

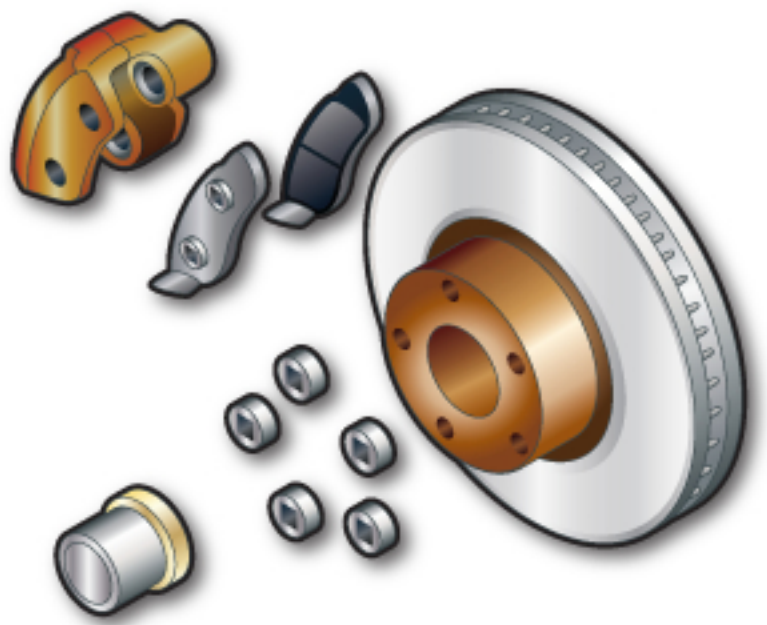


DOES EVERYTHING.
FOR LESS

DO-IT-YOURSELF SERVICING YOUR FRONT BRAKES

Most new cars require brake service during the first 30,000 to 42,000 miles. It is also important to inspect them for wear before every winter and summer, because extreme temperatures may affect the brakes' effectiveness. Most basic brake repairs are relatively simple to do, as long as you work slowly and carefully follow the manufacturer's guidelines.

Most cars manufactured after the early 70's have disc brakes on the front. These are much more reliable than the previous brake drum systems. Accessing the brake assembly is easy -- simply jack up the car and remove the tire and wheel. At this point, you can see the disc or rotor, as well as the caliper. The operation of the brake is simple: the caliper is basically a hydraulic clamp that causes friction on the rotor and stops the wheel from turning.



PROCEDURE

1. Buy the Service Manual.

It contains essential information for doing the job right the first time.

2. Getting Started

Jack the car up and remove the wheel and tire.

3. Remove the Caliper.

Check to see how much friction is on the rotor by turning it by hand. A small amount of drag is normal. Remove the caliper so you can inspect the condition of the rotor. To do this, loosen the bleeder screw, located on the back of the caliper. Then, disconnect the flex hose, (which is connected from the caliper to the car) by loosening the fitting that attaches it to the car. At this point, place a your metal pan beneath the caliper to catch any remaining brake fluid coming out. Then, remove the caliper retaining bolts and rock the unit back and pull it away from the rotor.



4. Check the Rotor.

Remove the hub retaining nut in the middle of the rotor. Some rotors will slide off without any unbolting. The rotor should come right off at this point so you can inspect it. If a rotor is badly worn, you may be able to notice pronounced grooves on its surface. However, most of the time, you will need to use your micrometer to measure whether it is thick enough for you to continue using it.



Your rotor most likely has the minimum thickness measurement stamped on its edge. If your rotor is dirty or rusty, use your wire brush to clean it and expose the measurement. Then, take your micrometer and determine whether the minimum amount of thickness remains. If so, wear on the face of the rotor can be machined by a service technician. If not, it must be replaced. If a rotor is suffering from lateral run out, (i.e., is warped) the rotor must be replaced with a new one. Lateral run-out tends to cause a shimmy and pulsation through your steering wheel when you apply the brakes.

5. Check the Wheel Bearings.

If your car has a sealed roller bearing and it has become worn (normally around 100,000 miles or so), the entire wheel hub assembly must be replaced. If it has a tapered roller bearing (as most cars do) you can remove the roller bearing from the hub assembly and inspect it. Look for evidence of pitting or scoring. If it has these conditions, it should be replaced.

Before replacing the bearing, it must be greased. Before handling the grease, take some hand cleaner and rub it onto your hands, especially concentrating on your fingernails, then wipe off the excess. Next, take a large portion of grease into the palm of one hand and the bearing in the other. Turn the bearing to its wider end and then press it into the grease, until the grease is completely through the holes in the bearing. Take some time to make sure that the grease is worked through the entire unit. Then, work some grease into the bearing race on the hub that holds the bearing and insert the bearing.

Next, you must apply the grease seal. Many people make the mistake of pounding the seal into place with a hammer. This usually destroys the seal, forcing you to buy another one. However, you can save time and money by using a seal driver, which you can purchase at an auto supply store. This tool fits over top of the seal, then you hammer the top of the tool, which pushes the seal into place. The money you save on seals should cover the cost of the tool.

6. Replace the brake pads.

If your brakes are squealing, the pads might need to be replaced. Sometimes, the reason they squeal is because the brake pad wear indicator tab is being exposed by the pad wear. Taking the old pads off the caliper is easy, they usually click in and out of place. When putting new pads on, it is advisable to apply an anti-squeal gel or shims. These are applied to the side of the pad that comes in contact with the caliper. If you are applying the gel, allow about 30 minutes for the material to dry on the pads before replacing them. Then, simply click the pads into place.



7. Put the assembly back together.

Now, you have checked all the components of your brakes and have replaced or fixed any parts as needed, it is time to put them back on the car. First, take the rotors and wash them with soap and water to remove any grease that may be left from your hands. Then, put them on the spindle and attach them into place using the hub retaining nut.

Very Important: Make sure you torque the bolts to the specifications outlined in the car's manual. Over- or under-tightening can cause major damage to your car and/or could jeopardize your vehicle safety.

Then, slide the caliper back into place and bolt it on to factory specs. Take the flex hose and re-attach it to the brake line.

8. Bleed the brake fluid.

You can remove old brake fluid from the master cylinder by using a turkey baster and sucking the old fluid out and putting it into a pan. Then, add new fluid. Go to the caliper and attach a rubber hose to the back of the bleeder screw and put the hose into a pan for it to drain. Have a partner sit in the car and pump the brakes while you open the nut to drain out the old fluid and bubbles in the line. After several times through, tighten the bleeder screw again.

9. Replace the tire and wheel assembly, put the hubcap back on, and you are finished!