California Automotive Teachers

Fall 2015

Issue #45

# CAT NEWS

www.calautoteachers.com

## Newsletter Highlights

- VW's Deception
- Officer Reports
- OBD II Monitor Issues
- Missed Opportunity for Instructors

## What's in this issue?



## VW Could Fool the EPA, But It Couldn't Trick Chemistry

**Eric Niiler Science; Date of Publication: 09.22.15. 09.22.15**

For decades, automakers have been caught between building an engine that squeezes a lot of energy out of the fuel it burns and one that has low emissions. It's not an easy tension to resolve. "Negotiating both fuel consumption and emissions is a hard tradeoff," says Anna Stefanopolou, professor of mechanical engineering at the University of Michigan.

When engineers at Volkswagen allegedly inserted a few lines of code into the diesel cars' electronic brains to circumvent emissions testing, they found a solution to this existential automotive conflict. Drivers got low emissions during the test, and high performance the rest of the time. The only problem: It's *way* outside of the rules. The company might have gotten away with it, too, if it hadn't been for those pesky engineers—and the basic chemistry of the diesel engine.

According to the US EPA, those lines of code hid the fact that nearly half a million diesel VWs in the US spewed up to 40 times more nitrogen oxide from their tailpipes than testing indicated. Volkswagen has now confirmed that the problem actually affects approximately 11 million diesel cars worldwide. Diesel engines use a different mix of fuel than gasoline engines and don't use spark plugs to induce combustion—relying instead on highly compressed, heated air and fuel injected as droplets. If a diesel engine doesn't get enough oxygen to combust the fuel, it'll emit all kinds of gunk—nitrogen oxides, unburnt fuel, and particulate matter (soot, basically).

*(Continued on page 10)*

**The California Automotive Teachers will meet at Mira Costa College for the Fall 2015 Conference on October 16 & 17**


What better way to ensure your students know how to correctly use the tools of the trade than through certification? Snap-on offers numerous tooling certification courses to help train and prepare students for their career as an automotive technician. These eight to 16-hour certification courses are integrated into your existing programs, giving students a leg up on the competition. Certifications are offered in Automotive Scanner Diagnostics, Diesel Scanner Diagnostics, Mechanical and Electronic Torque, Multimeter, Wheel Service and Alignment and Asset Management.

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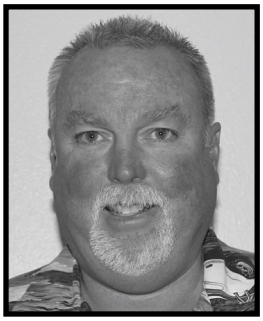
# President's Letter by Don Schumacher



Greetings Fellow CAT Members,

As we get ready to visit Mira Costa College for the Fall CAT 2015 conference I would like to reflect on the spring conference held at Skyline College. Rick, Tom and their staff really do a great job hosting conferences. The training sessions are always fantastic and well organized. If did not get a chance to attend the Picoscope training you missed out. I heard nothing but rave reviews about it. And the Food! It was fantastic. Thanks Guys for a great conference.

This last year I have attended a number of conferences hosted by the Academic Senate for California Community Colleges (ASCCC). These conferences focused on CTE's need for sustainable funding and the 2013 Obama Administration program called "Doing What Matters for Jobs and the Economy". The ASCCC has been working with (lobbying) the California Community Colleges Chancellors Office to provide sustainable funding for CTE programs through the Division of Workforce and Economic Development. The Division serves as administrator for several streams of state and federal funds, including Governor's Career Technical Education Pathways Initiative (SB70), Carl D. Perkins Career and Technical Education Act of 2006, and Proposition 98 dollars for Apprenticeship, Economic & Workforce Development (EWD), and Career Technical Education (CTE).

The Division collaborates with employers, organized labor, local communities, and their community colleges through programming supported by these funds to close the skills gap and to foster successful student completion. With any luck the ASCCC will have an impact on the Chancellors office to secure sustainable funding for years to come.

Looking forward, CTE in California has a good chance to make some significant gains this year. The window of opportunity is short but the ASCCC with your support can make this happen.

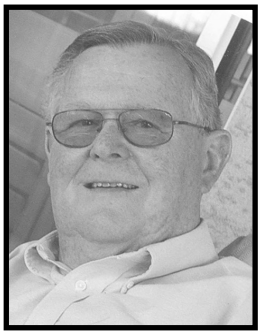
By now you should have received your invitation to the fall conference at Mira Costa College. If not please visit calautoteachers.com to register. Steve Vail and his staff have some great tours lined up and you don't want to miss out on NATEF hours. There will be plenty of training sessions and let's not forget the great weather. Bring your sunscreen and sunglasses.

The spring 2016 conference at Modesto Junior College marks the 50th anniversary of CAT. Don't miss this one as CAT celebrates 50 incredible years.

A couple of things to note for the up coming conference, please make sure you spend time with the vendors. Many of them travel half way across the country to attend our conferences. Second, Joyce Mitchell from the California Channel will have a booth. They have secured a grant from the State of California to promote oil recycling at the high school and community college level. CAT along with the California Trucking Association have partnered with them to help promote the program.

Well that's about it from me, hope to see you all at Mira Costa!

# Executive Director's Report by Bob Barkhouse



Before I get started, I would like to take a few moments to thank Skyline for a great conference (as usual). If you have never put on a conference, you can't even imagine the amount of work the host and the CAT officers put in to make each one a great success. Preparation for an upcoming conference starts up to one year prior to the conference. The responsibility of conference success is the duty of the Second Vice President and is a two year commitment. Phil Jelinek is currently CAT's Second Vice President and has been responsible for overseeing our conferences for the last 2 years. If you have been attending during the past years, I hope you have been pleased with the conferences as Phil has done a great job, as well as, the other Second Past Presidents before him. We all need to thank them for a job well done when you see them at a conference.

On a different subject, I can't believe the weather here in California as I write this message. Northern California is in a severe drought and on fire everywhere, while Southern California is experiencing flooding. Let's hope Steve Vail will provide some good weather for the next conference at Mira Costa College in Oceanside.

In the last newsletter, I mentioned a new technology called "Telematics" which is here now and the upcoming use of Hydrogen fuel. There are two more new technologies that all of you will have to learn. The first one that will appear on the scene in the next few years is "Automatic Emergency Braking." From what I read, it will be a system that will automatically stop the vehicle prior to contact without driver assist. Obviously, this system will save lives, prevent injuries, and reduce overall collision repair costs. The second system coming is "Autonomous Vehicles". This means that the vehicle drives itself without a driver. The industry is serious about these vehicles and the suggested time line is by 2025. In reality, if you think about it, we have been moving in this direction for some time with cruise control, GPS, rear vision cameras and now, Automatic Emergency Braking. Let's hope that future CAT conferences will address these emerging technologies in their seminars.

I continue to attend ASCCA meetings and am on their Education Committee and their Government Affairs Committee. I also serve on the CalABC Board of Directors. Through our membership in both of these organizations we are also members of the California Chamber of Commerce. Just recently, Johan Gallo (CalABC President), George Hritz (CAT member and Chairman of the CalABC Foundation), and myself met with the California Department of Education and the Head of Perkins Funding to discuss the ATTS program and what it will take to qualify for Perkins funding. More to follow at a later date as it develops.

(Continued on page 5)

(Continued from page 4 -Executive Director)

Recently there was a bill, SB-350, that was sailing through the Senate, but came onto a lot of resistance on the Assembly Floor from the industry and affiliated associations. This bill would have eventually had a dramatic effect on what you teach in automotive. Governor Brown was pushing this bill very aggressively. The bill would have reduced gasoline consumption 50% by 2030. In order to meet the 50% reduction, the consumer will have to start driving smaller cars, electric cars, Hydrogen fueled cars and possibly hybrids. CalABC recently joined The State Chamber of Commerce and since CAT is a member of CalABC we were in on the action. CalABC, ASCCA, and The State Chamber of Commerce put up a very aggressive fight and was able to get the 50% thrown out. Our new problem is, the Governor is threatening to exercise his power and direct the California Air Resources Board to enact a regulation that would put the 50% back into action. Stay tuned, this battle is not over yet!!!!!

One last thing, I want you to know how pleased I am with your CAT Board. They are hard working and on top of any issue that comes their way. It is a pleasure to work with a Board that always has one thing on their minds - "KEEP CAT ON TOP." Thanks to each Board Member.

That's it for this report. Remember, keep the shiny side up and the greasy side down.

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**Meeting is scheduled to take place:**
**AAPEX Show**
**Wednesday, Nov. 4**
**1 p.m. to 4:30 p.m.**
**Sands Expo Center**
**Room: Casanova 504-505**
**201 Sands Ave**
**Las Vegas, NV 89169**

NASTF
NATIONAL AUTOMOTIVE SERVICE TASK FORCE

The meeting will provide an opportunity for OEM policy-makers and independent service professionals to share insights into each other's world. Agenda items include vehicle ***cybersecurity*** designs that won't impede the repair process and the problems and benefits of getting the industry to adopt the soon to be published ***new version of the SAE J2534*** standard. Each of NASTF's **six committees** also will make significant announcements about their 2015 projects during the meeting. Advance registration is not required for AAPEX attendees, however, seating is very limited for the free NASTF meeting. "Join the conversation," says Skip Potter, executive director of NASTF. "NASTF is where OEMs and techs connect and we need everyone's ideas to ensure access by independent technicians to OEM service information."

# SMOG Testing Citations & Fines

Automotive Service Councils of California
Professionals in Automotive Service ~ Since 1940

What You Need To Know—September 22, 2015

ASCCA previously reported as part of our Bureau of Automotive Repair Advisory Group (BAG) meeting summary that there has been a big increase in citations and fines for issuing a certificate of compliance using a BAR97 EIS when an OIS test was required. This is a violation of Section 44050 of the Health and Safety Code. According to statistics provided by the BAR during the July 23rd, BAG meeting they had already issued 437 citations. The citations are issued to both the technician and the station, and the fines are issued to the station. ASCCA has and will continue to encourage BAR to update the BAR97 EIS and OIS equipment software to identify and lock out vehicles that are not eligible to be tested and issued a certificate of compliance. NOTE: The citations are for **issuing a certificate of compliance** using the wrong testing platform.

**What to Expect**

If you are cited you will receive a letter that includes a citation conference date and time to appear in the local office. During the conference the BAR field office representative will present the actual citation along with evidence. It is important to note that the field office does not have authority to dismiss or abate fines, but they will review your two appeal options:

1. Contest through the informal process, which includes writing the Sacramento Office - The shop must make an informal appeal within 30 days (in writing explaining the circumstances) of the office conference and the BAR Chief designee (in Sacramento) will review the matter.

2. Contest the a formal hearing before an Administrative Law Judge.

The shops that ASCCA has communicated with have used the informal appeal process. Their results have been the BAR's abatement of the $1,000, but the citations have been reissued. BAR has indicated that a single (one time occurrence) will not jeopardize STAR status.

ASCCA strongly encourages members to educate your technicians to avoid citations, as the shop owner will receive the fine. You can access the Smog Check Manual available on the BAR website along with Smog Check Requirements by Vehicle Type, which can be used as references for your technicians. Provided below is the link to the STAR Program Q&As and the following two questions are specific to this issue.

**5.3 Will my station's STAR certification be affected if an inspector at my station receives a citation?**

It depends on the citation. Applicable citations are detailed in §3392.5.1(a)(1) of the California Code of Regulations. Note that among the applicable citations, a single citation with an order of abatement issued to an inspector typically would not affect a station's STAR certification. Testing a 2000 and newer model-year gasoline-powered vehicle, or 1998 and newer model-year diesel vehicle on the BAR-97 Emission Inspection System (EIS) instead of the required OBD Inspection System (OIS) usually results in a citation with an order of abatement. However, citations for other reasons or multiple citations for failing to test on the OIS can be cause for invalidation of a station's STAR certification.

**5.5 Can one isolated mistake on a Smog Check inspection force me out of the STAR Program?**

It depends on the nature of the mistake. A mistake that leads to a citation or an administrative action is grounds for and can lead to invalidation of a station's STAR certification. In contrast, it generally takes several repeated inspection errors before a station fails to meet any of the STAR performance measures that are based on Smog Check inspection data. Note that typically a single citation with an order of abatement, such as for testing a 2000 and newer model-year gasoline-powered vehicle, or 1998 and newer model-year diesel vehicle on the BAR-97 Emission Inspection System (EIS) instead of the required OBD Inspection System (OIS), would not result in the invalidation of a station's STAR certification. However, citations for other reasons or multiple citations for failing to test on the OIS can be cause for invalidation of a station's STAR certification.

# Smog Checks Failing for Monitors Not Run to Completion

What should inspectors tell their customers when the vehicle they just tested failed for too many incomplete monitors? A far too common response is "just drive the vehicle for a few days to allow the monitors to run and bring it back for another test." In some cases, the inspector refers the vehicle to the State Referee in hopes that the Referee will waive the monitors and issue a Smog Certificate. The problem with telling the customer to drive the vehicle for a few days is that it will not, in most cases, solve the problem but instead, result in the customer looking for a better qualified technician. Referring the customer to the referee for this issue may result in the customer waiting a few weeks for their appointment only to find out that the referee cannot waive the vehicle for incomplete monitors. Consequently, the customer is back to where they started.

Some motorists will disconnect the battery to clear codes and turn off the MIL; other motorists do not. Another issue may be that the motorist does not drive the car in a manner that would allow all the monitors to complete, such as an elderly person that only drives a mile or so to the store and back home again. However, more frequently, a monitor won't run because the sensors used in the process are not functioning within the parameters required by the PCM to complete the monitor. In other words, the vehicle is broken and needs to be repaired. Regardless of the reason, for OBD testing to be effective, monitors must be complete to verify that the vehicle is operating properly and emissions are minimized. So what is the best procedure when a vehicle fails for incomplete monitors?

The first step should be to review BAR's new 2015 Smog Check OBD Reference Guide on BAR's website. This reference guide identifies problems with some year, make, and model vehicles whose monitors may not complete for a variety of reasons and provides a starting point from which to proceed. If the reference guide provides no information for the vehicle you just failed, then a diagnosis should be performed to determine the cause of monitor/s not completing. If you work in a Test-Only station, then refer the vehicle to a Test and Repair Smog Check station for a diagnosis. If you work in a Test and Repair station, explain the reason monitors were incorporated into the OBDII system to your customer and offer an estimate for diagnosis and repairs. In doing so, you will improve the vehicle's emissions and give your customer better service while at the same time improving your bottom line.

***This article was provided by the Bureau of Automotive Repair!***

# Hyundai Recalls Half a Million Sonatas

Hyundai is recalling nearly a half-million midsize cars in the U.S. to replace key engine parts because a manufacturing problem could cause them to fail.

The recall covers 470,000 Sonata sedans from the 2011 and 2012 model years equipped with 2-liter or 2.4-liter gasoline engines.

The company says metal debris may not have been removed from the crankshaft. That can restrict oil flow to the connecting rod bearings, causing them to fail. If that happens, the engines could stall and cause a crash.

Dealers will inspect the cars and replace engine assemblies if necessary for free. The company also will increase the engine warranty for 10 years or 120,000 miles. Owners will be notified Nov. 2 and the recall will start when parts are available.

# WEBMASTER Report by Tom Broxholm

### Split Your Payment

For all of you who have to pay for membership and conference fee from a different pot of money we allow you to split your payment in two. When making a partial payment choose the type of payment and enter the amount you wish to pay. An example would be credit card and $50 for your membership or for your conference fee $45 early bird or $65 normal. Additional information on the splitting payments procedures, or modifying your registration can be found by click on the link "How to Modify your Conference Registration". This is found on our conference page www.calautoteachers.com/conferences .

### Group Registration

We no longer offer institutional registration but we now offer a group registration method. This allows one person to register multiple members all at once and make a final payment for everyone all at once. They can also take advantage of the split payment feature above if the member is responsible for part of the payment. Specific instructions on group registration can be found on our conference registration page. www.calautoteachers.com/reg_join. Please note reg_join in the URL has an underscore between reg and join. Click on the "Group Registration" link to view the instruction. Please read these instructions before attempting the group registration because detailed information will be needed prior to registration. As always I can be reached for questions or comments by clicking on the "Contact the Webmaster" link that is located on our home page. www.calautoteachers.com

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# Automotive News Stories

### History of Service and Utility Bodies for Trucks

http://a.msn.com/08/en-us/AAeGQDS?ocid=se

### These 5 cars are serious about competing with Tesla (TSLA)

http://a.msn.com/08/en-us/AAeCZ7e?ocid=se

### How important are those emissions tests that VW cheated on?

http://a.msn.com/01/en-us/AAeK4QB?ocid=se

### Gas Guzzlers: The 15 Worst Offenders

http://a.msn.com/08/en-us/BB9EUHh?ocid=se

(Continued from page 1 - VW Fools EPA)

All that gunk is a big problem. Exposed to sunlight, nitrogen oxides convert to ozone—making smog. How much depends on a bunch of variables, like sunlight exposure and what happens to the hydrocarbon emissions (the unburnt fuel), plus the temperature and local winds.

However much extra crap came from the VWs, it won't be good. Exposure to nitrogen oxide and ozone is linked to increased asthma attacks, respiratory illnesses, and in some cases premature death. Ozone also worsens existing cardiovascular and lung disease.

To deal with those emissions, "you have a whole chemical factory at the tailpipe that traps the oxides," Stefanopolou says. This bumps the sticker price for diesel cars by $5,000 to $8,000 per vehicle. (On the other hand, diesels get better mileage, especially in highway driving.)

For years, diesel trucks and buses were the biggest polluters on the highway. But carmakers adapted a relatively new technology called selective catalytic reduction—the same tech that scrubs pollutants from factory smokestacks—to the tailpipe of the diesel engine.

Here's how it works: Inside a honeycombed chamber, the scrubbing system sprays a liquid made of 30 percent urea and 70 percent water into the diesel exhaust. This sets off a chemical reaction that converts nitrogen oxides into nitrogen, oxygen, water and small amounts of carbon dioxide—molecules that aren't as harmful to human health. Catalytic scrubbing was supposed to cut diesel NOx emissions up to 90 percent, according to the Diesel Technology Forum, an industry group based outside Washington. That made diesel engines clean enough to use in passenger cars, which have stricter emissions rules.

The scrubbing chemistry is also what gave away Volkswagen's alleged cover-up. In 2013, a small non-profit group decided to compare diesel emissions from European cars, which are notoriously high, with the US versions of the same vehicles. A team led by Drew Kodjak, executive director of the International Council on Clean Transportation, worked with emissions researchers at West Virginia University to test three four-cylinder 2.0-liter diesel cars in the Los Angeles area: a Jetta, a Passat, and a BMW. Only the BMW passed.

"We felt that it would be possible to get low emissions for diesels," Kodjak said. "You can imagine our surprise when we found two of the three vehicles had significant emissions."

The ICCT reported its findings to the EPA and the California Air Resources Board. Regulators met with VW officials in 2014 and the automaker agreed to fix the problem with a voluntary recall. But in July 2015, CARB did some follow up testing and again the cars failed—the scrubber technology was present, but off most of the time.

How this happened is pretty neat. Michigan's Stefanopolou says computer sensors monitored the steering column. Under normal driving conditions, the column oscillates as the driver negotiates turns. But during emissions testing, the wheels of the car move, but the steering wheel doesn't. That seems to have been the signal for the "defeat device" to turn the catalytic scrubber up to full power, allowing the car to pass the test.

Stefanopolou believes the emissions testing trick that VW used probably isn't widespread in the automotive industry. Carmakers just don't have many diesels on the road. And now that number may go down even more.

# VW Owners Aren't Going to Like the Fixes for Their Diesels

**Alex Davies Gear—Date of Publication: 09.22.15**

VW's confession that it illegally programed the software in 11 million diesel-powered cars to cheat on emissions tests comes with the sting of betrayal for owners. The automaker's been touting the benefits of "clean diesel" for years, and it dominates the American market for the gasoline alternative.

Last week, the EPA accused the German automaker of using a "defeat device," an algorithm that detects when the car is being tested by the EPA and changes its performance to meet emissions standards. The rest of the time, the cars produce up to 40 times the legal limit of nitrogen oxides (NOx), the stuff linked to increased rates of asthma and other respiratory problems.

The accusation applies to 482,000 diesel-powered, four-cylinder Jetta, Beetle, Audi A3, and Golf cars sold between 2008 and 2015 in the US, and to Passat cars sold from 2014 to 2015. Today, Volkswagen said the software is present on 11 million cars worldwide. "I personally am deeply sorry that we have broken the trust of our customers and the public," CEO Dr. Martin Winterkorn said in a statement. The company has denied rumors he will resign.

The Jettas, Beetles, Passats, and Audis in question deliver top tier fuel economy, and, eco-conscious owners were told, had no trouble meeting strict emissions standards. The 2015 A3 delivers 36 mpg, the 2015 Golf Sportwagen does 35. In 2008, the 2009 Jetta TDI was named Green Car of the Year by the *Green Car Journal*. This year, Cars.com named the 2015 Passat TDI its "Eco-friendly Car of the Year." These cars were green for the budget, green for the environment.

Once the sting of the lie fades, the US customers who bought 482,000 of those cars will feel the real pain. Because Volkswagen will be forced to recall those vehicles and somehow make them to meet federal standards. There are two apparent ways to do that, and owners who value performance, fuel economy, and trunk space won't like either.

## Just Run It in Test Mode

One is to "reflash" the engine control module, recalibrating the software so the car always runs the way it does during EPA testing, and always meets emission standards.

The downside here is that to achieve the drastic drop in NOx emissions, the cars in test mode sacrificed some fuel economy, or performance. Just how much is hard to say, but any drop in torque—one great thing about diesels is how they accelerate off the line—will not make drivers happy. And a drop in mileage would likely cost VW, since hundreds of thousands of drivers would have to spend more on fuel than VW promised at the time of sale.

There's precedent for this: Last year, the EPA forced Kia and Hyundai to downgrade fuel economy ratings on more than a million cars (they blamed "procedural errors" at a shared testing facility). The Korean automakers spent $395 million on a settlement with vehicle owners aggrieved over higher than expected fuel costs.

*(Continued on page 12)*

(Continued from page 11 - VW Fixes)

### Slap on the Urea Tank

The standard way of making a diesel run cleanly is to use selective catalytic reduction, a chemical process that breaks NOx down into nitrogen and water. Part of that process includes adding urea to the mix. The super effective system can eliminate 70 to 90 percent of NOx emissions, and is used by other diesel manufacturers like Mercedes and BMW. The downside is that it adds complication to the system, and cost—$5,000 to $8,000 per car. And you need to periodically add the urea-based solution to your car to keep it working.

The big "advance" from VW was the "clean diesel" technology that supposedly made the whole urea thing unnecessary on its smaller cars, like the Beetle, Jetta, and Audi A3—the very models being recalled because they don't meet emissions standards under real-world driving conditions.

So it seems the logical way to get those cars to perform like their diesel cousins is to add a urea. VW's unlikely to embrace that option, because adding hardware to half a million cars would be far more expensive than a computer update. It wouldn't be any fun for the TDI owner, either. Not only do you have to spend an afternoon with your local dealer, you have to make room for the tank. That could mean sacrificing cargo space or giving up the spare tire.

### Dodge the Recall

So if the government is making VW recall your car and your fuel economy and performance will take a hit because of it, why not just ignore the recall notice in your mailbox? People ignore recalls all the time, even when they're to fix critical safety issues. A 2011 GAO report found just 65 percent of recalled cars are repaired. The man can't compel you to get it fixed.

Except here, maybe he can. These Volkswagens are a public health threat and exuberantly break federal law. It's not crazy to think state agencies or NHTSA would flag them, and refuse to issue a new registration, or let them pass a smog test, unless proof of a fix is offered. "It should be fairly easy to police," says Matt DeLorenzo, managing editor of news at Kelley Blue Book.

Whether you dodge the recall or not, your car's resale value is likely to drop as far and fast as VW's stock, which has plunged 20 percent since the feds came down on VW Friday.

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A Message from the Newsletter Editor!

We always need technical articles to share with our members.

If you have an article for the newsletter

(it is never too early) please email them to:

rick@calautoteachers.com

Heliocentris

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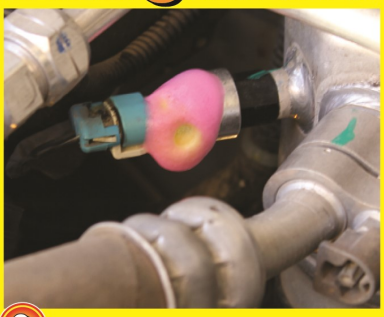

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# Addressing the Incomplete Monitor Issue by Rick Escalambre

OBD II Monitors have been and will continue to be an issue for the customer and the technician. The customer can't understand why their vehicle runs well, but can't pass an inspection because there are too many incomplete monitors. Or worse yet, their vehicle was given an exception for previous Smog Check inspections and now they are being told fix it, non-op it, or scrap it.

So, does this mean that a vehicle with Incomplete Monitors has a problem? The answer is **NO**. If the vehicle has normal use mileage on it then the monitors should be complete. Why would this not be the case? A number of things could have happened: 1) the battery went dead erasing the PCM's volatile memory, 2) someone purposely disconnected the battery to clear a Malfunction Indicator Light, 3) the vehicle was recently repaired and the memory was cleared using a scan tool, but the technician did not take the time to run the monitors. The first thing to ask the customer is, has the vehicle recently had a dead battery or been repaired? Remember, once a monitor runs to completion the only way it resets is if one of the before mentioned conditions occurs. Please note, there were a few rare vehicles in the early years of OBD II that reset monitors once the key was cycled off.

Advising the customer to do more driving is not advised. If they haven't run the monitors before their inspection they probably won't do it after they leave your shop. If you have ever run a monitor then you know that there is more to it than just driving the vehicle. This will be discussed later in this article. More importantly, never give them specific instructions to follow because they could get in an accident and try to hold your shop liable. An example of this would be the EGR Monitor on some GMs. The Enable Criteria is met during a long deceleration above 20 MPH without applying the brakes. Can you imagine the customer doing this and rear ending another vehicle? Their lawyer will be looking for you!

Having taught how to run monitors in different parts of the country, California Smog Check technicians have one advantage when it comes to running monitors and that is the BAR '97 Dynamometer. In many states emission programs technicians have to take the vehicle on the road to run monitors. Sometimes this means driving the vehicle home with customer's approval.

Once a general diagnosis has been completed and the technician decides the monitors should be able to run, what should be done next? Some technicians do nothing and miss an opportunity to make some money. Why would they do this? This is because they haven't developed plan, can't maintain a steady throttle, and to be honest, they lack an understanding and the patience it takes to run a monitor. Here are some reasons I've heard over the years:

- ***"I don't get paid to run monitors"***
- ***"Many published Drive Cycles do not work"***
- ***"I can't complete a full Drive Cycle because of heavy traffic and the distance from an open stretch of road or a freeway"***
- ***"I don't run them on the dynamometer because it makes too much noise and it is unsafe to run the vehicle at 45-60 mph"***
- ***"I prefer to give the vehicle to the customer and have them drive it for a week and then return to my shop"***

*(Continued on page 20)*

# “You Can’t Do It Like You Use To” By Bobby Bassett

You’re the subject matter expert, so who am I to tell you what to teach or how to teach it? You have had years of experience and repaired more cars or taught more students than I could ever have imagined. But the time is coming fast, where *you can’t do it like you used to*. In fact the industry is beginning to recoil because they can ill afford the returns and labor claims associated with the lack of the latest repair procedure. If we are not careful, at some point it will be between you and your customer to cover the warranty if we don’t work together to solve some of these challenges.

Each year I have the pleasure of meeting and teaching over 1000 instructors. Through this process I have developed great friendships that will endure a life time. As I reflect back on the many conversations I had over the years, I began to see a concerning pattern and that was the lack of the latest technical information or repair process resulting in premature failures, unhappy customers, comebacks , lost wages by the techs and profits for the shop owner.

I saw this lack of information first hand in 2010 when Gates first introduced the belt wear tool. I learned then how frustratingly difficult it would be to put updated *Industry Changing* information in your hands. If we were to follow the normal channels for content development for LMS or text books It could take 6 to 10 years minimum and I could not let that happen. It was that important in 2010 that you make an immediate change in how you taught belt inspection using the belt wear tool and absolutely critical that you taught the need for tensioner inspection /replacement at the same time as the belt.

Through continuing research with industry partners we now know:

- 70% of rotating electrical returned to the factory, nothing’s wrong with it!
- 95% of water pump failures are due to “no flush!”
- 90% of timing belts fail after belt replacement!
- 40% of radiator failure due to coolant contamination!
- 90% of the fuel line you purchase is not even compatible with today’s fuels!

Yes, you’re the subject matter expert on what you teach but Gates is fast becoming an expert on system failures associated with systems our products are associated with. It was important that we find a way to get this latest information to you. Thus the Gates Tools for Schools (T4S) program was born. A no cost/no obligation Educators resource site that you could access 24/7 filled with the latest information available from Gates like tech tips, presentations, YouTube videos, webinars, the Performance Center eLearning and more.

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(Continued from page 18 - Can't Do it Like You Used To)

Today, the T4S program membership is almost 1800 Educators strong but the interesting thing is there are only 44 Educators from California. What makes it more interesting is almost no one from California participates in webinars which I find really interesting especially for the secondary instructor.

At the beginning of summer, I sent a note to the T4S members asking if anyone would like a totally free Accessory Belt Drive System Display with Laser Alignment tool, a $300 value. Just send me a note and I would be glad to ship it. In less than 2 days Gates donated more than $130,000 worth of "free" displays to Educators. Sad to say only 14 of those were shipped to California.

I can't imagine that the educator in California is any different than Educators in the rest of the country. With technical information changing so fast, you must utilize all resources at your fingertips. To wait for this latest information to be placed into your tech books or LMS's may be years away resulting into a recipe for future disaster. Strong language you say? It's meant to be. I am in no way indicating you are doing anything wrong, just asking you to open your wings so others can help you.

There *is* a bright side to this scenario. The Industry is beginning to take notice and understands the need to provide you, the Educator, with the latest information. But again, they are struggling, just like Gates did to get this latest information to you. So, until everyone else comes on board, please take a few minutes to join the Gates Tools for Schools program, a resource site just for Educators which can be found at www.gates.com/programs-and-promotions/auto-training/knowledge-hub for training ... click through till you come to the Educators Tile and join the Tools for Schools program and I'll take it from there.

**Bobby**

**Manager of Training**
**Gates Corporation**
**Robert.bassett@gates.com**

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## Automotive News Stories

**I thought you would be interested in this story I found on MSN: 1969 Ford Mustang**

**http://www.hotrod.com/cars/featured/1106-1969-ford-mustang-long-lost-boss/**

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**http://www.nydailynews.com/autos/street-smarts/7-biggest-automotive-scandals-time-article-1.2371949?cid=msn**

(Continued from page 17 - Addressing Incomplete Monitors)

The most important information required to run a monitor is the Enable Criteria. The Enable Criteria are conditions required to run and set a DTC, or a Pending DTC, or the Readiness Monitor. Each component or system will have its own Enable Criteria. The problem is that not all manufacturers publish this information clearly, or make it easy to find, or address the important "Generic" criteria needed to run most monitors. The information which is helpful is:

- ***Engine Load***
- ***Throttle Angle***
- ***Time Limit to run the monitor***
- ***Mass Air Flow or MAP***
- ***Inferred temperature of the exhaust for testing the Catalytic Converter and Oxygen Sensor(s)***

**The following is an example of one method for completing the CAT Monitor:**

- A ***steady throttle (TP 15%-55%)*** for a minimum amount of time up to a maximum allowable time.
- Calculated load ***less than 60%***.
- Adequate ***Mass Air Flow (15-35 grams/per second).***
- The relationship between ***throttle opening time*** and ***exhaust time*** to assure that the Catalytic Converter is within the correct temperature range. (>900°F but less than 1300°F which can be read on CAN systems)
- Engine speed ***under 4,000 Rpm***.
- Vehicle speed ***25-70 MPH*** and on some applications the vehicle must be at a stop, ***idling in Drive.***

**What if I want to use my dynamometer to run the monitors?** Here are some settings you can use depending on the BAR '97 and the dynamometer you have in your shop. To successfully run Monitors on a dynamometer the recommended settings are:

- ***Snap-On***: Manual Test Menu, Road Simulation Mode and enter the approximate vehicle weight.
- ***If you have the PC Option on your SNAP***-ON you can also use the LA4 Drive Cycle. It takes more skill to follow but it works well.
- ***SPX/Worldwide***: Manual Test Menu, Technician Steady State, use a 5 -10 HP load setting. Start with 5 HP and increase if the EGR system has difficulty running.
- ***ESP***: Manual Test Menu, Technician Steady State, use a 5 -10 HP load setting. Start with 5 HP and increase if the EGR system has difficulty running. ***Do Not start the timer because the dynamometer will load anyway.***

**How might completing the monitors be affected by the Dynamometer loading?**

- A light load increases deceleration time, which is good for some EGR monitors, but it will require additional engine speed and vehicle speed to achieve the required air flow, TP, and load. In this case, the CAT and O2 monitors may not run.

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(Continued from page 20 - Addressing Incomplete Monitors)

- A heavy load will increase throttle demand greater than 25%-30% at the required speed and the monitor will not run. In addition, deceleration will be too fast and the EGR will not test.

**What are some reasons for a Monitor *to remain Incomplete*?**

- The Enable Criteria was not met. Some monitors must test under special conditions; such as: EVAP has temperature constraints and O2 Sensor Heaters may require a cold start.
- The test was suspended due to a ***change in the driving conditions.***
- A ***conflicting*** DTC is present.
- A ***blocking*** condition has occurred. If there's another component, such as the oxygen sensor, that is needed to evaluate the catalyst efficiency or the EGR flow. The PCM may run the test, but will not record the results until the oxygen sensor test runs successfully.
- A ***conflict*** between systems occurred. If there's another test running at the moment, or operating conditions for the test aren't right, the PCM will wait. The PCM can't be sure the test will run and provide accurate test results and will wait until the conflict is resolved to run the test.
- ***Intake Air Temperature*** plays an important role in monitor operation. Pay attention to this sensor when running Monitors inside the shop on a dynamometer or outside in extremely cold or hot ambient temperatures.

**When it appears that a monitor has *not Completed*, ask yourself these questions:**

- Did the monitor run and fail and is there a pending DTC?
- Did the monitor not run at all?
- Did part of the monitor run but ***not Complete***? In this case, refer to MODE $05 or Mode $06 for additional information. A good example of this condition is the EVAP Monitor. Many 2003 and newer vehicles test for a .020" (Very Small Leak) with engine off. For these vehicles all EVAP tests complete while the vehicle is being driven, except the .020" (Very Small Leak) test. Once the vehicle is turned off, a minimum about of time must elapse for the .020" (Very Small Leak) to run. If the vehicle does not sit long enough and the .020" test does not run, all previous test results are forgotten at the next startup because this is a "series' monitor that must run in a specific order. It is all or nothing in this case.

**How can you locate the Enable Criteria in order to run a monitor?**

- If the vehicle has a DTC with a Freeze Frame the Enable Criteria can be identified there. This is sometimes referred to "Driving the Freeze Frame". So, don't be to quick to clear this valuable information. PIDS related to Engine Load, RPM, and VSS are included in most Freeze Frames. Other information that can be helpful: Intake and Coolant Temperatures, Throttle Position, and Air Flow.
- Identify the DTC or DTCs related to a particular Monitor. Generally, the Conditions to Set the DTC includes most of the information required to meet the Enable Criteria.
- I would like to say that you should refer to Mitchell, ALLDATA, or the MOTOR Drive Cycle book. My problem with these resources is they don't prove that they work. Typically, they get this information from the OEM WEBSITEs and make the assumption that they do work.

Running monitors is not something done by luck, even those a little luck does come into play. To successfully run monitors requires a plan; the plan should include a working knowledge of what you are trying to accomplish and what the PCM uses to evaluate the monitor. The technician will need a steady throttle and patience to accomplish this task. Otherwise the customer spends money needlessly and the technician wastes a lot of time.

**In the next issue of the CAT Newsletter I will address: how to create Drive Cycles, how Controller Area Network and Tier 3 Standards have changed some of the issues addressed in this article.**

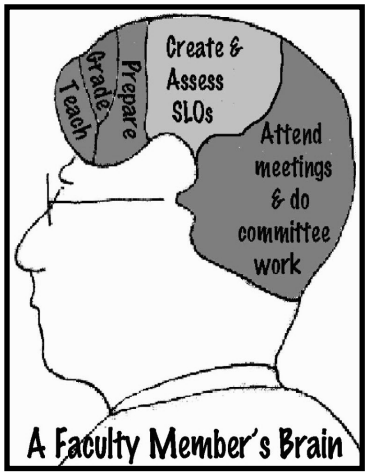
# Farewell to the Dream I Lived - by Rick Escalambre

It seems like just the other day I walked onto the Skyline campus for the first time. When I was hired at Skyline it was my return to teaching automotive. Having taught automotive for 5 ½ years at the high school level I decided to leave teaching and return to the industry where I managed a service station, ran my own business, and worked for an equipment company. After losing our youngest daughter to a wicked form of cancer at the young age of four, I was so blessed to return to teaching.

Along the way, I was blessed to have two outstanding mentors. My first mentor and the person who brought me to Skyline was the late Dell Cooper. Dell was a soft spoken gentleman who led by example; especially when it came to his work ethic. When Dell retired I assumed the program coordinator role in addition to my full-time teaching load. Dell taught me a couple of valuable lessons: 1) don't bridges because you may want to cross them again, 2) the challenge to coordinating is not the paperwork, but the people, boy was he right. I took over the program at a time when the program was expanding because of a tremendous relationship with Toyota and a lot of donation vehicles from the late Al Spears at BOC Engineering.

My other mentor is Bob Barkhouse. I am sure I am not the only one who can say that. I really got to know Bob when we traveled to BOC Engineering in Flint, Michigan as part of the summer GM Job Shadowing Program. From that time on I developed a tremendous relationship with a fabulous person. Not long after that Bob "railroaded" Terry La Croix and myself onto the CAT board. Bob's belief in me lead me to become the first two term CAT President. In addition, Bob got me involved with Wayne Brumett and George Adelsperger and BAR. For BAR I became an advisor, writer, and trainer. Bob taught me how to sit through a meeting that had my blood boiling. He taught me it paid to listen and not be irritated.

You are probably wondering, what would make me retire? That is a fair question because Skyline has been called the "Disneyland" of teaching. There were two driving forces: first is my family. The birth of my grandson, Aidan Richard, really changed my life. Growing up, I didn't know my grandparents. So, given an opportunity to be a "Papa" really changed my perspective. Then our granddaughter, Ave Rose, was born and that made my decision very easy. The good part is they only 1.5 miles from us, so I see them more than I ever imagined. The second reason for retiring was the non-teaching stuff. Teaching was becoming about 50% of what I did and the 40% was being consumed by shared governance, which meant college committees, hiring committees, tenure and peer committees, and many other things that impacted the workload. Then the subject of accountability really started to evolve and now we were spending time addressing basic skills, SLOs, PSLOs, ISLOs, Trac-DAT, and other student assessment. About 23 years ago I told our District Chancellor that teachers had less time to do what they do best and that is to teach. Over the last 23 years the emphasis on teaching has decreased. As I watched teacher burnout occurring in November and then again in April I began to evaluate my desire to continue. So, I made my decision to retire. By doing this almost 15 months in advance gave the department, division, and college an opportunity to plan ahead.




**Accomplishments**

When I started at Skyline the program was comprised of four full-time instructors, twelve part-time instructors, 1 instructional aide, and no secretary. The program had two buildings and two vehicles. Since that time, the program has grown to seven full-time instructors, 15 part-time instructors, two instructional aides and

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(Continued from page 24 -Farewell to the Dream I Lived)

one full-time secretary. Skyline now has four buildings, a tremendous amount of equipment, and close to ninety vehicles. The Automotive Technology Department is the most respected program on Skyline's campus, at the District Office, and with the Board of Trustees.

Other things I am extremely proud of are: becoming the first two term CAT President, helping CAT build a strong relationship with BAR, establishing the CAT Newsletter with Terry La Croix, helping expand the Skyline College name and reputation around the globe, receiving the CAT President's Award twice, being selected Outstanding College Instructor once, developing course materials used around the state, and this spring I received the 2015 ASA VISION Conference Educator of the Year Award. As a I reflect back at my time at Skyline College I am proud of the 14 former students who are now full-time or part-time instructors at Skyline or elsewhere, two former students are now running the Toyota Training Center in San Ramon. I am proud of the books I have written and the course materials I have developed, they are still being used at Skyline College.

Many years ago, Bob Barkhouse said to me that Community College were always to slow to react to the needs of industry because changes took to long to happen. That really got me thinking when Enhanced Smog Check Program rolled out in 1997. Even though the bay area was not involved in the program at that time, I asked myself why should our technicians renew an EB license? Why should they not obtain an EA license and be ready to roll when the program started in northern California? I wanted to address this issue but I had to address another issue, there was no room in my weekday schedule to teach another class. I found a Special Topics course that allowed me to generate courses on short notice. I decided to teach the BAR Enhanced classes on the weekends. During the 17 years of teaching weekends approximately 8,000 Smog Check technicians attended my classes. This format has been continued by my weekend replacement. Through the weekend training I met and trained technicians from the Oregon border, Modesto, Tracy, Fresno, down to Salinas and Monterey, along with thousands of technicians from the bay area. I built it and they came, it was a win-win for all.

**So What's Ahead for Me?**

There is a saying, you will know when it is time to retire. Boy that is so true. The hard part of getting ready to retire was answering the same question over and over, what are you going to when you retire?

First of all, I don't play golf, hangout with boys, race cars, or do a lot of traveling. I do love spending time with my family, snow skiing, and riding my road bike (by the time you read this newsletter I will have surpassed 30,000 miles on my bike). I would like to become more involved with my church and faith.

In my opinion, life is a series of phases; so enjoy the one you are in and move on to the next when it happens. I am in the next phase called, "there is life after a full-time teaching career". Next spring I will return to teaching as an adjunct instructor teaching two courses, Ignition Systems and EVAP Systems. We will see how this works out. I still want to conduct workshops for educators at CAT, NACAT, VISION, and similar conferences. I plan on doing more writing and course development. My motto has always been "I love helping teachers teach more effectively! I am still around to help, advise, and guide teachers with their dream to be an excellent teacher and to have a successful program.

In closing, I want to thank my wife, Pat, and daughter, Krista, for supporting me and the time I put in at Skyline College. I could not have accomplished all that I did without them. Now it is time to give back to them and the rest of the family.

Thanks to the past and current faculty, staff, and administrations I have worked with at Skyline College. I always say "people make programs and people break programs". A program that places "students first" will be successful. I am confident that the Skyline College Automotive faculty and staff will keep the tremendous tradition and culture alive and well for years to come…….

# Spring 2015 Conference Highlights By Phil Jelinek

As the 1st Past President of CAT, it is my responsibility to coordinate the conferences by assisting those who step up to host our Spring and Fall conferences. CAT supplies the host school with a framework to guide them through the process and from the responses I have received from the hosting schools, it has worked quite well.

Our Spring conference this year was at Skyline Community College, in San Bruno, CA. Skyline has hosted our conference numerous times and always sets the standard for a well-run conference.

The Friday tours were to the Hillar Aviation Museum and Roy Brizio Street Rods. I attended the Hillar Aviation Museum tour and those of us who attended enjoyed it greatly. From the Hillar Aviation Museum website: "Dedicated to the dreams of flight, and the adventurousness and innovations of aviation pioneers, the museum chronicles over a century of aviation history and provides a glimpse into air transportation's future. Vintage and futuristic aircraft, prototypes, photographic displays and models are on display.
Aircraft and exhibits showcase aviation history as far back as 1869. Interactive displays include a real Boeing 747-100 nose section and cockpit, a *Storm Making* exhibit, several flight simulators, exhibits about weather and aviation careers, the *Sky Portal* (featuring Google Earth), air traffic control simulation, a new *Invention Lab* and many others."

From the Brizio website: "Roy Brizio Street Rods has for more than twenty years earned a well deserved reputation for providing the parts and pieces as well as complete turnkey cars that have defined modern hot rodding. In fact, the Brizio name has been synonymous with quality hot rods for nearly half a century and has spanned two generations.|"

We had 24 vendors share their wares with our members and show us the latest and greatest in what is new in education. The seminars informed and educated our members in topics from Electricity, the Internal Combustion Engine, Diesel Diagnosis, and using Pico Scopes to Engaging Today's Learners to incorporating STEM in the Classroom. We also had quite a number of hands-on classes including Learning about the Modified Simpson Planetary Gearset and Understanding CAN Codes and OBD II.

A special thanks to Rick Escalambre, Tom Broxholm and their staff from Skyline College for putting on a great conference.

Hope to see you at Mira Costa College next month.

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# CAT Conference Sponsorship

**A BIG THANK YOU** to the companies that helped sponsor the spring CAT Conference Friday night dinner for 125 people, the continental breakfast on Saturday, and refreshments throughout the weekend. Each sponsor received a Certificate of Appreciation and were recognized at the Friday night dinner and the Saturday luncheon. We hope to keep this tradition alive this fall at Mira Costa. The sponsoring companies and there WEBSITE links were:

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California Automotive Teachers

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**EXHIBITOR CONTACT**: Phil Jelinek, Retired, pjelinek@calautoteachers.com

**NEWSLETTER**: Rick Escalambre, Retired (Skyline College), rick@calautoteachers.com

**WEBMASTER**: Tom Broxholm, Skyline College, tom@calautoteachers.com

The CAT Newsletter is always looking for technical articles and advertisements! The deadline for submitting articles an ads is April 15th for the spring issue and October 15th for the fall issue. Articles should be submitted in Word. It is preferred that ads be submitted in JPEG or EPS formats, PDF will work but sometimes the text is distorted once it is placed into the newsletter. The cost and sizes for advertisements can be found on our Website.

**For additional information about the California Automotive Teachers' organization, future conferences, job announcements, training opportunities, and much more:**

**visit our WEBSITE at**

**www.calautoteachers.com**

# CAT Conference

# Spring 2016

# Modesto College

# April 29 & 30

**Conference Host Information:**

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