

Under the Hood



The newsletter of CATHERINE'S Auto Repair & Service

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SUMMER 2003

Catherine's Corner

Thanks for all the great feedback many of you have given us about our newsletter — we're glad that you like it! In this second edition, we'll give you some tips for improving your summer driving. Whether it's increasing your gas mileage, preparing for a road trip, or taking advantage of our coupon for an AC service, we hope you will find something of interest to you in these pages. Have you ever wondered what in the world octane is? Check out our car quiz and tech tip to find out. You will also find information inside on our next car care class, progress on the new

Photo by Fred Bennett



shop, and more. And I just want to take this opportunity to say thanks to each of you for your business, support, and referrals — we certainly wouldn't be here without you!!

Catherine

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!



St. Anne's Kindergarten Mechanics Featured on Page 3

Increasing Your Fuel Economy Driving Habits, Car Maintenance, and Gas-Electric Hybrids

by Catherine Simpson

Conserving gas while driving is a concern for many people for various reasons: financial, political, environmental. Whatever your motivation, and regardless of what you're driving, you should find the following tips helpful towards making your engine more fuel-efficient. There is the obvious advice that pertains to reducing driving — carpool or take the bus to work; combine errands; walk or bike whenever possible. Although these are great suggestions, the reality is that most of us drive quite a bit. So I want to focus first on the little things we can do while driving that can often have a big impact.

1. Slow Down. Probably the most significant step we can take towards saving gas is to slow down on the highway. This unfortunately is also probably the most difficult! Studies show that for most vehicles, the speed at which we achieve the maximum fuel efficiency is somewhere between 40 and 60 mph. Gas mileage decreases rapidly as speed increases

beyond that range, due to the extra energy required to overcome the greater aerodynamic drag and rolling resistance. Estimates indicate that an engine will use 1 – 2% more gas for every mph increase in speed over 55 mph. For example, fuel economy is generally reduced by 15% when driving 65 mph instead of 55; above 65 mph, the rate of decrease is even higher.

2. Practice gentle driving. Extreme acceleration and sudden braking can consume up to 30% more fuel than gradual stopping and starting. Anticipate traffic conditions to avoid unnecessary stop-and-go. Use cruise control on the highway to maintain a constant speed.
3. Turn off the AC during city driving, when possible on cooler days, to increase fuel economy. However, on the highway, air conditioning may be preferable to rolling down the windows because of the additional drag created from the wind resistance.
4. Minimize engine idling time. If it is apparent that you will be idling for a few minutes — either in traffic, at a drive-thru, or at a train crossing — shutting off the engine will conserve some gas. And letting your engine idle to warm it up on

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Increasing Fuel Economy

Continued from Page 1

cold starts is a thing of the past that only wastes gas. Today's computer-controlled, fuel-injected cars don't require warming up before driving. In fact, driving gently will warm up an engine faster and better than idling.

5. Be careful not to "ride your brakes." Leaving your foot on the brake pedal, even lightly, while driving can lower your gas mileage as much as 7 mpg.
6. Lighten your load. Hauling extra weight in the trunk increases fuel consumption, but carrying items on the roof rack, which also influences the vehicle aerodynamics, is even worse for gas mileage.

That covers the basic driving habits we can adopt to improve fuel economy. Now let's look at what can be done to care for our cars so the engine can operate at maximum efficiency.

1. Keep your tires inflated to the correct pressure. Driving with under-inflated tires increases rolling resistance and guzzles anywhere from 3 — 10% more gas. (Please stop by and ask for one of our free, promotional tire pressure gauges, while supplies last, and we'll also give you a quick lesson on how to use it.)
2. Have your wheel alignment checked regularly. Improper wheel alignment can reduce gas mileage as much as 5 mpg.
3. Follow the recommended maintenance service intervals for your vehicle. Taking care of neglected items such as a dirty air filter, worn spark plugs, contaminated oil, or a slipping transmission will contribute to the engine's fuel economy.
4. Watch for a faulty thermostat and replace as necessary. If you notice the temperature gauge always staying towards the cold side, rather than in the middle, the thermostat is probably stuck open. That means the engine is never warming up to regular operating temperature and is using substantially more gas.
5. Pay attention if your "check engine" light comes on. This indicates that an emissions-related control has malfunctioned — ranging from a loose gas cap to a defective oxygen sensor — which can dramatically affect gas mileage.

We can follow all of the above tips to improve our fuel economy, but still for many cars, trucks, and SUVs, the best we can achieve will barely top 20 mpg. That is when we need to look to new technology for any serious change, and the innovative gas-electric hybrid cars are one answer. I will not attempt to explain how hybrids work in this limited article; suffice it to say that hybrids significantly increase gas mileage by supplementing the gas-powered internal combustion engine with electric power, yet without having the hassle of recharging a battery, as the purely electric cars do.

Honda and Toyota have both had hybrids on the market for several years now. The Honda Insight averages between 60 and 70 mpg, and the Honda Civic Hybrid and the Toyota Prius are both in the 45 – 50 mpg range. As more and more car manufacturers scramble to create their own hybrids as well, it appears that this technology is the wave of the future. Ford will offer a hybrid version of the Escape SUV in 2004, and GM will market hybrids of their Sierra and Silverado trucks also in 2004, with promises of

at the watercooler

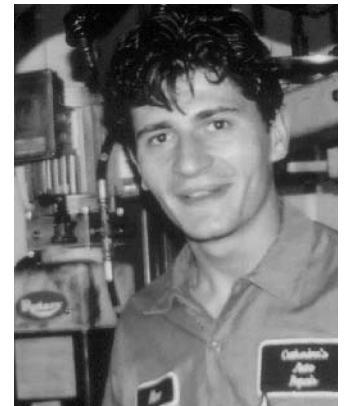
Missing Sergeant Ryan

We are still really missing Ryan, our master tech who is on leave for active duty with his National Guard Reserve Unit. However, we are happy to report that he is safe and sound, and not too far away, providing homeland security with his unit in Fort Bragg, N.C. He is unsure how many more months he will be gone, but we look forward to his return whenever it may be. Ryan wants to say "hello" and "thanks" to all who have asked about him — he appreciates the thoughts and concern.

As we expand the business, our employee list also grows. We will highlight a different employee in each newsletter, but please check out our website to find out more about everyone, including pictures and bios.

Employee Spotlight: Ibro Feriz

Ibro Feriz moved from Bosnia to Atlanta with his parents and sister about a year and a half ago. He grew up in Sarajevo, but went to Switzerland under refugee status when the war started when he was 12. He began to learn about cars when he was 16, and then participated in a Chrysler work/school program for three years. He returned to Bosnia and worked on cars in the military for another two years before moving to Atlanta. He visited Bosnia again this past December so that he could



get married, and is hoping that soon his wife, Elhama, will be able to join him here in the U.S. Ibro started at Catherine's almost six months ago and has proved to be a very valuable member of the team. He is an extremely conscientious, knowledgeable, hard worker who is always pleasant to be around. We're thrilled to have him here!

several more major models by 2007. Chrysler, Lexus, and Saturn also have hybrid designs coming out in the next couple of years. Although most of these will not reach the high gas mileage of the Honda and Toyota, they will still show a marked advance over current numbers.

I have been looking at Honda Civic Hybrids and plan to purchase one within the next few months (and, much to the chagrin of my family, friends, and employees, intend to keep my beloved, beat-up 1991 4wd Chevy S-10 Blazer, which can be quite useful despite its poor gas mileage). However, even if you drive a hybrid, it still makes sense to practice good driving habits and to follow a smart car maintenance routine for fuel economy and otherwise.



New Shop Update

Our second shop has been up and running for four months now and is doing quite well. Rufus, who many of you may remember from the Piedmont shop, has moved his excellent managerial skills to the Northside shop. If you need your car repaired in a hurry and the Piedmont shop is too busy to look at it immediately, remember that the Northside shop is less than ten minutes away and may have available appointments. We have access to your vehicle's history at both shops, and promise to uphold the same commitment to honesty, quality, and excellent customer service at a fair price, so that you will feel comfortable taking your car to either location.



Field Trip

How machines work

We had a great time recently being visited by 18 five-year old boys and girls. Catherine's twin nephews and their kindergarten class took a field trip to the Piedmont shop in April in honor of their theme that month — "how machines work." Each child had a chance to see the inside of an engine, view a car being raised up on a lift, and watch a tire mounting machine in action, as well as experience some actual hands-on learning with a few tools. It was quite exciting for everyone involved — kids, parents, teachers, and our staff!



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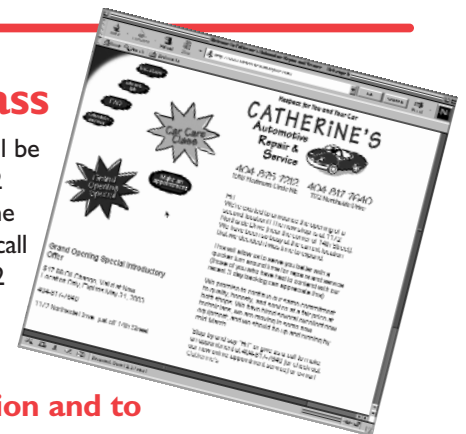
On the Road Again

Going on a road trip is a good time to give your car some attention. Plan on bringing your car in about two weeks before your departure date. There are so many variables with auto repair that it is best to allow plenty of time for possible delays (such as out-of-stock parts), as well as several days to drive around town before hitting the road. First, have your car checked over thoroughly — everything from axles, batteries, and brakes to tires, valve covers, and wipers. Second, this may be just the excuse you need to finally get the car repairs done that you have been putting off. Third, while you're at it, go ahead and spring for a basic interior cleaning; the time you spend in the car will be that much more enjoyable.

Keep in mind that although having your car checked out should help prevent roadside breakdowns, there are unfortunately some problems that cannot be foreseen. So having an emergency kit might not be a bad idea. You can splurge on a deluxe Roadside Survival Kit, available at www.cartalk.com for \$189.95 that includes items ranging from jumper cables, to duct tape and a pair of pliers, to fix-a-flat; you could also throw in a quart of oil and a gallon of coolant for good measure. But then again, a cell phone and AAA card may be the only emergency supplies you require for the road. Whatever your style, and wherever you're going, the most important thing to remember is to be safe and to have a good time!

Car Care Class

The next car care class will be held on Saturday, August 2 from 9 am until noon at the Piedmont location. Please call to sign up at 404-875-7212 as space is limited.



For more information and to try our Online Appointment Scheduling

www.catherinesautorepair.com

car quiz

Q: What does the octane rating (e.g. 87, 89, 93) for gasoline quantify?

- a. the ratio of higher quality fuel to oxygenates present
- b. the ability to resist engine knocking or pre-ignition
- c. the amount of engine-cleaning detergents added
- d. the capacity to improve combustion efficiency and increase performance

A: The correct answer is (b) the ability to resist engine knocking. Engine knock, also called pinging or pre-ignition, occurs when the fuel-air mixture ignites prematurely by compression rather than normally by spark. This abnormal combustion, which may be caused by several factors, decreases horsepower and can damage the engine over time. The octane rating represents how much the fuel can be compressed before it spontaneously ignites. It does not mean that the gas is a higher quality, or will improve performance, or clean the engine better. In fact, the EPA requires that all grades and all brands of gasoline contain engine-cleaning additives to protect against deposits. So what exactly is octane? All gasoline is a blend of hydrocarbons in various configurations; octane is one, for example, with 8 carbons chained together. Octane can be compressed a lot without igniting, and thus the term "octane rating." See our TECH TIP for help with deciding which octane rating to use.

tech tip

Save yourself some money at the gas tank by using the lowest octane rating recommended for your vehicle. You can find this information in your owner's manual. Many people believe that premium is always better, but this is only true if your engine requires it. As you learned in the CAR QUIZ, the only difference with high-octane gas is its "anti-knock index." Although high-performance cars tend to have higher engine compression ratios, which may therefore need a high-octane gas, the majority of cars require no more than 87 octane. If your engine and other components are operating properly, and you are using the recommended octane level for your car, you should not experience any knocking or pinging. But if your engine is knocking, you can try a higher-octane gas to alleviate the symptoms, or have the true underlying problem diagnosed. What if your owner's manual recommends 91 octane, but your gas station only offers 89 or 93? Instead of paying more for the 93, save some money by filling your tank halfway with 93, and then the rest with the 89; the resulting mixture will give you the recommended 91.



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