

RANDOM MISFIRE

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VOLTAGE DROP: WHAT'S THE BIG DEAL?

When some hear the term "voltage drop" they think of starting system circuits because that is the system where they learned about voltage drops. At the same time, these technicians may fear the term because it brings on images of Ohm's law calculations and more.

For those of you who don't shy away from the voltage drop issue... congratulations! You have the right mindset to diagnose electrical problems.

For those of you who fit the description mentioned in the first paragraph of this article, listen up.

Voltage drops and Ohm's law are basics. All automotive electrical concepts are built on these basics. An understanding of these basics is essential to accurately

diagnose problems, simple or complex.

Let's look at a simple TPS circuit. Most TPS voltages are around a volt at closed throttle and 4.5 volts at WOT. Look at a scan tool and you can see that information. But what if there is a bad TPS signal? Is the TPS automatically bad?

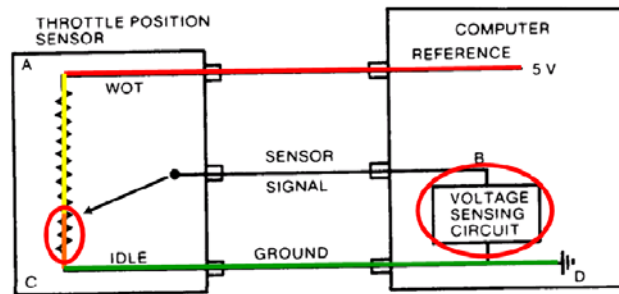
I hate to brake it to you fearful ones, but the PCM is actually measuring a voltage drop.

Understanding these concepts, and knowing how to connect you test equipment correctly, is key.

The basics are the foundation. Without a foundation your house falls down.

I don't know about you, but if I have to brake out a pencil and paper from time to time to insure my diagnosis is correct I do it.

Good technicians do the same.



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Points of interest:

- Join our mailing list. Fill out the form on our contact page go to: www.driveabilityguys.com
- DECS software update coming soon... be sure to register your software.
- DOT shirts are gone. If you want one, email Bob so we can determine if we need to put in another order. Sorry John!
- Contact us if you are interested in having us train at your event.

OUR FEB/MAR TRAINING SPREE IS OVER!

Thank you to all of the coordinators, vendors, instructors and attendees that have been moving around the Midwest to make events such as Vision and Tech Expo happen.

Let's not forget the involve-

ment of the ASA. All parties involved deserve kudos!

The training and networking opportunities have been abundant these last two months. We can only hope to continue being a part of it.

It is satisfying to see the participation and the respect shared among this myriad of automotive professionals.

Thank you all, and continue to strive to make this industry's image a positive one.

DECS UPDATE COMING SOON!

DECS software has been around for over a year. Initial response to its diagnostic value has been good. However, The Driveability Guys are open to constructive criticism. Input provided throughout the year have been taken into account. The result is a better, and more accurate software package.

Here are some of the changes you can expect to see:

1. The VE calculation has incorporated atmospheric conditions such as: temperature, barometric pressure and relative humidity.
2. Additions to the conversion calculator section.
3. Minor corrections to the Lambda calculator and the pre/post CO calculation.

Version 2.0 is still available at www.aeswave.com. In order to receive your free update to version 2.1, all you have to do is

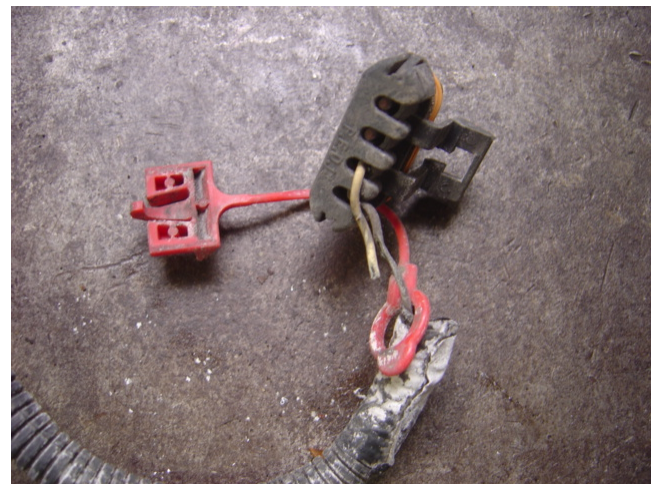
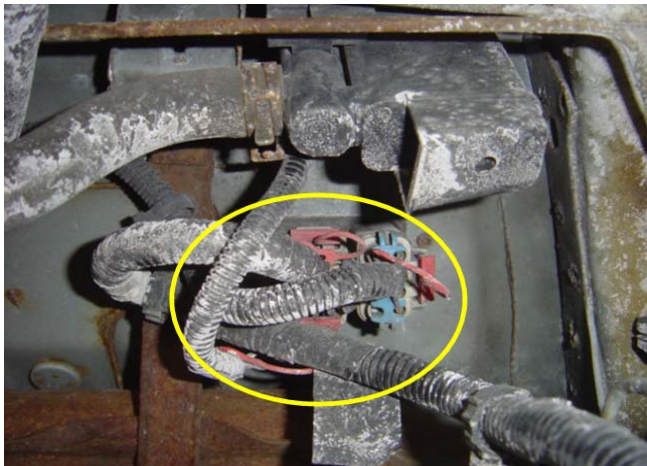
register your V2.0. If you don't own DECS, pick up a copy and register. Registered DECS users will receive an update via email soon!

GENERAL MOTORS J BODY P0440

A common problem on many J body GM cars, Cavaliers and Sunfires for example, often have a harness routing issue that can eventually lead to MIL illumination and a P0440 code.

In many of these cases, the twisted harness installation causes wires to brake where the EVAP vent solenoid and fuel pump module electrical connectors go through the floor pan just to the rear of the fuel tank.

The aforementioned wire breakage does not allow the PCM



to energize the vent solenoid. If the solenoid does not close, vacuum cannot build in the fuel system and BING! P0440.

The fix is to repair the wires, command the vent solenoid closed with a scan tool, and flow test the system with a smoke machine. Nine times out of ten this simple repair can eliminate the P0440.

Quick, easy and non-intrusive test points expedite diagnostic efficiency

One of the most important diagnostic skills an automotive technician can master is finding the quickest, easiest, and most non-intrusive test point for a particular component. Learning this skill will save time and frustration. For example, in the case of a General Motors fuel pump where do you test?



The fuel pump test lead, in conjunction with a low amperage probe and scope, directly meets the criteria of quick, easy and efficient. Well... that test lead is no longer available on most GM vehicles. Given this change, where is the best place to tap in to the fuel pump circuit now? Getting to the fuel pump connector, or wiring, can be a pain in the neck and sometimes near impossible.

My next choice would be the fuel pump relay because of its ease of access. However, it isn't the most non-

intrusive place because one could damage the fuse box terminals pretty easily. Thankfully, some GM vehicles have now reintroduced a fuel pump test terminal in the fuse box next to the fuel pump relay which is a great place to start your fuel pump diagnostics.

My ultimate point: sometimes the most practical place to test a component isn't always the most convenient one. What do we do in this situation? Choose the most convenient place to test first. If the problem is found, a lot of time is saved and the amount of work is reduced. If the problem wasn't found, then just move on down the circuit to the next best test point until the problem is found.

This approach isn't always the best choice. An example of this would be a known high failure part such as a DPFE sensor. It would be more practical to test directly at that part, even if is hard to get to, and be able to verify that the circuits to the sensor are good. Confirmation that the pattern failure sensor itself is bad rather than doing multiple tests at different locations can save valuable time.

Once you get a knack for finding those quick, easy and non-intrusive testing locations, you will find that your diagnostic work will become quicker and less labor intensive. Just be sure to use your knowledge as a guide. Easy access or pattern failure? Experience with a system or the learning curve of something unfamiliar? These are considerations to keep in mind. Approaching each situation in a smart manner is your biggest asset.

Travis Dewitz
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Diagnostic manual and case study resource...

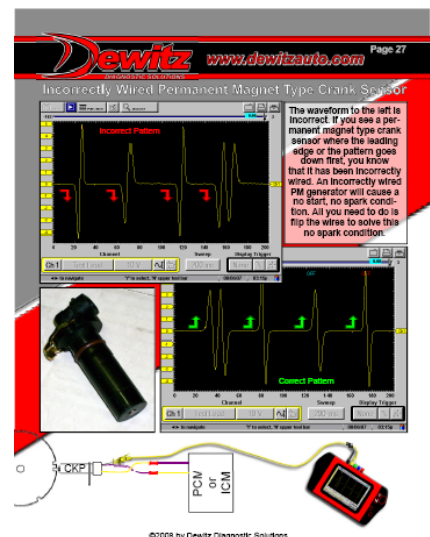
Travis Dewitz, of Dewitz Truck and Auto Repair, has put together a website to benefit automotive technicians. The site is full of case studies and valuable diagnostic information. Go ahead and snoop

around the site. Hopefully the information that Travis is sharing can teach you something, and ultimately make you a better technician. Don't ever pass up the chance to learn!

Travis also is offering a "Automotive Scan Tool, Scope, and Waveform Training Manual." If you want to sharpen up on your diagnostic skills it is definitely worth a look.

Information about this manual is available at:

http://www.dewitzauto.com/Training_Manual.html



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JUST FOR FUN... FORGET MUTUAL FUNDS... I'M BUYING OLD STUFF!



This car was bought for about five hundred bucks in the seventies. It has basically remained in storage since its purchase. The time arose for the owner to liquidate this asset and it was sold in the condition that you see in the photos.

I look at his car and see potential, but not huge value. However, the muscle car market has been huge the last hand full of years (mainly due to baby boomers looking to relive their youth.)

That being said, what do you think this car sold for? \$5,000? \$10,000? Try \$40,000! Yes 40K.

Holy crap! It makes me wonder if I should have kept my 1984 Bronco II in storage. Or maybe I shouldn't have sent that Cadillac Cimarron to the crusher last year. Even the car my wife drove while we were dating, an 86 Cavalier, might be an investment if we would have hung on.

Hell... I'm selling all of my mutual funds, stock shares, etc. to buy old crap. Maybe some day I can cash in.

Really... I won't. But doesn't the thought make you a bit sick?

