BURGESS BLOG

Take a Break:

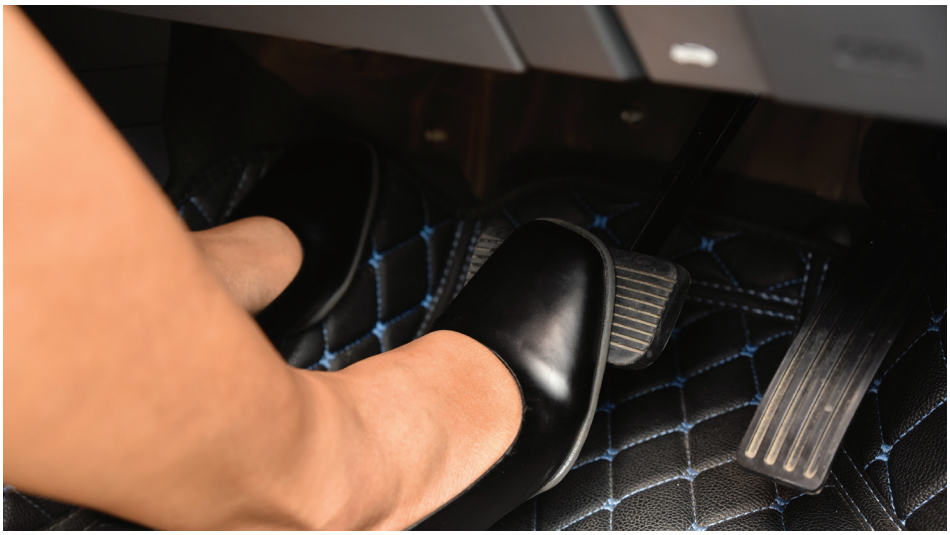
AND HAVE YOU CAR'S BREAKS CHECKED

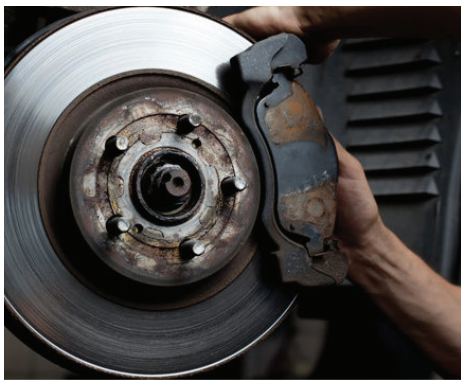
By Tom Burgess, Owner, Christian Brothers Automotive, Cumming GA

"Honey, would you please get the brakes checked on the minivan? They are squealing again!" my wife would request. I would check them and they looked fine. That would not satisfy her… So, I would take it to our favorite repair shop (this was before I owned one), and they would tell me the pads were fine and the vehicle was perfectly safe – the pads just squeal... This went on for over 100,000 miles until they finally wore out and we had to replace them. Then there was no more squealing.

Brakes seem so simple, what's going on? Well, brakes are more complicated than they first appear, and here'is a fact most people don't know - all brakes make noise. During braking, when the brake pad makes contact with the rotor, both components vibrate – and vibration is noise. Automotive engineers have a variety of ways to make the vibration/noise acceptable, including sending the vibrations into the caliper and suspension components, using lubricants and shims to deaden the vibrations, and using different pad materials.

What makes one brake pad quieter than another? One of the most important factors is the pad material. Most vehicles come from the factory with semi-metallic pads which are fairly inexpensive, long lasting, but in order to last a long time their metal content is very high, and as such they can squeal. Wait- did I say fairly inexpensive? Yes, factory parts are not always the highest quality parts which might be surprising. But it makes sense when you look at the economics. Honda sold 2.5 million of copies of our van. If they can save two dollars on each brake pad that's 16 dollars per van, which puts 40 million dollars in their pockets overall… We use ceramic pads which cost a few dollars more per pad, but we find they almost never squeal. They actually transfer a layer of pad material onto the rotor's surface. The layer is always being worn and replenished by the pad during braking, and this keeps the friction consistent. But even ceramic pads can squeal if other things are not correct. For instance, cheap ceramic pads may have backing plates that can flex or the pads may be poorly attached to the backing plate - both can cause noise. If the finish on the rotor is not correct there can be uneven friction which causes vibration – and that's why a quality brake job should always include refinishing the rotor if it is to be re-used. Never re-use the old rusted hardware when you change pads, always insist on new components to ensure the pads can move freely in the bracket but not have excessive play. If you replace rotors, don't purchase the cheapest ones you can find – because inexpensive rotors can actually move and flex. While not visible to the naked eye, this movement can cause noise. The same goes for the brake calipers – Quality heavy calipers will dampen vibration and keep a consistent "friction footprint" between the pads and the rotor's face under different braking conditions.





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But wait – there's more! Brake shims and insulators control noise in many ways as well, but that would take too much room to explain. So what's the bottom line? Brakes that squeal may simply be caused by brake materials or other conditions but get them checked to be sure. And If you want to ensure your new brakes do not squeal – ensure you pay a little extra for the better-quality components. You neighbors will be happier with you in the morning!■