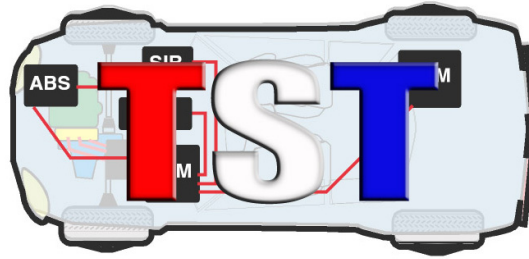


November 2013



Technicians Service Training

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"Malibu DTCs P0106—P0171 - P0461—Fixed With No Parts" P. 11 - 12

Upcoming Seminars:

Jan 13th - 16th 2014

Bill Fulton

Diagnostic Strategies On Broken Cars - Symptom To System Based Diagnostics Beyond Pattern Failures

March 22nd (Saturday) Big Event Fishkill NY

Instructors:

Wayne Colonna *Driveability & Transmissions Tips*

Paul "Scanner" Danner *No Start Diagnosis*

May 12th -16th

Dave Hobbs

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Editor

"G" Jerry Truglia

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"Relative Compression from The Driver's Seat"

This easy concept came to me as I was explaining Relative Compression to a class that I was teaching in Massachusetts. I was showing and explaining how to perform this test using a labscope coupled to AC volts, that I connected to the battery B+ and Neg -

post of the battery, while cranking the engine over. I continued on to explain that this test can also be performed using an amp clamp attached to one of the battery cables as well. Then one of my students asked

the following question, since you said this was testing a voltage drop that we were observing with the scope, how about if we connected the scope to the BOB you showed us? I thought about it and responded back to Jeffery Allan Clark who asked the question that I believe he was on to something. I had never really thought about performing the test using a BOB.



(Con't on page 3)

*Technicians Service Training***11 Lupi Plaza****Mahopac, NY 10541****Phone:** (845) 628-6928**Fax:** (845) 628-9109**Email:****Info@tstseminars.org****TST on YouTube...type
in tstseminars**

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Information contained in this newsletter is intended for use by professional auto repair technicians familiar with approved vehicle repair procedures. The authors are not responsible for physical injury or property damage resulting from the incorrect application of information or procedures outlined in this volume.

Currently there are **TST chapters in Connecticut, Massachusetts, New Jersey, New York** and membership continues to grow. For more information you can call

*Technicians Service Training***TST headquarters at:****(845) 628-6928****www.TSTseminars.org*****What is TST?***

TST is a group of dedicated technicians and instructors committed to the continuing education of our fellow technicians. We provide once a month training seminars to technicians at a reasonable price. TST brings our members nationally known instructors and state of the art training.

Our Goal & Mission Statement

- *Keep our fellow technicians up to date with the latest technology.*
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- *Deliver information that the technician can use now.*
- *Keep technicians informed of information affecting our industry.*
- *Increase consumer awareness of what a good technician is.*

Why join TST?

TST membership includes special pricing on weekday night seminars and the occasional full Saturday seminar. With a \$75.00 yearly membership, the monthly seminars are only \$65.00. TST seminars are NOT sales or product seminars. The instructors that TST brings in are all “hands-on” industry experts with up to date, cutting edge knowledge that you can use in your shop the next day. That’s 65 dollars for a seminar in which you are able to learn something useful, for fixing those tough jobs that we all see on a regular basis. Our instructors are masters at making the complex understandable. Membership also includes a Monthly Newsletter full of real world technical articles, diagnostic case studies, and solutions to the kinds of problems you see in your bays each week.

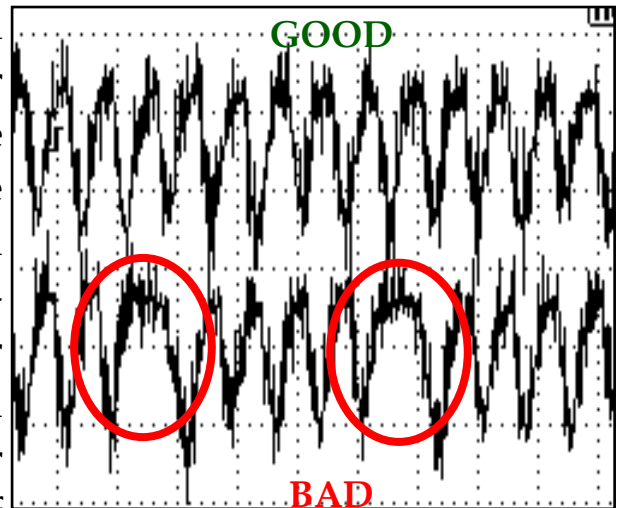
The following are some of TST’s regular instructors:

Bernie Thompson of ATS**John Thornton** of Autotrain Inc.**Wayne Colonna** of ATSG**Jorge Menchu** the “Labscope Guru,” AES Wave**John Anello** of Auto Tech On Wheels**Mark Warren** of Motor Magazine**Bob Pattengale** of Bosch**Peter Meier** of Motor Age Magazine**Ken Zanders** of Illinois Air Team**Jerry “G” Truglia** of A.T.T.S. Inc.

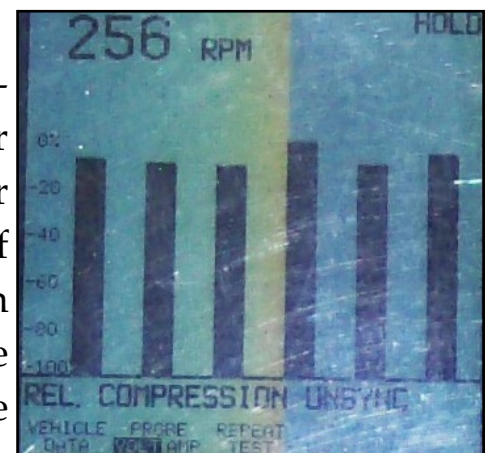
"Relative Compression from The Driver's Seat" (con't from p. 1)

I have a saying that I tell students in my classes and seminars, that there is no such thing as a stupid question, just the one they don't ask. I go on to also telling them that everyone knows something that the other person does not know and if we share our ideas we all can learn, and we did. Thanks Jeffery

This test is so easy if you own a BOB and a labscope since it can be accomplished within a couple of minutes without much effort. First couple (select) your scope to AC volts followed by selecting a range on your scope of 500mv AC per division and a time base of 50 ms per division. Many of today's automotive scopes are set up as voltage and time per screen so take the number and times it by 10. Next insert the red (B+) to pin 16 and the black (-) to pin 4 of the BOB and press the gas/throttle pedal to the floor if the vehicle has the Clear Flood option. If the vehicle does not have Clear Flood you will need to remove the fuel pump relay or fuse that is easily found under the hood. Take a look at the waveform to the right, what we need to look for are equal voltage height (amplitude) and time. If there is a difference in height or time this will indicate a problem in one of the cylinders.



If you are wondering how you can tell what cylinder has the problem you will need to remove your butt from the driver's seat and open the hood. Your next step would be to connect another channel of the scope to the number one cylinder so you can sync the signal. The sync will provide you with the firing order, example 165432 as displayed in the waveform. If you add this quick test to your diagnostic game plan you can quickly check to make sure that



(Con't on p. 7)

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Jim Bradanini
Program Administrator

QUOTE

Hey: To all my tool carrying friends,

I just switched Brian's tool insurance from Farmers to Pro-TEC and I am now only spending \$350 a year for \$70,000 of insurance on hand tools, welder, air compressor, tool boxes, etc...we were spending \$747 every six months.

Anyway, I figured whoever needs insurance on your tools against theft, flood, fire, etc.... blanket coverage. The people are really nice and you can do it over the phone. You don't have to have a tool inventory list, though you will need one if you have a claim so do one up front anyway.

They offer \$50,000 for \$250 but we upped it to \$70,000 for \$350. <http://www.mechanicsinsurance.com>. The guys name is Jim Bradanini and his email address is: JimB@cpminsurance.com. Their phone is 203-439-2810. I had left a message and he got back to me within the hour.

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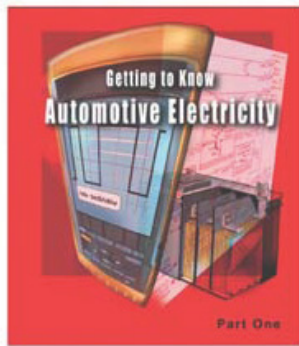
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OTC, announces a new standard of diagnostic innovation with the launch of the professional OEM-grade Genisys Touch, the first-ever PC-based tablet diagnostic tool with an included J2534 Reflash/Reprogramming device.

The new Genisys Touch is a leading-edge Windows 7 diagnostic platform with a large resistive 10.1-inch touch screen. It includes advanced and exclusive features such as VIN-based AutoID to detect CAN vehicles in one touch, Wi-Fi and web browser access, including directly to technicians' favorite OEM subscription sites, and Bluetooth pairing to an included J2534 vehicle communication device, as well as OTC's optional wireless TPMS reset tool and PC-Based 2-Channel Oscilloscope.

AutoDetect is an exclusive feature of Genisys Touch. It is an experience-based information solution aimed at providing the technician with instant repair information solutions on the spot. The system will automatically detect and alert the technician if there are any on-tool or internet repair solutions available for the specific year, make, and model based on trouble code or symptom.



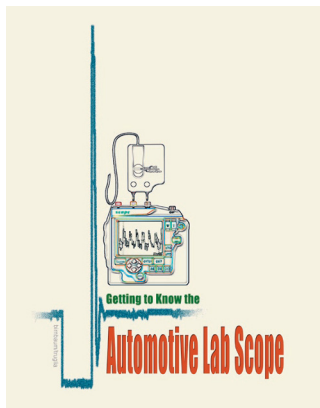
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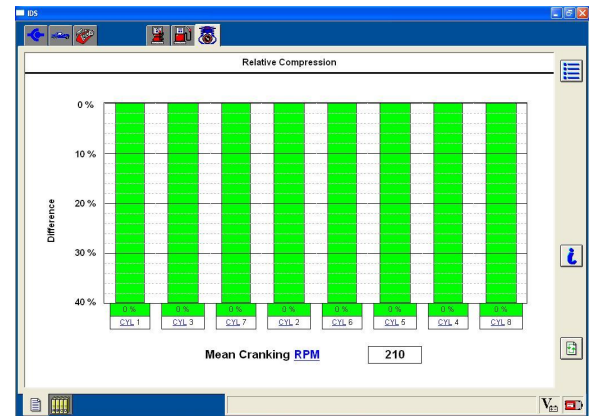
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"Relative Compression from The Driver's Seat" *(con't from p. 3)*

This test is so important that Ford (pictured to the right) and Toyota have both inserted this test in their factory scan tools. Their test is also done from the driver's seat via the DLC and their scan tool by measuring a voltage drop at pins 16 and 4.



Now let's take a look at other scopes and when you need to open the hood in order to perform this test, along with how to set up the scope.

RELATIVE COMPRESSION TEST (AC Volts from the Battery)

1. Disable fuel.
2. Scope leads (+) & (-) leads on (+) and (-) battery terminals while the scope is on AC coupled and movie mode if available.
3. Crank the engine over until you get a waveform.
4. If you want to know the firing order place an RPM clamp on cylinder #1 spark wire or backprobe the primary ignition in order to trigger the test and identify the correct firing order.

A good waveform is even and uniform. **Uneven waves, like the circled one on page 3, indicates a weak cylinder .**
(Con't on page 9)

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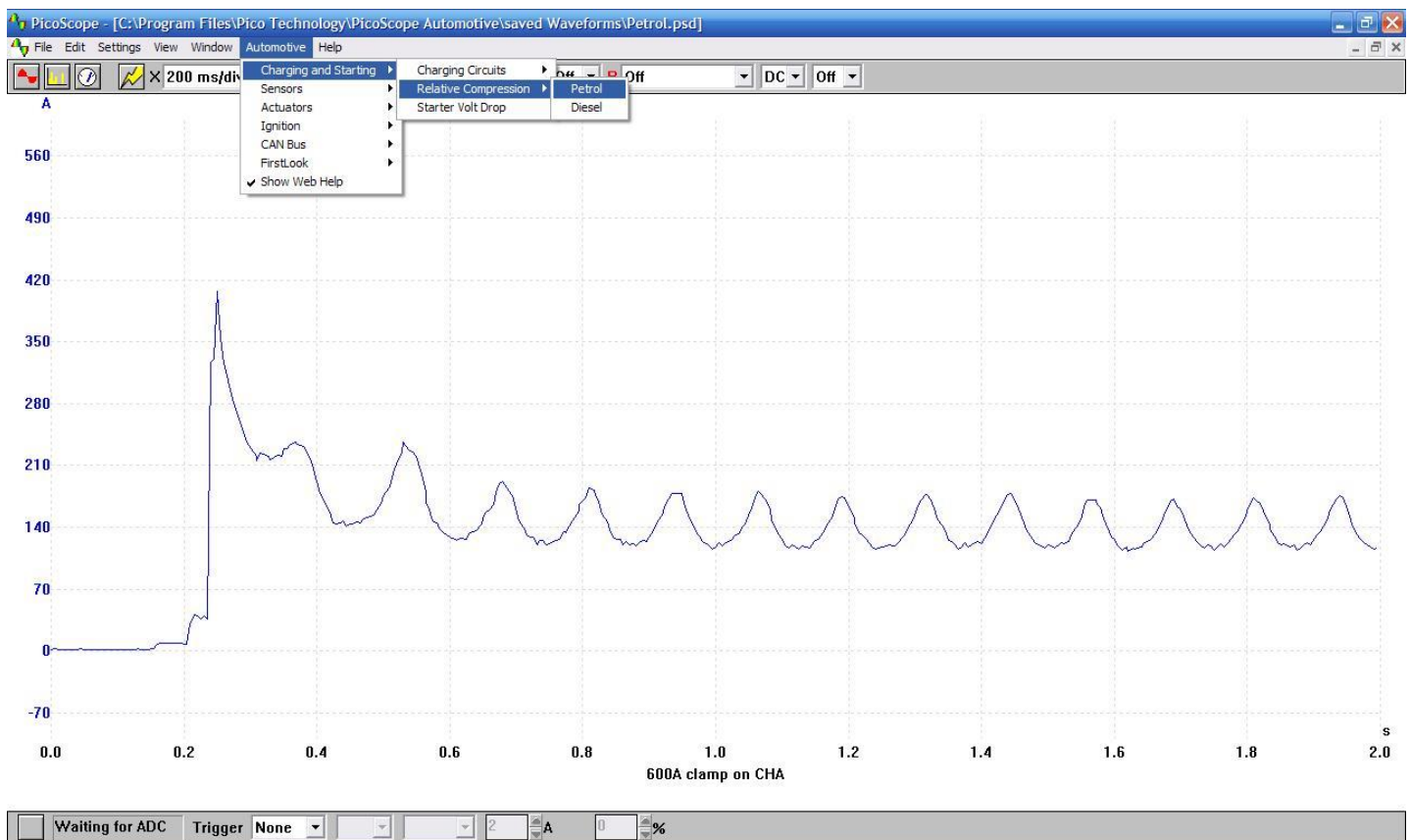
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"Relative Compression from The Driver's Seat" (con't from p. 7)

RELATIVE COMPRESSION TEST (Using the Amp Clamp)

With this set up we will do the following procedure with two exceptions, 1. The amp clamp will be used, 2. We will use one of the other scope channels to SYNC the signal so we can count the firing order to the waveform.

1. Disable fuel.
2. Install the amp clamp around the battery negative cable.
3. Crank the engine over until you get a waveform. If your scope has a movie mode use it.
4. If you want to identify the correct cylinder, place an RPM clamp on cylinder #1 spark wire (or back probe a primary ignition wire) to trigger the test and get the correct firing order.



Notice on this Pico labscope they have a menu option for Relative Compression that using the amp clamp.

(Con't on page 10)

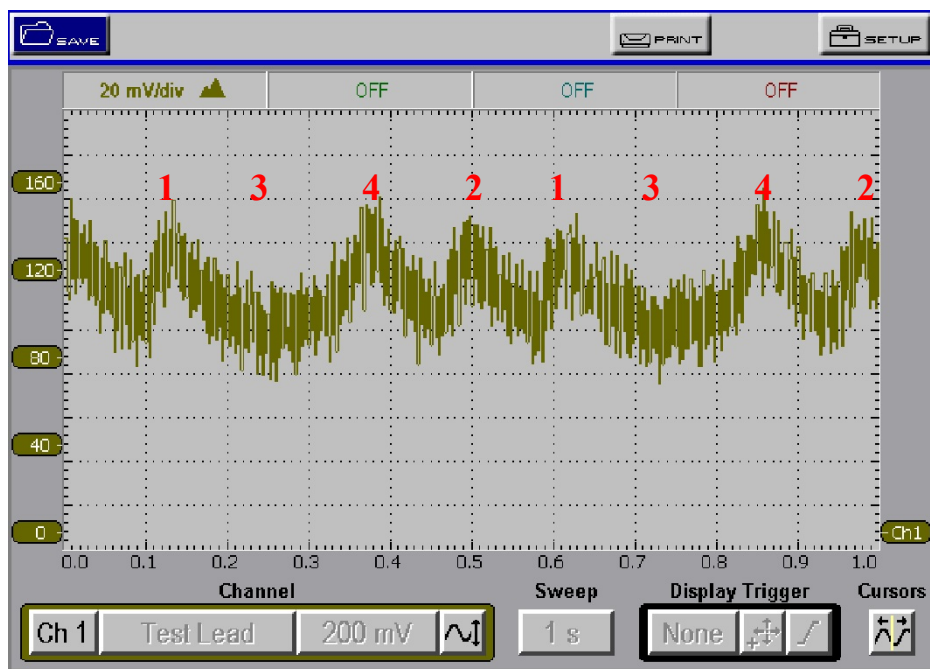
“Relative Compression from The Driver's Seat” (con't from p. 9)

This test is a great time saver that prevents the use of parts that are not going to resolve the problem. If the vehicle has a mechanical problem installing; MAF, O2s or any other parts is NOT going to fix the problem. This test should always be performed with a good battery along with all fluid level filled to the proper level .

The screen shot on the Snap On Modis, pictured to the right is coupled to AC volts which indicates a problem on this 4 cylinder engine. Can you tell the difference?

If you are not using Relative Compression in your Diagnostic Game Plan you need to incorporate it. Just like a

house that has a weak foundation that effects the walls and roof to sag. The same is true when we are working on a driveability problem. If the engine has a problem, it' need to be repaired first, just like the foundation example in order to complete a proper repair.



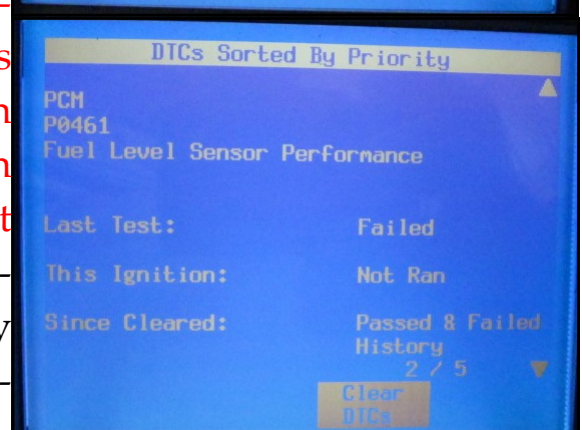
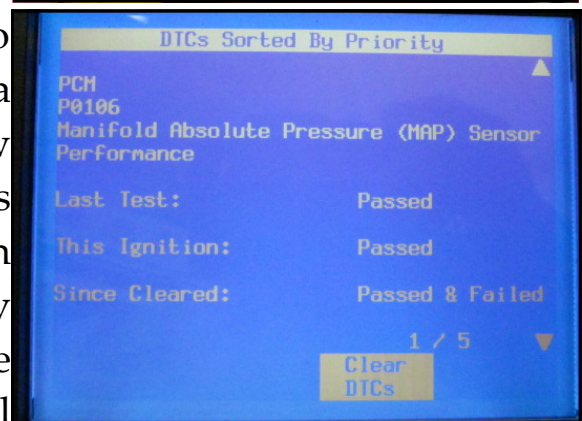
If you would like to see a few video examples go to our YouTube channel ... or type in the following links **(in blue)** to see different tools being used... 1. <http://www.youtube.com/watch?v=bc7Le9MIKz0>... 2. <http://www.youtube.com/watch?v=9LKDCBzNark> ... 3. <http://www.youtube.com/watch?v=03-Ea7p5DY8>... 4. <http://www.youtube.com/watch?v=Fp758sC5CL8> ... 5. <http://www.youtube.com/watch?v=qRkDOMkB4HI>....6. <http://www.youtube.com/watch?v=anxJRZZV6Vg>

Take a look at our other helpful webcast as well.

*Article by G Truglia,
ASE CMAT, CMTT, CMST, L1, CNG & TST Founder, President*

"Malibu DTCs P0106—P0171 - P0461—Fixed With No Parts"

This 2004 Chevy Malibu 2.2L came in with a few complaints, hard starting, low power and a fuel gauge that was not working. After checking this vehicle out we came up with the following 3 DTCs, P0106 MAP Sensor, P0171 System Lean and a P0461 Fuel Level Sensor problem. Since this vehicle was running rough and had low power complaint along with a Fuel Gauge that was stuck on E everything need to be checked. Alex and I were working with a new guy that did not have a game plan on how to check and diagnosis DTCs on a vehicle. It's important after performing a visual inspection that the next step is to check DTCs followed by looking up all TSBs that maybe causing the problems. The new guy did not follow a logical route but rather went in a different direction. He checked fuel pressure, MAP sensor, vacuum leaks and used propane among other test. His approach was a waste of 2 plus hours trying to diagnosis the vehicle that could have been done in less time. A good diagnostician has the following game plan; 1. Question the owner of the vehicle about the problem he/she is experiencing. 2. Perform a visual check. 3. Scan systems aka Health Check of the computers that are on the vehicle. Remember sometimes a problem in one system may affect another system without setting a DTC in the PCM. 4. Check TSBs, Identifix, Iatn and Google for information. Many times this step is where you will find the problem.



(Con't on page 12)

“Malibu DTCs P0106—P0171 - P0461—Fixed With No Parts”

5. Check the battery, starter and alternator. 6. Check Relative Compression to make sure that a mechanical problem is NOT causing a problem. Your final step is to tally up all the results from the previous steps, which takes all of 25 minutes or less to complete. The results must be used to come up with a plan of attack in order to diagnosis and repair the vehicle. Once you have a good plan it won't be that difficult to diagnosis problem vehicles.

The fix for this vehicle was not that hard once I took over and asked the new guy if he had checked TSBs. He found two of them on AllData that related to the DTCs that we scanned from the vehicle. I went to NASTF website, selected GM and paid for the update file so I could program the vehicle. This procedure took about 20 minutes to complete which solved all the

2004 Chevrolet Malibu L4-2.2L VIN F Copyright © 2013, ALLDATA 10:53 Page 1 Powertrain Management: All Technical Service Bulletins Campaign - ECM Reprogramming for 'Stuck' Fuel Sender System Software Upgrade-Fuel Level Sender On Board Diagnostic (Reprogram Powertrain Control Module (PCM)) # 04081 - (Oct 18, 2004) Models: Certain 2004 Chevrolet Malibu Equipped with 2.2L (RPO L61 - VIN F) L4 Engine Chevrolet Colorado GMC Canyon Equipped with 2.8L (RPO LK5 - VIN 8) L4 Engine or 3.5L (RPO L52 - VIN 6) L5 Engine And Built For Sale in California (RPO YF5) Purpose This bulletin provides information about installing new Powertrain Control Module (PCM) software and calibration on certain 2004 Chevrolet Malibu model vehicles equipped with a 2.2L (RPO L61 - VIN F) L4 engine; Chevrolet Colorado or GMC Canyon model vehicles equipped with a 2.8L (RPO LK5 - VIN 8) L4 engine or 3.5L (RPO L52 - VIN 6) L5 engine; and all built for sale in California (RPO YF5). PCM reprogramming is necessary on these vehicles to update the "stuck" fuel level sensor On-Board Diagnostic detection capability. Install the new calibration on all affected vehicles identified on the VIN list (Not Shown), including vehicles in new dealer inventory and any vehicles that return for service, for any reason, during the applicable vehicle warranty coverage period. To verify if an updated calibration is required, refer to the following procedure in this bulletin. Service Procedure The GM Vehicle Inquiry System (GM VIS) must be checked to determine if a specific vehicle requires this action. If GMVIS indicates that this System Software Update remains "open" and PCM reprogramming has not take place otherwise after the TIS Broadcast or CD-ROM availability dates identified below, reprogram the PCM using a Tech 2 scan tool with the calibration update from Techline Information System (TIS) 2000. For the 2.8L (RPO LK5) L4 or 3.5L (RPO L52) L5 engine use data version 4.5 for 2004 or later, broadcast to dealers on April 17, 2004; and on TIS CD-ROM version 5.5 or later for 2004, mailed to dealers by May 5, 2004. For the 2.2L (RPO L61) L4 engine use data version 5.5 for 2004 or later, broadcast to dealers on May 22, 2004; and on TIS CD-ROM version 5 for 2004, mailed to dealers on June 9, 2004.
--

problem. So as you can see, the fix for all theses DTCs was simple and not that time consuming. **Remember if you FAIL TO PLAN—YOU PLAN TO FAIL!**

Another thing that I would like to mention is anything that is related to fuel level can cause a problems. Why you ask? Well, if the PCM thinks the fuel level is low or high the vehicle **Monitors can NOT become Ready**. Also if the DTCs were Cleared/Erased the Monitors would NOT be able to run and became Ready, all due to the Fuel Level sensor not being in specification as per the GM Enable Criteria for this vehicle. **So the moral of this case study is, always have a good diagnostic game plan along with the proper information, equipment and YES training.**

*Article by G Truglia,
ASE CMAT, CMTT, CMST, L1, CNG & TST Founder, President*

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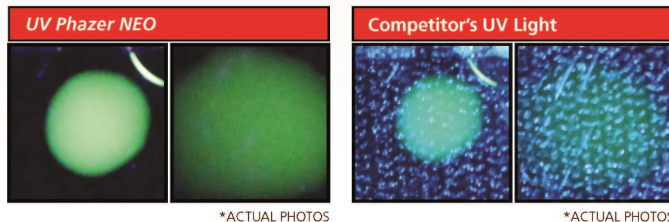
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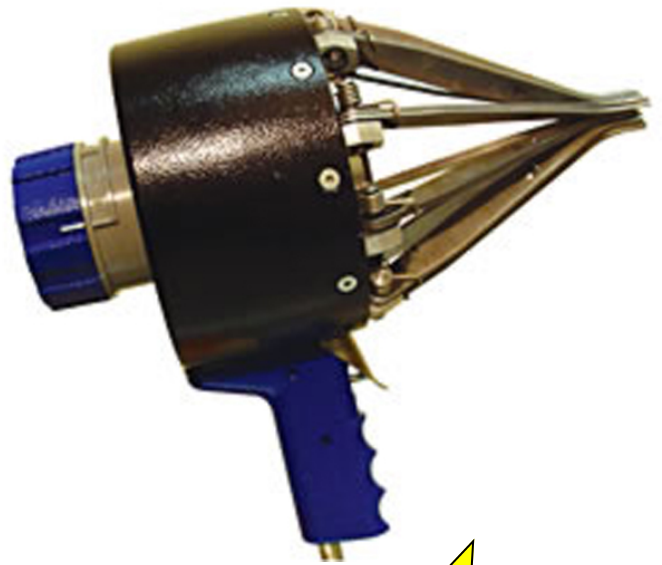
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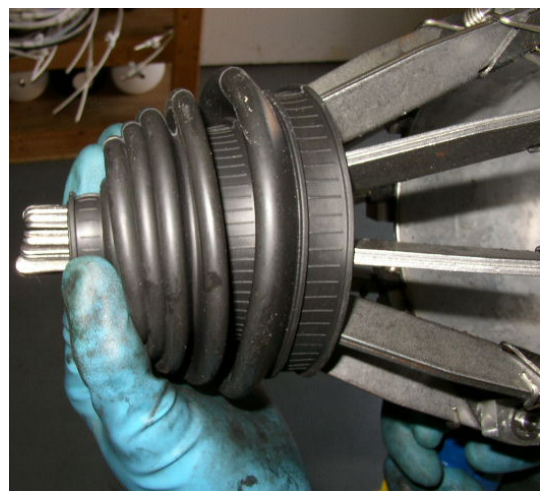
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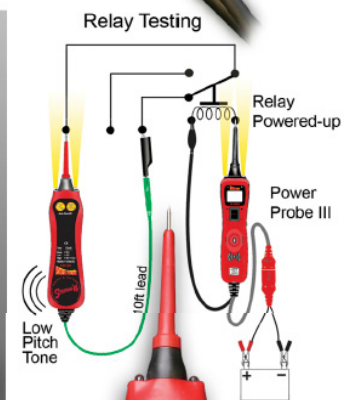


the "Smart" ECT2000



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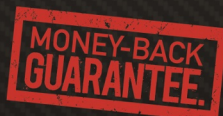


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