INSTRUCTIONS

-J02668 **2013-11-01**

REAR PISTON REPAIR KIT

GENERAL

Kit Numbers

42834-04, 43528-04

Models

This piston repair kit is designed for installation on all 2004 and later XL model motorcycles.

NOTE

This instruction sheet references Service Manual information. A Service Manual for your model motorcycle is required for this installation and is available from a Harley-Davidson Dealer.

There are no Service Parts available for this kit.

Kit Contents

Table 1. Kit Contents

Description (Quantity)	Part Number
Piston (1)	42834-04
Rear caliper seal (1)	43528-04

⚠ WARNING

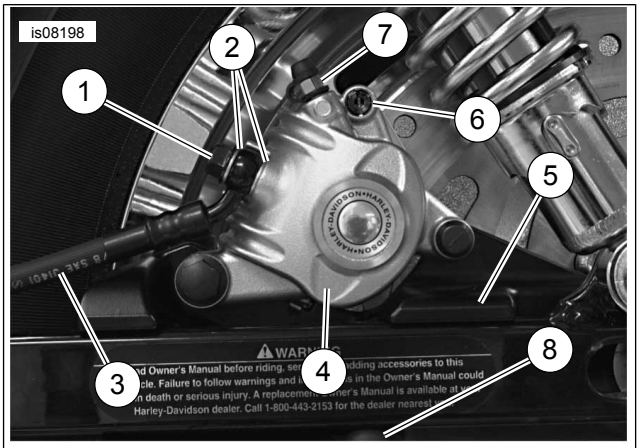
Rider and passenger safety depend upon the correct installation of this kit. Use the appropriate service manual procedures. If the procedure is not within your capabilities or you do not have the correct tools, have a Harley-Davidson dealer perform the installation. Improper installation of this kit could result in death or serious injury. (00333b)

REMOVAL

NOTICE

Avoid leakage. Be sure gaskets, banjo bolt(s), brake line and caliper bore are clean and undamaged before assembly. (00321a)

1. Place a suitable container under the rear caliper brake line banjo fitting to catch any brake fluid that may leak out. Do not reuse brake fluid.
2. See Figure 1. Remove the banjo bolt (1) and both washers (2) to detach rear brake line (3) from brake caliper (4). Discard washers.
3. Remove pad pin plug (6).
4. See Figure 2 and Figure 3. Unscrew and remove brake pad pin (10).
5. See Figure 3. Remove brake pads (15).
6. Unscrew and remove caliper bolt pin (7).
7. Slide brake caliper on rear bolt pin (5), away from brake disc as far as possible.



1. **Banjo bolt**
2. **Washer (2)**
3. **Rear brake line**
4. **Brake caliper**
5. **Caliper mounting bracket**
6. **Pad pin plug**
7. **Bleeder valve**
8. **Damper**

Figure 1. Rear Caliper Assembly

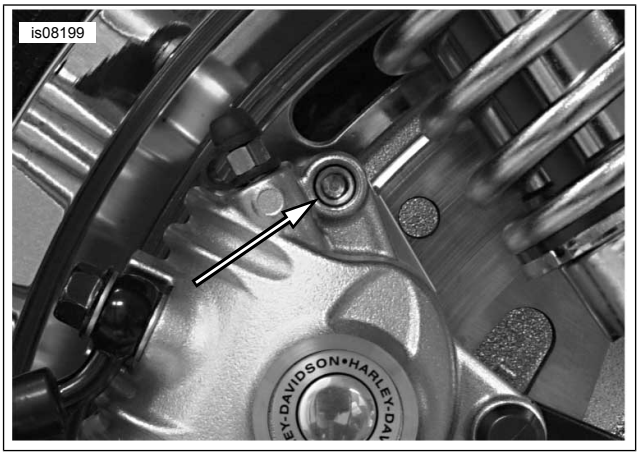
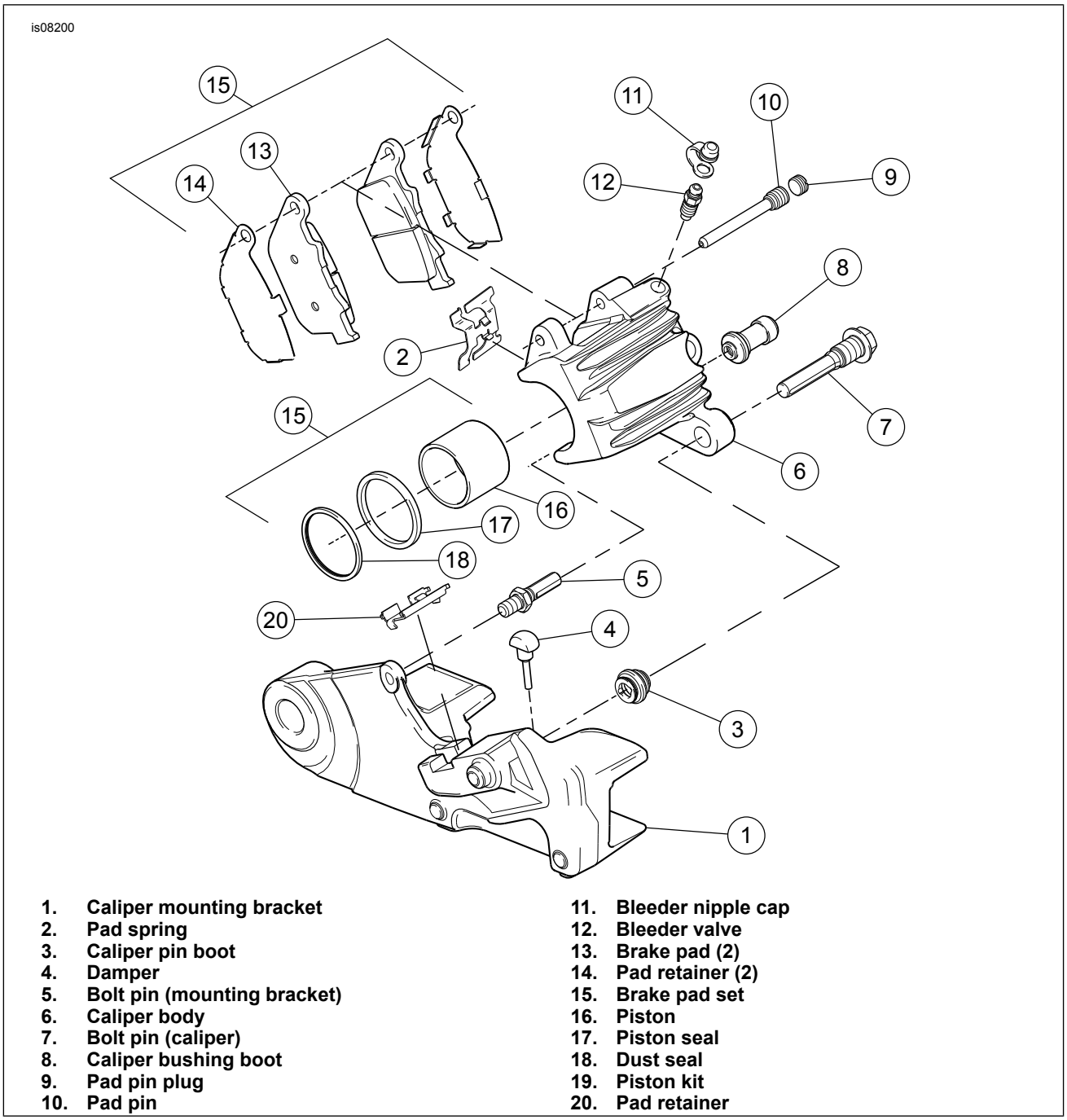


Figure 2. Brake Pad Pin (Plug Removed)



1. **Caliper mounting bracket**
2. **Pad spring**
3. **Caliper pin boot**
4. **Damper**
5. **Bolt pin (mounting bracket)**
6. **Caliper body**
7. **Bolt pin (caliper)**
8. **Caliper bushing boot**
9. **Pad pin plug**
10. **Pad pin**
11. **Bleeder nipple cap**
12. **Bleeder valve**
13. **Brake pad (2)**
14. **Pad retainer (2)**
15. **Brake pad set**
16. **Piston**
17. **Piston seal**
18. **Dust seal**
19. **Piston kit**
20. **Pad retainer**

Figure 3. Rear Brake Caliper Assembly

8. See Figure 3. Using an open-end wrench, unscrew mounting bracket bolt pin (5) from caliper mounting bracket (1). Lift brake caliper (6) straight up, away from brake disc and caliper bracket.

DISASSEMBLY

1. See Figure 3. Remove caliper pad spring (2). Do not remove bleeder valve (12) at this time.

2. See Figure 5. Install a discarded brake pad in the caliper with the backing plate (4) facing the piston. Position the brake pad so the friction material (3) is against the back of the caliper, as shown.

3. Loosely install brake pad pin (2) to hold brake pad in place.

⚠ WARNING

Compressed air can pierce the skin and flying debris from compressed air could cause serious eye injury. Wear safety glasses when working with compressed air. Never use your hand to check for air leaks or to determine air flow rates. (00061a)

NOTICE

Avoid leakage. Be sure gaskets, banjo bolt(s) and brake line are clean and undamaged before assembly. (00323a)

⚠ CAUTION

When removing piston with compressed air, piston can develop considerable force and fly out of caliper bore. Keep hands away from piston to avoid possible injury. (00530b)

4. See Figure 6. Gently apply low pressure compressed air to banjo bolt hole (3) to force piston from caliper bore.

5. Remove brake pad pin and brake pad from caliper.

6. See Figure 3. Remove piston (16) from caliper bore by hand. If necessary, gently wiggle piston to completely remove.

NOTICE

Avoid leakage. Prevent damage to piston or piston bore. Use non-metallic tools when servicing components. (00529d)

7. See Figure 7. Using a wooden toothpick (1), remove dust seal (2) and piston seal (3) from caliper bore. Discard seals.

8. See Figure 3. If necessary, remove bleeder valve (12).

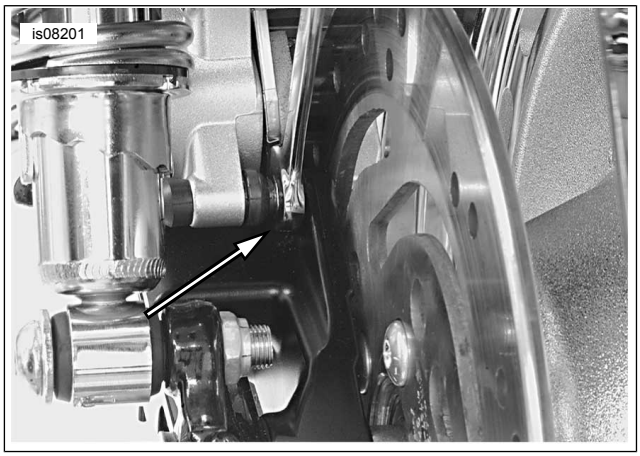
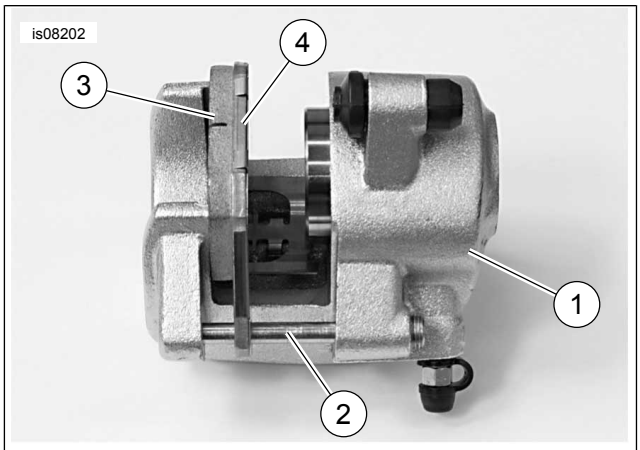
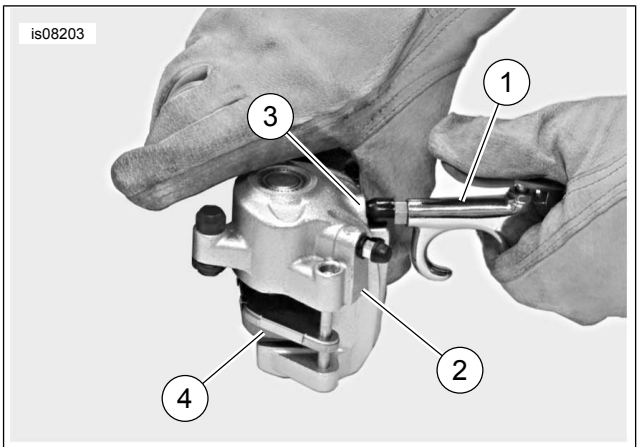


Figure 4. Removing and Installing Rear Caliper Bolt Pin



1. Brake caliper
2. Brake pad pin
3. Brake pad friction material
4. Brake pad backing plate

Figure 5. Preparing Caliper for Piston Removal



1. Low pressure air nozzle
2. Brake caliper
3. Banjo bolt hole
4. Brake pad

Figure 6. Removing Piston

Cleaning, Inspection and Repair

⚠ WARNING

Use denatured alcohol to clean brake system components. Do not use mineral-based solvents (such as gasoline or paint thinner), which will deteriorate rubber parts even after assembly. Deterioration of these components can cause brake failure, which could result in death or serious injury. (00291a)

1. Clean all metal parts with denatured alcohol.

2. See Figure 3. Wipe old lubrication from inside of caliper pin boot (3) and caliper bushing boot (8) with a clean, lint free cloth.

3. Clean all other rubber parts with Harley-Davidson D.O.T. 5 SILICONE HYDRAULIC BRAKE FLUID (Part No. 99902- 77). Do not contaminate with mineral oil or other solvents. Wipe parts dry with a clean, lint free cloth.

⚠ WARNING

Compressed air can pierce the skin and flying debris from compressed air could cause serious eye injury. Wear safety glasses when working with compressed air. Never use your hand to check for air leaks or to determine air flow rates. (00061a)

4. Blow out drilled passages and piston bore with low pressure compressed air from a clean air supply. Do not use a wire or similar instrument to clean drilled passages.

5. Carefully inspect all components. Replace any parts that appear damaged or worn.

   a. Check piston for pitting, scratching or corrosion on outside surfaces.

   b. Inspect caliper piston bore. Do not hone bore. If bore shows pitting or corrosion, replace caliper.

   c. Inspect pad pin for grooving and wear. Measure the pad pin diameter in an unworn area, and then in the area of any grooving or wear. If wear is more than 0.011 in. (0.28 mm), replace pad pin.

d. Inspect caliper bolt pin. If damaged or excessively worn, replace bolt pin.

e. Inspect caliper bushing boot and caliper pin boot. If worn or damaged, replace.

f. Always replace all seals after disassembly.

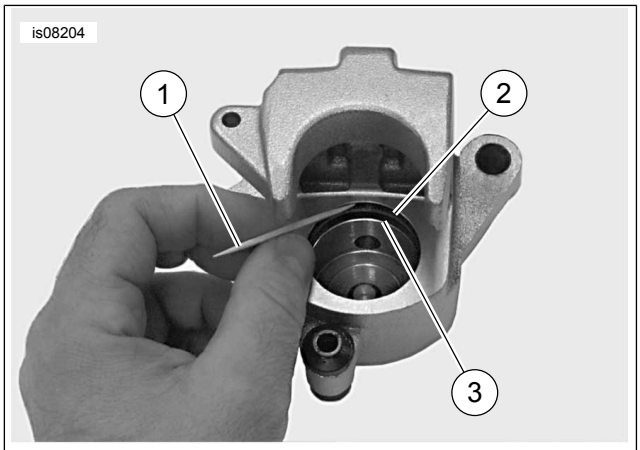
⚠ WARNING

Always replace brake pads in complete sets for correct and safe brake operation. Improper brake operation could result in death or serious injury. (00111a)

6. Inspect brake pads and brake disc. Replace if necessary.

   a. See the Service Manual for Brake Pads and Discs specifications.

   b. See the Service Manual for the brake disc replacement procedure.



1. Wooden toothpick
2. Dust seal
3. Piston seal

Figure 7. Caliper Seals

Figure 8. Piston Nose Radius

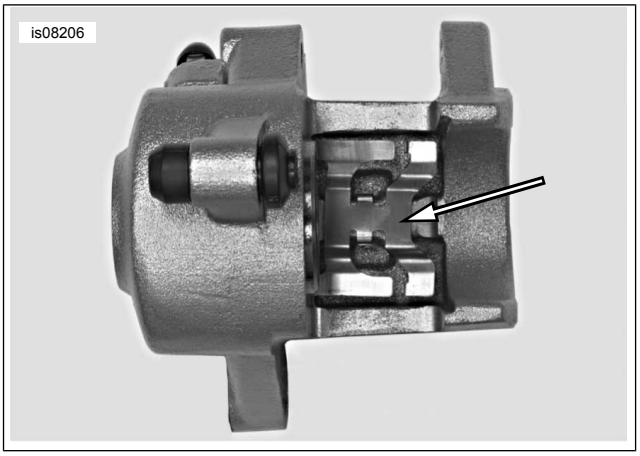


Figure 9. Rear Caliper Pad Spring

Assembly

NOTE

Use ONLY KS62F assembly grease for lubrication. Use of D.O.T. 5 brake fluid will result in increased brake pedal travel.

1. Lubricate the following parts prior to assembly using a light coat of KS62F assembly grease from the service parts kit. All other surfaces must be dry for assembly.

   a. Nose radius of piston. See Figure 8.

   b. All surfaces of piston seal and dust seal.

NOTICE

Avoid leakage. Prevent damage to piston or piston bore. Use non-metallic tools when servicing components. (00529d)

2. See Figure 7. Install a new piston seal (3) and a new dust seal (2) into piston bore.

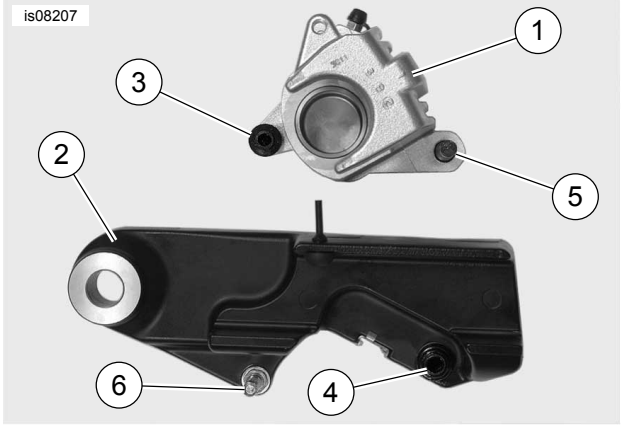
3. Carefully insert piston by hand, nose radius first (see Figure 8), into caliper bore. If installation shows resistance, remove piston and check that seals are properly installed.

4. Install bleeder valve on caliper housing if removed. Do not tighten bleeder valve at this time.

5. See Figure 9. Place caliper housing on workbench as shown. Install caliper pad spring in channel. Press firmly into place.

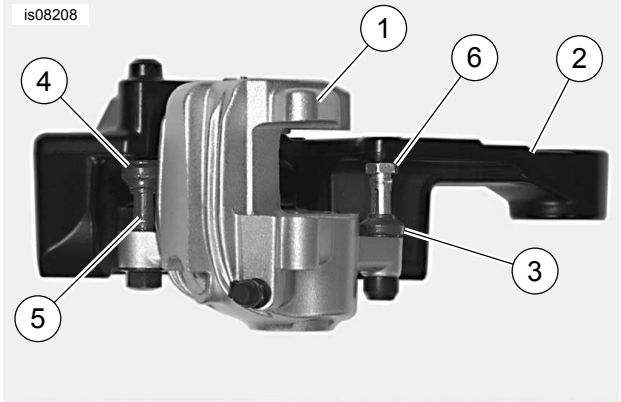
Lubricating Rear Caliper Bolt Pins and Boots

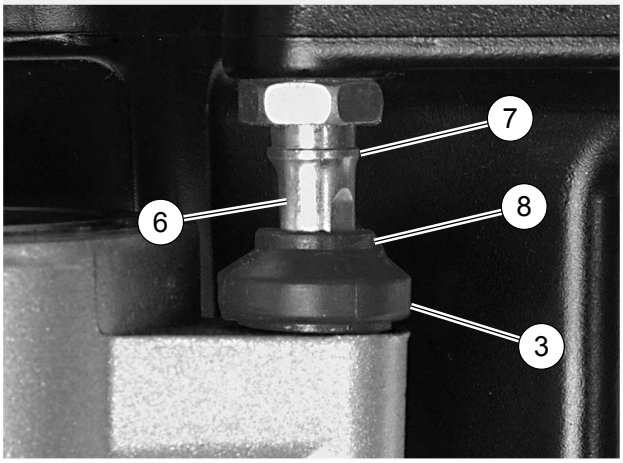
1. See Figure 10. Apply approximately 0.4 g of G40M brake grease (Part No. 42820-04) inside caliper bushing boot (3) and caliper pin boot (4).
2. See Figure 11. Apply G40M brake grease inside boot lip (8) to prevent sticking between boots (3, 4) and bolt pins (5, 6).
3. Insert mounting bracket bolt pin (6) into caliper bushing boot (3).



1. **Rear brake caliper**
2. **Caliper mounting bracket**
3. **Caliper bushing boot**
4. **Caliper pin boot**
5. **Bolt pin (caliper)**
6. **Bolt pin (mounting bracket)**

Figure 10. Lubricating Caliper Boots and Pins





1. **Rear brake caliper**
2. **Caliper mounting bracket**
3. **Caliper bushing boot**
4. **Caliper pin boot**
5. **Bolt pin (caliper)**
6. **Bolt pin (mounting bracket)**
7. **Tapered shoulder**
8. **Boot lip**

Figure 11. Assembling Rear Brake Caliper to Mounting Bracket

INSTALLATION

1. See Figure 12. Before installing caliper, make sure that retainer bracket ring is properly installed on mounting bracket.
2. See Figure 3. Apply a small amount of LOCTITE 272 thread locking compound (Part No. 98618-03) to threads of mounting bracket bolt pin (5).
3. Place rear caliper assembly (6) onto mounting bracket (1).
4. See Figure 4. Using an open end wrench, thread mounting bracket bolt pin into caliper mounting bracket. Tighten to 86-130 in-lbs (9.8-14.7 Nm).
5. See Figure 3. Apply a small amount of LOCTITE 272 thread locking compound (Part No. 98618-03) to threads of caliper bolt pin (7).
6. Slide caliper bolt pin through front mounting hole in caliper (6). Carefully insert bolt pin shaft into caliper pin boot (3) in mounting bracket (1). Screw bolt pin into caliper and tighten to 15-18 ft-lbs (19.6-24.5 Nm).

NOTE

The rear brake caliper does not use the same exact brake pad set as the front left and front right (not present on all vehicles) calipers.

7. See Figure 1. Position a new washer (2) on each side of hydraulic brake line (3) banjo fitting. Insert banjo bolt (1) through washers and fitting. Thread bolt into caliper housing. Tighten to 20-25 ft-lbs (27.0-33.9 Nm).
8. See Figure 13. Insert brake pads (1) into caliper with friction material on pad facing brake disc. Curved portion of pad fits into recessed area of caliper. Make sure brake pad front mounting tab (2) fits into slot (5) in caliper mounting bracket (4).

NOTE

If pad pin does not fit, check the following:

- *You are using a set of pads, not two identical pads.*
- *Caliper pad spring orientation must match Figure 13.*
- *See Figure 13. Pad front mounting tabs (2) must be fully seated in mounting bracket slot (5).*
- *Pads must be pushed tight against caliper pad spring before pad pin is installed.*

9. See Figure 3. Press brake pads (15) tightly against caliper pad spring (2) and install pad pin (10). Tighten to 130-173 **in-lbs** (14.7-19.6 Nm).

NOTE

- *Rear brake master cylinder reservoir must be in a level position when filling and checking fluid level.*
- *See Figure 14. Reservoir cover (2) may be removed from rear brake master cylinder reservoir (1) to more easily verify fluid level in reservoir.*

10. See Figure 3. Install pad pin plug (9). Tighten to 18-25 **in-lbs** (2.0-2.9 Nm).

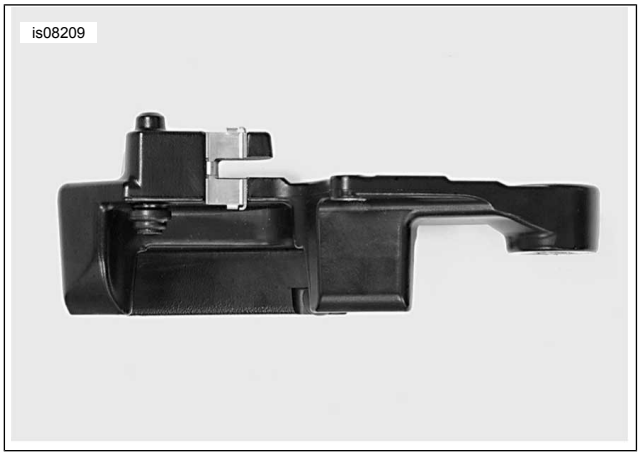
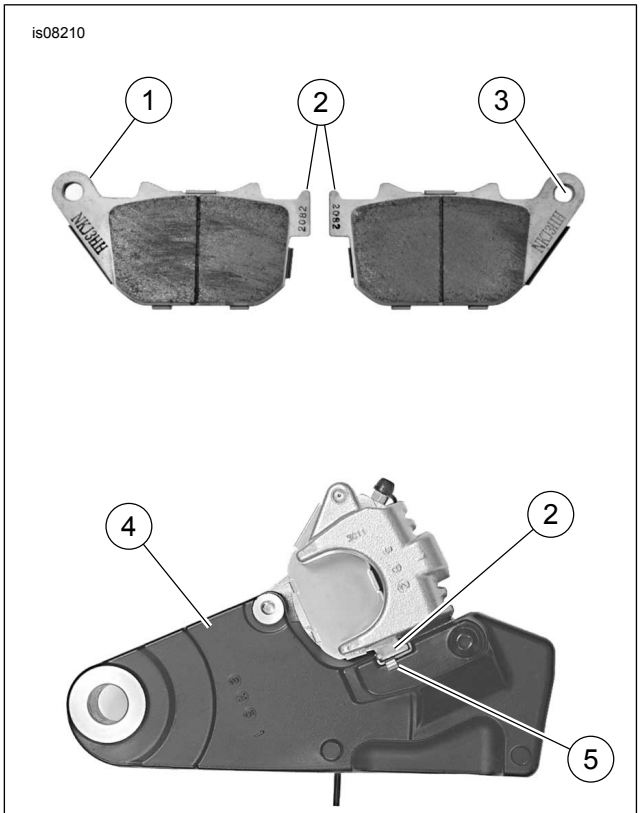


Figure 12. Retainer Bracket Ring



1. **Brake pad**
2. **Front mounting tab**
3. **Pad pin hole**
4. **Rear caliper mounting bracket**
5. **Slot**

Figure 13. Installing Rear Brake Pads

NOTICE

Avoid leakage. Be sure gaskets, banjo bolt(s), brake line and caliper bore are clean and undamaged before assembly. (00321a)

11. Position motorcycle upright (not resting on jiffy stand). See Figure 14. Remove rear brake master cylinder reservoir cap (5). Add Harley-Davidson D.O.T. 5 SILICONE HYDRAULIC BRAKE FLUID (Part No. 99902-77) to reservoir until fluid reaches upper fluid level (3). Do not overfill reservoir. Do not reuse brake fluid.

⚠ WARNING

After servicing brakes and before moving motorcycle, pump brakes to build brake system pressure. Insufficient pressure can adversely affect brake performance, which could result in death or serious injury. (00279a)

12. See the Service Manual. Bleed brake system.

⚠ WARNING

Be sure the master cylinder relief port is not plugged. A plugged relief port can cause brake drag or lockup and loss of vehicle control, which could result in death or serious injury. (00317a)

13. Verify proper operation of master cylinder relief port.

    a. Press against rear brake caliper to push caliper piston back into its bore. This pushes brake fluid back through master cylinder and verifies that relief port is not plugged.

    b. Pump brake pedal until caliper piston pushes pads against disc and pressure is returned to brake system.

14. Add Harley-Davidson D.O.T. 5 SILICONE HYDRAULIC BRAKE FLUID (Part No. 99902-77) to reservoir until fluid reaches upper fluid level.

⚠ WARNING

After repairing the brake system, test brakes at low speed. If brakes are not operating properly, testing at high speeds can cause loss of control, which could result in death or serious injury. (00289a)

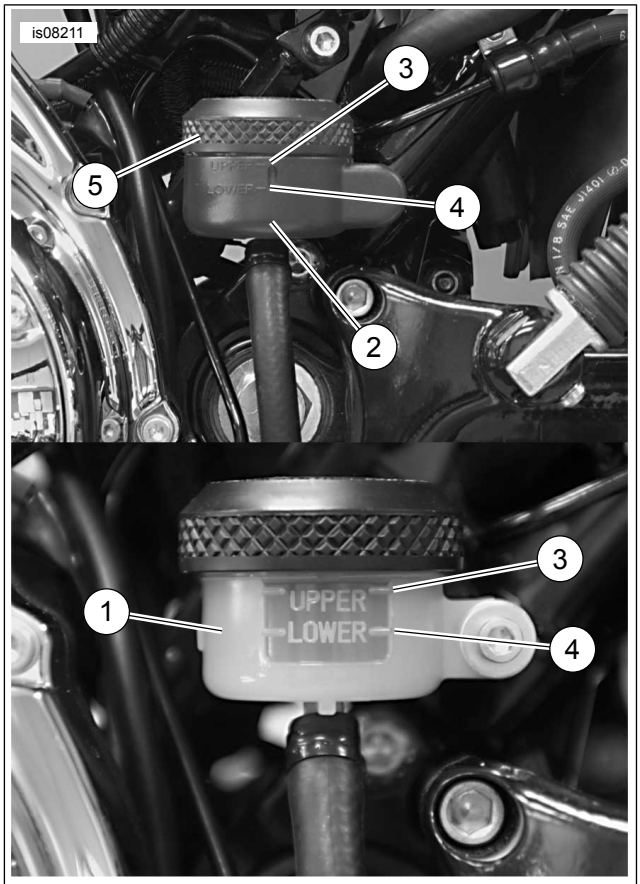
15. Test brake system.

    a. Turn ignition switch ON. Pump brake pedal to verify operation of brake lamp.

NOTE

Avoid making hard stops for the first 100 miles (160 km). This allows the new pads to become conditioned to the brake discs.

    b. Test ride motorcycle at low speed. If brakes feel spongy, bleed system again. Refer to the Bleeding Hydraulic Brakes procedure in the appropriate Service Manual.



1. Rear brake master cylinder reservoir
2. Reservoir cover
3. Upper fluid level
4. Lower fluid level
5. Reservoir cap

Figure 14. Rear Brake Master Cylinder Reservoir