



Tech Training

E.S.I. Discussion Continued from the December cover article.

We as an automotive service community have made a lot of ground over the last couple years with regards to service information availability. Many thanks to the industry leaders that have helped us get where we are today! Now we must come together and ask more questions. The one I wish to discuss this month is the age old question: “DO WE CHARGE OUR CUSTOMERS FOR INFORMATION RESEARCH REQUIRED TO FIX OR REPAIR THEIR VEHICLES?” Now choose sides and let’s begin the discussion.

First of all, we will begin to see a increase in the cost of information needed to accurately repair today’s complex vehicles. That’s a fact that we cannot escape! I remember back in the 80’s when there was more information than we knew what to do with! Our shop is full of all kinds of information from the 80’s from factory manuals down to the NAPA service bulletin set with fixes galore from cover to cover. The cost of this information (in most cases) was nothing. Now, with EPA mandates on electronic service information coming from the OEM’s, there will be charges, and in many cases it will be per manufacturer. With the age of shop PC’s in the bay, we are becoming a “just in time“ service provider. The customer wants their vehicle fixed right away and we as service technicians want the needed information right away as well.

Now I expect that everyone reading this article agrees with our need for service information and also with the increased cost involved, right ? Now let’s discuss the question of who pays for this information. Many of you can stop reading right now and simply say, “we will build it into the cost of doing business”. A point well taken, BUT what if this information is needed only for your customers that drive the un-common vehicles? You know, the ones you don’t usually service in your particular neighborhood.

Again, some may stop reading here as your answer is that you simply wont or don’t service these odd-ball vehicle from across town! Well, once again, I can’t argue that point. *BUT, what if I really wish to fix this odd vehicle? How can it be done? How can I do it and still make a profit and not give away the farm?*

An odd-ball vehicle came in our doors some time ago (names left out to protect the innocent). It was a brand xxxx that we don’t usually do a lot of work on, with a MIL lamp on. It was a fairly new, well-maintained vehicle and we assumed it must be fairly easy to repair as the MIL is on all the time and we have hard fault service codes. Sure dude, just leave it with us tomorrow morning (we even took the customer to work) and we (chest swelling with pride) will handle it for you tomorrow. Our normal analysis fee was discussed and agreed upon. After viewing the service code, we found that our traditional information suppliers (we have both majors and a minor or two) did not seem to have a whole lot of information in regards to this service code. In fact, they said very little at all in a manner that could find and fix the problem! Now my analysis fee is going up in smoke, time was running on and we were getting the “duh” look more and more! We are over budget on this car and haven’t even begun to understand the problem! Man, how I hated the fact that we had taken in this vehicle!

With no good information readily available, find out what Jim did to fix this vehicle in next month’s issue.....

Analysis from the “Sleuth”, Michele Winn



This month’s case study is on a 1995 Olds Aurora with a 4.0L engine. The car came to me from another shop who had replaced the PCM and wanted it programmed. Remember, all vehicles from 1996 and up must be programmed after replacement and some GM models even back to 1993 had programmable computers.

When I took the original phone call, they asked if I could program the computer off-board, but my off-board capabilities only go back to 1996. In order to do the job, they would have to bring me the car and the computer. Not long after our conversation, they showed up with the car. At this point, I didn’t want to get too involved with the vehicle and it’s history, because all I really wanted to do was program the PCM and get the car back out the door. However, I did need to know one thing (and this is where it gets interesting):

Question: “Where is the new PCM?”

Answer: “In the car”.

Question: “Where? Is it in the trunk, on the seat……?”

Answer: “No, it’s already in the car. I installed the new computer back at my shop and drove it over”

Question: “So, you replaced the computer back at your shop and the vehicle started and ran fine on the way over here?”

Answer: “Yep! Everything is fine except now the MIL (Malfunction Indicator Lamp) is on. I think once you program the PCM, it will go out. **By the way, I already switched over the PROM from the old computer.**” Let’s talk about the last statement before we go ahead and fix the car. **IF** this car is equipped with a PCM that is “programmable” or “flashable”, would it have a removable PROM? **NO!** That is why they are called EPROM and EEPROMS. The PROM is now an integral part of the computer and cannot be removed. EPROM stands for Erasable Programmable Read Only Memory and EEPROM stands for Electronically Erasable Programmable Read Only Memory.



Back view of computer



View w/ KS Module removed

Here’s where people still get confused. The back of every late-model GM PCM that I’ve seen still has a little cover that is removable. (See picture on the left) Behind that cover is a small piece that can also be removed and changed over to a new computer. (See picture on the right) This looks and sounds suspiciously like a PROM, but it’s actually a KS or Knock Sensor module. Why is this important? Two reasons: First, removable PROMS were done away with by law in 1996 as a part of OBD-II. Second, by not switching over the KS module from an old computer to a new one, this would cause the MIL to be on. So, was this vehicle equipped with a programmable PCM and when the customer said he already switched the PROM over, did he mistake it for the KS module? OR, was the part he switched over really a PROM and this would turn out to be a non-programmable PCM?

Fuel Injection Service Update from the “Wizard”



MULTEC II PORT FUEL INJECTORS

In 1999 General Motors started using the Delphi Multec II design injector. The outside diameter the Multec II injector is about ½ the size of the Multec I and has one flat side. Some of the reasons given for the newly designed injectors were:

1. The smaller design allows the injector to have a more versatile positioning capability in the intake manifold. This improves fuel targeting on the intake valve particularly on Siamese ported engine designs.
2. The ball valve lift is approximately twice as much as the Multec I permitting wider flow ranges and improved contamination resistance.
3. An improved fuel flow path increases spray velocity and creates smaller spray particles. The path also minimizes internal contamination traps.

As with any new product, it took awhile before we started getting calls for these injectors. Here are some of the problems we see with the Multec II:

- ⊘ The fuel discharge area is not well protected from tarnish and carbon build-up allowing fuel flow to decrease and the spray pattern to become distorted.
- ⊘ Some have been known to stick open and flood the cylinder with fuel.
- ⊘ The filter is sunk in the top of the injector. This can create a space where debris may linger and require longer rail flush time when doing an on car fuel system service.



LTS offers reconditioned Multec II units for many different applications.
Call Doug or Greg to order at: 888-809-FUEL (3835).

Analysis from the “Sleuth”, (Cont.)

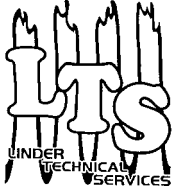
Ok, back to the car. The customer is gone and I’m stuck with this vehicle. After some digging (Thanks to Mike Sauer from Vetronix), I found out that this vehicle does NOT have a programmable PCM. Now I have a dilemma: Do I call the customer and tell him the PCM doesn’t need to be programmed and to come and pick up the car, or do I look into why the MIL is on and try to fix it? Turns out it’s a slow day, so I grabbed the Mastertech to check codes. I found a DTC 80 which is TPS idle relearn incomplete. According to All-data, the PCM has the ability to learn the TPS and idle speed positions by updating them constantly and storing them in the PROM or EEPROM memory. If the PCM detects that these values are not stored (disconnecting battery or replacing the PCM), it will turn on the MIL light. The ONLY WAY to turn off the MIL is by performing an TPS/idle relearn procedure and this can only be done by using either a Tech 1A or a Mastertech scan tool. As soon as the relearn procedure is complete, the MIL will turn off and the DTC 80 will become a history code. At this point, it can be erased completely from memory.

After a couple of minutes I had completed the TPS/idle relearn procedure and the MIL was off. The customer was relieved to hear that the MIL was off and there were no other problems.

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What's Happening at LTS?

Here is a brief summary of what's happening at LTS during the first part of 2003:

January:

10-12: Jim training seminar for Cochrane Automotive in Ontario, Canada

14-16: Jim ASE test-writing session in Orlando, Florida

21-22: Local training classes—Randy Dillman teaching VTD systems

February:

7-9: Guru-II class

20-23: Jim, Doug and Randy teaching seminars for ASA in Kansas City along with trade show booth

March:

1: Jim seminar for ASA Illinois along with trade show booth for Doug & Michele.

4-6: Jim seminar for UCI in Richmond, Virginia

17-21: Guru School

25-26: Local training classes—Bruce Amacker teaching Ford Powerstroke

April:

4-6: Jim and Randy seminars for Auto Value in Michigan

22-23: Local training classes

28-May 11: Jim annual VW Bug trip!