

Under the Hood



The newsletter of CATHERINE'S Auto Repair & Service

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Catherine's Corner

I participate regularly in an internet discussion forum with some of the best technicians and auto shop owners around the world on topics such as technical theory and shop management. One shop owner, whom I respect and admire, recently posted some interesting food for thought. His point was that a complaint from a customer could really be viewed as a compliment, for two reasons: first, because that customer regards you highly and therefore expects more



Photo by Fred Bennett

of you, and second, because he or she believes you will care enough to act on the complaint. I think about the many times I have felt frustration over a company's lack of service, integrity, or quality, and considered voicing my dissatisfaction, only to decide it wasn't worth

my time and energy, assuming they would never change anyway. Maybe I have even continued to patronize the company, remaining less than thrilled with them, but knowing they are better than any alternatives. I have extremely high expectations of my company, my employees, and myself, and am constantly looking for ways we can improve. I want to ensure that our customers return to us because their experiences with us were excellent and extraordinary, not just because we are the lesser of necessary evils. In the last newsletter, I asked for feedback on

how we're doing in living up to our mission statement. Many of you encouraged us to "keep up the good work", but some of you offered suggestions and constructive criticism which were instrumental to our implementing a few needed changes. So please, keep the "compliments" coming. I have thick skin – I can take it! I want Catherine's Auto Repair to be the best, every single day. Thanks!

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Our Mission:

To provide high quality auto repair with integrity, honesty, and excellent customer service, all at a fair price and with a personal touch!

Everything You Ever Wanted to Know About Brakes

by Catherine Simpson

Okay, definitely not everything, and maybe more than you ever wanted to know. But I have found that people tend to have a lot of questions in general about brakes. So I thought for this newsletter, instead of doing a traditional article, I will try to answer some of the most common questions about brakes.

How do my brakes work?

In a nutshell, when you depress your brake pedal, it moves a rod that pushes on the brake fluid in the master cylinder. Since brake fluid is not compressible, hydraulic pressure is created and works its way through the brake lines out to the wheels, where a caliper will force a brake pad to be applied against a rotor, which in turn will stop the wheels (or in the case of a drum brake system, a wheel cylinder will push a brake shoe against a drum). Some brake systems also come equipped with an ABS package. To learn more about ABS, please read the "car quiz" on page 4.

What does it mean when my brake light comes on?

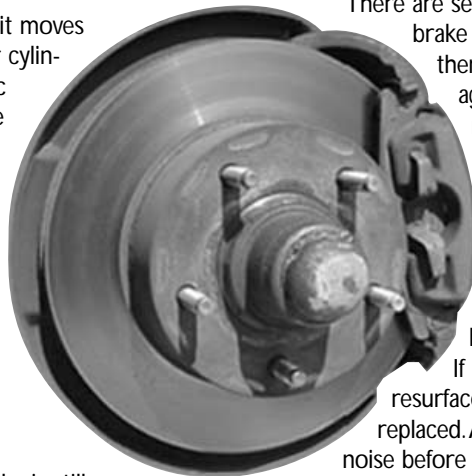
It could simply be a warning that your parking brake is still on. It also could point to an electrical problem, such as a defective brake

light switch under the brake pedal. But most likely, the cause of the light is low brake fluid. It is important to have the brake system inspected at that time, rather than just filling the brake fluid reservoir. The low fluid could be due to a leak somewhere, or the light could be an indication that your brake pads are worn and ready for replacement. As the pads wear down, the fluid moves out into the space where the pads were, which lowers the fluid in the brake reservoir and can turn on the brake light.

What does it mean when my brakes make noise?

There are several different brake noises you might hear. Many brake pads (but not all) have "wear indicators" built into them. These indicators are little metal tabs that scrape against the rotor when the pads wear down to minimum specifications, alerting you that it's time to replace your brake pads. This noise is normally a high-pitched metal sound that is present while the wheels are turning, and disappears when the brake pedal is applied.

A metal grinding sound when braking is usually bad news. It suggests that the brake pads have worn down too far and damaged the rotors. If the rotors are damaged, they probably cannot be resurfaced on the brake lathe and will need to be replaced. An important note – brakes do not always make noise before they wear out. Sometimes the first symptom to arise is that grinding sound, and then it's too late. That is why frequent brake inspections are a good idea.



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Odds And Ends

The Northside shop is celebrating its one-year anniversary and going strong!! Thanks for all your referrals.

Going on a summer road trip? Make an appointment to get your car checked over at least a couple of weeks before you leave.

If you would prefer to receive our newsletter via e-mail, sign up online at www.catherinesautorepair.com. You can also read previous issues of our newsletter, make an appointment, or find out more about our great team of employees on the website.

TV Time

We had so much fun recently being visited by two TV camera crews for morning TV!

Correspondent Anne Thompson from The Today Show on NBC came down here for an interview with Catherine

about women breaking down barriers in male-dominated industries. Their crew filmed us for an entire day and also interviewed employees and customers. Then on a local note, Suchita

Vadlamani from Good Day Atlanta took on an "Anchor Challenge" with Catherine and learned how to do an oil change. She did a great job and didn't even mind getting a little dirty! Both of the segments aired in February.



Anne Thompson from NBC's "Today" show interviewing Catherine at the Piedmont shop



Catherine instructing Suchita Vadlamani from "Good Day Atlanta" on how to properly perform an oil change.

Beware Of Car Scam

We recently became aware of a car scam that has affected some of our customers and is occurring in parking lots like Ansley Mall. After doing your shopping, you return to your car to find that it won't start. A man happens to come up to you, and mentions that he used to work on cars like yours and offers his assistance. He looks under your hood for a bit and even crawls beneath your car, at which point your car will miraculously start. In exchange for his help, he wonders if maybe you could give him a nice tip. After looking at the cars of the customers who refused his "help" and instead towed to us, we discovered a fuel pump connector unplugged, something that will rarely ever come apart on its own. Although there is probably not much that can be done to prevent this from happening to you while you're parked, we wanted to alert everyone so that we can at least stop rewarding this scam artist with tips.

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Everything You Ever Wanted to Know About Brakes

Plan to have your tires rotated every other oil change, and have a brake inspection performed at that time while the wheels are off the car.

Then there is a host of other squeaks, groans, rumbles and rattles that can send both the driver of the car and the repair shop to the brink of insanity. Often the noises can be traced to lower quality brake pads, missing or ill-fitting shims and anti-rattle clips, or rotors that are glazed or were not machined properly. But many times the noises are just the nature of the beast.

All brake pads used to be made of asbestos - they had excellent friction qualities for stopping, they dissipated heat well, and they were relatively soft so they didn't make noise and weren't too hard on the rotors. As the EPA phased out asbestos use due to health concerns, manufacturers have been struggling to find an equivalent braking material. Most opt for a semi-metallic brake pad - it is long lasting with superior heat transfer and performance. The drawback is that it is a harder pad and thus makes more noise against a hard steel rotor, wears out the rotor more quickly, and creates more annoying brake dust.

Another choice that some have tried is a non-asbestos organic material. This is a softer pad so there is less noise and less wear on the brake rotor. However, these pads wear out faster and do not always offer comparable performance. So some manufacturers have kept the harder metallic pads, but softened up the rotors to reduce noise. The disadvantage there is that the rotors sometimes need to be replaced as often as the brake pads! There is some trade-off with each option - noise, durability, performance, rotor wear.

Fortunately, there is a newer design that seems to be the best of both worlds. They cost more, but generally are worth it. Ceramic brake pads give excellent performance with minimal noise and brake dust and less wear on the rotors. These pads are not yet available for all cars, but more and more newer cars are coming straight from the factory equipped with them.

Why do some shops advertise brake jobs for \$69 or \$99, and yours are more?

There is a wide range of prices for brake pads and rotors, but there is also a wide range of quality. Many of these shops are offering the lowest quality parts available, as well as employing low-paid and low-skill mechanics, to keep their costs down. But I think the real issue is that most customers do not actually receive that low-priced brake job. A Dateline NBC expose in 2000 showed how one large brake chain had an average brake repair price of close to \$300, not \$99.

What does it mean if my car shakes and the brake pedal pulsates when I brake?

This probably is a sign that your brake rotors are warped. As brake rotors wear out and become thinner, they can overheat more easily which can cause them to warp. They may be able to be machined on the brake lathe to become flat again, but if they're already thin, they might just need to be replaced.

What does it mean if my brake pedal goes to the floor and my brakes don't work?

This problem can be caused by a bad master cylinder, low or leaking brake fluid, or air caught somewhere in the brake system. Try pumping the brake pedal to get some brake pressure. If your brakes still won't work, downshift to a lower gear and then gradually apply your parking brake. Either way, have your car towed to a repair shop immediately!

My parking brake? What's that?

I find that very few people actually use their parking brake on a regular



Suchita filling the engine oil.

basis. The parking brake (or emergency brake) works mechanically with a cable rather than hydraulically with brake fluid. This is important because if there is a total hydraulic brake failure, the parking brake should still theoretically be

able to stop the car. This is assuming, of course, that the parking brake is in good working condition and is adjusted properly.

If you don't use your parking brake frequently, the cables can get corroded and seize up – which could prevent your parking brake from being applied or from releasing, and either situation could be dangerous. Also, many brake systems have self-adjusting mechanisms that work best when the parking brake is used. On these systems, if the parking brake is not applied regularly, the rear brakes may not be properly adjusted, which can affect the distance the brake pedal travels before engaging. Rear brakes that are not adjusted correctly can also contribute to premature brake pad wear on the front. So try to get in the habit of using your parking brake!

Should I have my brake fluid changed as a preventive maintenance item?

Yes, definitely! Brake fluid is hygroscopic, which is a technical way of saying that it absorbs moisture. The concern with water in the brake fluid is heat; a great deal of heat is generated during braking and water has a lower boiling point than brake fluid. When the water in the brake fluid boils, it turns to steam, which is compressible whereas brake fluid is not. That translates into a vehicle that might not stop as it should – especially under heavy braking conditions. The other concern is that moisture contamination in the brake fluid contributes to internal corrosion in certain brake parts like calipers, wheel cylinders, and brake lines.

Flushing your brake fluid on a regular basis will help prevent moisture contamination and protect brake parts from internal rust and corrosion. Brake fluid is probably the most neglected of all the fluids because many of the car manufacturers do not include a brake flush as part of their scheduled maintenance services, although it is certainly needed. A good rule of thumb to follow is to have your brake fluid flushed either every 2 – 3 years or 24,000 – 30,000 miles, or with every brake job.



Local cameraman Tyrone Edwards filming customer Kim O'Connor at the Piedmont shop.

employee spotlight:

Ryan Peterson

Ryan's back!!! We are so pleased to announce that Ryan Peterson, who has been on military leave for the past year, is back full-time at the Piedmont location. Ryan is a Master ASE certified technician who started working on cars in high school in Michigan. He then joined the Army where he served active duty for 5 years, and gained some more automotive experience. He went on to work at a couple of auto repair shops where he learned everything from alignments to drivability diagnostics. He has been with Catherine's at Piedmont since the day we opened in October 2000 and has continued to impress us with his knowledge, skills, and great attitude.



He currently serves in the National Guard Reserves as a Staff Sergeant and Section Chief for a Field Artillery Crew. His troop was mobilized to active duty last March and he spent 3 months in combat training for Iraq. However, some logistical problems changed the plans, and he ended up instead providing Homeland Security at Fort Bragg, N.C. for the remainder of his year. We were thrilled to welcome him home and back to our shop this past February.

In Ryan's spare time, he pursues his passion of skydiving, which he took up less than two years ago. He is a B license holder and is working towards the C level. He also spends as much time as he can with his wife Kristi, their 4-year old daughter Kaitlyn, and their newest addition to the family, 4-month old Sophie.

car care classes

Come To Us...

Have you ever felt helpless when your battery was dead or if you had a flat tire? Have you always wanted to take the mystery out of lifting your car's hood and having a look around? Have you wanted to feel more empowered when discussing your car with a repair shop? Well then, come join us!!

The upcoming class is open to men, women, and teenagers, and will be held on Saturday, May 8, from 9 am until noon at the Northside Drive location. There is no charge for this class, and breakfast will be provided. We recommend that you wear comfortable clothes that you don't mind getting dirty. Please call 404-817-7640 to sign up as space is limited. For more information, go to our website at www.catherinesautorepair.com.

Or Let Us Come To You...

An abbreviated and less hands-on version of our car care class is now available to come to your workplace or association. We enjoyed participating recently in the "Lunch 'N Learn" program at CNN and Turner, and are looking forward to several upcoming classes we have scheduled with other groups. If you are part of an organization that you think would be interested in learning more about car care, let us know and we'd be happy to set something up.

car quiz

Q: What is the "ABS" feature on a car?

- a.) Automatic Braking System
- b.) Anti-skid Braking System
- c.) Alternate Braking System
- d.) Anti-lock Braking System

A: Each of the above answers could describe a characteristic of ABS, but the correct answer is (d.) – anti-lock braking system. The purpose of ABS is to prevent the wheels from locking up during emergency braking and on slippery roads. When you slam on your brakes in a panic stop, the wheels can lock up and stop turning immediately, rather than gradually. But the car still has momentum, which causes you to skid along the road with no traction or steering control. With ABS brakes, there are sensors that detect when a wheel is about to lock up and a computer that then quickly releases and reapplies the braking pressure to that wheel. This pumping action is very rapid, up to 15 times per second, and gives a strong pulsing sensation under your foot in the brake pedal. This feeling can be disconcerting if you're not expecting it, but it is normal – just keep your foot firmly on the brake pedal, and you should stop quickly and safely. Wondering if your car is equipped with ABS? Turn your key to the on position, and look for an ABS light on the dash. Incidentally, if that light stays on while you're driving, that indicates there is a problem with your ABS system (which we can diagnose for you), although you will still have use of your regular brakes.

tech tip

When driving down a mountain road or any long, steep grade, be careful not to overuse your brakes. Instead, shift your transmission into a lower gear – second is usually good but sometimes first is necessary – and use the natural braking action of the engine to help you slow down. This is not harmful to either your engine or transmission, but excessive brake use can be dangerous. Continuous braking can cause the brakes to overheat and the brake fluid can actually boil! If brake fluid boils, it becomes compressible, so when you step on your brake pedal, you may feel it go straight to the floor with no stopping power. Also be cautious of accidentally leaving the parking brake on while driving, and riding the brakes (driving with one foot constantly resting against the brake pedal). These situations can both create too much friction and heat for the brakes as well, possibly resulting in total brake failure.



For more information and to try our **Online Appointment Scheduling**

www.catherinesautorepair.com

Respect for You and Your Car

CATHERINE'S
Automotive
Repair &
Service



1916 Piedmont Circle, N.E.
Atlanta, Georgia 30324

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FREE Brake Inspection

(and rotate tires if needed)

Normally \$24.95

Good through June 30, 2004

Brake Fluid Flush Special

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