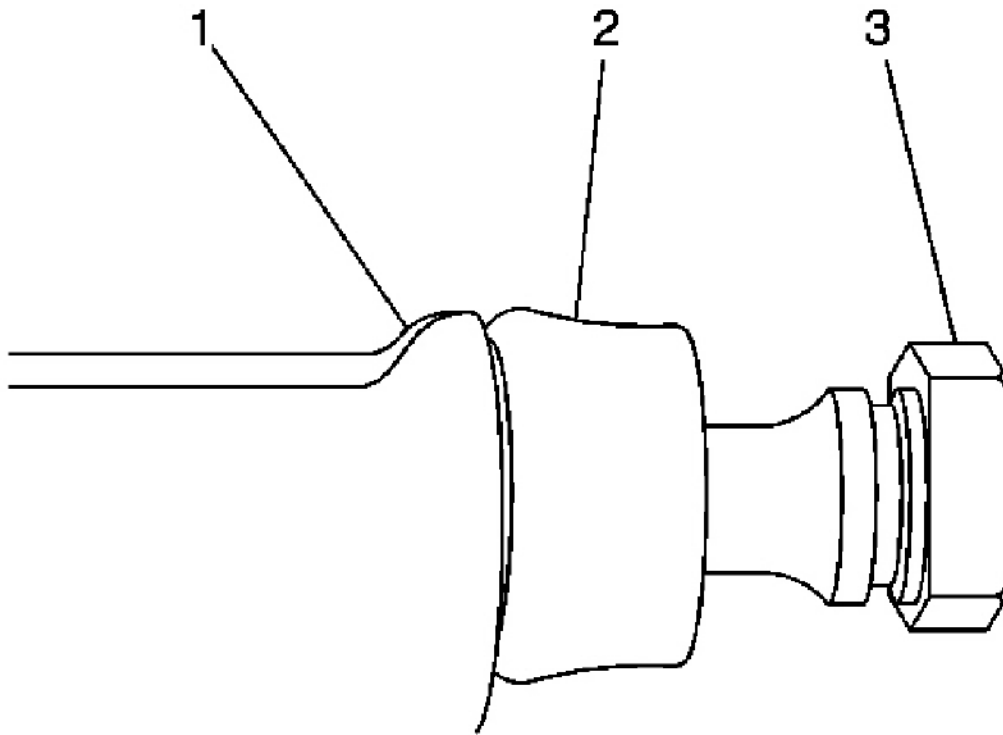


Fig. 54: View Of Caliper Guide Pins
Courtesy of GENERAL MOTORS CORP.

3. Install the caliper guide pins (3) to the caliper mounting bracket (1).

Ensure the caliper guide pin retaining seat is fully seated to the caliper pin boot (2).

4. Carefully pull outward on the caliper guide pin (3) to ensure that the caliper guide pin retaining seat is fully seated to the caliper guide pin boot (2).
5. Install the brake pad retainers to the brake caliper bracket.
6. Install the brake pads to the brake caliper bracket.
7. Install the brake caliper to the mounting bracket. Refer to **Brake Caliper Replacement - Front**.

IMPORTANT: If reusing the caliper pin bolts, the threads of the caliper pin bolts and the threads for the caliper bracket mounting holes must be free of residue and debris prior to application of threadlocker in order to ensure proper adhesion and fastener retention.

8. Prepare the bolts and the threaded holes for assembly:
 1. Thoroughly clean the residue from the bolt threads by using denatured alcohol or equivalent and allow to dry.
 2. Thoroughly clean the residue from the threaded holes by using denatured alcohol or equivalent and allow to dry.
 3. Apply threadlocker GM P/N 12345493 (Canadian P/N 10953488), or equivalent to two-thirds of the threaded length of the lower caliper bracket bolts. Ensure that there are no gaps in the threadlocker along the length of the filled area of the bolts.
 4. Allow the threadlocker to cure approximately ten minutes before installation.
 5. Apply a thin coat of high temperature silicone lube to the brake caliper guide pins.

NOTE: Refer to Fastener Notice in Cautions and Notices.

9. Install the brake caliper bolts (1).

Tighten: Tighten the brake caliper bolts to 34 N.m (25 lb ft).

10. Install the tire and wheel. Refer to Tire and Wheel Removal and Installation in Tires and Wheels.
11. Lower the vehicle.
12. Fill the master cylinder to the proper level. Refer to Master Cylinder Reservoir Filling in Hydraulic Brakes.

DISC BRAKE HARDWARE REPLACEMENT - REAR (JL9, JE5)

CAUTION: Refer to Brake Dust Caution in Cautions and Notices.

Removal Procedure

1. Inspect the fluid level in the brake master cylinder reservoir.
2. If the brake fluid level is midway between the maximum-full point and the minimum allowable level, then no brake fluid needs to be removed from the reservoir before proceeding. If the brake fluid level is higher than midway between the maximum-full point and the minimum allowable level, then remove brake fluid to the midway point before proceeding.
3. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle in General Information.
4. Using a C-clamp installed to the center of the outer brake pad and the back of the caliper, slowly compress the caliper piston into its bore just enough to remove the caliper from the mounting bracket.

NOTE: Support the brake caliper with heavy mechanic's wire, or equivalent, whenever it is separated from its mount and the hydraulic flexible brake hose is still connected. Failure to support the caliper in this manner will cause the flexible brake hose to bear the weight of the caliper, which may cause damage to the brake hose and in turn may cause a brake fluid leak.

5. To loosen the brake caliper pin bolts, hold the brake caliper guide pin with a wrench.
6. Remove the brake caliper bolts.
7. Remove the brake caliper from the mounting bracket.
8. Remove the brake pads from the disc brake caliper bracket.

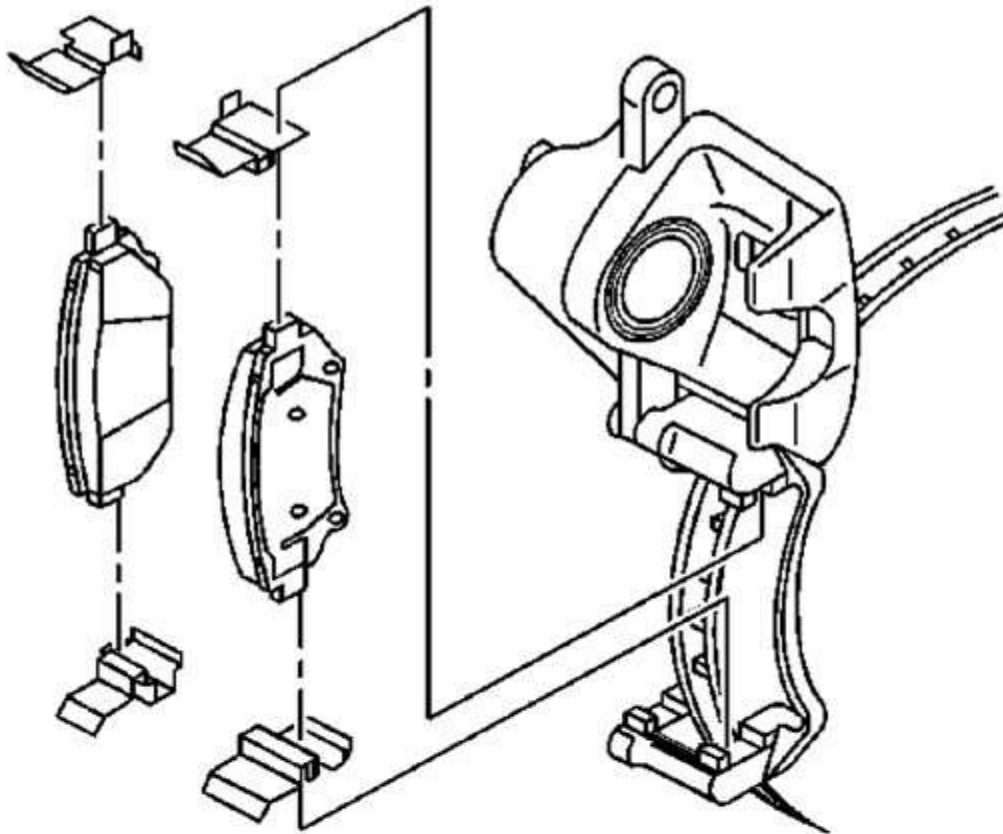


Fig. 55: View Of Brake Pads & Caliper Bracket - Rear
Courtesy of GENERAL MOTORS CORP.

9. Remove the brake pad retainers from the disc brake caliper bracket.

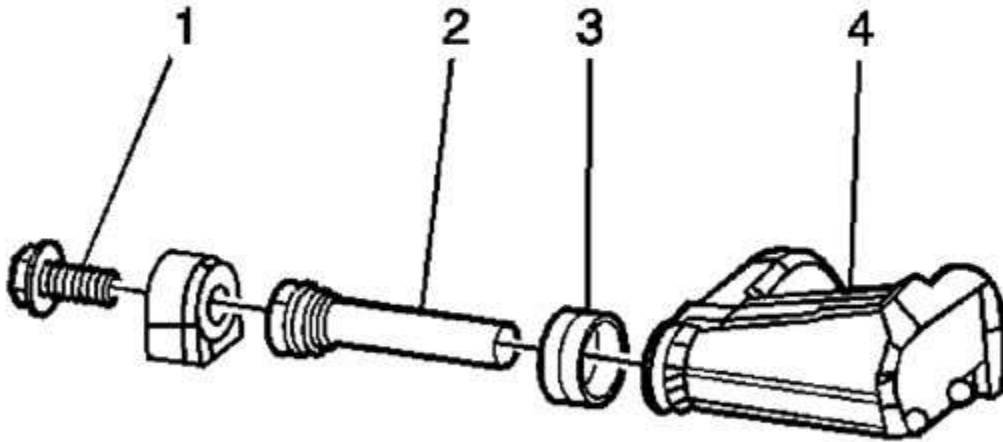


Fig. 56: Identifying Brake Caliper Components
Courtesy of GENERAL MOTORS CORP.

10. Remove the brake caliper guide pins (2) from the brake caliper mounting bracket (4).
11. Remove the caliper pin boots (3) from the brake caliper mounting bracket (4).

Installation Procedure

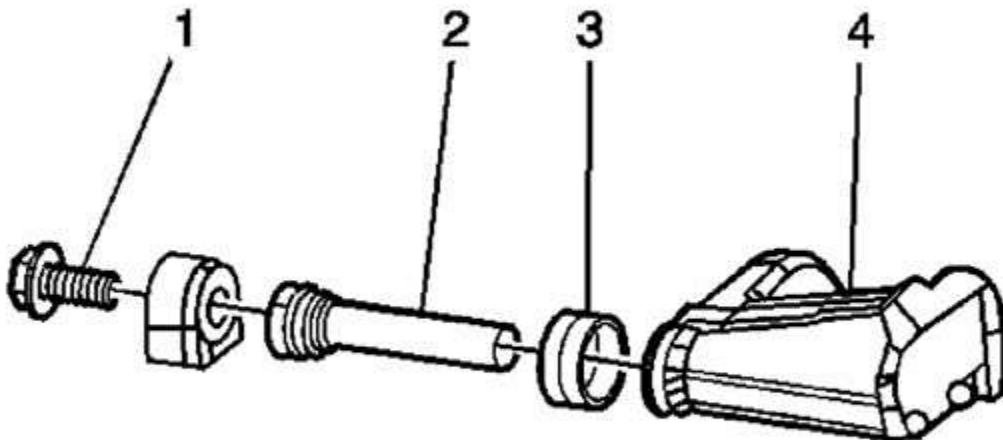


Fig. 57: Identifying Brake Caliper Components
Courtesy of GENERAL MOTORS CORP.

1. Apply a thin coat of high temperature silicone lube to the brake caliper guide pin boots.
2. Using a suitable tool press the brake caliper pin boots (3) to the brake caliper mounting bracket (4). Do not hammer the boots into the bracket.
3. Install the brake caliper guide pins (2) to the brake caliper mounting bracket (4).
4. Install the brake pad retainers to the brake caliper bracket.
5. Install the brake pads to the brake caliper bracket.
6. Install the brake caliper to the mounting bracket.

IMPORTANT: If reusing the caliper pin bolts, the threads of the caliper pin bolts and the threads of the caliper bracket mounting holes must be free of residue and debris prior to application of threadlocker in order to ensure proper adhesion and fastener retention.

7. Prepare the bolts and the threaded holes for assembly:
 1. Thoroughly clean the residue from the bolt threads by using denatured alcohol or equivalent and allow to dry.
 2. Thoroughly clean the residue from the threaded holes by using denatured alcohol or equivalent and allow to dry.
 3. Apply threadlocker GM P/N 12345493 (Canada P/N 10953488), or equivalent to two-thirds of the threaded length of the lower caliper bracket bolts. Ensure that there are no gaps in the threadlocker along the length of the filled area of the bolts.
 4. Allow the threadlocker to cure approximately ten minutes before installation.
 5. Apply a thin coat of high temperature silicone lube to the brake caliper guide pins.

NOTE: Refer to Fastener Notice in Cautions and Notices.

8. Install the brake caliper bolts (1).

Tighten: Tighten the brake caliper bolts to 60 N.m (44 lb ft).

9. Install the tire and wheel. Refer to Tire and Wheel Removal and Installation in Tires and Wheels.
10. Lower the vehicle.
11. Fill the master cylinder to the proper level. Refer to Master Cylinder Reservoir Filling in Hydraulic Brakes.

2004 Cadillac SRX
2004 BRAKES Disc Brakes - SRX

BRAKE CALIPER BRACKET REPLACEMENT - FRONT

CAUTION: Refer to Brake Dust Caution in Cautions and Notices.

Removal Procedure

CAUTION: Do not move the vehicle until a firm brake pedal is obtained. Failure to obtain a firm pedal before moving vehicle may result in personal injury.

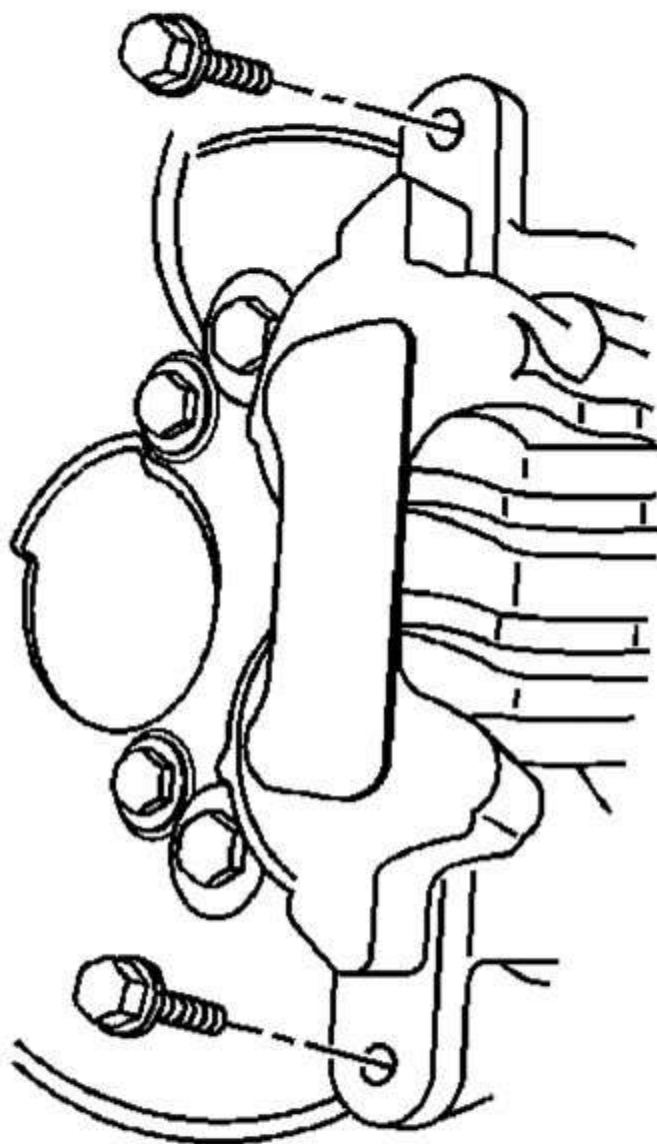


Fig. 58: View Of Brake Caliper Pin Bolts
Courtesy of GENERAL MOTORS CORP.

1. Remove the brake caliper from the brake caliper bracket. Refer to **Brake Caliper Replacement - Front**.

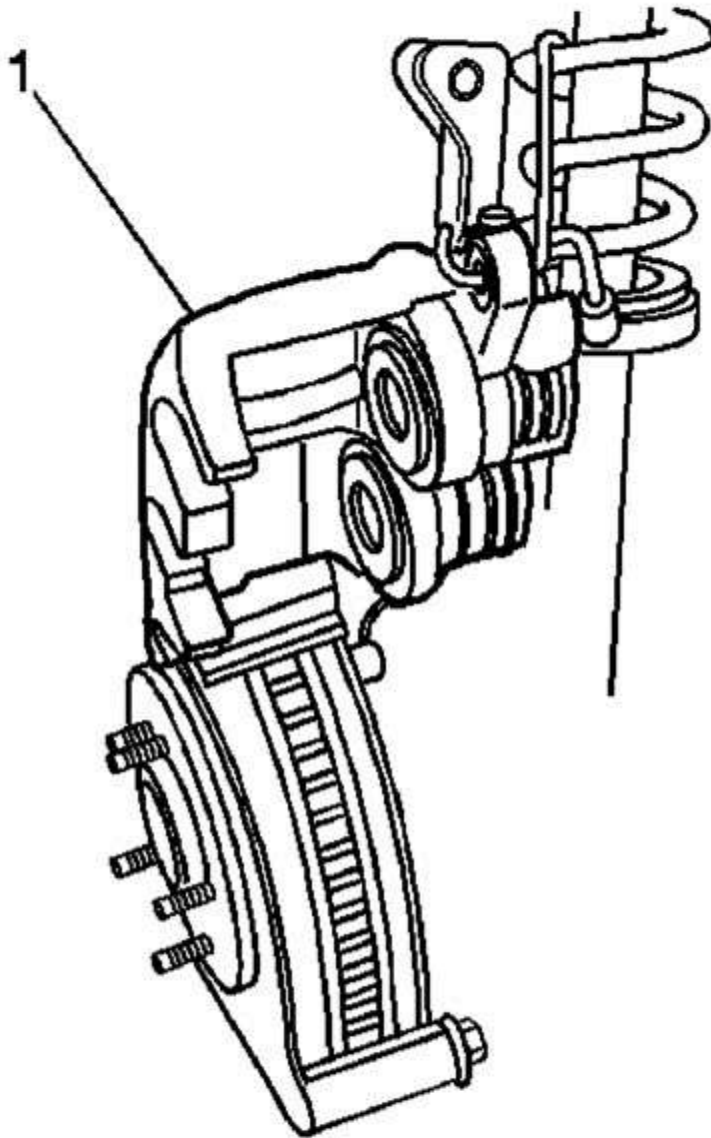


Fig. 59: Supporting Brake Caliper With Heavy Mechanic's Wire
Courtesy of GENERAL MOTORS CORP.

NOTE: Support the brake caliper with heavy mechanic's wire, or equivalent, whenever it is separated from its mount and the hydraulic flexible brake hose is still connected. Failure to support the caliper in this manner will cause the flexible brake hose to bear the weight of the caliper, which may cause damage to the brake hose and in turn may cause a

brake fluid leak.

2. Support the brake caliper (1) with heavy mechanic's wire, or equivalent; do NOT disconnect the hydraulic brake flexible hose from the caliper.

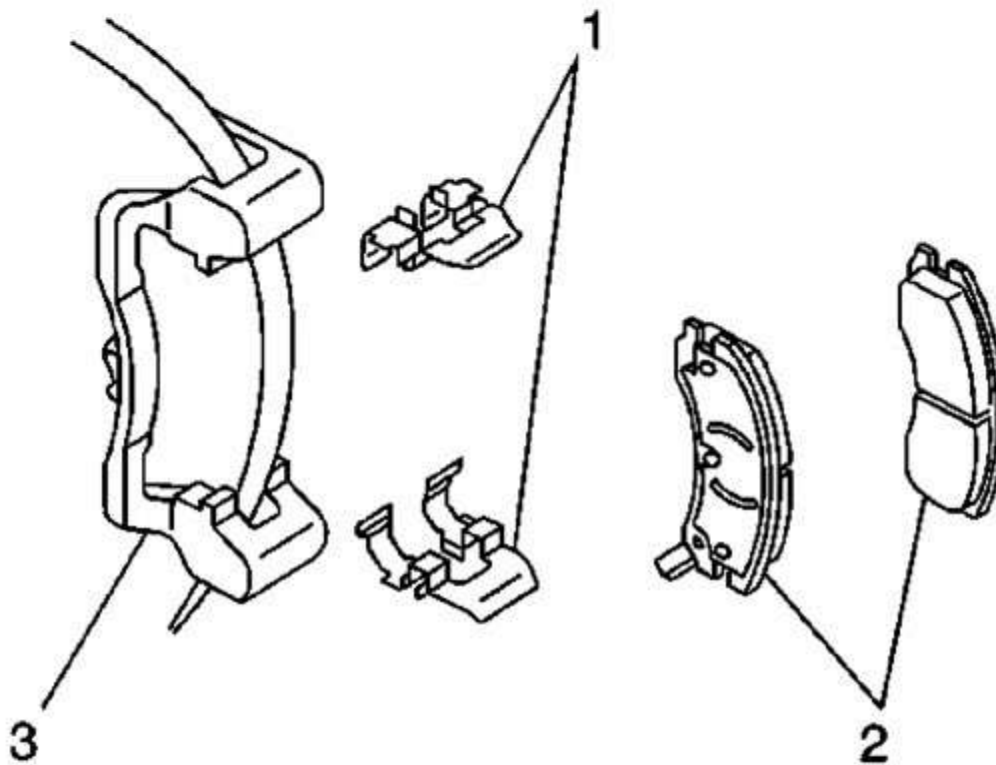


Fig. 60: Identifying Brake Pads, Bracket & Retainers
Courtesy of GENERAL MOTORS CORP.

3. Remove the brake pads (2) from the brake caliper bracket (3).
4. Remove the brake pad retainers (1) from the brake caliper bracket (3).

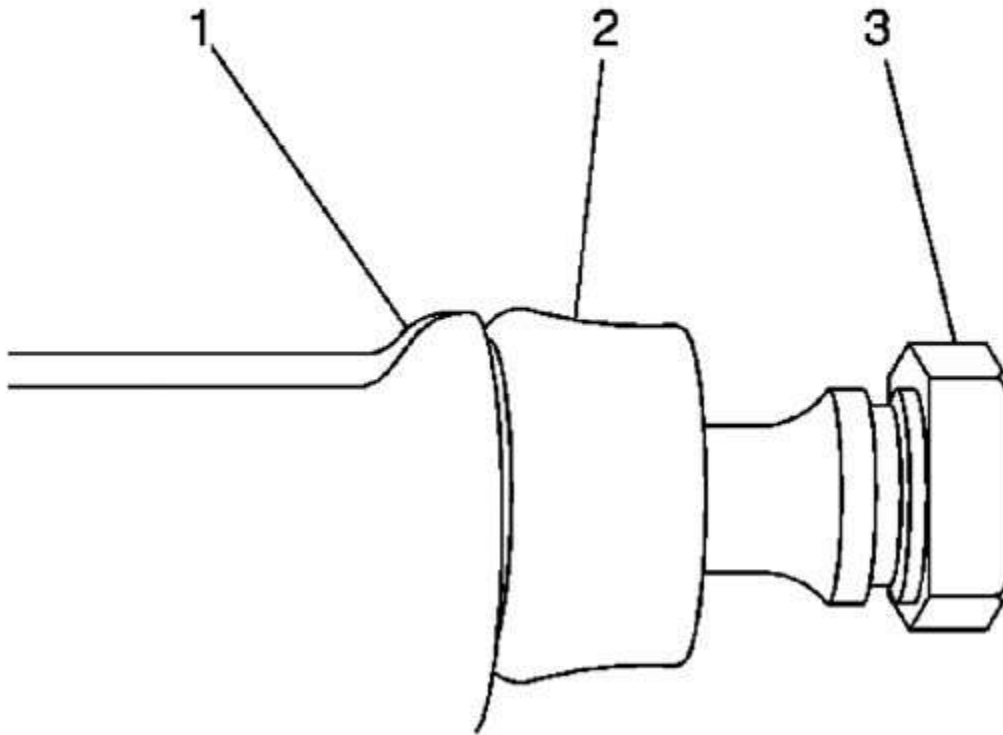


Fig. 61: View Of Caliper Guide Pins
Courtesy of GENERAL MOTORS CORP.

5. Remove the brake caliper guide pins (3).
6. Remove the brake caliper pin boots (2) from the brake caliper mounting bracket (1).

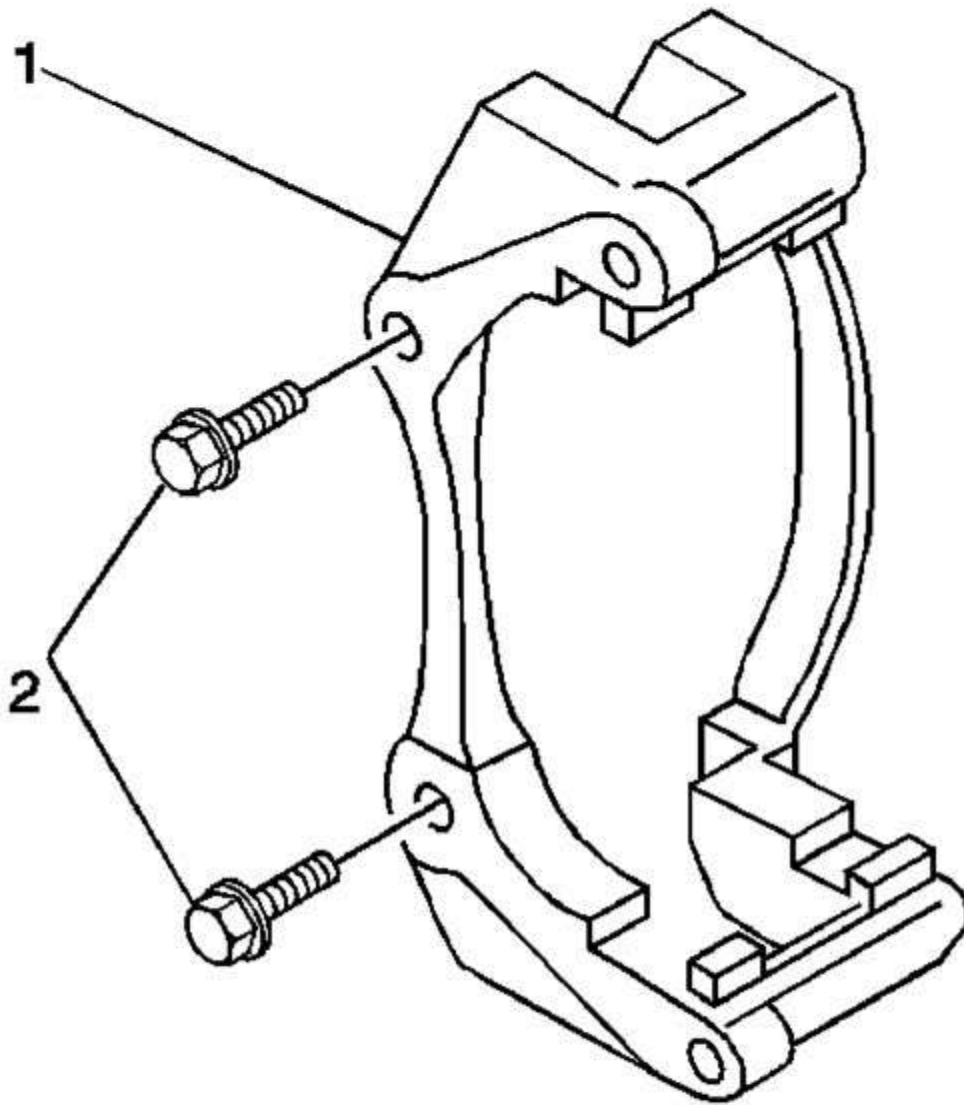


Fig. 62: View Of Brake Caliper Bracket & Mounting Bolts
Courtesy of GENERAL MOTORS CORP.

7. Remove the brake caliper bracket mounting bolts (2).
8. Remove the brake caliper bracket (1) from the knuckle.
9. Inspect the brake caliper bracket (1). Refer to **Disc Brake Hardware Replacement - Front**.
10. Replace the brake caliper bracket if cracked or damaged.

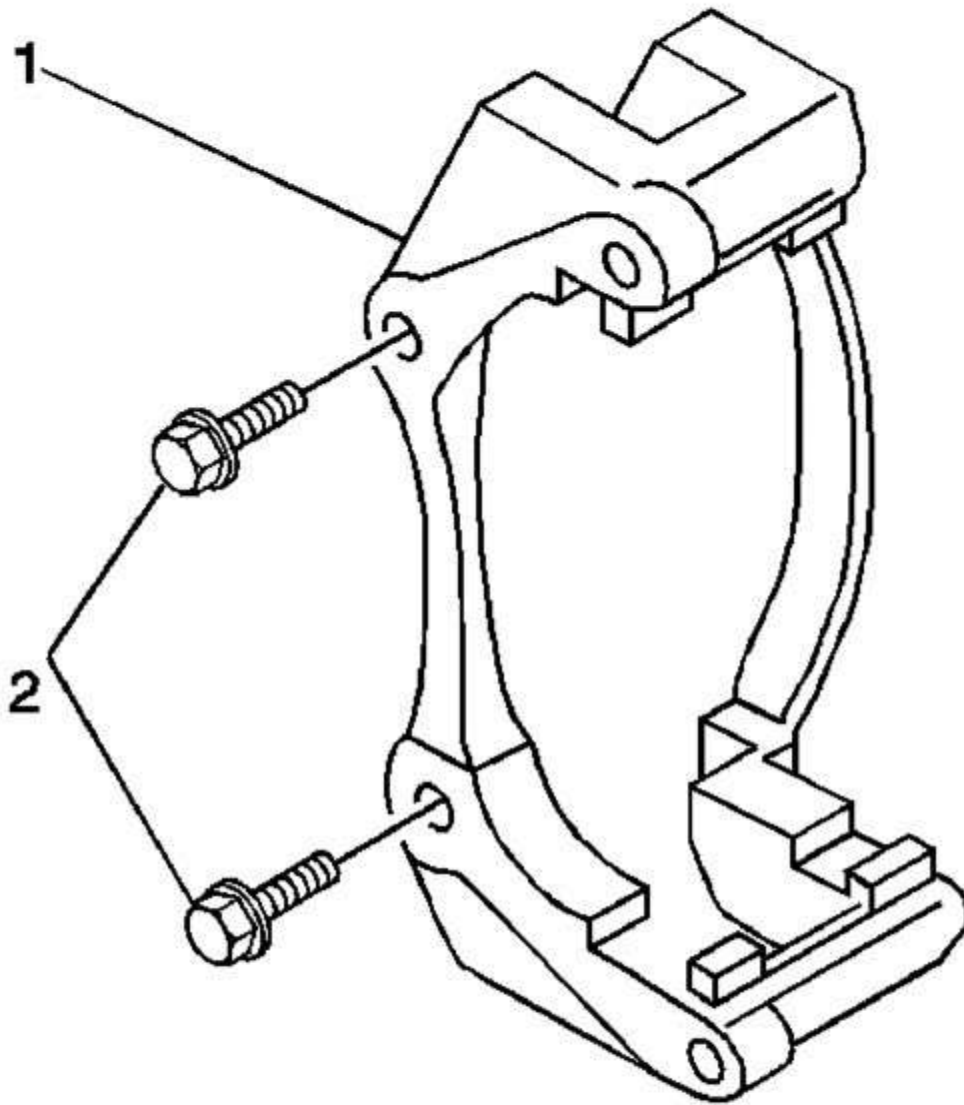


Fig. 63: View Of Brake Caliper Bracket & Mounting Bolts
Courtesy of GENERAL MOTORS CORP.

1. Install the brake caliper bracket (1) to the knuckle.

IMPORTANT: If reusing the caliper bracket bolts the threads of the caliper bracket bolts and the threads of the knuckle mounting holes must be free of residue and debris prior to application of threadlocker in order to ensure proper adhesion and fastener retention.

2. Prepare the bolts and the threaded holes for assembly:
 1. Thoroughly clean the residue from the bolt threads by using denatured alcohol or equivalent and allow to dry.
 2. Thoroughly clean the residue from the threaded holes by using denatured alcohol or equivalent and allow to dry.
 3. Apply threadlocker GM P/N 12345493 (Canada P/N 10953488), or equivalent to two-thirds of the threaded length of the lower caliper bracket bolts. Ensure that there are no gaps in the threadlocker along the length of the filled area of the bolts.
 4. Allow the threadlocker to cure approximately ten minutes before installation.

NOTE: Refer to Fastener Notice in Cautions and Notices.

3. Install the two brake caliper bracket bolts (2).

Tighten: Tighten the front brake caliper bracket bolts to 130 N.m (96 lb ft).

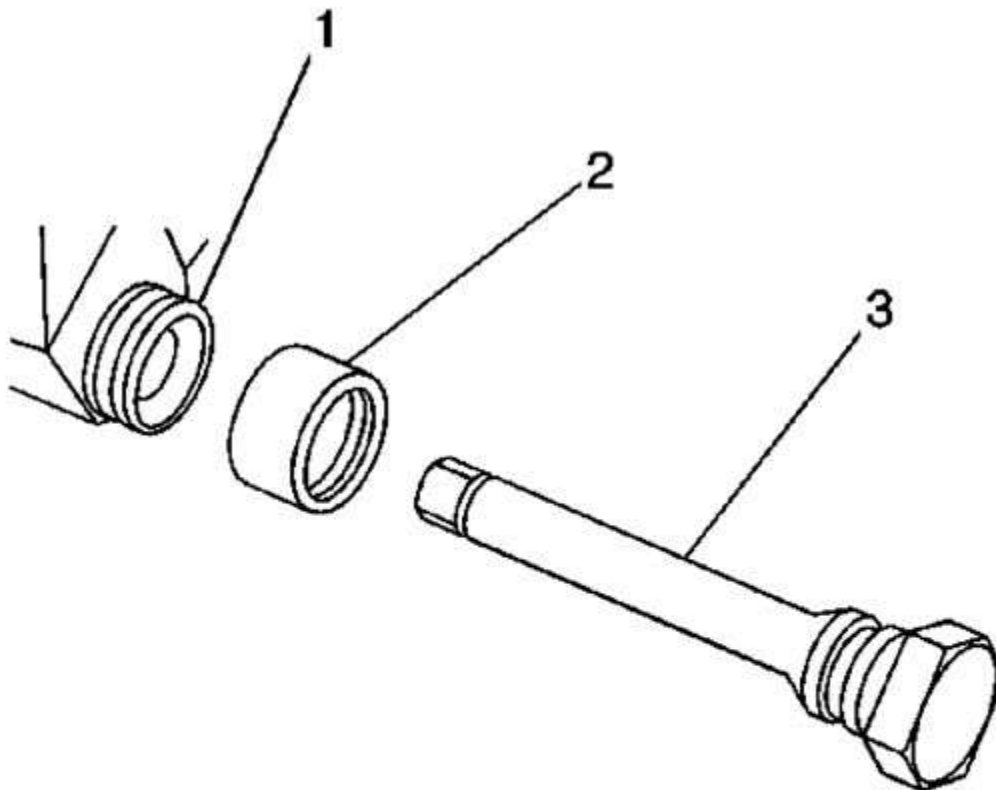


Fig. 64: View Of Caliper Guide Pin Retaining Seat, Pin Boots & Boot Seal

Retaining Seat

Courtesy of GENERAL MOTORS CORP.

IMPORTANT:

- Ensure that the caliper guide pin boots (2) are fully seated to the caliper guide pin retaining seat (3) of the caliper guide pin.
- Ensure that the caliper guide pin boots (2) are fully seated to the caliper boot seal retaining seat (1) of the brake caliper mounting bracket.

4. Install the caliper guide pin boots (2) to the brake caliper mounting bracket retaining seat (1).

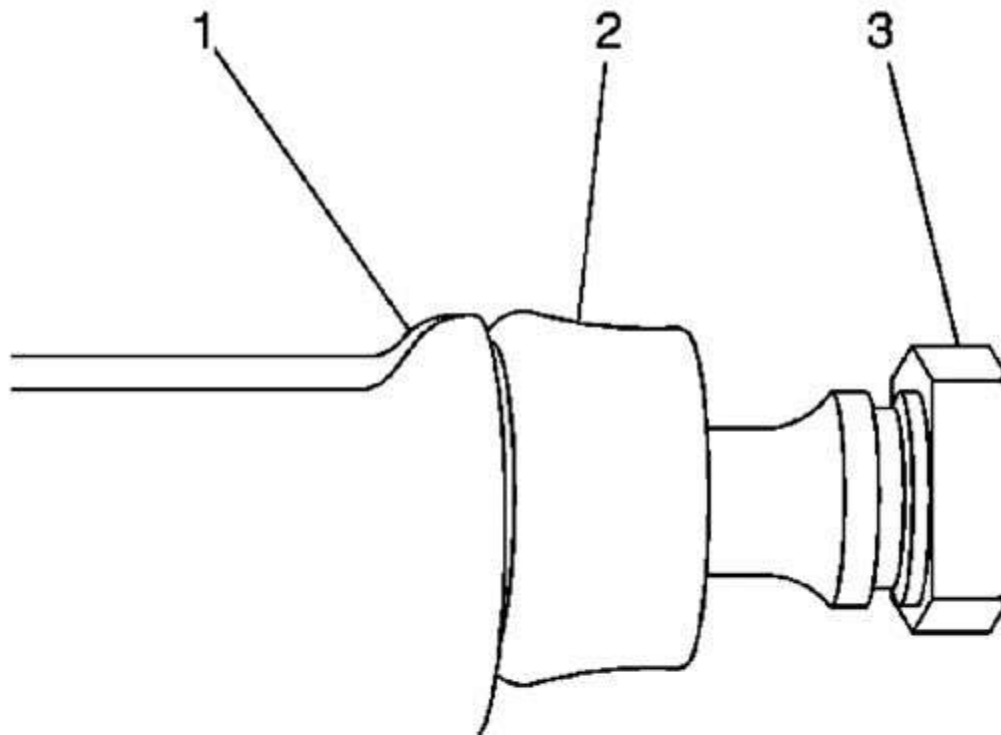


Fig. 65: View Of Caliper Guide Pins

Courtesy of GENERAL MOTORS CORP.

5. Install the caliper guide pins (1) to the caliper mounting bracket (3).

Ensure the caliper guide pin retaining seat is fully seated to the caliper pin boot (2).

6. Carefully pull outward on the caliper guide pin (3) to ensure that the caliper guide pin retaining seat is fully seated to the caliper guide pin boot (2).

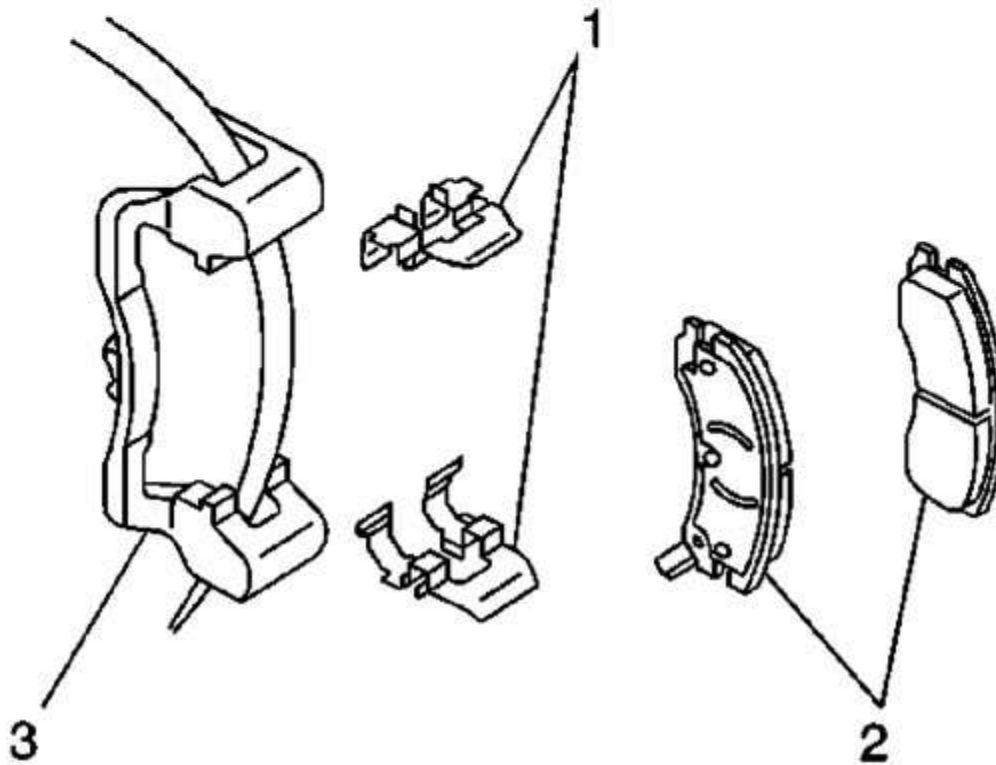


Fig. 66: Identifying Brake Pads, Bracket & Retainers
Courtesy of GENERAL MOTORS CORP.

7. Install the brake pad retainers (1) to the brake caliper bracket (3).
8. Install the brake pads (2) to the brake caliper bracket (3).
9. Install the brake caliper (1) to the front brake caliper bracket (2). Refer to **Brake Caliper Replacement - Front**.

BRAKE CALIPER BRACKET REPLACEMENT - REAR

CAUTION: Refer to **Brake Dust Caution** in Cautions and Notices.

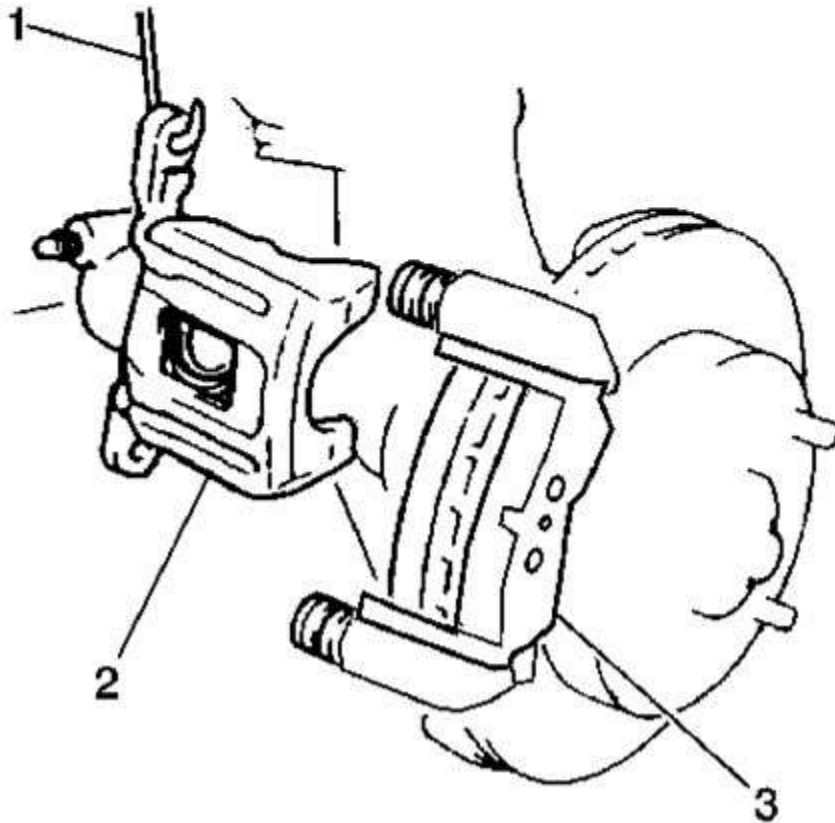


Fig. 67: View Of Brake Caliper And Caliper Bracket
Courtesy of GENERAL MOTORS CORP.

NOTE: Support the brake caliper with heavy mechanic's wire, or equivalent, whenever it is separated from its mount and the hydraulic flexible brake hose is still connected. Failure to support the caliper in this manner will cause the flexible brake hose to bear the weight of the caliper, which may cause damage to the brake hose and in turn may cause a brake fluid leak.

1. Remove the brake caliper (2) from the brake caliper bracket (3) and support the brake caliper (2) with heavy mechanic's wire (1), or equivalent. Do NOT disconnect the hydraulic brake flexible hose from the caliper. Refer to **Brake Caliper Replacement - Rear (JL9, JE5)**.

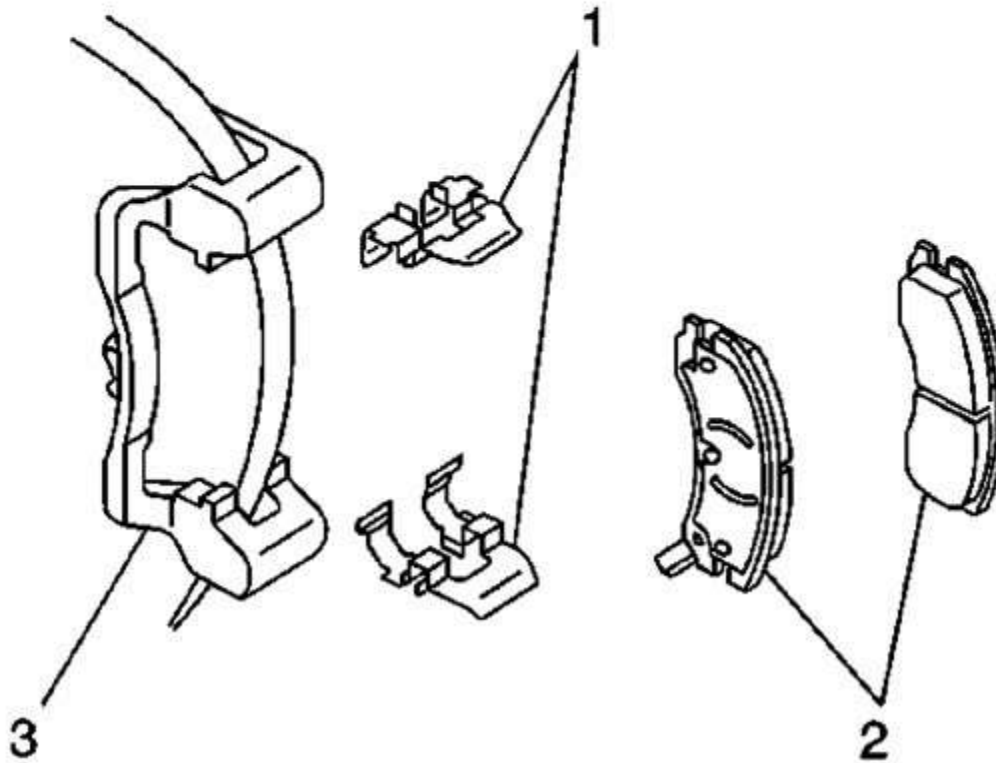


Fig. 68: Identifying Brake Pads, Bracket & Retainers
Courtesy of GENERAL MOTORS CORP.

2. Remove the brake pads (2) from the brake caliper bracket (3).
3. Remove the brake pad retainers (1) from the brake caliper bracket (3).

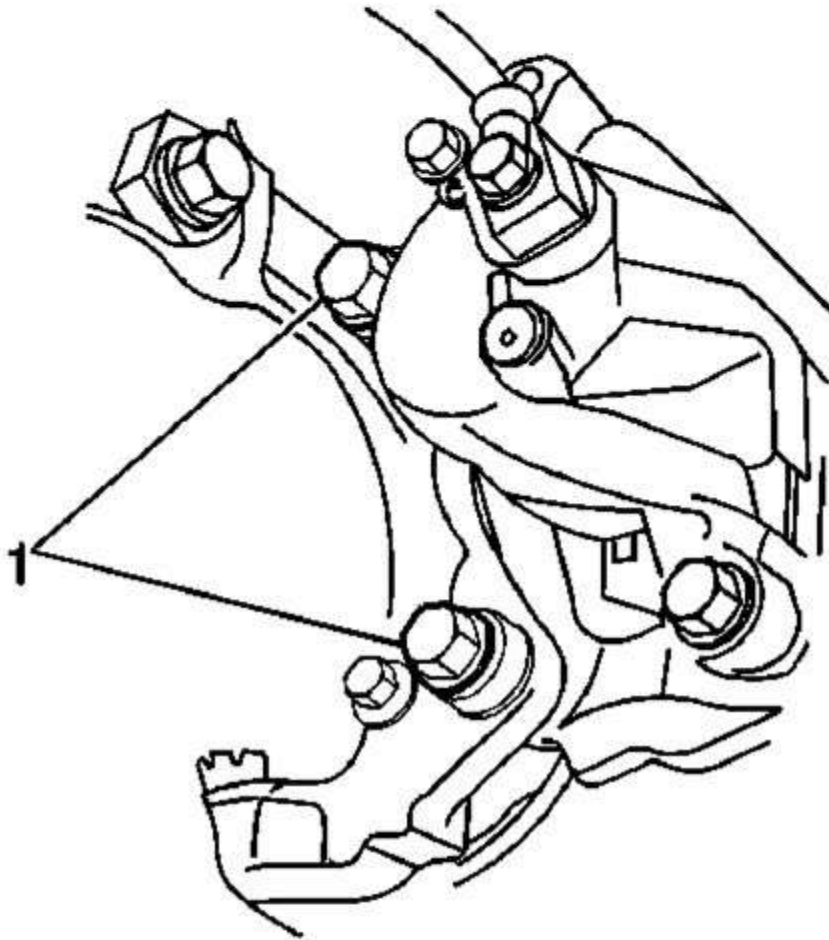


Fig. 69: Locating Caliper Mounting Brackets
Courtesy of GENERAL MOTORS CORP.

4. Remove the brake caliper bracket bolts (1).
5. Remove the rear brake caliper bracket.
6. Inspect the brake mounting and hardware. Refer to **Disc Brake Hardware Replacement - Rear (JL9, JE5)**.
7. Inspect the brake caliper bracket.
8. Replace the brake caliper bracket if cracked or damaged.

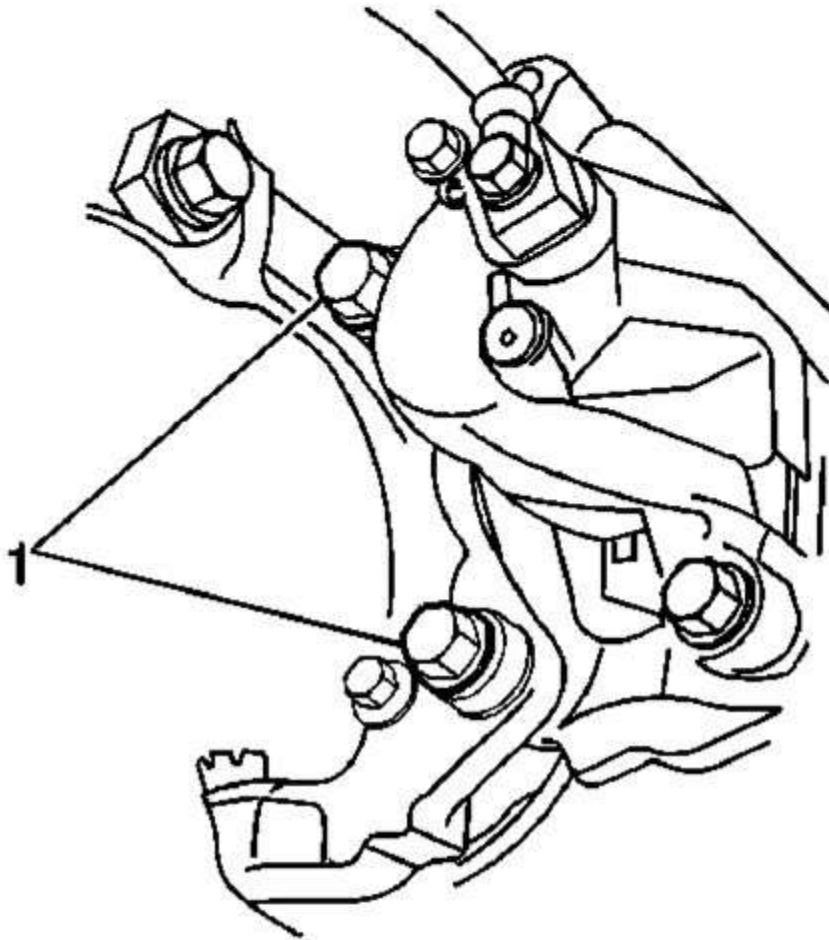


Fig. 70: Locating Caliper Mounting Brackets
Courtesy of GENERAL MOTORS CORP.

1. Install the brake caliper bracket.

IMPORTANT: If reusing the caliper bracket bolts the threads of the caliper bracket bolts and the threads of the knuckle mounting holes must be free of residue and debris prior to application of threadlocker in order to ensure proper adhesion and fastener retention.

2. Prepare the bolts and the threaded holes for assembly:
 1. Thoroughly clean the residue from the bolt threads by using denatured alcohol or

- equivalent and allow to dry.
2. Thoroughly clean the residue from the threaded holes by using denatured alcohol or equivalent and allow to dry.
 3. Apply threadlocker GM P/N 12345493 (Canada P/N 10953488), or equivalent to two-thirds of the threaded length of the lower caliper bracket bolts. Ensure that there are no gaps in the threadlocker along the length of the filled area of the bolts.
 4. Allow the threadlocker to cure approximately ten minutes before installation.

NOTE: Refer to Fastener Notice in Cautions and Notices.

3. Install the brake caliper bracket bolts (1).

Tighten: Tighten the rear brake caliper bracket bolts to 120 N.m (88 lb ft).

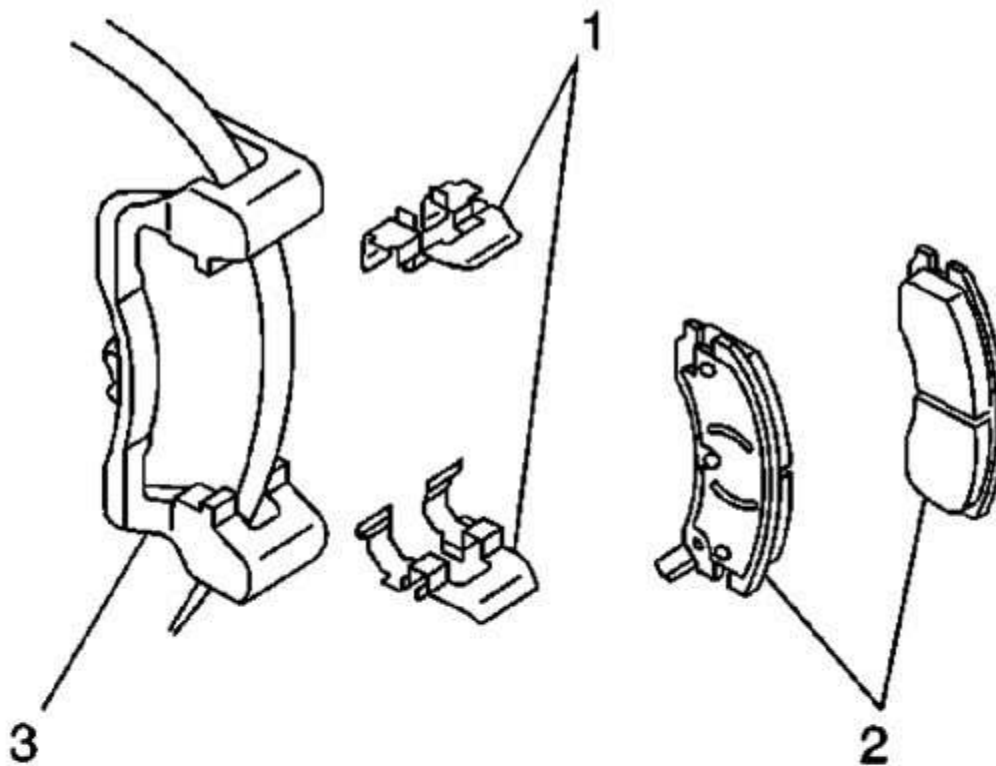


Fig. 71: Identifying Brake Pads, Bracket & Retainers
Courtesy of GENERAL MOTORS CORP.

4. Install the brake pad retainers (1) to the brake caliper bracket (3).

5. Install the brake pads (2) to the brake caliper bracket (3).
6. Install the brake caliper. Refer to **Brake Caliper Replacement - Rear (JL9, JE5)**.

BRAKE ROTOR REPLACEMENT - FRONT

Tools Required

- **J 41013** Rotor Resurfacing Kit. See **Special Tools and Equipment**.
- **J 42450-A** Wheel Hub Resurfacing Kit. See **Special Tools and Equipment**.

CAUTION: Refer to **Brake Dust Caution** in Cautions and Notices.

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
2. Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.

NOTE: Support the brake caliper with heavy mechanic's wire, or equivalent, whenever it is separated from its mount and the hydraulic flexible brake hose is still connected. Failure to support the caliper in this manner will cause the flexible brake hose to bear the weight of the caliper, which may cause damage to the brake hose and in turn may cause a brake fluid leak.

IMPORTANT: Do NOT disconnect the hydraulic brake flexible hose from the caliper.

3. Remove the brake caliper and the caliper mounting bracket as an assembly from the suspension knuckle and support the assembly with heavy mechanic's wire, or equivalent. Ensure that there is no tension on the hydraulic brake flexible hose. Refer to **Brake Caliper Bracket Replacement - Front**.
4. Matchmark the position of the brake rotor to the wheel studs.

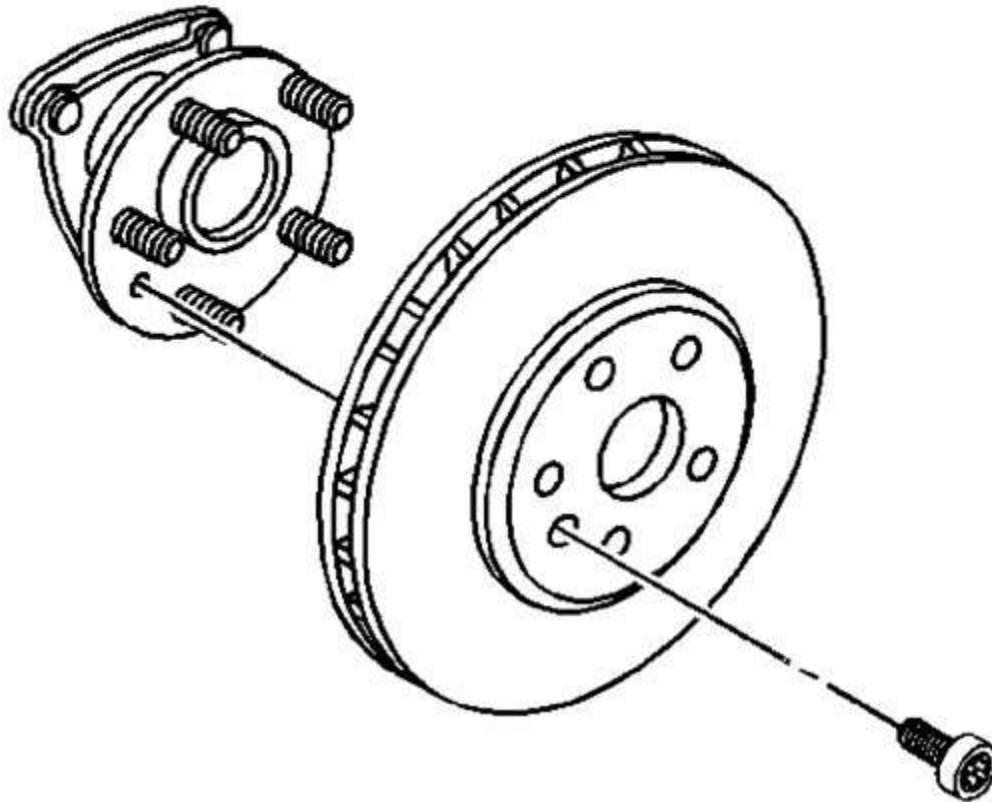


Fig. 72: View Of Front Brake Rotor
Courtesy of GENERAL MOTORS CORP.

5. Remove the brake rotor mounting screw.
6. Remove the brake rotor.

Installation Procedure

IMPORTANT: Whenever the brake rotor has been separated from the hub/axle flange, any rust or contaminants should be cleaned from the hub/axle flange and the brake rotor mating surfaces. Failure to do this may result in excessive assembled lateral runout (LRO) of the brake rotor, which could lead to brake pulsation.

1. Using the **J 42450-A** , thoroughly clean any rust or corrosion from the mating surface of the hub/axle flange. See **Special Tools and Equipment**.

2. Using the **J 41013** , thoroughly clean any rust or corrosion from the mating surface and mounting surface of the brake rotor. See **Special Tools and Equipment**.
3. Inspect the mating surfaces of the hub/axle flange and the rotor to ensure that there are no foreign particles or debris remaining.
4. Install the brake rotor to the hub/axle flange. Use the matchmark made prior to removal for proper orientation to the flange.

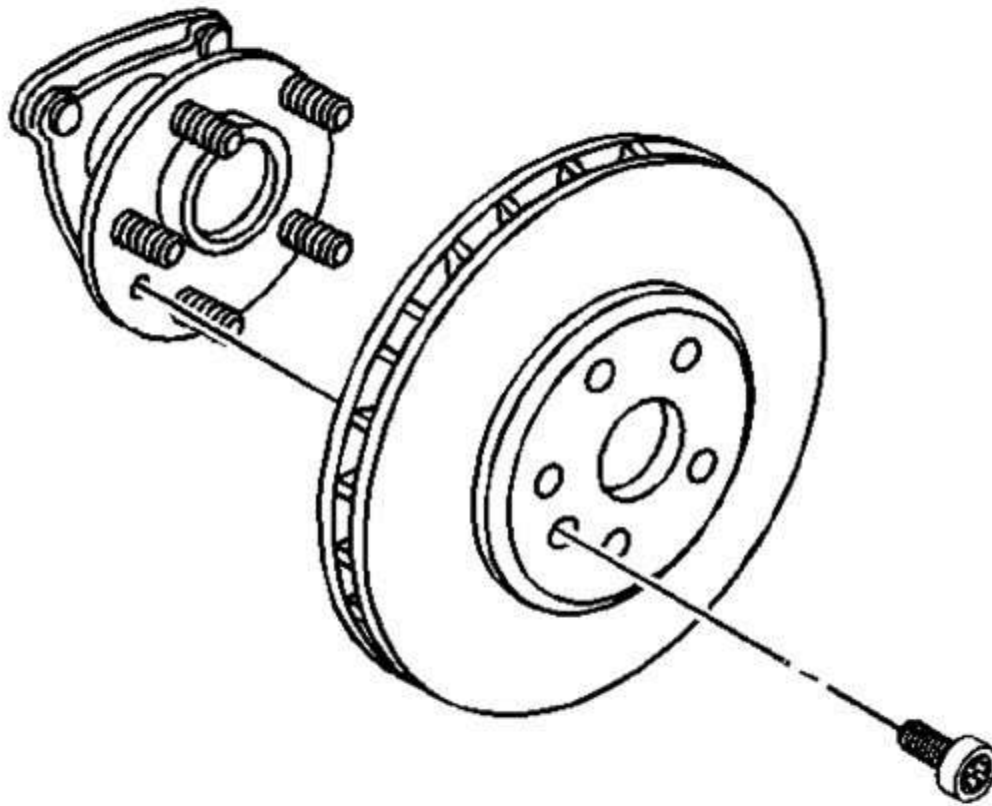


Fig. 73: View Of Front Brake Rotor
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to **Fastener Notice** in Cautions and Notices.

5. Install the brake rotor mounting screw.

Tighten: Tighten the brake rotor mounting screw to 14 N.m (124 lb in).

6. If the brake rotor was removed and installed as part of a brake system repair, measure the

assembled lateral runout (LRO) of the brake rotor to ensure optimum performance of the disc brakes. Refer to **Brake Rotor Assembled Lateral Runout (LRO) Measurement**.

7. If the brake rotor assembled LRO measurement exceeds the specification, bring the LRO to within specifications. Refer to **Brake Rotor Assembled Lateral Runout (LRO) Correction**.
8. Install the brake caliper and the brake caliper bracket as an assembly to the suspension knuckle. Refer to **Brake Caliper Bracket Replacement - Front**.
9. Install the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
10. Lower the vehicle.
11. If the brake rotor was refinished or replaced, or if new brake pads were installed, burnish the pads and rotors. Refer to **Burnishing Pads and Rotors**.

BRAKE ROTOR REPLACEMENT - REAR

Tools Required

- **J 2619-01** Slide Hammer with Adapter. See **Special Tools and Equipment**.
- **J 41013** Rotor Resurfacing Kit. See **Special Tools and Equipment**.
- **J 42450-A** Wheel Hub Resurfacing Kit. See **Special Tools and Equipment**.
- **J-46277** Rotor Removal Tool. See **Special Tools and Equipment**.

Removal Procedure

1. Check to be sure that the park brake is released.
2. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
3. Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.

NOTE: Support the brake caliper with heavy mechanic's wire, or equivalent, whenever it is separated from its mount and the hydraulic flexible brake hose is still connected. Failure to support the caliper in this manner will cause the flexible brake hose to bear the weight of the caliper, which may cause damage to the brake hose and in turn may cause a brake fluid leak.

IMPORTANT: Do NOT disconnect the hydraulic brake flexible hose from the caliper.

4. Remove the brake caliper and the caliper mounting bracket as an assembly from the suspension knuckle and support the assembly with heavy mechanic's wire, or equivalent. Ensure that there is no tension on the hydraulic brake flexible hose. Refer to **Brake Caliper Bracket Replacement - Rear**.
5. Matchmark the position of the brake rotor to the wheel studs.

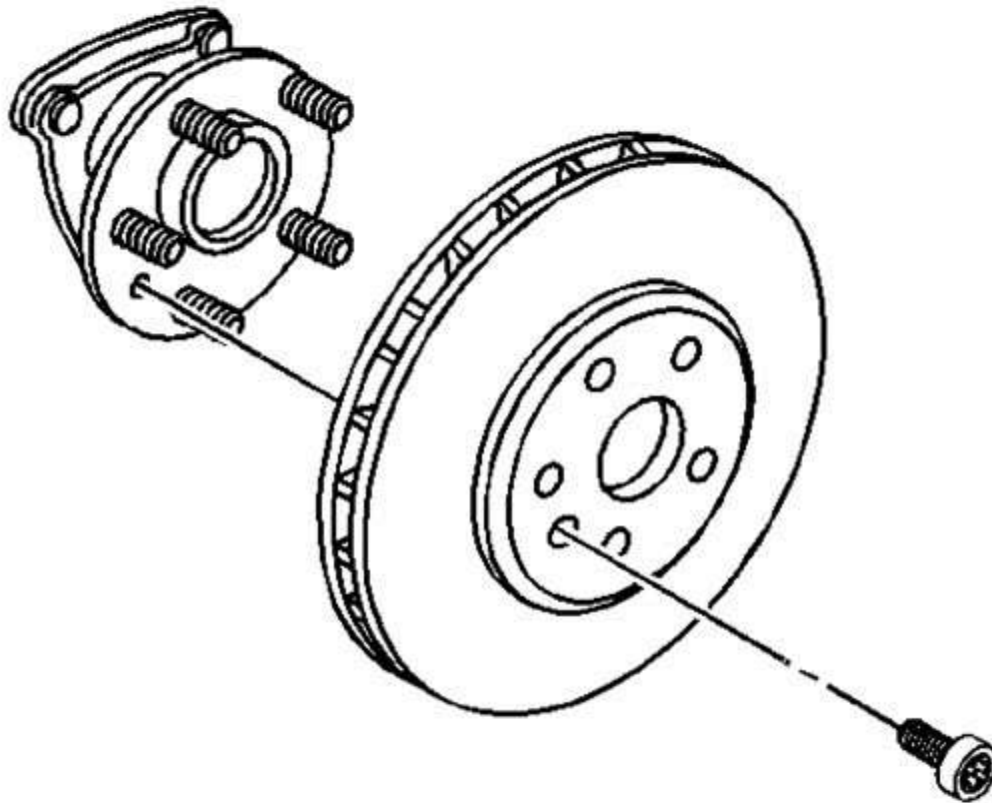


Fig. 74: View Of Front Brake Rotor
Courtesy of GENERAL MOTORS CORP.

6. Remove the brake rotor mounting screw.
7. Remove the brake rotor. Do not force the rotor off. If the rotor is difficult to remove, ease it off by gently rotating it as you pull outward.

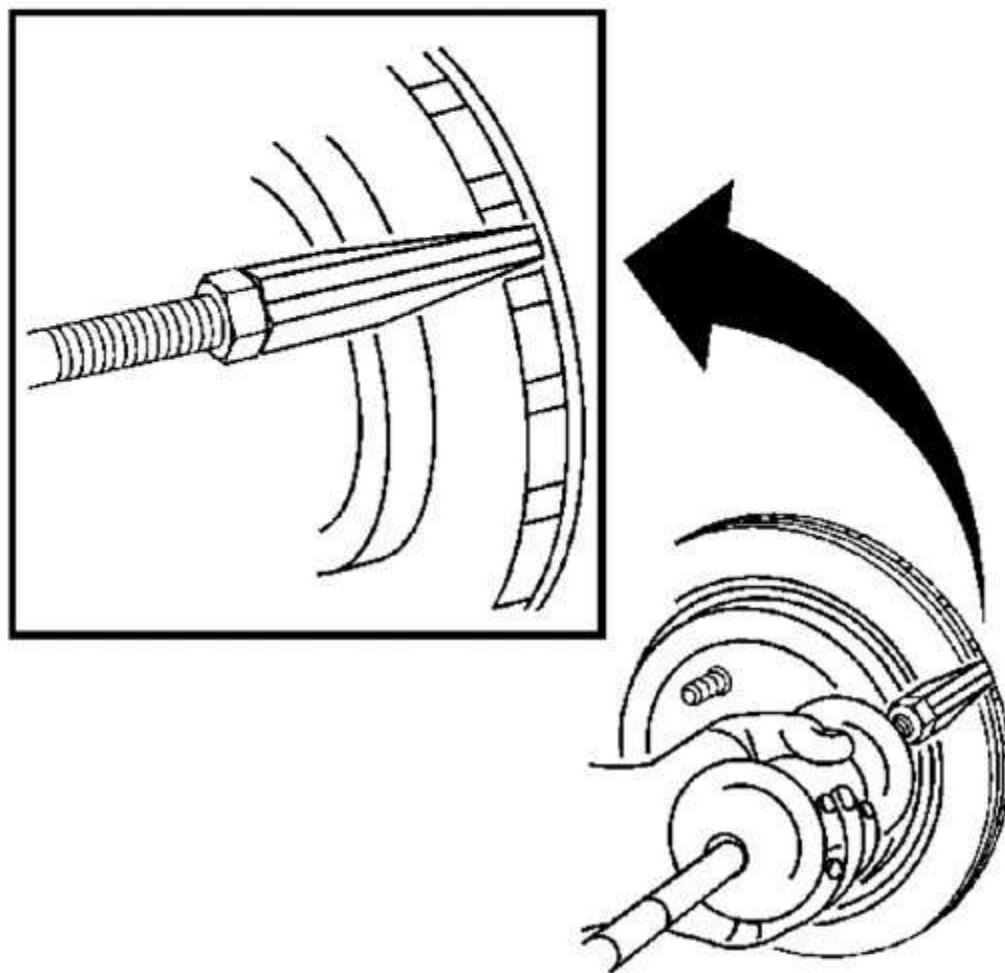


Fig. 75: View Of Rotor From Hub Assembly Removal Using J-46277 & J 2619-01
Courtesy of GENERAL MOTORS CORP.

8. If the brake rotor cannot be removed perform the following:
 1. Assemble **J-46277** to **J 2619-01** . See **Special Tools and Equipment**.
 2. Insert **J-46277** between the rotor friction surfaces in the vent section of the rotor. See **Special Tools and Equipment**.

DO NOT place the **J-46277** on the rotor friction surface. See **Special Tools and Equipment**.

3. Using **J-46277** and **J 2619-01** remove the rotor from the hub assembly. See **Special Tools and Equipment**.

4. Inspect the park brake components for the following conditions:
 - Bent or broken hold down spring
 - Broken, cracked or worn brake shoe lining
 - Bent or damaged brake shoe
 - Worn, bent or damaged backing plate
5. If any of these conditions are found replace the affected parts.

Installation Procedure

IMPORTANT: Whenever the brake rotor has been separated from the hub/axle flange, any rust or contaminants should be cleaned from the hub/axle flange and the brake rotor mating surfaces. Failure to do this may result in excessive assembled lateral runout (LRO) of the brake rotor, which could lead to brake pulsation.

1. Using the **J 42450-A**, thoroughly clean any rust or corrosion from the mating surface of the hub/axle flange. See **Special Tools and Equipment**.
2. Using the **J 41013**, thoroughly clean any rust or corrosion from the mating surface and mounting surface of the brake rotor. See **Special Tools and Equipment**.
3. Inspect the mating surfaces of the hub/axle flange and the rotor to ensure that there are no foreign particles or debris remaining.
4. If installing a new brake rotor, adjust the clearance of the parking brake shoe to the drum-in-hat portion of the brake rotor. Refer to **Park Brake Adjustment** in Park Brake.
5. Install the brake rotor to the hub/axle flange. Use the matchmark made prior to removal for proper orientation to the flange.

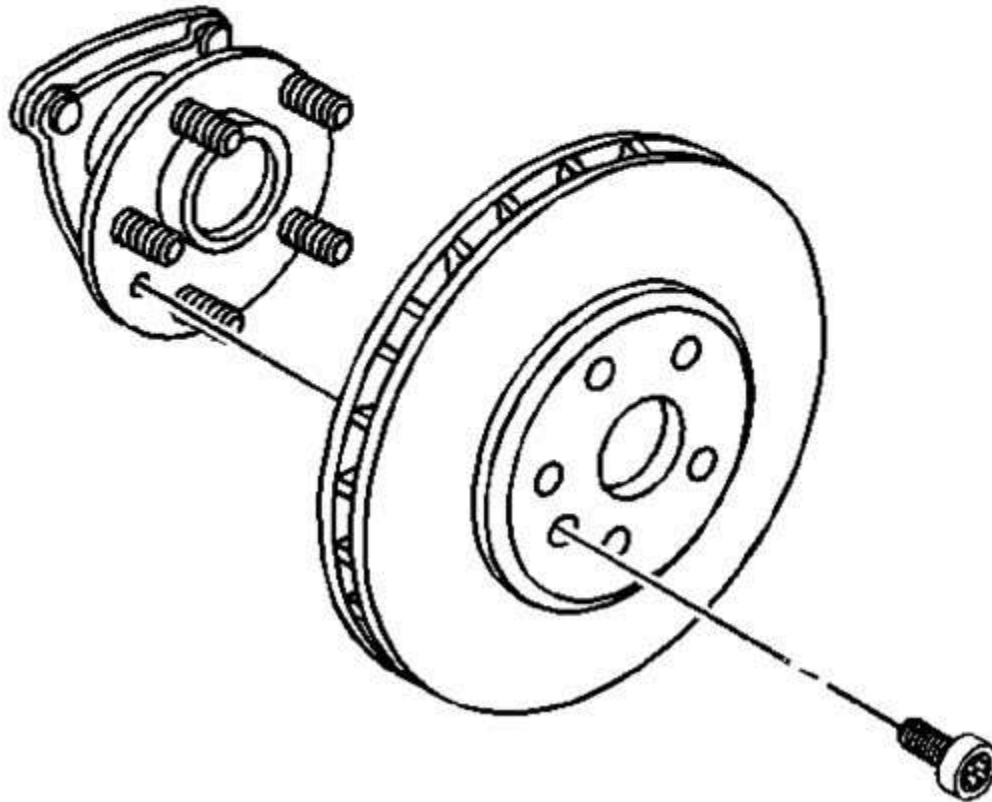


Fig. 76: View Of Front Brake Rotor
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

6. Install the brake rotor mounting screw.

Tighten: Tighten the brake rotor mounting screw to 14 N.m (124 lb in).

7. If the brake rotor was removed and installed as part of a brake system repair, measure the assembled lateral runout (LRO) of the brake rotor to ensure optimum performance of the disc brakes. Refer to Brake Rotor Assembled Lateral Runout (LRO) Measurement.
8. If the brake rotor assembled LRO measurement exceeds the specification, bring the LRO to within specifications. Refer to Brake Rotor Assembled Lateral Runout (LRO) Correction.
9. Install the brake caliper and the brake caliper bracket as an assembly to the suspension knuckle. Refer to Brake Caliper Bracket Replacement - Rear.

10. Install the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
11. Lower the vehicle.
12. If the brake rotor was refinished or replaced, or if new brake pads were installed, burnish the pads and rotors. Refer to **Burnishing Pads and Rotors**.

DISC BRAKE SPLASH SHIELD REPLACEMENT - FRONT

Tools Required

J 42450-A Wheel Hub Resurfacing Kit. See **Special Tools and Equipment**.

Removal Procedure

1. Raise and suitably support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
2. Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.

NOTE: Support the brake caliper with heavy mechanic's wire, or equivalent, whenever it is separated from its mount and the hydraulic flexible brake hose is still connected. Failure to support the caliper in this manner will cause the flexible brake hose to bear the weight of the caliper, which may cause damage to the brake hose and in turn may cause a brake fluid leak.

3. Remove the brake caliper and the caliper mounting bracket as an assembly from the suspension knuckle and support the assembly with heavy mechanic's wire, or equivalent; ensure that there is no tension on the hydraulic brake flexible hose. Do NOT disconnect the hydraulic brake flexible hose from the caliper. Refer to **Brake Caliper Bracket Replacement - Front**.
4. Remove the front wheel bearing assembly. Refer to **Wheel Bearing/Hub Replacement - Front (AWD)** or **Wheel Bearing/Hub Replacement - Front (RWD)** in Front Suspension.
5. Remove the splash shield from the steering knuckle.

Installation Procedure

IMPORTANT: Whenever the rotor has been separated from the wheel bearing flange, clean any rust or contaminants from the wheel bearing flange and the brake rotor mating surfaces.

Failure to do this may result in increased lateral runout of the brake rotor, and brake pulsation.

1. Use the **J 42450-A** in order to clean any rust or corrosion from the wheel hub surface. See **Special Tools and Equipment**.
2. Clean any rust or contaminants from the steering knuckle to splash shield mating surfaces.
3. Install the splash shield to the steering knuckle.
4. Install the wheel bearing assembly. Refer to **Wheel Bearing/Hub Replacement - Front (AWD)** or **Wheel Bearing/Hub Replacement - Front (RWD)** in Front Suspension.
5. Install the brake caliper and the brake caliper bracket as an assembly to the suspension knuckle. Refer to **Brake Caliper Bracket Replacement - Front**.
6. Install the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** in Tire and Wheels.
7. Lower the vehicle.

BRAKE ROTOR ASSEMBLED LATERAL RUNOUT (LRO) CORRECTION

- IMPORTANT:**
- Brake rotor thickness variation **MUST** be checked **BEFORE** checking for assembled lateral runout (LRO). Thickness variation exceeding the maximum acceptable level can cause brake pulsation. Refer to **Brake Rotor Thickness Variation Measurement**.
 - Brake rotor assembled lateral runout (LRO) exceeding the maximum allowable specification can cause thickness variation to develop in the brake rotor over time, usually between 4 800-11 300 km (3,000-7,000 mi). Refer to **Brake Rotor Assembled Lateral Runout (LRO) Measurement**.

Review the following acceptable methods for bringing the brake rotor assembled LRO to within specifications. Determine which method to use for the specific vehicle being repaired.

- The indexing method of correcting assembled LRO is most effective when the LRO specification is only exceeded by a relatively small amount: 0.025-0.127 mm (0.001-0.005 in). Indexing is used to achieve the best possible match of high spots to low spots between related components. Refer to **Brake Rotor Assembled Lateral Runout (LRO) Correction - Indexing**.
- The correction plate method of correcting assembled LRO involves the addition of a tapered plate between the brake rotor and the hub/axle flange. The correction plate method can be used to correct LRO that exceeds the specification by up to 0.23 mm

(0.009 in). Refer to **Brake Rotor Assembled Lateral Runout (LRO) Correction - Correction Plates**.

- The on-vehicle brake lathe method is used to bring the LRO to within specifications through compensating for LRO while refinishing the brake rotor. Refer to **Brake Rotor Assembled Lateral Runout (LRO) Correction - On-Vehicle Lathe**.

If the assembled LRO cannot be corrected using these methods, then other components must be suspected as causing and/or contributing to the LRO concern.

BRAKE ROTOR ASSEMBLED LATERAL RUNOUT (LRO) CORRECTION - INDEXING

Tools Required

- **J 39544-KIT** Torque-Limiting Socket Set, or equivalent. See **Special Tools and Equipment**.
- **J 45101-100** Conical Brake Rotor Washers. See **Special Tools and Equipment**.

CAUTION: Refer to **Brake Dust Caution** in Cautions and Notices.

- IMPORTANT:**
- Brake rotor thickness variation **MUST** be checked **BEFORE** checking for assembled lateral runout (LRO). Thickness variation exceeding the maximum acceptable level can cause brake pulsation. Refer to **Brake Rotor Thickness Variation Measurement**.
 - Brake rotor assembled lateral runout (LRO) exceeding the maximum allowable specification can cause thickness variation to develop in the brake rotor over time, usually between 4 800-11 300 km (3,000-7,000 mi). Refer to **Brake Rotor Assembled Lateral Runout (LRO) Measurement**.

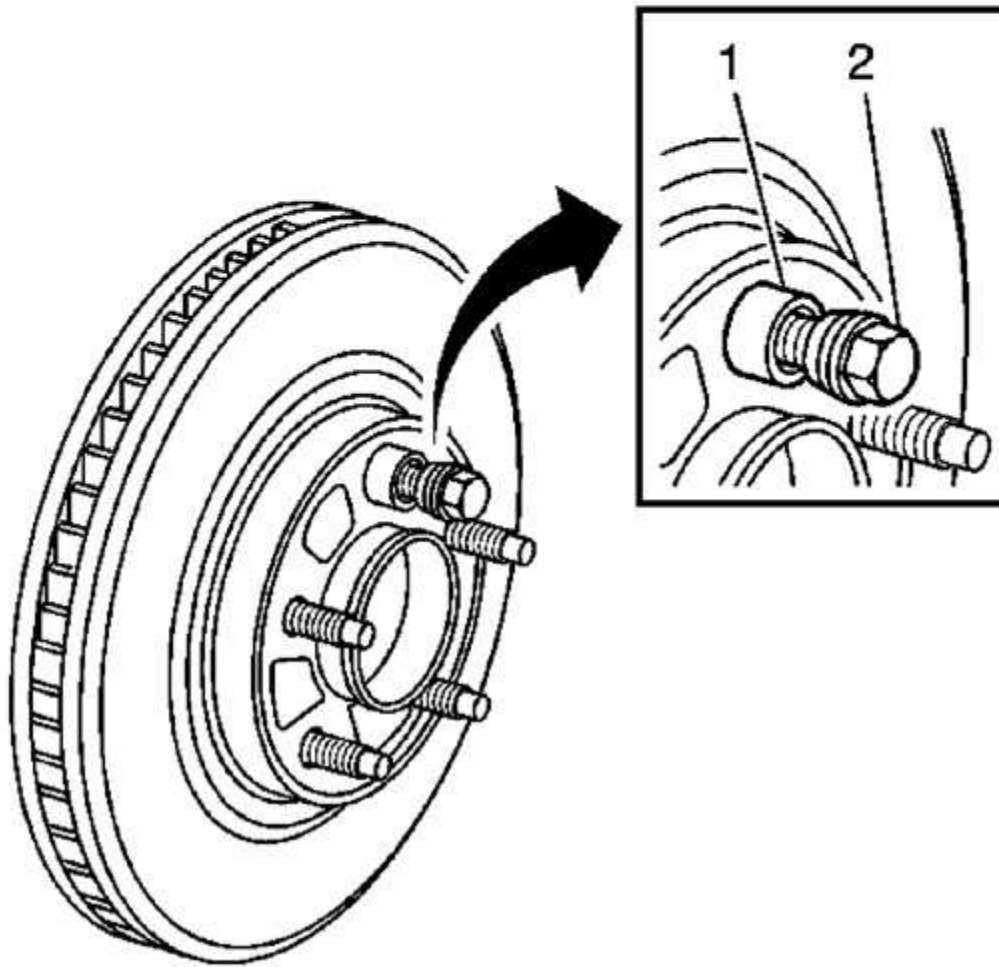


Fig. 77: Identifying J 45101-100 & Lug Nut
Courtesy of GENERAL MOTORS CORP.

1. Remove the **J 45101-100** and the lug nuts that were installed during the assembled LRO measurement procedure. See **Special Tools and Equipment**.
2. Inspect the mating surface of the hub/axle flange and the brake rotor to ensure that there are no foreign particles or debris remaining.
3. Index the brake rotor in a different orientation to the hub/axle flange.
4. Hold the rotor firmly in place against the hub/axle flange and install one of the **J 45101-100** (1) and one lug nut (2) onto the upper-most wheel stud. See **Special Tools and Equipment**.
5. Continue to hold the rotor secure and tighten the lug nut firmly by hand.

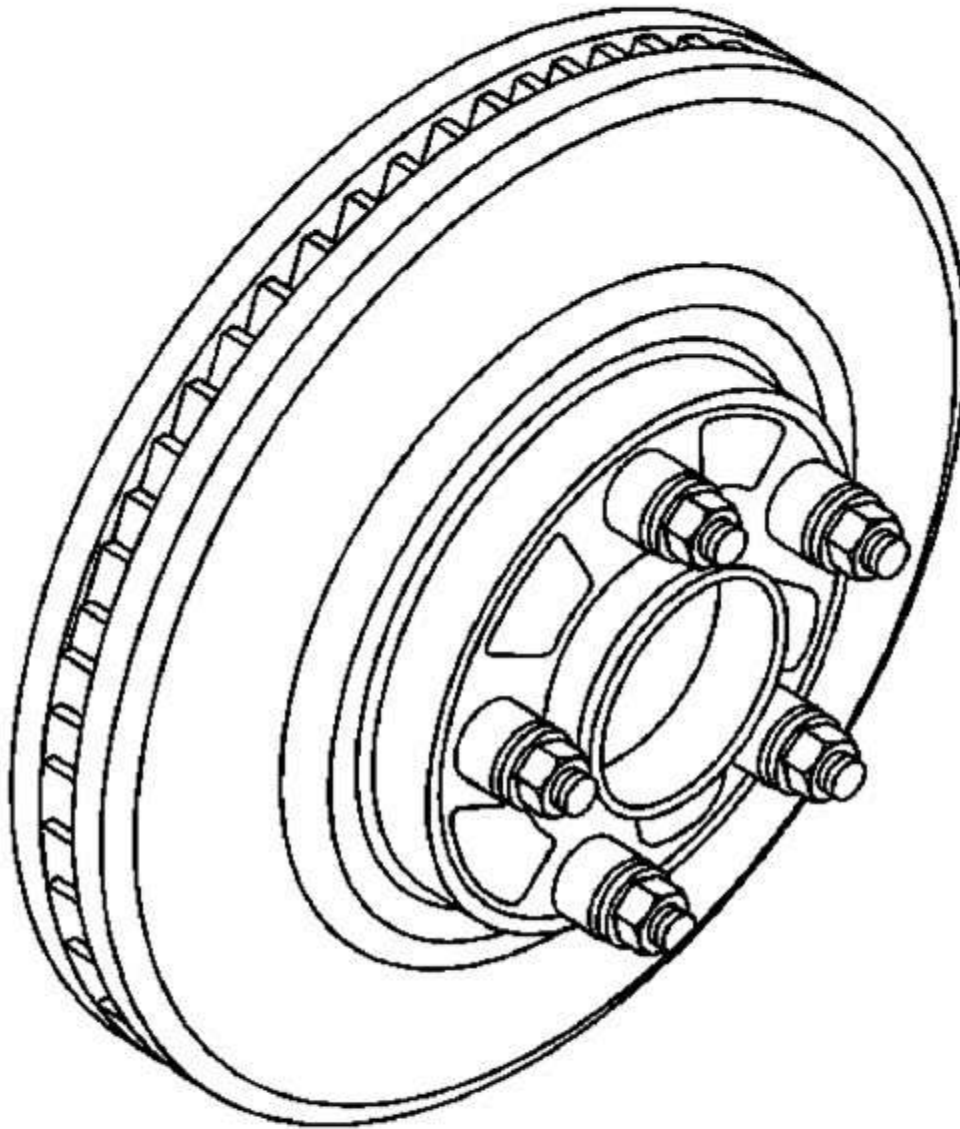


Fig. 78: Installing All J 45101-100s & Lug Nuts
Courtesy of GENERAL MOTORS CORP.

6. Install the remaining **J 45101-100** and lug nuts onto the wheel studs and tighten the nuts firmly by hand in a star-pattern. See **Special Tools and Equipment**.
7. Using the **J 39544-KIT**, or equivalent, tighten the lug nuts in a star-pattern to specification, in order to properly secure the rotor. See **Special Tools and Equipment**. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
8. Measure the assembled LRO of the brake rotor. Refer to **Brake Rotor Assembled**

Lateral Runout (LRO) Measurement.

9. Compare the amount of change between this measurement and the original measurement.
10. If this measurement is within specifications, proceed to step 14.
11. If this measurement still exceeds specifications, repeat steps 1-9 until the best assembled LRO measurement is obtained.
12. Matchmark the final location of the rotor to the wheel studs if the orientation is different than it was originally.
13. If the brake rotor assembled LRO measurement still exceeds the maximum allowable specification, refer to **Brake Rotor Assembled Lateral Runout (LRO) Correction.**
14. If the brake rotor assembled LRO is within specification, install the brake caliper and depress the brake pedal several times to secure the rotor in place before removing the **J 45101-100** and the lug nuts. See **Special Tools and Equipment.**

BRAKE ROTOR ASSEMBLED LATERAL RUNOUT (LRO) CORRECTION - CORRECTION PLATES**Tools Required**

- **J 39544-KIT** Torque-Limiting Socket Set, or equivalent. See **Special Tools and Equipment.**
- **J 45101-100** Conical Brake Rotor Washers. See **Special Tools and Equipment.**

CAUTION: Refer to **Brake Dust Caution** in Cautions and Notices.

- IMPORTANT:**
- Brake rotor thickness variation **MUST** be checked **BEFORE** checking for assembled lateral runout (LRO). Thickness variation exceeding the maximum acceptable level can cause brake pulsation. Refer to **Brake Rotor Thickness Variation Measurement.**
 - Brake rotor assembled lateral runout (LRO) exceeding the maximum allowable specification can cause thickness variation to develop in the brake rotor over time, usually between 4 800-11 300 km (3,000-7,000 mi). Refer to **Brake Rotor Assembled Lateral Runout (LRO) Measurement.**

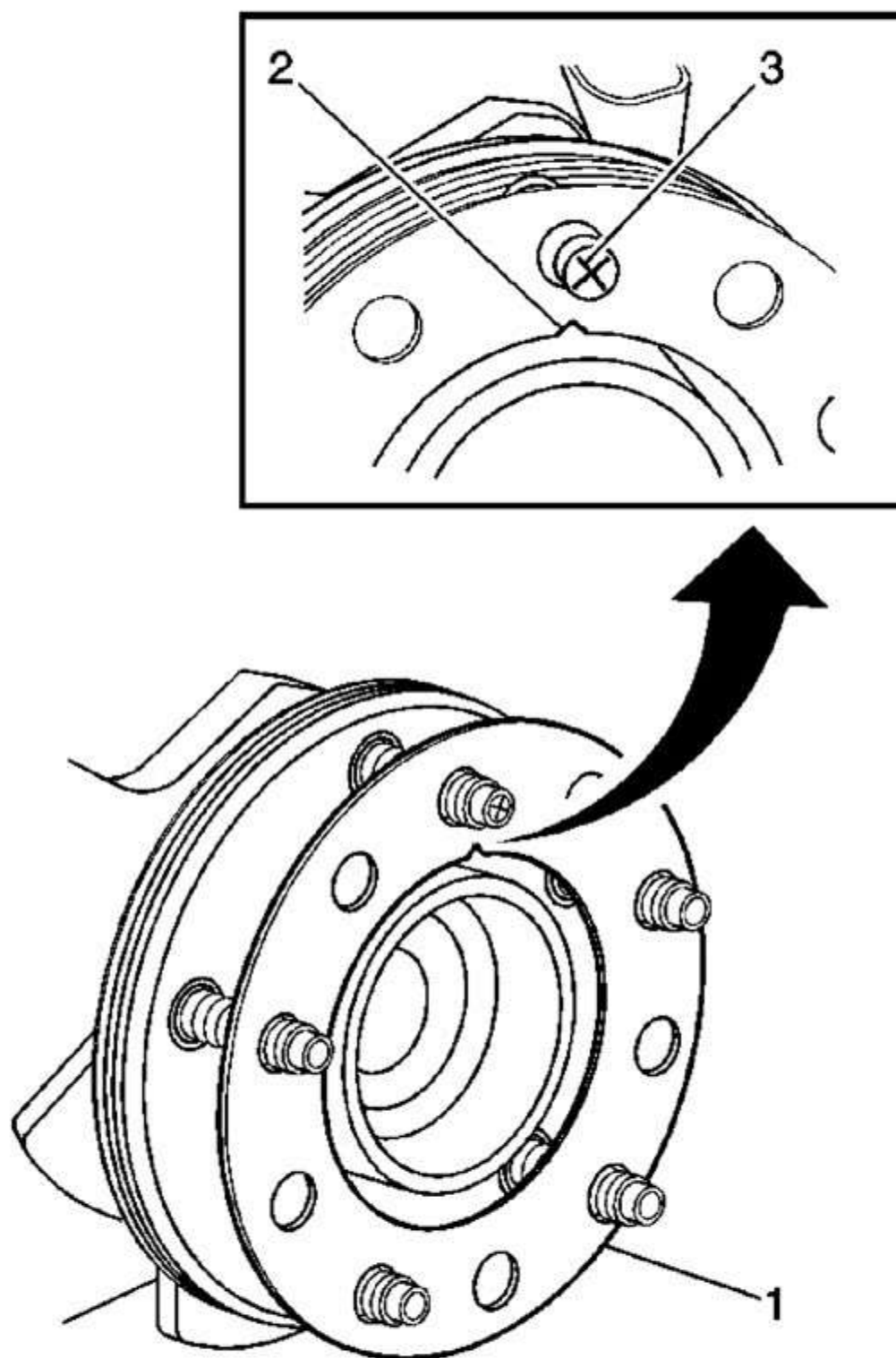


Fig. 79: Identifying Correction Plate, High Spot Mark & V-Shaped Notch

Courtesy of GENERAL MOTORS CORP.

1. Rotate the brake rotor to position the high spot, identified and marked during the brake rotor assembled LRO measurement procedure, to face upward.
2. Remove the **J 45101-100** and the lug nuts that were installed during the assembled LRO measurement procedure and/or the indexing correction procedure. See **Special Tools and Equipment**.
3. Inspect the mounting surface of the hub/axle flange and the brake rotor to ensure that there are no foreign particles or debris remaining.
4. Select the correction plate, following the manufacturer's instructions, which has a specification closest to the assembled LRO measurement.

For example: If the assembled LRO measurement was 0.076 mm (0.003 in), the 0.076 mm (0.003 in) correction plate would be used. If the measurement was 0.127 mm (0.005 in), the 0.152 mm (0.006 in) correction plate would be used.

5. Determine the positioning for the correction plate (1) using the high spot mark (3) made during the brake rotor assembled LRO measurement procedure.

IMPORTANT:

- **Do NOT install used correction plates in an attempt to correct brake rotor assembled lateral runout (LRO).**
- **Do NOT stack up, or install more than one correction plate onto one hub/axle flange location, in an attempt to correct brake rotor assembled LRO.**

6. Install the correction plate (1) onto the hub/axle flange, with the V-shaped notch (2) orientated to align with the high spot mark (3), that was positioned to face upward.

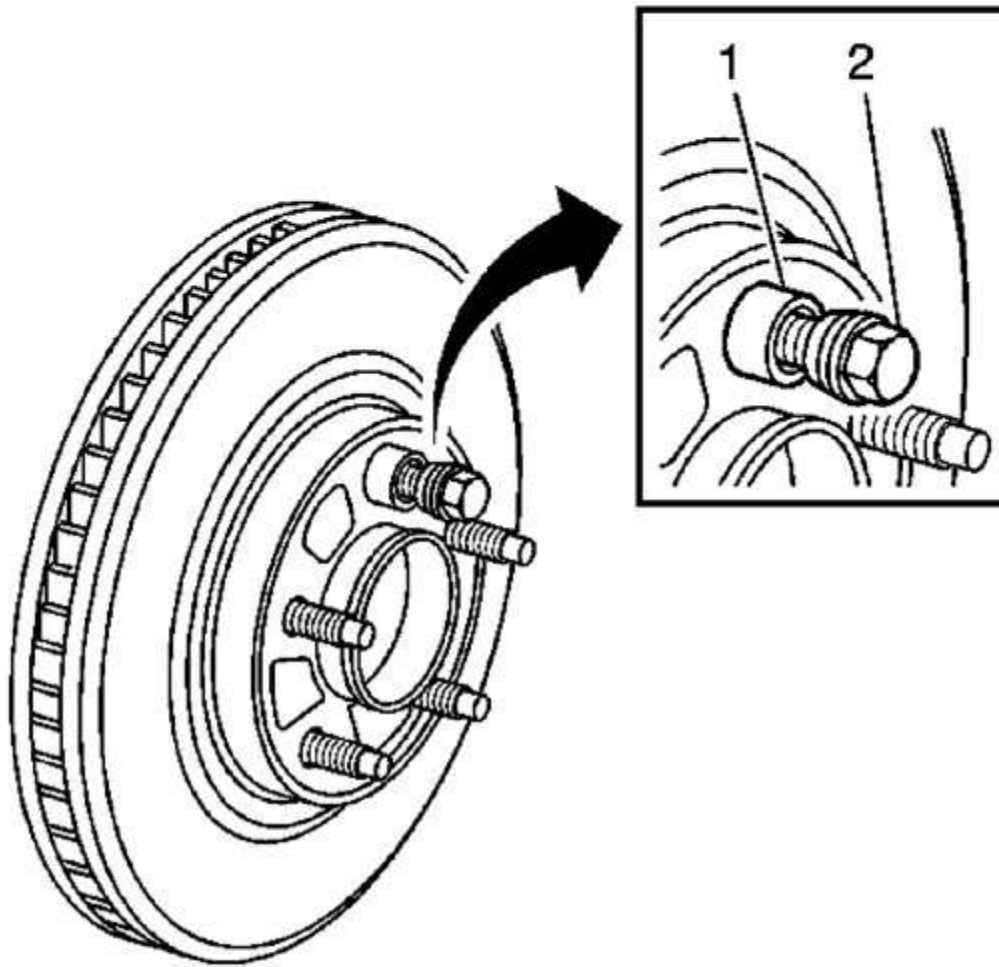


Fig. 80: Identifying J 45101-100 & Lug Nut
Courtesy of GENERAL MOTORS CORP.

7. Install the brake rotor to the hub/axle flange. Use the matchmark made prior to removal for proper orientation to the flange.
8. Hold the rotor firmly in place against the hub/axle flange and install one of the **J 45101-100** (1) and one lug nut (2) onto the upper-most wheel stud. See **Special Tools and Equipment**.
9. Continue to hold the rotor secure and tighten the lug nut firmly by hand.

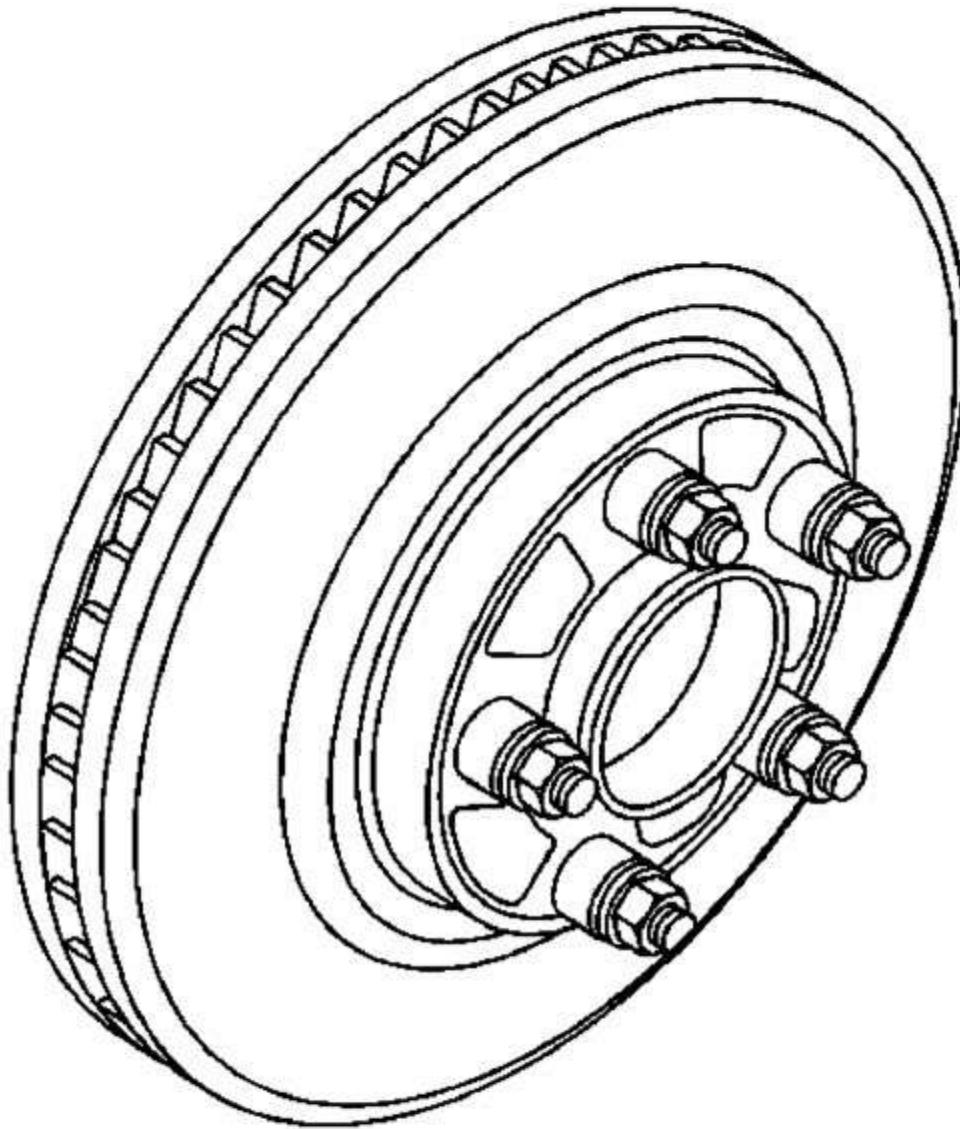


Fig. 81: Installing All J 45101-100s & Lug Nuts
Courtesy of GENERAL MOTORS CORP.

10. Install the remaining **J 45101-100** and lug nuts onto the wheel studs and tighten the nuts firmly by hand in a star-pattern. See **Special Tools and Equipment**.
11. Using the **J 39544-KIT**, or equivalent, tighten the lug nuts in a star-pattern to specification, in order to properly secure the rotor. See **Special Tools and Equipment**. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
12. Measure the assembled LRO of the brake rotor. Refer to **Brake Rotor Assembled**

Lateral Runout (LRO) Measurement.

13. If the brake rotor assembled LRO measurement still exceeds the maximum allowable specification, refer to **Brake Rotor Assembled Lateral Runout (LRO) Correction.**
14. If the brake rotor assembled LRO measurement is within specification, install the brake caliper and depress the brake pedal several times to secure the rotor in place before removing the **J 45101-100** and the lug nuts. See **Special Tools and Equipment.**

BRAKE ROTOR ASSEMBLED LATERAL RUNOUT (LRO) CORRECTION - ON-VEHICLE LATHE**Tools Required:**

J 45101-100 Conical Brake Rotor Washers. See **Special Tools and Equipment.**

CAUTION: Refer to **Brake Dust Caution** in Cautions and Notices.

- IMPORTANT:**
- Brake rotor thickness variation **MUST** be checked **BEFORE** checking for assembled lateral runout (LRO). Thickness variation exceeding the maximum acceptable level can cause brake pulsation. Refer to **Brake Rotor Thickness Variation Measurement.**
 - Brake rotor assembled lateral runout (LRO) exceeding the maximum allowable specification can cause thickness variation to develop in the brake rotor over time, usually between 4 800-11 300 km (3,000-7,000 mi). Refer to **Brake Rotor Assembled Lateral Runout (LRO) Measurement.**
1. Ensure that the caliper and caliper bracket that are already being supported, are clear from contacting any rotating components, such as the brake rotor.
 2. Remove the **J 45101-100** and the lug nuts that were installed during the assembled LRO measurement procedure and/or the indexing correction procedure. See **Special Tools and Equipment.**
 3. Inspect the mounting surface of the hub/axle flange and the brake rotor to ensure that there are no foreign particles or debris remaining.
 4. Set up the lathe, following the manufacturer's instructions.
 5. Refinish the brake rotor, following the brake lathe manufacturer's instructions.
 6. After each successive cut, inspect the brake rotor thickness. Refer to **Brake Rotor Thickness Measurement.**
 7. If at any time the brake rotor exceeds the minimum allowable thickness after refinish

specification, the brake rotor must be replaced. After replacing the rotor, proceed to step 10.

8. After refinishing the brake rotor, use the following procedure in order to obtain the desired non-directional finish:
 1. Follow the brake lathe manufacturer's recommended speed setting for applying a non-directional finish
 2. Using moderate pressure, apply the non-directional finish:
 - If the lathe is equipped with a non-directional finishing tool, apply the finish with 120 grit aluminum oxide sandpaper
 - If the lathe is not equipped with a non-directional finishing tool, apply the finish with a sanding block and 150 grit aluminum oxide sandpaper
 3. After applying a non-directional finish, clean each friction surface of the brake rotor with denatured alcohol, or an equivalent approved brake cleaner
9. Remove the lathe from the vehicle.
10. Measure the assembled LRO of the brake rotor. Refer to **Brake Rotor Assembled Lateral Runout (LRO) Measurement**.
11. If the brake rotor assembled LRO measurement still exceeds the maximum allowable specification, refer to **Brake Rotor Assembled Lateral Runout (LRO) Correction**.
12. If the brake rotor assembled LRO is within specification, install the brake caliper and depress the brake pedal several times to secure the rotor in place before removing the **J 45101-100** and the lug nuts. See **Special Tools and Equipment**.

BRAKE ROTOR REFINISHING

Tools Required

- **J 41013** Rotor Resurfacing Kit. See **Special Tools and Equipment**.
- **J 42450-A** Wheel Hub Resurfacing Kit. See **Special Tools and Equipment**.

CAUTION: Refer to **Brake Dust Caution** in Cautions and Notices.

- IMPORTANT:**
- The disc brake rotors do not require refinishing as part of routine brake system service. New disc brake rotors do not require refinishing.

Do not refinish disc brake rotors in an attempt to correct the following conditions:

- **Brake system noise - squeal, growl, groan**

- Uneven and/or premature disc brake pad wear
- Superficial or cosmetic corrosion/rust of the disc brake rotor friction surface
- Scoring of the disc brake rotor friction surface less than the maximum allowable specification
- Before refinishing a brake rotor, the rotor **MUST** first be checked for adequate thickness to allow the rotor to be refinished and remain above the minimum allowable thickness after refinish specification. Refer to Brake Rotor Thickness Measurement.

Disc brake rotors should only be refinished if they have adequate thickness to be refinished and if one or more of the following conditions exist:

- Thickness variation in excess of the maximum allowable specification
- Excessive corrosion/rust and/or pitting
- Cracks and/or heat spots
- Excessive blueing discoloration
- Scoring of the disc brake rotor surface in excess of the maximum allowable specification
- Disc brake rotors may need to be refinished as part of the process for correcting brake rotor assembled lateral runout (LRO) that exceeds the maximum allowable specification.

IMPORTANT: Whenever the brake rotor has been separated from the hub/axle flange, clean any rust or contaminants from the hub/axle flange and the brake rotor mating surfaces. Failure to do this may result in increased assembled lateral runout (LRO) of the brake rotor, which could lead to brake pulsation.

1. Using the **J 42450-A**, thoroughly clean any rust or corrosion from the mating surface of the hub/axle flange. See Special Tools and Equipment.
2. Using the **J 41013**, thoroughly clean any rust or corrosion from the mating surface and mounting surface of the brake rotor. See Special Tools and Equipment.
3. Inspect the mating surfaces of the hub/axle flange and the rotor to ensure that there are no

foreign particles or debris remaining.

4. Mount the brake rotor to the brake lathe according to the lathe manufacturer's instructions, ensuring that all mounting attachments and adapters are clean and free of debris.
5. Ensure that any vibration dampening attachments are securely in place.
6. With the brake lathe running, slowly bring in the cutting tools until they just contact the brake rotor friction surfaces.
7. Observe the witness mark on the brake rotor. If the witness mark extends approximately three-quarters or more of the way around the brake rotor friction surface on each side, the brake rotor is properly mounted to the lathe.
8. If the witness mark does not extend three-quarters or more of the way around the brake rotor, re-mount the rotor to the lathe.
9. Following the brake lathe manufacturer's instructions, refinish the brake rotor.
10. After each successive cut, inspect the brake rotor thickness. Refer to **Brake Rotor Thickness Measurement**.
11. If at any time the brake rotor exceeds the minimum allowable thickness after refinish specification, the brake rotor must be replaced.
12. After refinishing the brake rotor, use the following procedure in order to obtain the desired non-directional finish:
 1. Follow the brake lathe manufacturer's recommended speed setting for applying a non-directional finish
 2. Using moderate pressure, apply the non-directional finish:
 - If the lathe is equipped with a non-directional finishing tool, apply the finish with 120 grit aluminum oxide sandpaper
 - If the lathe is not equipped with a non-directional finishing tool, apply the finish with a sanding block and 150 grit aluminum oxide sandpaper
 3. After applying a non-directional finish, clean each friction surface of the brake rotor with denatured alcohol, or an equivalent approved brake cleaner
13. Remove the brake rotor from the brake lathe.
14. Measure the assembled lateral runout (LRO) of the brake rotor to ensure optimum performance of the disc brakes. Refer to **Brake Rotor Assembled Lateral Runout (LRO) Measurement**.
15. If the brake rotor assembled LRO measurement exceeds the specification, bring the LRO to within specifications. Refer to **Brake Rotor Assembled Lateral Runout (LRO) Correction**.

DESCRIPTION AND OPERATION

DISC BRAKE SYSTEM DESCRIPTION AND OPERATION

2004 Cadillac SRX

2004 BRAKES Disc Brakes - SRX

System Component Description

The disc brake system consists of the following components:

Disc Brake Pads

Applies mechanical output force from the hydraulic brake calipers to friction surfaces of brake rotors.

Disc Brake Rotors

Uses mechanical output force applied to friction surfaces from the disc brake pads to slow speed of tire and wheel assembly rotation.

Disc Brake Pad Hardware

Secures disc brake pads firmly in proper relationship to the hydraulic brake calipers; enables a sliding motion of brake pads when mechanical output force is applied.

Disc Brake Caliper Hardware

Provides mounting for hydraulic brake caliper and secures the caliper firmly in proper relationship to caliper bracket. Enables a sliding motion of the brake caliper to the brake pads when mechanical output force is applied.

System Operation

Mechanical output force is applied from the hydraulic brake caliper pistons to the inner brake pads. As the pistons press the inner brake pads outward, the caliper housings draw the outer brake pads inward. This allows the output force to be equally distributed. The brake pads apply the output force to the friction surfaces on both sides of the brake rotors, which slows the rotation of the tire and wheel assemblies. The correct function of both the brake pad and brake caliper hardware is essential for even distribution of braking force.

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

Special Tools

Illustration	Tool Number/ Description
	J 2619-01 Slide Hammer w/ Adapter

2004 Cadillac SRX

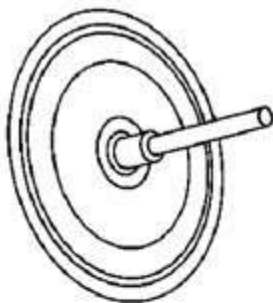
2004 BRAKES Disc Brakes - SRX



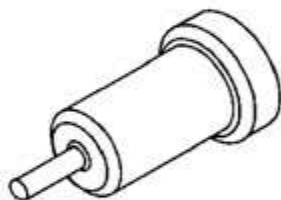
J 8092
Universal Driver



J 39544-KIT
Torque-Limiting Socket Set



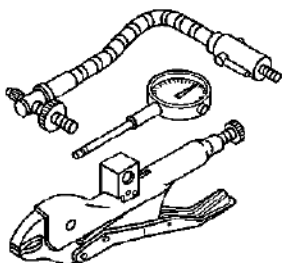
J 41013
Rotor Resurfacing Kit



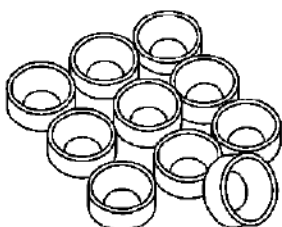
J 42450-A
Wheel Hub Resurfacing Kit

2004 Cadillac SRX

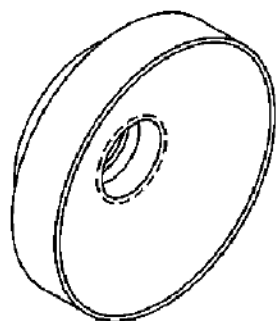
2004 BRAKES Disc Brakes - SRX



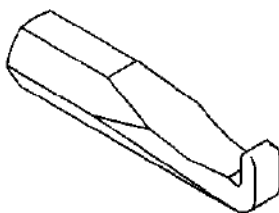
J 45101
Hub and Wheel Runout Gage



J 45101-100
Conical Brake Rotor Washers



J 46275
Caliper Boot Seal Installer



J 46277
Rotor Removal Tool

2004 Cadillac SRX
2004 BRAKES Disc Brakes - SRX

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