

## What It's Really Like to Work on a Mercedes at Home

Qualifying boilerplate being the *de facto* opening act for these kinds of articles, I will begin by saying I am not a mechanic. I have never taken any automotive technician courses. The extent of my technical, by-the-book knowledge about working on cars comes from YouTube and the second-hand Haynes manuals I buy on eBay because I'm too cheap to spring for the \$20 ones at AutoZone. My experience came from fixing things that weren't broke on my 2012 Silverado, fixing things that definitely were broke on my 1992 Ranger, and, of course, getting the 1950 Rocket 88 running and driving with Dad. 27 years of shade-tree stuff. Old-school. Ratchets. Wrenches. Duct-tape. Beer.

However, as anyone with a modicum of repair know-how and at least one friend knows, my non-car friends often call me a 'mechanic'. And, you know what? *I like it*. I haven't earned it, but I bask in it all the same. Sure, the navy coveralls I bought on Amazon so I could cosplay in the driveway on weekends probably doesn't help dispel that image, but I can hide all day long behind the bulwark of practicality.

And you know something? Every once in a while a friend, knowing I'm at least semi-knowledgeable about things automotive, will come to me, usually with that I-haven't-flossed-and-I'm-scared-the-dentist-will-yell-at-me look that says they haven't been taking care of their car, and now it's making scary noises, and could I maybe take a look?

"Hey you know about cars, right?"

"My brakes are making a weird noise, do you know what that's about?"

"My car ran out of oil the other day and now it's making a clicking sound, how much will that cost me d'you think?"

In order: kind of, they're probably worn, and I'm sorry for your loss, could you see yourself in a Corolla?

I have replaced many brake pads and rotors. I have changed many oils. Once, on a first date, the gauge cluster in the girl's car started flickering and her car died. I jumped it with my pickup, and it wouldn't hold a charge. "Bad battery," I proclaimed, smug in what Nick Tosches would call my *pseudo-connoisseurship*. She had her doubts, probably because batteries are expensive and hope springs eternal for a cheap fix. The next day she took it in, and the professional diagnosis came back: bad battery. Sweet vindication. Don't think there was a second date.

I rarely if ever charge these people because yes, I like doing people a good turn when I can, but also because the work is just so *satisfying*. Having a skill that people value is satisfying, especially if most people look on that skill with the same utter lack of comprehension that some members of my extended family have when they see commercials for *RuPaul's Drag Race*. So when my friend Roger's 2008 Mercedes C300 stopped running and he discovered it needed nearly \$11,000 of work at the dealership, he asked if I, or we, could do anything about it. My response was a resounding hell yes, we can! Let's show the world that with a few tools, the average joe can still save a buck and stick it to the man!

Now, the attention due the car had lapsed, mostly because Roger had lent it to a friend long-term and hadn't been driving it himself much lately. One day, it wouldn't start, and protested loudly when you tried. And Roger, ever possessed of the perfect stoichiometric composition of inquisitiveness and enterprise, knows how to save a buck. He always wants to learn something new, and unlike *pseudo-*

*connoisseurs* like myself, he's willing to put in the leg work to learn it. So when he asked if we could take a look at some of the components that needed changing, if we could do it ourselves and make it a learning project for the both of us, I was all in. I would show him what I knew, and what I didn't, we would figure out. I've always held that fixing cars, when you strip away all the frills and pretense, is just turning the right wrenches.

The list of things wrong, and the dealer quote, and the little voice in my head, were as follows:

- Replace left and right thrust arm - \$643.01 – What is a thrust arm? Off to a great start.
- Replace both engine mounts - \$1,430.90 – Okay, I know what those are at least. I also know it's hard.
- Replace transmission mount - \$307.45 – Never done it, but, uhh, probably not hard...?
- Perform alignment - \$139.00 – Nope, know for sure I can't do that one.
- Replace rear brake pads – \$294.05 – Easy peasy.
- Replace both front sway-bar links – \$496.80 – Seems manageable.
- Recommend replace power steering pump and flush - \$1,752.04 – Pretty straightforward, but wow, that's a lot.
- Recommend replace belt tensioner - \$673.05 – That's no so b-... *six hundred* dollars?
- Recommend replace intake manifold - \$2,610.06 – Intake manifold, that's right on top of the engine! Easy!
- Recommend oil flush - \$149.95 – Ehh... messy.
- Brake fluid change – \$165.95 – See above.
- Recommend replace idler pulley - \$168.05 – That's on the front, so that shouldn't be hard.
- Recommend replace oil filter housing - \$1,335.07 – Housing? Doesn't the filter just stick out the crankcase on the bottom of the engine? (Update: it doesn't.)
- Recommend replace spark plugs - \$510.95 – They want how much to change the *spark plugs*?

Total: \$10,676.33.

Oof.

Before we decided to embark on our adventure, Roger already had the dealership do the P/S pump and the tensioner. Everything else, he left to me to decide whether we could do it or if we should leave it to the professionals. And with the exception of the oil and brake fluid flush (because I'm not looking to recreate Exxon-Valdez in my driveway) and the alignment (because I don't have one of those fun disco-laser machines like at Firestone), we decided to do it all. After all, we have a set of wrenches and a driveway, how hard can it be? Grandpa used to do this kind of thing all the time!

Turns out, pretty challenging. Not impossible... but challenging.

I set about gathering the tools I thought we would need. Mercedes uses inverted Torx bolts, and of course I didn't have any inverted Torx sockets. We would also need sundry other basic tools I just didn't have yet, like a torque wrench in ft-lbs, a breaker bar, and some other staples. I ordered everything we would need on Pelican Parts, including some replacement air intake shrouds, some fuel injector seals, and a thermostat housing gasket, for a total of \$927.76. So far, so good.

The intake manifold was going to be the *coup de théâtre* of the engine work (I hesitate to even say engine work because we weren't opening up any of the internals, but the intake manifold is part of the engine, and my fragile ego needs to be able to hitch up my belt and say *Ayup, I worked on a Mercedes engine this weekend*). My initial impression that it was on top of the engine was, mercifully, correct. After all, it's a V-configuration, and there's really only one place an intake manifold can go in an engine like that—right in the valley between the cylinder banks. Just like the Rocket 88 engine from 1950! See, this wouldn't be so hard!

The difference was that on the Oldsmobile, from bottom to top, you had:

intake-manifold > throttle body > carburetor > air cleaner.

The Mercedes, however, went more something like:

intake manifold > wires > throttle body > big-ass computer board > more wires > the fuel rails > a big plastic cover because naked engines are as offensive to the modern eye as bare ankles were to Regency England > man, there are a lot of wires on this engine > filter housing > air intake shrouds.

We were playing a new ball game here. The age-old adages I used to hear from Dad growing up rang in my head. *It's hard to work on cars now like you used to could. It's all a bunch of computer-controlled stuff now. Repair bills on foreign cars will kill you.* In opening the hood on the C-Class, all of these were proven true.

But I am stubborn. I don't like to be beaten. I will, and have, spent more money doing something myself than it would be to take it in, just on principle. And come hell or high water, I was going to fix this Mercedes. So, we set to work.

Spark plugs were first. It was exactly like changing spark plugs in any coil-on-plug car. Coils come off. Spark plugs come out. Spark plugs go in. Coils go on. Bingo bango. Five hundred dollars in your pocket.

Next was the idler pulley. One bolt off, one bolt on. One hundred and sixty eight dollars saved. This just might be worth it after all.

Now the intake manifold. Well, there's a seven-layer-dip of obstacles in the way, so we started unbolting and unclipping everything that seemed like it may need to be moved and bungee-corded it to the hood. But what's this? The air pump is in the way, too! Why does a car need an air pump? Does this thing have onboard tire-inflators like a Humvee? I don't think I've ever had a car with an air pump. Well, off it goes.

And so we continued, until finally, the treasure was laid bare. The intake manifold, once freed of its bolts, came off without much protest, a watermelon-sized artifact we had excavated from the depths. Dramatic? Absolutely. But once the intake manifold comes off, you realize that you're pretty well on your way to honest-to-God working on a car. A *Mercedes-Benz*, no less. In a driveway, with hand tools. It was an exciting moment.

Now, I've heard people complain about modern Mercedes and say they're not the same cars they used to be. They're more cheaply built, they're cutting corners, normal stuff you read on any online forum. I don't know if it's true or not, I don't know the cars that well, but I will say this: they must have melted down a bunch of He-Man action figures from the 1980s and reused the plastic to make these intake

manifold parts, because they were *bad*. You see, this manifold is what's called- get ready for it- a **VARIABLE LENGTH INTAKE RUNNER MANIFOLD**. In car-guy terms, this means the engine will change the geometry of the intake runners to affect performance under different conditions by (you guessed it) computer-controlled servos adjusting various valves. In layman's terms, it means flimsy plastic parts that are supposed to make your car work better break, and make it work worse.

To save money, we did not buy a whole new manifold. We bought another plastic part to replace the one that broke, cleaned it up, put the new gasket on, and dropped that sucker back in. Sure, I over-torqued one of the old bolts and the head broke off, sending me to AutoZone to replace all of them with normal hex heads and washers. Cue the rage of Forum Race-Dad. Whatever, I'm not building a race engine here. \$2,600 in the bank.

And so it went. Fuel injector seals (slathered with Dawn dish soap, of course) and a new oil filter housing and gasket went on. Weird that the oil filter is right there, front and center, but not a hard swap. \$1,335 kept from the snarling clutches of the stealership.

Then came the underside of the car. Brake pads and tie-rod ends, no problem. Thrust arms had tight bolts, but that's what a breaker bar is for, right? Also, I learned what thrust arms are. (Control arms. They're rear control arms.)

Then, the motor mounts.

Now, I knew this would be hard, likely the hardest part of our little backyard surgery. It was kind of scary, to be honest, mostly because it wasn't my car, and here we were jacking up the engine. The engine! Typically considered a pretty important part.

The plan was this: Get a long extension and undo the bolts holding the mount in from the top. Undo the two bolts holding it in from the bottom. Repeat for the other side. Jack up the engine from the bottom. Slide mounts out. Slide new mounts in. Set engine back down. Bolt mounts back in. Be done. And really, that's pretty much what happened. Only thing was, each of those steps took a very long time, because we were working with tools we had on hand, and some of the clearances were very, very tight. We eventually buckled and bought a set of ratcheting end-wrenches after spending the better part of 30 minutes getting one out with a normal box wrench, totally blind, a twelfth of a turn at a time. Also, just getting the clearance to get the old mounts through all the power steering lines, frame rails, and other miscellany once they were unbolted was surprisingly challenging. But we found a way. After that, the single transmission mount was a piece of cake. \$1,430. Cha-ching.

I'm happy to say that we did it, and managed to save thousands of dollars in repairs in the process. Sure, we spent on tools, but we still came out way, way on top. We also learned a lot on the way. I'd never changed engine mounts before, for example. But before I go proclaiming total victory and shouting from the rooftops that the age of the everyman mechanic has returned, there are a few qualifications I should make.

As much as I would like to say that anyone can repair their own car nowadays, the simple truth that I have been hearing my entire life is true: cars are harder to work on than they used to be. Not impossible, but harder, and not just because of computer diagnostics, sensors, and stubborn check engine lights. The entire time we were working, I got the sense that I wasn't supposed to be poking around in there. Plastic engine covers shield you, the consumer, from the mysterious inner workings of

your engine. Want to take something apart? Sure thing! First spend fifteen minutes removing twelve pieces of plastic faring. Oh, and you'll just need to go buy a new socket set; grandpa's old tools are no good here, sonny. And you have an OBDII scan tool, right? No? Well, better leave this one to the professionals.

This is surely not shocking to anyone reading this. But, as I said earlier, I am stubborn, and I had to see for myself. Does that mean you shouldn't work on it if you have the time and gumption? Absolutely not. Go forth and get dirty. But will you be able to do it with a screwdriver, pliers, and rusty can of WD-40 like grandpa used to? I doubt it.

This is all a natural next step of the trajectory cars have taken. When engines went from flat-heads to overhead-valve, they got more complicated. When they went from carbureted to fuel-injected, they got more complicated. When the ubiquitous manual transmission gave way to the increasing availability of automatics, cars got more complicated. And when they threw computers in there... you guessed it. So what do you do?

My advice? You do what car enthusiasts have always done. Go out there, figure it out, and for God's sake, have a beer when you're done. I bet you Grandpa probably would have.