

Floating Caliper vs. Fixed Caliper Operation

Date: 10-09-18

Vehicles Involved: All

Condition: Premature Inboard Pad Wear

One question our technical service experts often get asked is how a floating caliper operates in comparison to a fixed caliper. It is important to understand the difference between these two caliper types.

Once you understand how a floating caliper works, it emphasizes how critical it is to properly lubricate the disc brake system to make sure that the caliper is able to move freely.

Fixed Caliper Operation

A fixed caliper's operation is simple to understand. A fixed caliper does not move when the brakes are applied.

There are pistons on both sides of a fixed caliper. When the brakes are applied, the pistons apply the brake pads on both sides against the rotor (See Figure 1).

FIXED CALIPER OPERATION

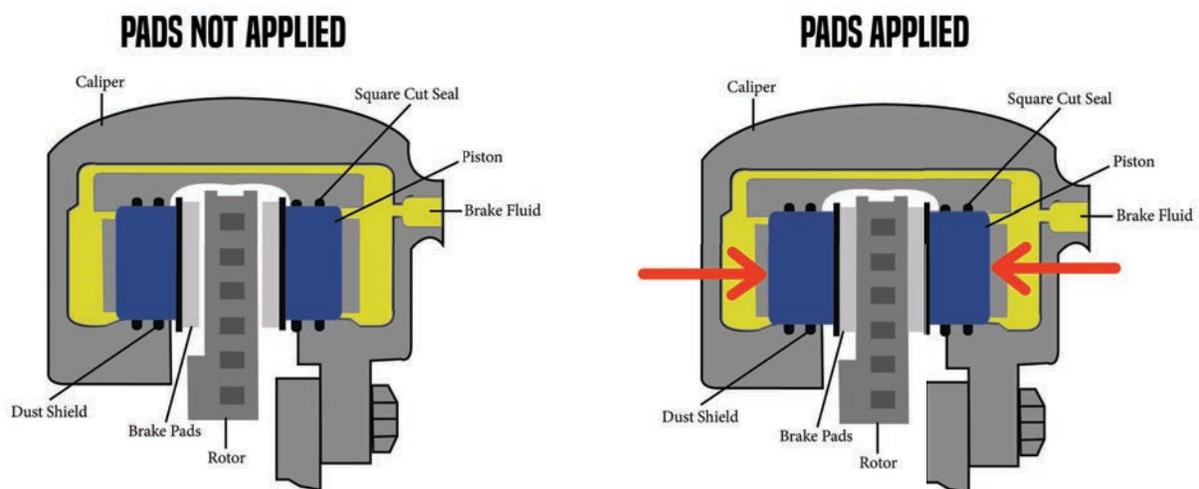


Figure 1

Floating/Sliding Caliper Operation

A floating caliper's operation is a little more complex. With a floating caliper, there is only one piston. So how does a floating caliper apply the outboard pad?

When the brake pedal is applied, the piston comes out and applies the inboard pad. At the same time, as the piston comes out, the caliper itself slides inward to apply the outboard pad (See Figure 2).

That is why it is so important to properly lubricate caliper slide pins. If the caliper isn't able to slide properly, the outboard pad won't be able to make contact with the rotor. This leaves the inboard pad to take over braking responsibilities. When this happens, you will see premature wear on the inboard pad.

FLOATING CALIPER PISTON OPERATION

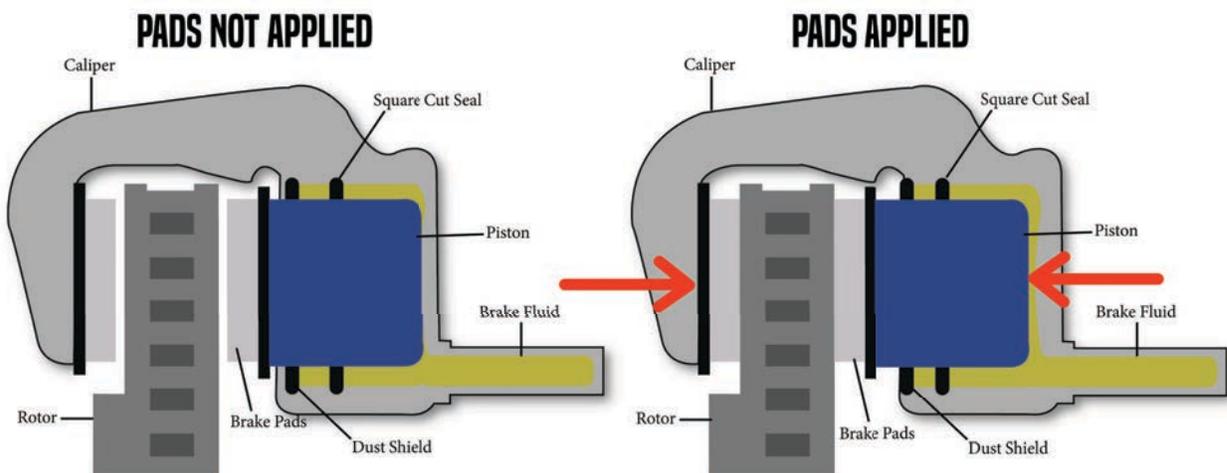


Figure 2

Repair Procedure:

Make sure that when doing a brake job on a disc brake system, you properly lubricate the following:

1. Caliper slide pins and bushings
2. The face of the caliper piston where it contacts the pad
3. The outboard caliper casting where it contacts the pad
4. The surface of the abutment clips where the brake pads ride on the clips



TECHNICAL BULLETINS

Use a silicone-based brake lubricant with a high-temperature melting point. Do not use petroleum-based lubricant. It will cause the rubber to swell and impeded caliper movement.

Don't over-apply the lubricant. A thin coat will do the job.

By properly lubricating the brake system, you will help ensure the disc brake system can move freely and properly apply both brake pads.