

Making *Smart* **Choices**

A Helpful Guide to Maintaining Your Vehicle

Scott Osborn



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Customer Reviews

“Osborn's is a friendly, professional, neighborhood auto service center. The service is great.”

– Bill W.

“Always excellent work, friendly, knowledgeable service, high integrity!”

– Sally S.

“I'm glad I spotted Osborn's as I was driving home from work, thinking about how low my brakes were getting. I went in just to see if this would be a good place. Right from the beginning, Jamie's professional attitude put me at ease. She was very organized about explaining my options and getting two quotes to me in a timely manner. And she made it very easy to arrange the service around my work schedule. It was also great chatting with Scott. On a personal and professional level, this is the kind of place I like to do business with. I would recommend Osborn's to anyone in the area.”

– Frank M.

“I continue to enjoy doing business with you. I know that you are looking out for my car and me too! Thanks for your super service.”

– Marjorie S.

“Always great service. Wouldn't go anywhere else.”

– Steve A.

“I'm so glad I moved to a neighborhood close to Osborn's. Even if I lived further away, I'd use them as my go-to auto service shop. They are so friendly and honest.”

– Rafi M.

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1

WHY I WROTE THIS BOOK

Designed to replace the horse, the automobile was originally called the “horseless carriage.” It has succeeded in its original goals, getting us where we want to go faster than horses ever could and making our work much easier.

I remember when each car seemed to take on the owner’s personality. And when a car was coming toward you, you knew exactly what make and model it was—there weren’t that many possibilities! Certainly nowhere near the many different nameplates and hundreds of different models we have now, made even more difficult by the number of years cars stay on the road these days.

Technology is advancing so rapidly that a complete understanding of your car is nearly impossible, unless you live and breathe it. People say they used to be able to look under the hood and name every part they saw. Today those same people won't even raise the hood—they're too intimidated to look! Most of my customers say they'd love to know more about their cars. That's why I wrote this book.

I like helping people with their vehicles. It's like a puzzle trying to figure out what's best for them based on how they have cared for their car, how long they want to keep it, and of course their budget to keep it on the road.

I see a need for people not only to know how to care for their car and make it last longer, but also to make wise choices when they replace it. So here it is—the self-help book of car ownership. It's not going to make you a Certified Master Auto Technician, but it will help you better understand how to keep yourself, your family, and your car safe. It'll also teach you how to make sure that your vehicle lasts longer for cheaper.

Safety is a primary objective every time we get in a car. We pray for travel mercies. We tell our children to drive safely. Road signs tell us to drive safely, to wear our seat belts, and obey traffic laws—all so that we will “arrive alive” at our destinations.

Cars were never meant to be phone booths, texting stations or music halls. They were meant to help us arrive safely.

Most of the recent advancements in technology have an underlying theme of safety, and I address many of them in these pages. More importantly, this book provides simple, helpful information on car ownership. Armed with this knowledge, understanding warning signs and knowing what to do when things go wrong will help us stay safer in and around our automobiles.

So consider me the “car dad you never had” who wants you to know how to care for your car and arrive safely. If you have a specific question, simply go to osbornauto.com. Let me know how I can help.

Scott “Oz” Osborn

Owner, Osborn’s Automotive

September 2015

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INHERITING THE “KNACK”

My dad was a shop teacher, so you might say I inherited a knack for mechanical things. He taught me that I could always figure out how to do things myself, so it seemed natural for me to find out how stuff worked.

When I was about 6 or 7, my parents bought me a toy called “Mr. Machine,” a plastic robot, for Christmas. It was designed for kids to take apart and put back together again. After you put it together, it would walk, swing its arms, ring a bell and say “Ah” every few steps. It was great! I spent hours and hours playing with that toy, taking it apart and putting it back together. My parents knew where I was headed right then.

I was always curious about how things worked, and I took everything apart. I would take the back off a new watch, just to see the gears and how they worked to move the hands on the front of the watch. Fortunately, I also had the knack of putting things back together. (And getting them to work again!)

It was the same way with cars and small engines. I would decide to take a carburetor off and disassemble it and look at it, because I wanted to know how it worked to get the fuel into the engine. Or, I'd *have* to take a carburetor apart because something broke and it was up to me to fix it. That's how I learned transmissions.

When my transmission went out in my 1968 Firebird, I couldn't afford to buy a new one or have someone rebuild it, so I bought a used one. It came to me in a box of pieces, just a pile of gears, gaskets and bolts. It was up to me to figure out how to put it together if I wanted to drive my car again. But I managed. I figured it out. My mechanical “knack” came through for me. I'm very grateful for that inherited combination of skill and intuition I got from my dad, for wanting to work with my hands and for feeling comfortable with mechanical things.

During high school, I started working at the gas station across the street from school. At first, I was working the graveyard shift, and my job was cleaning up after the mechanics. Every night, I cleaned the workbench perfectly, and then I scrubbed, waxed and buffed the floors. The technicians always

liked coming in the next morning because they knew they'd have a nice, clean shop to work in.

I think putting in so much effort, and doing such a good job, must have paid off. The next thing I knew, they put me on the evening shift and I was able to work on a few cars. Once I graduated high school, they put me on the day shift as a helper. I was a happy guy. I really enjoyed the work and the people I worked with.

After that, I had a couple of other jobs working on cars and I started accumulating tools. I went to all the training I could possibly get into, training on everything from brakes, suspension, ignition—you name it. If someone was offering training and there was any way I could take it, I went. Many of my nights, after working a 10-hour day, were spent in a classroom. I wanted to be the very best mechanic I was capable of being.

At the same time, I discovered I liked talking to customers, too. I liked finding out what their problems were and helping them find solutions. This desire to work with people, to help them when they had problems or even when they just needed an oil change, led me into an entirely different career path. I realized I wanted to focus on the “people” part of the business just as much as the “car” part and I went into management. Next thing you know, I'm running gas stations and going to school

learning how to become a gasoline dealer so I can buy my own gas station and do things my way.

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SETTING MY OWN COURSE

GAS STATIONS: THE GOOD OLD DAYS

For anyone too young to remember, or for those of you who have forgotten, gas stations weren't always self-service places attached to convenience stores. Back in the day, there was a gas station on every corner, and every gas station did auto repair. There were very few independent auto repair shops back then, up into the '70s and '80s. You always took your car to the dealer or to a gas station.

There was no self-service back then. All gas stations were full service, with an island attendant (or two) who would run out to your car, pump your gas, clean your windshield and rear window, open the hood, check your fluids, check your tires, take your payment and bring you your change or receipt. If you needed any fluids, they would fill them up. Those guys were hopping! And that's where you took your car for repairs and maintenance.

GOING OUT ON MY OWN

I bought my first Union Oil gas station in 1986 at the age of 29. At one point, I had four gas stations with service bays and convenience stores. But when I owned multiple stations, multiple shops like that, I found that I was no longer personally involved in any one of them. I was just managing the businesses.

I didn't have time to interact with people, and that was the main reason I went into management in the first place! I didn't have time to talk to customers, to help solve their problems. I couldn't interact with the individual mechanics or employees and I really missed that. I missed dealing with employees one-on-one, and helping them grow.

I'm a people person. I've always enjoyed talking to people, and I want to interact with them. I want to show them what we're able to do. I want to talk to them about their repairs and their cars and help them figure out how long they'll keep their vehicle and what's the best value for them. I couldn't do that owning multiple gas stations and auto repair facilities, so that's a big reason behind our decision to scale back to one shop.

But I had another reason that pulled at my heartstrings and settled the issue for good. I'll never forget what happened one night when I was at my shop in Sacramento. My oldest daughter, who was about five, called me at my apartment up there and asked, "Daddy, why can't you coach my soccer team?"

She was very upset that I wasn't there to be a part of her soccer experience. I could go to games on Sundays but I couldn't coach her in the evenings—I was out of town too much.

That was another reason we got rid of the multiple units. I missed being able to talk to customers but when it came to neglecting my family, I figured I really didn't need to work that hard. I wanted more time with my family.

Additionally, at about that time, the industry was shifting away from full service gas stations to self-service and independent garages were starting to open. I could see that the business model of gas stations doing auto repair was dying off, so we decided to move away from gas stations altogether.

In 2001, I sold my last gas station and we moved to our present location in Redondo Beach, opening a dedicated, independent automotive care facility. I'm not one to brag, but it's a beautiful place, that's not just sparkling clean but also well designed and definitely a step up from what you might expect to see. O.K. Maybe I'm bragging a little. But come see us. I think you'll agree.

Now I'm doing what I like to do, which is working with customers and fixing cars. I'm not distracted by oil companies or any other people involved in my business. It's just me, my wife/business partner and my crew.

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OSBORN'S AUTOMOTIVE TODAY

Now you know how we came to open Osborn's Automotive in Redondo Beach, back in 2001. Nancy, my wife, is the back office expert, handling all the paperwork, taxes and filings, bill paying and banking. She's had a lot of experience in that area. She was a bookkeeper in a gas station, where I met her on 7/7/77. We've been together since then, over 37 years now. Wow.

Nancy and I quickly discovered that we had a lot to learn about running a business, so we went to a lot of management training. We've taken training courses from Management Success, R. L. O'Connor, ATI, and we're still with Elite Worldwide and the Elite Pro Service Group. All those organizations provided helpful information and training that has made our business much more successful than it ever could have been if we had just tried to "go it on our own." Our business has been recognized in Auto Shop Owner magazine, Parts & People magazine, and Ratchet and Wrench magazine as well as multiple AAA publications.

Vehicles We Service

We service most types of vehicles other than the “exotics”—Ferraris, Lamborghinis, that type of car. But any time I’m uncomfortable, I’ll speak up. I’m not going to train or let my service techs train on my customers’ cars. We’ll just say, “We’re not the right place to be working on this car.”

We work on vehicles with all the different types of power sources, too. That includes diesel, gasoline, hybrid *and* electric. You’ll keep hearing this, but we’re very committed to the environment. We couldn’t be true to that commitment without servicing all the hybrid and electric vehicles on the market.

OUR BUSINESS PHILOSOPHY

Our business philosophy is simply the *Golden Rule*. Treat others as you want to be treated. You get back what you give, and you get back ten times what you give is usually how it works. We always, *always* treat people with respect. It doesn't matter what kind of car they drive or what kind of shape it's in.

We're in a service business, and if we're not servicing, if we're not taking care of our customers' needs, then we're out of business. When you walk in our door for the first time, you may not know exactly how you should be treated. You may have had unpleasant previous experiences with auto shops. We want to change your entire perspective on our industry.

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We want to care for your needs in a friendly, respectful manner, first. But then we want to teach you all the other things you should expect, and *will get*, from Osborn's Automotive. Then you'll truly know how we would like to be treated, by the way we treat you.

OUR PEOPLE MAKE US SPECIAL

Anyone can say they fix it right the first time or they stand behind their work. We say that, and we mean it. But what really makes it work, what makes it mean something, is the quality of the people doing the work. That's the bottom line.

The people who work for me are genuine. They simply care about what they're doing. They have a passion for their profession, and I think that makes the difference right there. That's what makes us special.

We have mechanics who have been with us for over 20 years. That's a rarity in this industry. And my technicians aren't the type to sell something just because they like doing that type of work. They make recommendations based on individual customer needs and driving habits.

Our Service Manager is extremely good with people. She doesn't know cars inside and out, but she understands people. She's compassionate and that really shows when she works with customers.

What makes us special is our people.

Certification and Training

All my technicians are ASE-certified. I've been recertified as an ASE Master Technician five times, in the Level One, and I have one other tech who is an ASE Master Technician. My Service Manager is also ASE-certified. Finally, my porter is certified as a Service Advisor, so we have 100% ASE certification of our staff. (You'll find out more about why ASE certification is so important, in *Chapter 5. ASE* is one of the acronyms explained there.)

Since our success depends on our people, we take every opportunity to provide them with quality training, and we foot the bill, 100%. Whether it's on new systems, refresher courses, hybrid training, new tools or new ways of doing things, I'm there with my checkbook if I have an employee who wants that training.

Mostly, this training is provided as evening courses, so they're maintaining their certification on their own time. It keeps them on their toes and at the top of their game. In our industry, tools and techniques are constantly changing, and the vehicles are changing, too. If you don't keep up, get ready to retire.

EXPERIENCE OUR SHOP

Your Comfort is Our Priority

When you walk into our office, I want you to be comfortable. You'll find an extremely clean shop with clean

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floors and walls and beautiful wood ceilings. You may be surprised to find a lot of old-school antiques from old gas stations, such as old signage, old gas pumps, and even some old car parts. Those things may take some of you back to your youth; for youngsters, it can be an icebreaker. (Feel free to ask, “What the heck is this?”)

By the way, we appreciate appointments, but we understand that breakdowns and other problems don’t always happen on schedule, yours or ours. In fact, most of our business is drop-in, spur-of-the-moment, and we leave room in our schedule for those customers.

I want you to be comfortable about every aspect of your experience with us. My people will greet you and talk to you about your car in terms you can understand. We’ll go out to your car and review any issues or problems with you.

While we’re out there, or maybe when you first pulled in, you’ll notice that our lot is *busy*. This should be comforting to you. We don’t want you to have that uneasy feeling you get when you walk into a restaurant at the dinner hour and all the tables are empty. (You’re thinking, “*Oh my God. What’s wrong with their food? Can we turn around and leave?*”)

After we write up your service order, we’re still concerned about your comfort and convenience. We’ll split the cost of rental cars, so that your portion is around \$10-\$15 a day. We provide courtesy rides and a courtesy shuttle. We’ll take you to

the beach, the shopping center or to a restaurant. Most of that's within walking distance, but we're happy to shuttle you around. By the way, I've mentioned that we're a "Green" shop—we try to protect the environment as much as possible. One way we do that is by using a Smart Car as our shuttle.

Our Little "Green" Shuttle

We were one of the first owners of a Smart Car, and it's a head-turner! (You're thinking, *That's a black car*, but at 45 mpg, believe me, it's *green*.) We put an exhaust system on it,



so it sounds like it has a lot more power than it really does. We use it in all our commercials and Santa delivers toys in it. We also use it to pick customers up and drop them off. (Don't worry! It has tons of interior space. And it may be small but those crafty engineers at Mercedes Benz have loaded it with safety features to make it incredibly safe to drive and crash-resistant, plus, it has 8 air bags!) All the same, I couldn't resist taking my daughter's suggestion and putting a sticker on the back that says, "Dishwasher Safe."

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For your peace of mind, after we've shuttled you off or you've left our shop by some other means, we'll call you during the day to keep you updated on your car's status. We will *never* make you call and beg to know what's going on with your car. If you've agreed to texting, we'll text you when your car is ready and ask if you need to be picked up.

When you come back in, your car is ready. It's been repaired or the routine maintenance has been performed. But we didn't stop there!

We've washed your car. Usually, we've tossed some small gift in your car, like anti-bacterial wipes. Then there's a handwritten note from the manager. We even throw in a lottery ticket, hoping you can win back the money you spent with us today. Or win a fortune, who knows?

But here's your biggest bonus. We also give you a computerized inspection sheet showing what we did and what we found. It will let you know of any repairs or upcoming maintenance work you need to address. This includes photographs, so if we tell you about a leaking water pump, we'll show it to you. We do this so you can feel comfortable that we're being honest with you and so you can plan and budget ahead.

When you pick up your car, we offer to show you the old parts. Usually, we can show you what was wrong with the old part. Again, we do this to demonstrate our integrity and to help your peace of mind. By the way, we're a green shop, so we save

those old parts (and fluids) for recycling. We send them to metal, plastics or whatever type of recycling is appropriate.

To make you comfortable, to give you peace of mind, we also assure you that we stand behind everything we do. We explain our warranty, 3-years, 36,000-miles, and tell you that you can call me if you're stranded on the roadside *anywhere*. I'll find someone to take care of you and I'll give them *my* credit card number. For us, the most important thing is getting *you* back on the road.

Finally, within a couple of days of their visit, I try to call at least 75% of our customers to ask about their experience. I want to know if we exceeded your expectations, because that is our goal for every customer who comes through our doors. We want to give you a service experience that amazes you.

That is the *Osborn's Automotive Experience*.

EDUCATION AND TRUST

I believe that the better informed a customer is, the more that customer will trust us. That's why, at Osborn's automotive, we all take an attitude of educating our customers. Instead of selling them something, we educate them on their needs. We give them choices, and then try to make sure they understand the consequences of the choices they make. Not many shops do that.

When you stop in and you need brakes, we like to give you choices. Do you want a more expensive pad that will give off

less dust and possibly last longer or are you looking for an inexpensive solution and don't care if your wheels get dusty?

We're always trying to educate you. We try to explain things in non-technical language, and that's where the photographs and the inspection sheet come in. In fact, I developed and patented those inspection sheets. I wanted something that would help customers understand what was happening with their vehicles, I wanted to help technicians approach their work more methodically and I wanted shop owners to be able to determine whether certain technicians had a pattern of consistently finding the same "problem." Since that didn't seem to exist, I invented it. Then I made the program available to shops around the world.

I felt like all repair shops should benefit from using the sheets, because they make it easier for the technician to work efficiently and document that work. These inspection sheets also serve as a tool to ensure against technician bias in diagnosing problems and to coach technicians into doing a more thorough job. (You can go to repairshopsolutions.com to see a sample.) I also wanted more customers to benefit from having all the information provided by this tool. I think most shop owners can see right away that it can provide big benefits for them, their employees and their customers by insuring thorough inspections, accurate diagnoses and better customer communication.

GIVING BACK TO THE COMMUNITY

Educating Young Drivers

Nancy and I know we're very fortunate, and we try to give back to our community as a way of saying thanks for the blessings we've received. One of the ways I do this is by speaking to new driver groups, like Boy Scouts or classrooms of 16-year-olds.

I'll talk to them about what to do if they get in an accident and for most of them, the first thing I say to do is going to be second nature. I say, "Get out your cell phone! But *don't start* texting all your friends!" Instead, I tell them to follow the instructions I provide later in this book, in the *How to Manage an Accident* section. I also tell them what to do if their car won't start, and how to stay safe in both situations. Cell phones have made the world a lot safer for young drivers, because now they can call Triple A, Mom or Dad—or us—and wait safely in their car until help arrives. We may not be able to help them directly, but we can at least put them in touch with someone who can.

Fund Raising Assistance and Donations

We also do a lot with nearby schools and sports programs by donating services for their silent auctions. For example, we'll give a year's worth of services to help them raise money.

Another way we help with fundraisers is by letting different youth groups, whether they're church groups, school or other

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youth sports teams, have car washes on our parking lot. We never charge them for those. We're constantly doing that—we have banners and hats everywhere from the different organizations who've used our lot. It means a lot to them, because it's hard to find companies willing to donate their space.

We also sell propane, as a sideline to our business, and I give away propane to all the youth sports groups around us that have snack shacks. We supply all the propane for their cooking. That lets them earn a higher profit on their sales so they have more money to put back into their programs, and they're really appreciative.

I think they'd enjoy seeing their names in print, so here's a list of some of the organizations we support:

- Redondo Beach Union High School - Football, Basketball & Volleyball programs
- South High School - Basketball & Volleyball programs
- Peninsula High School - Football, Basketball and Volleyball programs
- Palos Verdes High School - Volleyball & Track program
- Peninsula Panther Boosters
- Peninsula Drama Boosters
- Riviera Elementary School
- AYSO, Region 10 and 34
- Peninsula Girls Softball
- Coastal Quest Soccer Club
- South Redondo Little League
- Palos Verdes Little League
- Rolling Hills Little League
- Silver Spur Little League
- Lunada Bay Little League
- Palos Verdes Pony Baseball

- Las Madrecitas
- Las Amigos de Las Lomas
- Las Niñas
- PV Sports.com

As you can see, we stay very busy and very connected to our community. We're here to stay, to be good neighbors and to honor our commitments to our customers.

CREATING CUSTOMERS FOR LIFE

With the ethical way we do business and the trusting relationships we build with our customers, we're not surprised to have many long-term customers. They're all special to us, and we're always happy to see their familiar faces. But I have to admit there are a few customers who stand out from the crowd for various reasons.

One of our standouts is Kathy Baldwin. She's been coming to us for more than 20 years. She drives her cars until they are just dead in the ground, and I think her last car had roughly 400,000 miles on it. She definitely gets her money's worth out of her cars!

About eight years ago, she bought a newer Saturn that she's driving now. She'll probably keep it for as long as we can keep it running well for her. She's definitely *not* one of those people who buys a new car just because they're bored. She brings her cars in for service right on schedule to make sure nothing is

overlooked. We appreciate her trust and try to give her the peace of mind she deserves.

Everything we do depends on how customers want to take care of their cars and their goals for their cars. Everyone would like to drive a newer car, but that doesn't always make good sense financially. So I'll help them keep their cars as long as they want or need to, but I would say Kathy Baldwin is probably our star customer when it comes to the highest amount of mileage we've kept on the road.

GETTING TO THE GOOD STUFF

The rest of this book is devoted to teaching you about your car, from what those lights on your dashboard mean to when it makes sense to trade in your old car for a new one. I've tried to address nearly everything people have asked me about over the years. You can check the *Table of Contents* to see how thorough I've been.

I hope you'll find the following pages interesting and entertaining, and that this book will prove to be a valuable guide for you in the future. Keep a copy in your glove box, so it's handy when you need it.

I also hope you'll buy additional copies for your friends or loved ones who need this information. This book is available on Amazon and I try to keep copies in stock at the shop.

So, please, read on!

5

CAR CARE 101

LEARNING THE LINGO: ACRONYMS

Communication can easily break down in my industry due to the many acronyms we use. Listed here are some of the most common ones. I hope these will help you make informed decisions about keeping your vehicle serviced properly.

LOF = Lube, Oil and Filter Service

LOF is pronounced “loaf.” What’s a “loaf?” In our industry, ‘LOF’ means Lube, Oil and Filter. Interestingly enough, not a lot of cars receive lubrication anymore, but the acronym has carried over for many years. So, if you see the term “LOF,” that refers to an oil change on a vehicle.

ABS = Anti-Lock Brake System

If you read that as a word, it says “abs.” So, if we were a gym, you would think of something totally different—one part of your body. But in the car industry, ABS is an acronym for Anti-lock Brake System. So, if your “ABS” light comes on, that means there’s a fault in the Anti-lock Brake System. (As far as your body is concerned, check with the gym on that!)

DIS = Driver Information System

This is the vehicle’s system that gives the driver information—in an LED-type style, or scrolling across the dash or touch screen, or perhaps visible in a small window somewhere on the dash. You need to be aware of this important system. Pay close attention to any messages and look for specific responses in the index of your owner’s manual.

CSS = Cooling System Service

CSS is our acronym for Cooling System Service. That’s the process where we typically drain your cooling system and reinstall coolant. It’s not a chemical flush; it’s just a simple service of your cooling system fluid.

ASE = Automotive Service Excellence

You’ll see this acronym a lot. ASE is an independent organization that tests the competency of those in our industry. ASE does not do training; they only test for competency. The training takes place in another location or through other venues,

much like a student taking the SAT exam. It's administered at a testing location with a proctor and the results are provided by the certifying organization.

ASE says, "We're going to see if you learned anything through what you have studied. And if you can pass our test, then we will certify that you know what you are talking about and are qualified to repair these specific systems." When someone passes their exam, they become "ASE Certified." For the automotive repair side of our industry, there are eight different areas of ASE certification. If you are certified in all eight, you are an ASE Master Technician.

ASE also has specific certifications for diesel trucks—like a light-duty diesel truck. Additionally, they have certifications for heavy-duty diesel, certifications for people working in a parts department and certifications for service advisors.

ASE is the "gold standard" in our industry, and in my opinion, it is critical that anyone who works on your vehicle should be an ASE Certified technician. Before you have any work done on your vehicle, ask if the technician assigned to your car is ASE Certified. If they aren't, you may want to look for a repair shop with fully trained and certified technicians and service advisors.

An ASE Certification has to be renewed every five years. This is important because cars and technology change. Therefore, ASE Certified Technicians must stay up to date on

cutting-edge technology so they can continue to service your vehicles properly. Every year there are over a million pages of new information hitting our industry, so it's important for my staff and me to stay current.

Your great-grandfather may have said all he needed to fix his car was a piece of bailing wire, a pair of pliers and some duct tape. That may have been true back then, but today, we need a little more than that. That is why being ASE Certified is so important.

TPMS = Tire Pressure Monitoring System

TPMS stands for Tire Pressure Monitoring System. Like the name says, this system monitors the tire pressure of your car. After Ford had problems with accidents caused by low air pressure on their vehicles' tires, the federal government mandated that all vehicles, beginning in 2008-2009, must contain a Tire Pressure Monitoring System.

Today, the technology actually notifies the driver when a tire has low pressure. Some systems will tell you about a specific tire—for instance, “your left front tire is low.” Some simply indicate that you have a low tire somewhere on the vehicle. Spare tires also have these sensors—so although the four tires on the ground may be fine, you should still check the spare tire, as well.

EGR = Exhaust Gas Recirculation

EGR is an acronym you'll hear often. It stands for Exhaust Gas Recirculation. An emission control item, it is a system that recirculates exhaust gases back into the engine for re-burning. Also, fumes from your gas tank return to the engine for re-burning through this system. This has to do with fuel economy and proper engine operation.

TPS = Throttle Position Sensor

In the past, a car had a physical cable that connected the gas pedal with the throttle control mechanism on the engine. Today, instead of a cable, your vehicle uses a throttle position sensor, which means that your actual gas pedal is now a sensor itself. So, when you push down on the gas pedal, you are moving a sensor. The gas pedal sensor information is sent to the throttle position sensors, which tell the onboard computer how much gas and air to allow into the engine.

PCM = Powertrain Control Module

The PCM is the grandfather of the computer systems on the vehicle. It is the mission control center, the head honcho, the king, the president—it is what everything else goes through. Typically, there are many computers within a single car; and they all communicate with the PCM.

BCM = Body Control Module

The Body Control Module pays attention to everything internal (inside the vehicle). “Things you touch” is a simple way

to define what goes through the BCM—for example, turn signals, headlights, heating and air controls and other items like these. They all send information through the Body Control Module.

AT = Automatic Transmission

This is the type of transmission in most passenger vehicles. In fact, it's increasingly difficult to find a standard transmission anymore. If your gearshift has choices like "Park," "Reverse" and "Drive," you have an automatic transmission. This type of transmission automatically shifts when certain conditions exist.

The invention of the automatic transmission revolutionized the driving of vehicles. Before this time, the driver had to manually shift their car into different gears. That's why it's called a "manual" or standard transmission.

DASHBOARD = LIGHTS THAT POP UP ON THE DASHBOARD

As you sit in the driver's seat and turn on the key, you see various lights pop up on the dashboard. But what do they mean?

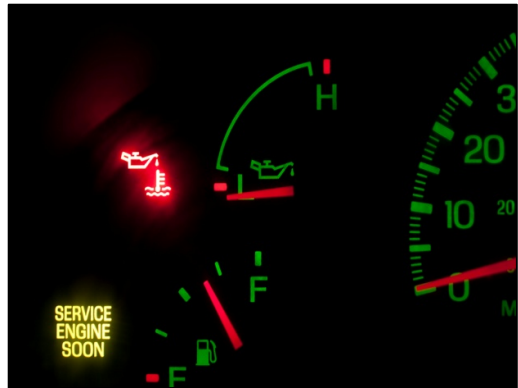
First, there's a reason for the colors of the lights on your dashboard. These colors can be associated with the traffic lights you see when you are driving down the road.

If you see a RED light, what does that usually mean to you? Stop. And when you see YELLOW? Caution. GREEN? Green means go.

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So let's apply this to the dashboard lights. If, for example, you have the cruise control on, the button is normally some sort of orange color. Once you set the cruise control, the button turns green.

Your dashboard lights are very important and should never be ignored. If one of your red dashboard lights comes on, you need to have your vehicle serviced by a qualified technician.



ABS Light:

The ABS light has to do with the brakes, as we mentioned previously. If the ABS light is on, the Anti-lock Brake System computer has found a fault somewhere in the system. It could be anything from low brake fluid to a problem with a particular wheel sensor or another component within the system.

When the ABS light is on, your normal braking will still work. However, if you get into a panic stop, the anti-lock brake system will *not* take over your braking—that is, your wheels will lock up like a vehicle not equipped with anti-lock brakes. Therefore, you lose the ability to maneuver around objects in

your path. Instead, momentum carries you forward and you'll likely hit the object ahead of you.

You may remember your parents telling you that if you're on ice you should pump your brakes and not apply them hard. The ABS System uses that principle, as well. The ABS system pumps your brakes ten times per second, which is something no human is able to do.

The ABS light typically comes on as a yellow light. It doesn't mean that you have to immediately stop the car, but it does indicate that the system is not going to work until you get it resolved. It does not mean that your car won't stop; it does not mean that your brakes have failed completely; it only means that the anti-lock feature of your brake system is not going to operate if you get into a panic stop situation or try to stop on a slick surface. Drive cautiously—as you always should—and quickly get your vehicle to a shop for testing.

Check Engine Light:

The check engine light has been around since about 1990. Its initial purpose was to provide information about the emission control status of the vehicle. Check engine lights are typically orange in color because they still primarily deal with emission controls. However, emission controls now includes additional elements, as well.

Emissions concerns air pollution—so, for instance, if a spark plug is not working properly, it causes the car to pollute more than it should, and the check engine light comes on.

Formerly, a failed spark plug wouldn't cause the check engine light to come on. It would come on if you had a fuel canister that was full of gasoline or if the EGR (Exhaust Gas Recirculation, remember) system failed. Now, the check engine light encompasses many things; there are somewhere between six hundred and nine hundred different reasons why the check engine light might come on. A technician needs to run tests on the system to determine the actual cause so they can correct this problem.

SRS Light:

Air bags are very important. In a car equipped with air bags you will see an SRS light (or Air Bag light) on the dashboard. SRS is an acronym for Supplementary Restraint System—the key word being *supplementary*.

That means it supplements your safety system, and that safety system is your seat belt. If you are not wearing your seat belt when you are in an accident that deploys the airbags, a greater amount of bodily injury will occur. For that reason, *you should ALWAYS wear your seatbelt.*

If the airbag light is on, there is a problem in the system and the airbags will not deploy if an accident occurs. As you can

imagine, this can be very serious. If your SRS light comes on, get your vehicle to the shop quickly.

Traction Control Light:

The vehicle computer not only monitors the brake system and airbags, but it also helps move power from one tire to another in all-wheel-drive vehicles. For example, in an all-wheel drive vehicle, let's say you become stuck on ice or in snow and are trying to get out. One of your wheels is usually stuck worse than the others—it's spinning but not getting any traction. The traction control system will move the power from the wheel that is spinning to a wheel that is not, since the non-spinning wheel has greater traction. The traction control system allows power to be transferred so that you can gain traction, have greater control and get out of a situation where you otherwise would remain stuck.

Traction control also works during acceleration. An example of acceleration mode is when you turn a corner and the weight of the car shifts from one side to the other. The traction control system is going to move the power to the wheels with the best traction.

The traction control light comes on momentarily whenever the system activates. If there's a failure in the system, the light will stay on. That is when you need to take your vehicle for inspection.

Reduced Power Light:

Reduced power is something primarily seen on GM vehicles. The reduced power light is usually red and indicates that something has gone wrong, that the vehicle has gone into “limp mode”—as in “we are limping” or “we only have one leg and cannot run.” Such a fault in this system could be problematic. Many times, this fault pertains to either transmission functions or accelerating functions. If this light comes on, you must get it in for service.

Some limp modes limit your speed to no more than 25 miles an hour, which will allow you to drive to a safe place. You’ll likely need to have it towed from that point, especially if you have a long way to go. Other limp modes allow you to go 40 miles per hour, usually enough that you can get to a repair facility on your own.

The reduced power light will almost always be red. It indicates a problem that needs to receive immediate attention.

Temperature Light:

Most cars today have an engine temperature gauge as well as a temperature light. The engine temperature light will always be red, indicating that you need to shut the car down as soon as possible. The longer you continue to drive, the more damage will occur. Eventually, you will damage the engine internally. If you continue to drive the vehicle, you will create problems—very costly problems.

When the temperature light comes on, you should pull over and look at the temperature gauge. If it shows the engine is too hot, turn the engine off as quickly as you safely can. Then you want to determine the cause of the problem.

The first step in the troubleshooting process is to make sure that your coolant level is full. If not, you need to add coolant. But be careful! You have to use extreme caution when adding coolant to a car that is hot because you can be burned. It is best to let the car sit and cool down for several hours before adding coolant.

The need to add coolant indicates you have a leak that needs to be repaired. If the coolant is full and the vehicle is running hot, that means that a component within the system has failed. Either way, you'll need to get your car to the shop quickly.

Oil Light:

The oil light can indicate an issue with the oil level or oil pressure—sometimes both. If the engine loses oil pressure, the oil light will come on. That light will be red because you have to shut the engine down quickly. If the oil pressure is too low, there will be internal damage to the engine, similar to driving without oil in the engine.

To clarify, you can be low on oil and still have oil pressure. The oil light may not let you know that you are low on oil—in some cars, only checking the level with a dipstick can tell you if

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you are low on oil. (One new technology in some of the higher end cars, like some BMW and Mercedes models, uses no dipstick. Instead, a sensor inside the engine reads and indicates the oil level. Most cars still have a dipstick.)

Even when you're a quart or two low on oil, you still have enough oil in the engine to produce oil pressure. In that case, the oil light might not come on because adequate oil pressure exists. But the lower your oil level, the more stress and damage to your engine occurs. Potentially, you could have a low oil level and no indicator light to warn you. That's why regular oil changes are so important.

Having a sufficient oil level provides several benefits. Lubricating the engine is the oil's primary job, but it also increases fuel mileage.

Smart Air Bag Light:

Almost all cars are equipped with smart air bags. These sensors measure the weight of the person in the front passenger seat. Depending on the weight of the person or object in that seat, the air bag may or may not deploy. With this light, there is nothing you need to do. If there is a small child in the front seat, the smart bag knows it. If the weight in the front seat does not meet a certain criterion established by the manufacturer, the smart air bag light will come on to let you know that the airbag is off on the passenger side.

The reason the airbag doesn't deploy with a child in the front passenger seat is because the car industry has learned that small children cannot withstand the explosion of an airbag. That's because the inside of an airbag contains a substance similar to gunpowder. When triggered, the "gunpowder" explodes the bag out of the dash at an extremely high rate of speed. The air inside that bag immediately deflates, but is present for just long enough to provide a cushion to the blow of an impact.

Typically, the occupant of the seat moves forward while the bag deploys rearward, so a collision takes place between the bag and the occupant. Because the airbag deploys at such a high rate of speed, a child's body simply cannot withstand that kind of force and injury or death can occur. After learning this, car manufacturers introduced smart bags—which was quite a "smart" thing to do.

DASHBOARD GAUGES

In addition to dashboard lights, many cars also have dashboard gauges. Following are the primary gauges you'll find on today's vehicles. They provide a quick and easy way to tell how well our car is functioning.



Temperature Gauge:

One common gauge is the cold/hot gauge, also called the coolant temperature gauge. Typically, you will find the coolant temperature gauge on the left side of the dash. This gauge, mentioned previously, monitors the temperature of the engine.

Transmissions usually will not shift into the final drive gear until the engine temperature has reached at least a quarter of the way of its full gauge range. Most gauges are set to run—in normal operation—about midway up the gauge. So, you'll

usually see a “C” (for cold) on the bottom and an “H” (for hot) on the top (or Blue for cold and Red for hot).

The gauge could also be horizontally installed—in that case, the ‘C’ would be on the left and the ‘H’ would be on the right. The needle is typically going to be in the middle of the gauge, indicating what is called, “Operating Temperature.”



Interestingly, if the indicator needle indicates your engine is staying cold, that impacts your fuel mileage. The vehicle’s computer is designed to put fuel in the engine based on a certain engine temperature. When the engine is cold, it puts in more fuel because a cold engine needs more. If the thermostat is not working—the typical failure—then the computer perceives that the engine is running at a colder temperature and continues putting more fuel into the engine. Thus, you will use more gasoline. Therefore, because the thermostat can impact fuel mileage, it is important that you are familiar with the temperature gauge to know what is normal. It’s all about checking that gauge on a consistent basis. Remember: If you continue to run the vehicle when the gauge shows the engine is hot, this will cause expensive and critical internal engine damage.

Tachometer:



Most tachometer gauges (also called “tachs” or RPM gauges) are circular and have a series of numbers on them—often 0-8.

Even if you are sitting still, you will see the tachometer needle move around the gauge as you accelerate by pressing on the gas pedal. The tachometer indicates how many times the engine is rotating each minute. Multiply the number on the gauge by one thousand—for example, if the needle is sitting at 1, the engine is rotating one thousand times per minute. (If the numbers on the tachometer are multiples of 10—numbers like 20, 30, 40, and so on—then you multiply that number by one hundred instead of one thousand.) That number is how many times the engine makes one full revolution each minute—called revolutions per minute or “RPMs” for short.

It can be helpful to keep an eye on the RPM gauge. The RPM number will drop each time the transmission shifts into a higher gear to increase fuel economy. If you notice that the engine appears to be running at a higher RPM than normal, it may indicate that something is not right—that the engine is working harder than usual.

Another situation when the tachometer is helpful is as you are idling. If you have a vacuum leak or a similar problem, your idling RPM will be higher than usual. Most engines should run just below the 1 mark. If the idling RPM is significantly higher, that's a problem. You should expect to see the idling RPM a little bit higher when the engine is cold. Once the engine reaches operating temperature, you will see the gauge go back down to the 650-750 RPM range. Isn't understanding acronyms cool?

Battery Gauge:

The battery gauge simply measures battery voltage, also known as the “voltage gauge.” You will usually see a small picture of a battery on this gauge. It indicates battery problems. Some gauges will have a number 12, which concerns the voltage, but most of the time the normal position for the needle, when everything is fine with the battery, is in the middle of the gauge.

Fuel Gauge:

Most people know that “E” does not stand for “enough”—it stands for empty. And “F” of course stands for full.

In today's cars, the fuel pump is located *inside* the gas tank. Having enough fuel in the



tank helps keep that little electric motor—called your fuel pump—cool, and will typically make it last longer.

As a general rule, you should keep at least a quarter tank of fuel in your car at all times. This will add life to the fuel pump because, since it is an electric motor, it does create heat, and excessive heat shortens the life of the pump. That's why keeping enough fuel in the tank helps it last longer.

My advice is to completely refuel your car when your gauge indicates a quarter of a tank. If you always run in that quarter to empty range, you're going to shorten the life of the pump. Not only that, but when you need to get somewhere right away, you will want more than a quarter of a tank of gas.

Odometer:

The odometer gauge tells you how many miles are on your vehicle. The accuracy of an odometer gauge has changed over the years. Today it's electronic, whereas years ago, a cable ran from the speedometer head down to the transmission. As the transmission rotated, this cable rotated. Because of that, odometer readings could be altered. That's impossible with the LED-displayed odometers we have today. The odometer gauge accurately shows how many miles are on a car.

Speedometer:

The speedometer gauge is, of course, useful for showing how fast you are moving. Its speed sensors are reliable and accurate. This information tells the transmission when to shift.

NOISES

One of the greatest things about car ownership is really getting to know your car. That means using your five senses—hearing, sight, smell, taste, and touch. You can use your senses to know what is normal for *your* car so you'll recognize when something has changed.

When it comes to hearing noises that you know are not normal—not what you are used to hearing—one of the best things to do is “show the noise.”

When you take the car into a service facility, don't try to explain the noise. *Show* them the noise. One of the greatest helps to any service facility is when the vehicle owner pays attention so they can duplicate the noise.

- How fast was I going?
 - Was I turning?
 - Was I braking?
 - Was I accelerating?
 - What were the scenarios?
- Was I going uphill or downhill?

Pay attention to the environment and the activity that is taking place when the noise occurs. Then you can take that information, go to the repair facility, get someone in the car with you and duplicate the sound. Highly trained automotive technicians can typically hear many noises that you may not hear. This small step will assist the technician in locating and correcting the same noise that concerned you. When you pay

attention to how the car normally sounds, you'll recognize when something changes.

Brake Squeaking

One common noise that often scares people is a squeaky noise that happens when you push on your brake pedal. A high-pitched noise is indicative of brakes needing repair, especially if this is a new sound. Sometimes what we'll call "inferior" brake pads or "inferior" parts can be used on a brake job. In those cases, you should expect some squeaking.

The sound is not necessarily metal contacting metal, but actually a vibration of the brake pad against the rotor, which comes out as an audible squeak. The vibration is at a decibel level that sounds like a squeak, so this can occur due to the type of brake pad used or the surface of the rotor.

However, if you have a good brake system and use high quality parts, you should not hear any noise. If noise occurs at some point in the future, you should recognize it as a problem and have the brake system inspected for any wear, tear, or other issue.

Brake Grinding

Grinding usually happens after squeaking. Some brakes never squeak, but go straight to grinding. That is typically metal grinding on metal, and you definitely need to get your vehicle into a shop.

Some of the higher end manufacturers, such as Mercedes, BMW and Lexus, have what are called “brake pad wear indicators.” These are just small wires built into the brake pad. Once that wire makes contact with the rotor, a dash light comes on that says “brake wear indicator.” At that point, you can bet it is time to replace your pads. Once the sensor makes contact with the rotor, the sensor is ruined and will have to be replaced along with the brake pads.

Squeaky Engine

Many times, you’ll find a plastic splash shield installed underneath the front of the car for multiple purposes. They not only prevent foreign objects from getting into the engine compartment and causing damage, but also protect against water getting into the drive belt area. If water enters that area, the drive belt may actually slip on the pulleys. You are hearing the squeaking noise because water intrusion has occurred. This is not especially harmful but it probably means that the shield is either disfigured or not there at all.

Shields are frequently damaged when you pull too close to parking spots and hit the sidewalk curb slightly, or when you hit one of those parking stops because your car sits a little bit lower than the average vehicle. If you hit the shield enough times, eventually it will come off.

If that happens, your lower engine area will be exposed and could sustain damage from water, a rock, or other debris. Check

to see if this plastic shield is in good condition when you wash your car or get fuel. It only takes a moment, and could save you thousands of dollars in repairs.

Thumping While Turning

Sometimes when you turn, you will hear a thumping noise and possibly feel a jerking action through the steering wheel. Several problems could cause this thumping noise.

One problem could be your “constant velocity joints” (or CV joints). Your axle has a constant velocity joint built into it that maintains quickness of motion to the wheels when you turn your steering wheel. When CV joints wear out, they cause a thumping or knocking noise when you turn. The only repair option is to replace the CV joint.

Another thumping noise involves the brakes. Usually occurring at highway speeds, you will hear this when you apply the brakes. It could be something you hear or something you feel. Many times, you see the steering wheel shake.

That usually means the rotors, which are a brake component, are out of round. Those rotors turn with the wheel as you drive. When you apply the brakes, the brake pads rub against the rotor to create the friction that causes your vehicle to slow down. If the surface of the rotor is not smooth or straight, it produces a thumping noise or a vibration.

Another phrase we hear is described as a “pulsation of the brakes” when they’re applied. You typically hear or feel that

pulsation when you brake at speeds above 45 miles per hour. You may not necessarily feel the pulsations if you are braking at 20 miles per hour, but once you get up to highway speeds and apply the brakes, you are more likely to feel or hear the vibrations.

Though not necessarily a dangerous situation, it can be quite a nuisance. It also has a negative impact on brake pad and suspension life.

Thumping While Driving

If you hear a regular thumping or vibration that varies with your speed as you're driving down the road, the tires are usually the culprit. Many times, the tread in the tire is separating internally.

Want a sure-fire way to know if this has occurred? Try this: Drive across a parking lot at 2 to 3 miles per hour, then let go of the steering wheel. If your steering wheel shakes back and forth, slightly left to right, that's an indication that the tread has moved inside the tire, and you definitely need to replace the tires.

The age at which you should replace a tire has become an issue over the years. All tires have a number on them that indicates the age of the tire. The number will start with the letters DOT (an abbreviation for Department of Transportation), followed by a series of letters and numbers. At the end of the series will be four digits. Those digits represent the week and

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year the tire was made. For instance, if one of your tires has the digits 4512, the tire was made in the 45th week of 2012. The numerical significance comes into play because the recommendation for replacing tires is between five and seven years old.

Check your tires. If they are 10 years old, they definitely need to be replaced. If you don't replace them, you are at great risk of a blow out or tire separation.

Whining Engine

Whining usually occurs either from the children in the back seat or from the car's steering pump under the hood. You'll want to check both of those possibilities. You may need a cookie for one and power steering fluid for the other.

The power steering fluid is a sealed system for the most part. The fluid does not wear out or go away. If you need to add power steering fluid, you most likely have a leak somewhere in the system. Adding fluid will be a temporary measure. If you have a leak, the whine may stop for a while, but once the fluid leaks out again, the whining noise will resume. Take your car for servicing if you suspect a power steering fluid leak.

Vehicle Starting

When you start your car, several noises may be heard. One is a tapping noise that can indicate that your oil is not getting where it needs to be. That noise occurs because some areas of the car need to have oil immediately upon starting. One reason

some of the manufacturers have gone to a lighter-weight oil is because it can get to those areas that need lubrication quicker on start-up.

Another noise you might hear is a rattling. Any time you hear a rattle in your engine when you start your car, it is metal-to-metal contact. While it will not cause *immediate* failure, problems will happen eventually. The cause is usually a low oil level, low oil pressure, or it could signal that internal wear has occurred.

ENGINE OIL

Here are some common questions about engine oil:

- *Does the type of engine oil I put in really matter?*
- *Can I change the brand of oil I use?*
- *What do the numbers mean?*

All oil today is called “paraffin-based oil.” That means the oil has the ability to capture dirt—this is one of its jobs. When an oil change is performed, we drain the oil from the vehicle and dirt goes with it.



Manufacturers have made changes to the oil for use in lubricating their specific engines. The car industry used to

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recommend oil based on geographic conditions. If you lived in a cold climate, like Alaska, thinner winter oil would be recommended. If you lived in the warmer southern states, heavier oil might be recommended.

All that has changed due to the tolerances built into cars by the manufacturers. Today it is more important than ever that you pay attention to the type of oil the manufacturer recommends.

The label on a bottle of oil provides information about that oil. Most people examine the weight of the oil first. Is it 5W30? 10W30? What does that even mean? Well, the “W” stands for winter. If we used 5W30 for example, the “5” and “30” actually measure the thickness of the oil at different temperatures.

If an oil bottle has “5W30” on it, in winter climates the oil has a viscosity of 30. Once the oil is heated, it has a viscosity of “5.”

Most cars today use either 5W20 or 5W30, regardless of geographic location. The brand you choose is up to you. Contrary to what your grandfather told you, it’s okay to switch brands.

Oil Change Frequency

How often you should change your oil is becoming an issue in our industry because of changes in service intervals. Years ago, it was every three months or three thousand miles. Our fathers, grandfathers and great-grandfathers all taught us that. The reason the oil needed changing so often was because the

engines were exposed to the elements and the filtering system of air and fuel was not what it is today. Your oil could be easily contaminated and cause internal engine damage. That is why car engines used to last only about fifty thousand miles.

Several things have changed since then. With the advent of electronic fuel injection, we don't have many problems with outside elements getting to the crankcase, because the fuel systems are sealed. Fuel is also managed better, so the oil is not contaminated with fuel the way it used to be.

Thus, we have better control of outside elements, like dirt and dust, coming into the engine, and we have better control through better filtering. We have better control of the amount of fuel that is dumped into an engine for burning—almost all of it is being burned these days. And finally, the oil has gotten better at suspending the dirt in the engine. When you put these factors together, your service interval can now be longer than it used to be. Some manufacturers will tell you 7,500 miles, some 10,000 miles, and some 15,000 miles. To help simplify things, many cars today have oil life monitors that tell you when it is time to change your oil. My personal opinion is that your oil should be changed every 5,000 miles.

Why do it at 5,000 miles? One reason is because that is the interval at which several other aspects of the car need to be inspected. For example, the tires should be rotated every 5,000 miles. The car ought to be inspected by an ASE Certified

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Technician at that interval to make sure everything else is working safely and properly.

Some manufacturers have made longer recommendations for oil changes, only to find out that the extended duration between changes caused internal engine damage or failure for the consumer after seventy, eighty or ninety thousand miles. They realized too late that a shorter interval would have extended the car's lifespan.

6

CAR CARE 201

In this section, let's explore some of the more advanced areas of your vehicle, including when to buy a new one. This could become a reference manual for you and a great training manual for new drivers in your family. I've structured this section in the form of a Question and Answer series, much like an FAQ section of a website or resource book.

BUYING A NEW CAR

Let's discuss a few of the most frequently asked questions related to purchasing a new vehicle. Having this information could save you thousands of dollars.

Q. When do I need to buy a new car versus investing in the one I have?

A. Every car has a point of diminishing returns. What you do from the day you drive your car off the showroom floor and whether you think of your vehicle as an investment or as an expense affects the decisions you make about replacing it.

You should not say, “Well, I don’t want to put that much money into my car.” If you’ve maintained the car well, you should expect to get 300,000 to 400,000 miles from it. When you buy a vehicle, you have to understand that how you maintain it today is going to determine its condition tomorrow. With proper servicing, your point of diminishing returns is going to be a lot farther down the road than if you neglect it.

I have seen vehicles with as few as 75,000 miles need an engine (between \$7,000 and \$10,000) simply because the oil was not changed properly. In a case like this, investing in the repair would only be worthwhile for an extremely expensive vehicle. Otherwise, it would be time to purchase a replacement and the trade-in or resale value of the vehicle that needed a new engine would be very low. The owner’s original investment would be essentially worthless.

It is always better to maintain a car correctly from the beginning so that the point of diminishing returns is much farther out than it otherwise would be. You don’t want to be an owner who lets their investment become worthless.

Let’s say you have a six or seven-year-old vehicle. Perhaps it needs a timing belt, or has blown a head gasket. It is going to cost \$1,500 to \$2,500 to repair a vehicle you’ve been driving for six to seven years. You’re just not sure you want to pay that much to get it fixed, so you consider buying a new car. Here’s a calculation that may help you decide.

Larry Burkett was a well-known financial advisor who started Crown Financial Ministries. He would tell you that the cheapest car you will ever own is the one in your driveway. What he means is that by having the car maintained and having everything in good working order, you will spend less money than purchasing a newer vehicle.

When we talk about making a major repair on a car, a way you can try to crunch the numbers is to ask yourself, “What’s it going to cost me over the next year?”

Let’s say there is \$3,000 worth of work that needs to be done on your vehicle and you have decided you’re not going to repair it. Instead, you are going to go buy a used vehicle. Even if you bought an inexpensive one, around \$10,000, there’s still the down payment, then the calculated monthly payments if you finance. Of course, depending on the state, you might also have to pay sales tax on that vehicle. Plus, you’ll need to figure an almost immediate depreciation, as well. Your personal property taxes will go up. Your insurance will increase because, if you finance the car, you’ll have to have full coverage insurance. Calculate your total cost over the next 12 months for that used car and compare that to the cost of making repairs on the one in your driveway.

If you apply this same principle to buying a brand new car, these dollar figures are going to go up exponentially. Therefore,

it almost always makes more sense to fix your existing car than to buy a new one.

EXTENDED WARRANTIES

Q: If I buy a new vehicle, should I purchase an extended warranty?

A: I advise my customers not to purchase extended warranties. Evidence proves that, in most cases, the cost of the warranty is far more than the benefit received.

Note: If you're interested in learning more about this, see the appendices in the back of the book.

CARING FOR YOUR CAR

Q. When should I jump-start my car?

A. The purpose of a battery is to send power to the starter, which then starts the engine. If a problem with the battery exists, it will show up when you try to start the car, not while you're driving.

We've all experienced a dead battery, haven't we? We turn the key and either hear nothing or series of repetitive clicks. The engine does not turn over. That is the only time you should jump-start your car.

MAKING SMART CHOICES

If you're driving down the road and your car dies, the battery is not the cause of your car dying. Do not jump-start your car in this situation. It will not help.

Note: See the “How-To” Section to learn the proper way to jump-start your car.

PREMIUM FUEL

Q. Do I need to buy premium fuel?

A. The best way to determine if premium fuel is right for your vehicle is to check your owner’s manual to see what they recommend. Higher-end models will require premium gas. Those cars are designed to burn fuel at optimum levels. Both the way the engine is timed and tuned, and the type of spark plugs used ensure that when you use this fuel, you’ll get the optimum performance from your vehicle.

There is nothing wrong with using 87 octane. The engine will automatically change the timing on that vehicle for that particular gasoline.

Components called “knock sensors” were added to vehicles a few years ago. These sensors adjust the timing if the engine begins to “ping” or “knock” because of lower octane or other factors in the fuel.

So do you have to use premium fuel? The answer is no. However, if you want the best performance and the best fuel

mileage for your particular vehicle, then I would recommend using the higher-grade gasoline.

The return on investment is simply a crunching of the numbers. (Keep in mind that other factors affect gas mileage, as well—how fast we drive, driving conditions, environmental factors, and more.)

If you want to see if you really get better performance, do your own test. Calculate and record your fuel mileage after two or three fill-ups with premium gas. Do the same after two to three fill-ups with lower octane fuel. You should be able to determine if using premium gas makes a difference.

MOTOR CLUB MEMBERSHIPS

Q. How beneficial are motor club memberships?

A. Motor clubs provide good benefits for the consumer, and offer peace of mind for the consumer who travels a lot. Undoubtedly, their primary focus is the customer. I am thinking of clubs like AAA Motor Club or Cross Country Motor Club, the two big wheels in the industry.

It's easy to feel vulnerable when traveling through an unfamiliar part of the country. These clubs help locate a reliable repair facility, a towing company, a hotel, and other things of that nature. Therefore, you have more confidence in the quality of service you will receive.

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INTRODUCTION TO MAINTENANCE

What do we mean when we say, “maintenance?” It’s a term that applies to any number of industries and essentially means the same thing in each—it means *care* or *upkeep*.

We’ve already discussed crucial factors in the care and upkeep of your vehicle—things like engine oils, the benefits of regular services, and so on. Let’s address a few other important components of your car’s maintenance.

AUTOMOBILE FLUIDS

Transmission Fluid

In the section on motor oil, we covered the fact that dirt is suspended in the oil. At each oil change, the oil (and the dirt it holds) drains out of your car and clean oil is added. Can we apply the same reasoning with transmissions?

Transmissions don’t pull in air, but they do have metal-to-metal contact, or the potential for metal-to-metal contact (this is true with every component on your car where fluids are involved). Transmissions are also exposed to heat.

Heat, plus metal-to-metal contact eventually breaks down the fluid that circulates through the system. The good news is that we do not have to service the transmission every 5,000 miles. Most experts advise servicing the transmission every 30,000 miles, especially if your vehicle is used for towing (boats, campers, etc.). If you're not towing and don't do a lot of driving, then you could probably extend your regular transmission service to 50,000 miles. Typically, the manufacturer has a recommendation, as well. Check with your owner's manual.

Differential Fluid

We can apply this same concept to the differential. On most front-wheel-drive vehicles, the differential is a part of the transmission. The differential on rear-wheel-drive cars is located in another part of the transmission. Differentials also need occasional fluid changes.

Power Steering Fluid

These same principles and guidelines apply to the power steering system. This system is predominantly a "closed" or "sealed" system, but over time, this fluid needs to be changed to protect the components from wearing from the inside. Remember, it is always less expensive to change the fluid that protects the part than to replace the part itself.

Brake Fluid

Unlike the previous aspects of maintenance, brake fluid is not added at particular intervals. Instead, we can measure when brake fluid or coolant should be changed. The measurement for when brake fluid should be flushed is 200 copper parts per million.

Brake fluid is hygroscopic, which means that if you left the can open overnight, the contents would be ruined because the moisture it would absorb overnight would render it unusable inside your vehicle. It is *imperative* to keep brake fluid tightly sealed.

Brake fluid is designed to absorb moisture in your brake system since moisture deteriorates all the metal components the brake fluid comes in contact with. Brake fluid is a hydraulic fluid crucial to proper braking.

If your brake fluid becomes too heated (especially if it heats to boiling) it creates air bubbles. If you've ever had air in your system, you know that the brake pedal goes to the floor and still doesn't stop the car! It's a horrifying experience.

Once the fluid reaches 200 copper parts per million, the brake fluid's boiling point is reduced, which could potentially cause problems. The destruction to your brakes would not occur suddenly, so by the time it causes actual problems, your system could already be ruined—which will be quite an expensive repair.

Since we have started doing brake flushes on vehicles, we seldom have to replace the calipers. Many chain stores will put new calipers on your car as part of a routine brake job, but they typically are not needed.

Most brake flushes currently cost less than \$100, and need to be done every two to four years (depending on fluid measurements and the environment), whereas brake caliper replacements will cost between \$500 and \$600.

That's another important reason you should take your car to a licensed technician who will keep it in proper running condition and replace fluids appropriately. The old Ben Franklin quote about an ounce of prevention being worth more than a pound of cure is really true when it comes to maintenance on your car.

Cooling System Fluid: Antifreeze/Coolant

The cooling system's primary component is antifreeze/coolant, which helps keep the engine from freezing in the winter, and keeps it cool in the summer. As with brake fluid, a measurement can be made to determine when your coolant needs to be replaced.

In this case, we measure the pH level, which is an indicator of the acidic protection that the fluid is capable of providing, and the freeze point. For instance, a pH level of 7.0 is neutral, indicating that the coolant is no longer protecting the soft metals

inside your engine. It's like having straight water in your cooling system, which is detrimental because it deteriorates the metal inside the system. This shortens the life of your heater core, radiator and cylinder heads.

The cooling system should be measured at 10,000-mile intervals. Usually a cooling system repair will cost \$500 to \$1,000. In contrast, having the coolant flushed costs less than \$100. You're saving long-term dollars by maintaining your vehicle on a regular basis.

Air Conditioning System Fluids/Refrigerant

In states with sweltering, hot summers, few things are more frustrating than having your air conditioning blow hot air when it is over 100° outside. Your air conditioning system is a sealed system.

We know from previous discussions that in a closed system the only way you will suffer a loss in fluid or, in this case, refrigerant, is to have a leak in the system. Having the air conditioning evacuated and recharged about every three to five years is a good maintenance guideline.

The A/C system uses oil, which is carried throughout the system by the refrigerant. If you have a leak in the system, the oil will be too low to protect those expensive A/C components. Just like running your engine without oil, running your A/C

system without oil will damage your A/C “engine,” (also known as the compressor).

Some compressors look like very small engines on the inside. They have some of the same components as your car’s engine—pistons, rings, rods and a crankshaft, only much smaller. Keeping the compressor well lubricated extends its longevity.

You should ALWAYS have your A/C system serviced by an ASE Certified Technician. It’s just too dangerous to do yourself.

Keeping your air conditioning system serviced every couple of years is a great way to save money and stay cool in the heat of summer.

NEVER attempt to recharge your air conditioning system yourself!

TESTING AND DIAGNOSIS

Years ago, a technician might spend five minutes diagnosing a car and five hours making the repair. Today, we might spend five hours running tests and diagnosing the vehicle, and five minutes repairing or putting a component on it. The cost of electronics drives this change.

Vehicles today have a tremendous number of electronic systems. It’s not unusual to find between five and fifteen

computers on any given car. It is imperative that all those computers communicate with each other. And the main computer is the Power Train Control Module. All other computers must communicate with this “mission control center” through a CAN—Controlled Area Network. Investigating these various computer systems can become complex.

Again, this is where experienced, certified technicians are worth their weight in gold. Let the professionals do their jobs—taking care of the upkeep for your car.

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CAR CARE 301

No book like this would be complete without a “How To” section. There are many things on a car that you can do yourself, and in this section, I want to discuss the proper way to do them.

HOW TO CHANGE A FLAT TIRE



Most vehicles have a tire pressure monitoring system that will indicate that you have a low tire. Technology has improved to the point that some cars even tell you which tire is low, so pay attention to your dash lights. If that light comes on, you need to quickly find a safe place to investigate the situation.

Tires can go flat over a short *or* a long period, depending on the size of the hole. When you need to change a tire, *the most dangerous place for you to change it is on the edge of the interstate*. If possible, get off the interstate, even if that means driving on the shoulder at a very slow speed until you can exit—or at least to an area of the road where you can safely pull off the road (which to me is at least 15 to 20 feet from the edge of the freeway). Ideally, you want to exit and get to a safe location out of sight of the freeway, where you can raise the car using the tools provided. A lighted area is preferable if this happens at night.

If you've never changed a flat before, let me encourage you to practice doing so in the safety and comfort of your garage or driveway. Become familiar with the tools and the procedure. Follow the directions given in the driver's manual. If you have children of or near driving age, demonstrate the technique to them and then let them duplicate the process. The last thing you want to do is figure out how to change a flat when you're pulled off the side of a road!

The owner's manual will tell you the exact location where you must place the jack in order to raise the vehicle safely. You can damage your car, or injure yourself, if you place it incorrectly. Here's another little hint: Always loosen (but don't remove) the lug nuts holding the wheel in place *before* you jack

up the car. It's much easier to remove the tire if you do it that way.

When putting the spare tire on, be sure to start each of the lug nuts by hand. Remember to put the beveled edge of the lug nut toward the wheel. Then, with your tire iron, tighten them in a star pattern. To do this, tighten one, then skip one, tighten one, then skip one. Eventually, all five nuts will be tight.

Most cars come with the wrench or tire iron you use to tighten the lug nuts. To make it easier to change the tire, position the wrench in such a way that you can stand on it, using your leg and body weight to loosen each lug nut. However, you do not want to do that while tightening the lug nuts (because you can over-tighten them). After tightening all of the lug nuts, drive 50 to 100 miles, then check them again to make sure they are still tight.

HOW TO JUMP-START A CAR

Jump-starting a car is actually controlling a spark. You're running an electrical current from one battery to another. That gives you two batteries with the potential



to vent acid gas. Therefore, a controlled spark of electricity reduces the risk of injury and/or damage.

What we mean by “venting” is that it’s not uncommon for battery fumes from the acid inside to slowly leak from the top of the battery. Since acid is explosive, you could potentially blow up the battery if you don’t control that spark. And if your face happens to be in the vicinity at the time, bad things could happen. If you have safety glasses, it would be a good idea to wear them when you jump-start a car. Safety glasses are about \$1.50 at most places. I keep a pair in my vehicle for just such a situation.

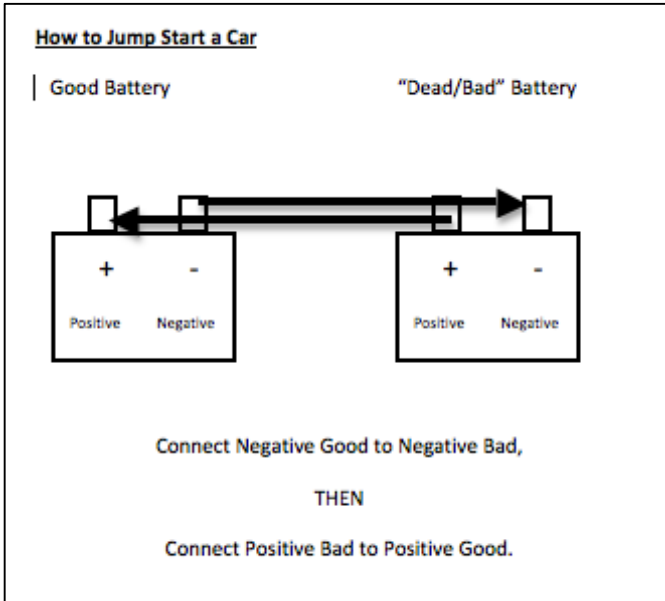
Here’s how to properly jump-start a car:

1. Connect the jumper cable to the ground (negative terminal) of the “good” battery.
2. Connect the other end of that cable to the ground (negative terminal) of the “bad” battery.
3. Connect the other side of the cable to the positive terminal of the “bad” battery.
4. Connect the final cable to the positive terminal of the “good” battery.
5. Have the driver of the “bad” car start the engine. It should start right up.
6. Carefully remove the cables in reverse order.

Jump-starting a car essentially uses electricity from the good battery to power the bad one, thus making an electrical circuit. Making the last connection to the positive terminal of

MAKING SMART CHOICES

your good battery will minimize the possibility of an uncontrolled spark, thus keeping you and your battery safe.



When jump-starting a car, remember the order: Good, Bad, Bad, Good.

HOW TO MANAGE A BREAKDOWN

You should be familiar enough with your gauges to know what “normal” is, so when the gauges are not within normal range, you will realize something is wrong.

When you are driving, and begin to feel something about the function of your car that you are unsure about, or hear a new noise, cautiously move into the right lane. You do *not* want your

vehicle to be disabled in the left lane or in the median of a freeway. Always try to get to a safe location to manage a breakdown—not only for your sake, but also for that of your passengers and your car.

If your vehicle begins to overheat, the gauges will indicate it, so keep an eye on them. If your vehicle *is* overheating, turn the engine off as soon as possible.

The second thing you should do during a breakdown is to make a call. These days most people carry cell phones. I recommend you keep numbers for a towing company, motor club or repair shop in your phone for such an emergency.

Make sure you're in a safe spot and keep passengers a safe distance from the highway as you wait for help to arrive. This will decrease your risk of an accident.

Managing a breakdown, though sometimes nerve-racking and always inconvenient, is not that complicated. Try to remember the following:

1. Don't panic!
2. Think "safety."
3. Call for assistance.

HOW TO MANAGE AN ACCIDENT

Having an accident is always an emotional situation—whether that emotion is anger, frustration, fear, sorrow, anxiety, worry or panic. Even something as minor as a fender-bender or a

slow-speed parking lot accident can be enough to create emotion. Try to remain calm.



When you are in an accident, the first thing you need to realize is that insurance companies are the ones who typically

investigate the accident to determine fault—so don't assume or admit that you are the guilty party. Being in an emotional state or in a state of shock can skew your perception of the accident. Let them do their job.

Next, get to a safe location if possible. Pull to the side of the road away from any other traffic if possible. Then, call the police. Once they are on their way, exchange insurance information with the other driver. You probably don't need to worry about writing any information down—just use your cell phone to take pictures of their driver's license, their car, them, and the area. Make sure you get proof of insurance from the other driver, take a photo of that too. You may want to back up and get some photos of the overall accident, showing the area, road signs, weather, etc. so that you can paint a full picture for the insurance companies if needed. If they have the necessary

information available at the scene, call immediately to verify that they do have coverage. Just because the paper says they are covered doesn't mean they are. You should have your insurance information in the glove compartment to give the other party.

For most states, unless there's bodily injury, you should remove the vehicle from the road. You can get a ticket for obstruction of traffic if you keep your car on the road when there's no personal injury. Remove your car to a safe place and proceed to work out the details with the other party as you await the arrival of the police.

Tow trucks dispatched by the police are under contract with the police. They will tow your vehicle to their impound lot and charge you a considerable amount to keep it there. (In fact, that's how most tow companies make their money—through storage from accidents. They make more money from storing your vehicle than from towing it.)

Instead, have a company tow the vehicle to your repair facility. Most repair facilities allow cars to remain there, free of charge, while the insurance company details are resolved. This will save you hundreds of dollars in storage fees.

If the police dispatch a towing company to the scene, you have the right to ask them to tow it to your home or to your repair shop. Do *not* allow them to tow it to their impound lot. If they do, you'll pay exorbitantly for it.

HOW TO MANAGE BEING STUCK IN TRAFFIC

The one thing you want to avoid is becoming trapped behind the car in front of you. The way I avoid that is to stop far enough behind that I can still see their rear tires touching the pavement. That way, I can maneuver around it if I need to.

You've heard of, or perhaps have been a part of, a pile up where one car rams into the car in front of them and it causes a domino effect. If you leave enough space between you and the car in front of you, you're not trapped; you can swing your car to either side and avoid being rammed from behind.

Sometimes traffic jams simply cannot be avoided. That's another reason to keep more than a quarter tank of gas in your car. You don't want to run out at a time like that.

Always watch your temperature gauge when you're stopped in traffic. Most cars are designed to be able to idle indefinitely—even with the air conditioning on. Still, you need to watch that gauge. If you notice your engine heating up, roll your windows down and turn off the air conditioning.

Traffic jams happen in the winter, as well. Some states require you to have a safety kit in your vehicle. The kit usually contains items like bottled water, a blanket, and a flashlight. It's not a bad idea. You never know when you'll be caught in traffic, or how long it will take to clear the roads.

HOW TO DRIVE ON SNOW AND ICE

Snow and ice certainly provide challenges to drivers. When driving on snow you need increased traction. That's why four-wheel-drive vehicles (or front-wheel-drive vehicles) get around better—simply because of their superior traction.

In deep snow, one tip that might come in handy is to lower the air pressure in your tires to about 25 pounds of pressure. You still won't be able to drive fast, but since there's more rubber on the road, you'll notice an improvement in your ability to negotiate snowy road conditions.

We learned years ago to gently pump the brakes in the snow, but the best advice I can offer is to drive as though you had an egg under the gas and brake pedals. Accelerate slowly and brake gently. Don't push on the pedals too strongly. You'll break the eggs!

HOW TO BUY A USED CAR

Buying a used car can be risky business. Let me offer some strategies that might prove helpful in that situation.

First, do your homework. Look online, read consumer magazines, peruse some used car lots, investigate the For Sale ads in your newspaper and check out Kelly Blue Book for reasonable pricing. Take all the time you need to figure out exactly what you're interested in—make, model and even options.

Once you've narrowed your search, it's time to find that perfect vehicle—whether you intend to buy from an individual or a car dealership. Study the car, walk around it and look at it from different angles. Once you finish assessing the cosmetic aspects, then sit behind the steering wheel. Touch everything you can touch. Check out the wipers, the radio, the heat and air, the glove box and the lights. Make sure everything works, including turn signals, power windows, power locks, power seats, rear wipers, and so on.

If everything checks out, let the seller know you'd like to take about 45 minutes to an hour to road test this car. If they want to ride with you, that's fine, but make sure they're willing for you to spend the time you need.

Most people drive the car around the block or spend ten minutes driving up the road and back and say, "I'll take it"—but not you. You're too savvy for that. During your test drive, listen to the vehicle. Notice the way it feels, handles and steers. You don't have to be an automotive mechanic to know if something is not quite right.

If you hear a noise that concerns you, or there's a shake or shimmy in the steering, or anything else that doesn't quite seem right, then make note of it. Spend time driving both on the freeway at highway speeds and in town at normal speeds. See how the vehicle take corners, slows, stops, accelerates—just as you would drive the vehicle on any given day.

Use your senses. Don't play the radio. Make sure the radio plays, then turn it off and listen. Use your five senses to note if anything seems abnormal.

If everything checks out, move to the next step—take it to an ASE-certified technician for a used-car inspection. This will include having a trained technician inspect the exterior and interior of the car, take it for a drive, bring it back into the bay and raise it up to do a more thorough inspection. The technician will know exactly the kinds of things to look for, the kinds of things that could signal a future problem. And when you get an “all clear” from someone who truly knows what they're doing, it will give you great confidence.

Through this process, the ASE-certified technician can help you make a decision about repairs that may need to be done now or in the near future and can tell you the costs of those repairs.

That will give you greater wisdom and leverage in making an offer to the seller. Once you decide to buy this particular car, you're ready for the final step—making the deal.

You should not talk about price, or make any offer until you have taken all these steps. Then you'll be able to approach the seller and tell them, “I'd like to buy this car. I've had it inspected and here is the estimate of the items that need attention before I consider it to be in satisfactory condition. With that in mind, I'm willing to pay this amount for it—and if that's agreeable with you, I'm ready to buy it today.”

THAT is the right way to buy a vehicle. Constrain your emotions, have a certified technician inspect it and know what you are getting into before you make an offer. By following this process, you will save yourself from some unpleasant surprises that could cost you a lot of money.

HOW TO FIND A GOOD REPAIR SHOP

If you're moving out of your current area, one of the best actions you could take in finding a reliable new repair shop is to ask your current one. Most shops are in some kind of network or association and they may know a good shop in the area where you're relocating.

If you're looking to find a reliable repair shop in your current locale, here are some tips about finding one you'll be happy with. Do some investigation. Ask others if they're satisfied with their shops. Check with your local Better Business Bureau.

When you've narrowed down your choices, move to the next step. Make an appointment for something relatively simple and easy—a tire rotation, or an oil change. While you're on the phone, or when you take your car in, try to find out if they're willing to spend time with you and answer all your questions. If they're condescending or short with you, hang up or walk out. They obviously don't care about you or your car. When choosing a shop, you want someone who will treat you as if you are the

only car in their service bays today. That's the first thing you're looking for, the Number One item on your list.

On that call or visit, find out if their technicians are ASE-certified and if they are required to participate in continuing education/training. Ascertain to what extent they service your particular make and model. Do they have the software to communicate with the computer systems on your vehicle? Do they have the specialized tools your car may require?

Ask them if they utilize any system of reminders to let you know when it's time for service. Do they have a schedule in place to keep your car well maintained?

Ask if they're willing to show you your old parts. Can they show you photographs of what they've done? Are they willing to give you options about what gets fixed now and what can wait?

What is their warranty? How do they back it up? You want to see their warranty, so when you go in for that oil change, ask for a copy. There can be all kinds of catches, and many shops only offer a 1- or 2-year, 12,000 or 24,000-mile warranty. If possible, you want to find a shop like mine that offers a 3-year, 36,000-mile *nationwide* warranty. I told earlier you that with my warranty, if you bought a water pump from me two years ago, and it goes bad when you're in the middle of Texas, I'm going to call the nearest shop, arrange to have your car towed in, put it on my credit card and put you in a hotel room for the night, if

necessary. You may not find that everywhere, but it's something you can reach for.

When you take your car in, tell them you'll wait for it. While you're waiting, look and listen. You can learn a lot by simply doing that. Is the shop clean? If the shop's filthy, that's how your car's going to look when you pick it up. How do the employees interact with each other and with the other customers? Notice how they answer the phone. If possible, watch the way they handle your car. It won't take long before you arrive at an opinion about how professionally they run their shop. That can go a long way in helping you make a decision.

Compare the shops you visit. Make an informed decision and choose the one that best meets your needs.

IN SUMMARY: THE QUESTIONS TO ASK A SHOP

If you are not able to visit the repair shop, a phone call may need to suffice. If so, here are the questions you can ask any shop. (As a word of caution, let me say that it's extremely dangerous to choose a shop based on their pricing. There's too



much room for misunderstanding and manipulation if price is your only criteria.) That's why I advise you to ask these questions and compare the answers you receive:

1. Are your technicians ASE-Certified and do you have any ASE Master Technicians?
2. Do you provide a free round-trip shuttle or loaner vehicle?
3. Do you provide the old parts and photographs of your work?
4. Do you conduct a free inspection with all services?
5. Do you offer options for needed services and explain which are most urgent or important?
6. What is your warranty? Is it nationwide? How do you back it up?
7. What happens if I have trouble when you're closed?

These questions will successfully point you to the best shop in your area.

APPENDIX: EXTENDED WARRANTIES

First, extended warranties are all over the board. A dealership typically offers two types. One is the type the manufacturer offers, so if I bought a Subaru, it would be a Subaru extended warranty. If I bought a GM, it would be a GM extended warranty. The dealership also offers an “after-market extended warranty.” That is usually serviced by a company whose sole product is extended warranties.

For whatever reason, most after-market extended warranty companies are located or originated in the St. Louis area. The St. Louis Better Business Bureau and the St. Louis Attorney General spend significant time dealing with these companies because of consumer complaints.

ConsumerAffairs.com says, “From what we’ve heard, we suspect that most extended warranties are a waste of money that could be better spent on performing exquisite maintenance, still the best insurance of trouble-free motoring.” They also said, “Sixty-five percent (or more than 8,000) *Consumer Reports* readers surveyed by the Consumer Reports National Research Center in the winter of 2011 said they spent significantly more for a new car warranty than they got back in repair cost savings” (http://www.consumeraffairs.com/news04/2005/extended_warraanty.html). That is very common.

There are even conventions for these companies that teach how to sell an extended warranty. The following information is from the website, *WarrantyInnovations.com*. The whole purpose of the convention, throughout all their breakout sessions and their main course, was this—and this is in the notes of the meeting!

“The discussion will also include ways to leverage systems and data to drive extended warranty sales, how to build a recurring revenue stream with extended warranties in maintenance, lower costs, and claims against your program and how to better work with your insurance and our administrator.”

That information clearly states that their intent is to sell more warranties and reduce the number of claims. Extended warranties are a contract, and I learned a long time ago that contracts are usually written in favor of those who write them.

Without question, extended warranty contracts are not good for the consumer. Can you find people who have been able to save money in buying an extended warranty? Yes, you can. The response rate, according to *Consumer Reports*, is about one in five—so about 20% said they had a net savings.

The *Consumer Reports* study basically says that when you're buying a car, it is better *not* to buy an extended warranty, but instead use those dollars to maintain your vehicle. In the survey, respondents cited warranty costs of \$1,000 on average that provided benefits of \$700—a \$300 loss. Forty-two percent

of extended warranties were never used, and only about a third of all respondents used their plan to cover a serious problem.

There are also exclusions from coverage by an extended warranty. So, even though you purchased the warranty, you're still going to have to pay for repairs that are not covered. Beware, because there is a lot of fine print in those contracts. Read it carefully, if you're considering purchasing a warranty.

Most extended warranties give the warranty company the option of putting used parts on your car. So if your transmission goes out, instead of getting a new transmission, you could get a used one—one out of a salvage yard or from a recycler. It's their choice, not yours. That's scary, but it saves them money.

APPENDIX: EXTENDED WARRANTIES

ABOUT THE AUTHOR

Scott was born and raised in the San Fernando Valley. He went off to Wyoming for college, but it only took him one year to realize that he was on the wrong track—he wanted to work with his hands instead. Returning to California, he began working in a local garage as a brake and front-end specialist. Scott’s interests grew over time: he added repair for high-performance racing engines, race suspensions, and boats to his repertoire. He met his wife Nancy at the shop where he worked (she was the bookkeeper).

A few years after they were married, Scott and Nancy started their own business by purchasing a local gas station. That one location grew to four within a few years, all four with attached service bays for auto repair.

In 2001, they exited the gas station business and opened an independent automotive care facility: Osborn’s Automotive. While running the shop, they created a software system that helps auto repair shops like Osborn’s to monitor employees’ work. This system ensures that customers receive only the services they need and don’t pay for anything more. The software is now being used by hundreds of shops in four countries.

Very proud parents, Scott and Nancy have two grown daughters, both of whom have earned their Master’s Degree.

ABOUT THE AUTHOR

Melissa is a Special Education Teacher and teaches kindergarten through second grade. Lindsay is an Occupational Therapist who has helped children, war veterans, and the elderly.