



Why Diagnostics are Important

Customer Education Sheet

I see this time and time again – someone has a problem with their car, and they want to know how much it is to fix it. In many cases this is pretty cut and dry, but quite often you need to figure out what’s actually causing the problem before you can even think about telling them how much it is to fix it. This is where diagnostics come in.

Diagnostics is one of the most important aspects of car repair, yet it tends to be the one thing that many people try their hardest to avoid. Why? There are a few reasons, usually. For one, diagnostics can be expensive, and it’s often charged by the hour. For two, the shop may not be able to tell you how long it will take them to find out what the problem is if it’s something complex. I can see why people are hesitant: you’re paying by the hour for an undetermined number of hours. Eek, that means your bill could be...who knows how much?!

Why Can’t a Shop Always Tell Me How Long it Takes to Diagnose it?

Let me illustrate it this way: in a nutshell, doing diagnostics simply means we are looking for the problem. It’s a lot like looking for a lost set of keys: you can’t really estimate how long it will take you to find them. You may have a rough idea of where to look, or you may not. It just takes the time it takes, as you have to keep looking until you find them.

Are Diagnostics Really Worth it?

Another thing about diagnostics that can make people hesitant is that you don’t get anything “tangible” in return. It’s not like getting a tune-up, where you can feel how much better your vehicle runs. After diagnostics, your car is probably still in the same condition it was in before. This can make it seem like you aren’t getting much value for your dollar, but trust me, you are. I’ve lost count of how many vehicles I’ve seen on Craigslist that have new spark plugs, new coils, a new ignition module, a new starter, a new battery, a new fuel filter, and a new fuel pump – and they’re selling it because it still doesn’t start. They may think they’re saving money by not having it looked at by a professional, but in all reality they just spent hundreds of dollars on parts that their car didn’t even need. In the auto industry we call this “throwing parts at it”, and it’s an expensive way of trying to fix a problem.

The Limitations of Trouble Codes

Small tangent here: that free code read at the parts store is not diagnostics, so don’t rely on that to tell you what’s wrong with your vehicle. Why? Because a code doesn’t tell you what actually failed; it only gives you a general idea of where to look for the problem (there are only a few small exceptions to this). For example, a code for “low charging system voltage” doesn’t always mean you need a new alternator. The battery terminals could be dirty, or the computer

that controls the alternator could have failed, a wire could've broke, etc. The code tells you where to look for the problem (in the charging system), but it doesn't tell you what the actual problem is. For that, someone needs to dig a bit deeper. And that someone is a diagnostician.

A Fun Example – The Case of the Haunted Engine

Here's a good one I got to see first-hand. First, let me set the scene: it was a dark, stormy night on a secluded country road...well ok, I kind of made up the dark secluded road part. The scene wasn't really that epic, but there is a pretty good twist in the story. It was an Accord, and it didn't run right.

A car can run bad for all kinds of reasons, so not much of a shocker there. But rather than get it diagnosed at a shop, the owners decided they could figure it out themselves. I don't know the exact details here, but apparently they were unable to find the problem. So, they finally decided that desperate times called for desperate measures, and they went ahead and put in a used, known good, replacement engine. Problem solved for sure, right?

And now for the shocker: after all that time, money, and energy spent swapping the engine, it *still* didn't run right. In fact, it ran *just as bad* as the old engine did. Like, literally exactly the same. Eerie, isn't it? That's about the point where they decided to just sell it and cut their losses rather than be haunted by a mysterious running issue that they couldn't fix. This is the point in the story where this car ended up sitting in our garage after the next guy bought it.

I get it, the previous owners tried everything they could think of and just didn't want to deal with it anymore. After all, if a replacement engine didn't fix the problem, then it would definitely be a challenge to figure it out – right? Actually, no. In fact, it's even easier to figure it out after that point. Think about it: they swapped the engine and that didn't fix it. That means that the engine is not at fault. This makes it pretty easy to figure it out now, because when you take the engine (and all of the parts that come with it) out of the equation, there aren't a lot of suspects left.

So what stays behind when you swap an engine? The big players here would be the ECM (engine control module), the fuel system, and the exhaust. That's three systems to check. It's always best to look at the easiest one first, so that meant the exhaust was the first to get checked. It was also the last, as that's where we found the problem.

Turns out the underlying cause of the problem wasn't the engine, it was the plugged exhaust system. And it was an easy check – all we did was feel how much exhaust came out of the tailpipe. It wasn't as much as it should've been, and a flashlight to look inside revealed that it was clogged with debris from a failed catalytic converter. That's why it still didn't run right even after they put in a known good engine. It's unfortunate, but it really helps illustrate the point I'm trying to make: getting an issue diagnosed properly is crucial. Guess and check just doesn't work in the automotive industry, as parts are usually too expensive to play that game.