Squealing Brakes: How to Save Wear-and-Tear on Your Horn

Brake pad squeal is one way to warn other drivers that you and your car are about to arrive. If you make enough noise, they think they are about to become intimate with a runaway garbage truck (pedestrians will yank small children back from the curb). There are several factors that cause brake squeal. The primary reason is usually the brake pads themselves. Many of the carbon metallic brake pads, such as Cool Carbon, etc. are the worst as far as squealing. This is due to the composition of the pad material itself. The OEM pads are usually relatively quiet in comparison. Thus, the solution may be as simple as changing to a different brand of brake pad. Excessive brake pad wear, warped rotors, misaligned calipers, loose calipers, loose wheel bearings, incorrectly sized pads, glazed pads or rotors and sticky pistons may also cause your brakes to sing high alto in the anvil chorus.

If your brake pads and braking system are in good condition and you experience squeal just as you are almost stopped, this is usually the brake pad vibrating against the rotor/caliper, causing the rotor to ring like a bell. If you experience noises at other times, check to make sure your brake pads are in good condition and show equal wear. Sometimes a piston will hang up and cause excessive wear and failure of one pad. Check all of your pads to make sure that one is not down to the metal backing plate. The backing plate does not have quite the coefficient of friction as do the brake pads and will usually dig nasty grooves into your rotor for good measure. If you experience clunking noises, a vibrating pedal, or a screeching sound, you should have your entire brake system checked by a qualified mechanic. If you wait too long, the next sound you hear may be “crash”.

One option to help reduce the brake pad symphony is to install brake pad vibration damper pads. The vibration dampers that several suppliers sell are a self-stick fiber material that adheres to the back of the brake pad backing plate. Some models are manufactured with a mushroom shaped button spring in the center. The button spring fits tightly into the piston and the fiber disk adheres to the backing plate of the pad. The theory is that the fiber disk will help cushion (i.e., soften) the vibration of the brake pad. The second part of the theory is the mushroom button will help pull the pad away from the rotor when the piston retracts after the brake is released. This resulting extra clearance will reduce/eliminate squeal. Sometimes they work, sometimes they don’t.

A second option is to coat the back of the brake pads with a quality anti-squeal compound. Wurth make a couple of nice ones. Wurth Anti-Squeal Spray is an aerosol spray that puts a thick heat-resistant polymer adhesive on the back of the pad to help cushion the pad from the caliper pistons and help the pad retract with the piston. A second option is Wurth DBQ -2200 that comes in a can with a top that looks like a liquid

shoe polish bottle. This is applied to the back of the brake pad like a shoe polish. I have found that a combination of the vibration dampers and a coating of one of the brake anti-squeal compounds usually reduces low speed squeal to a tolerable level. (At least parents stop yanking their children back from the curb.)

A third solution is to coat the area of the pad backing plate that contacts the caliper piston with a THIN coating of high temperature anti-seize. You do not have to coat the entire backing plate, only the area that is in contact with the piston. The key words are THIN and HIGH temperature. You do not want anti-seize to run onto the front of the pads or the rotor. This is somewhat like waxing your brake pads. I use Wurth CU1100 that resists temperatures up to 2000 degrees and apply small circles to the piston contact area. This is not as effective as the above, but allows for quick changing of the brake pads.

The type of driving and resulting braking requirements will usually determine the best solution for you. I use anti-seize on my track car where the brakes are used heavily and the pads are changed very frequently. On a street car you may wish to consider the combination of pad silencers and anti-squeal compound. I cannot over emphasize the importance of maintaining your braking system in top-notch condition. If you are not confident in your brake repair abilities, please take it to a qualified mechanic. Something will stop your forward momentum, it may be your brakes or it may be one of numerous less desirable options.