



## Disc Brakes

### Customer Education Sheet

Virtually all modern vehicles has front disc brakes. Many also have rear disc brakes, but some have rear drum brakes.

### Symptoms of Bad Brakes

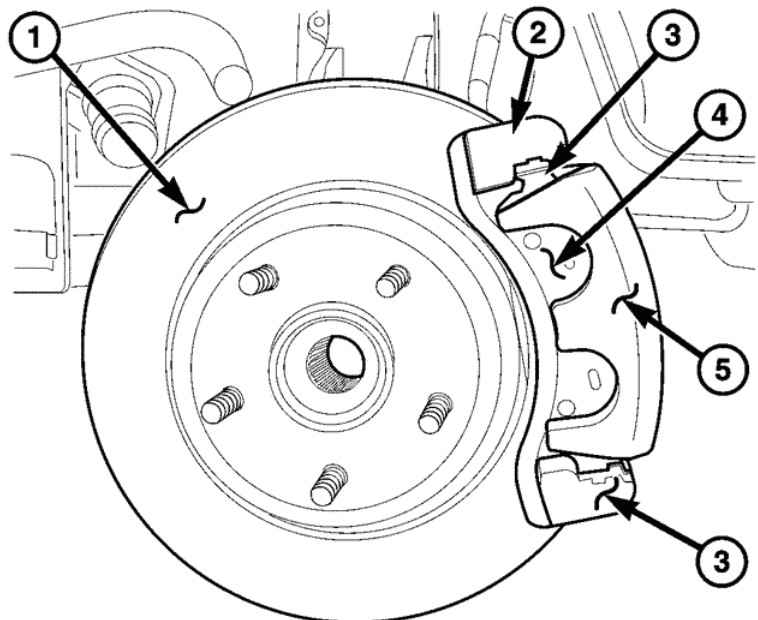
You should have your brakes checked if you notice a grinding noise when using the brakes, the brake pedal pulses when using the brakes, the vehicle pulls to one side when braking, the pedal feels soft or spongy, the brake pedal sinks, or the brake light comes on. A high-pitched metallic squeal that goes away when you apply the brakes is usually caused by the brake's wear indicators. This also means you should have your brakes checked.

### Replacing Disc Brakes

Ideally, you should replace both sides at the same time. Best case scenario you only have to replace the brake pads, but in many cases you will also need to have the rotors replaced. A shop can usually tell you up front if you need rotors, but often they won't be able to tell you if you need calipers until they have the brakes apart. The piston(s) in a caliper can seize, and this can't be checked until the caliper is taken off. Brake hoses can also go bad, and in some cases a shop will not be able to tell you if you need them until they take them apart (which is done if a caliper is replaced).

### Parts of a Disc Brake

1. Brake rotor
2. Caliper bracket
3. Brake hardware
4. Brake pad
5. Caliper



### How Disc Brakes Work

There are two brake pads per side, one on each side of the rotor. The rotor spins with the wheels, and when you push the brake pedal the caliper squeezes the brake pads against the rotor. This creates drag, which slows down the vehicle. The caliper can slide a tiny bit from side-to-side, which lets it stay centered on the rotor. This is because it sits on two pins known as caliper slides. If these slides seize, one pad will wear faster than the other.

## Cost to Replace Disc Brakes

The cost to replace brakes varies by vehicle, and whether or not the rotors, calipers, or brake hoses also need to be replaced. Also, having the brakes checked and replaced right away when you notice an issue is usually less expensive than driving for a while after they start grinding or making noise. This is because the rotor and/or caliper can get damaged if the brake pads wear below a certain point (“metal-to-metal”) or slip out if they become too thin.

## What if I Keep Driving My Vehicle When it Needs Brakes?

Brake pads have a friction material that contacts the rotor. The brake pads will need to be replaced once this material gets too thin. If you continue to drive the vehicle and this friction material wears completely off, the brake pad’s metal backing plate will grind against the rotor and will damage it to the point that the rotor also needs replacement. If you still continue to drive the vehicle, the backing plate can become so thin that it slips out and the caliper’s piston will then grind on the rotor. This damages the caliper, and it will also need to be replaced. Eventually, the piston will grind down to the point that it too can crack and/or slip out, which will cause all of the brake fluid to leak out. This causes a total loss of all braking ability and is extremely dangerous.

