



California Automotive Teachers

April, 2010

Spring Issue #37

CAT NEWS

www.calautoteachers.com

Newsletter Highlights

- What's going on in Sacramento.?
- BAR is Looking SMEs!
- Farewell from a Friend.
- Summer Training Opportunities.
- Variety of Advertisements!
- ASE Sunsets Some Tests.

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Through the Eyes of a Mechanic by Jorge Menchu



Seeing through the eyes of a mechanic? Let's first consider what it is to be a mechanic. A popular definition is someone who builds, maintains and repairs mechanical systems, i.e. a "nuts and bolts" person who works with their hands. In my opinion, this is an incomplete definition.

Consider that most mechanics start their career at a young age exhibiting an innate desire to take things apart, much to a parent's dismay. At some point, parental frowns turn to pats on the back with the progression of finally putting things back together. If you are like me, the pats on the back are motivating but nothing compared to the pure joy that results from seeing and understanding how a bunch of parts join together creating a functioning system.

For me, this innate desire continues to grow and is stronger than ever partly because I am fortunate enough to continue on a path that encourages this behavior. From those first pats on the back, my journey continued to Mr. Ben Haas' auto class at Temple High School (Temple, Texas) and on to a career as a technician and then a part time trainer.

I have come to realize that the true definition is found by looking beyond the "nuts and bolts". A true mechanic is a master of the dynamics that turn objects into assemblies and assemblies into functioning systems. Simply put: ***A true mechanic is a master of complex systems through the mastering of its simpler parts.***

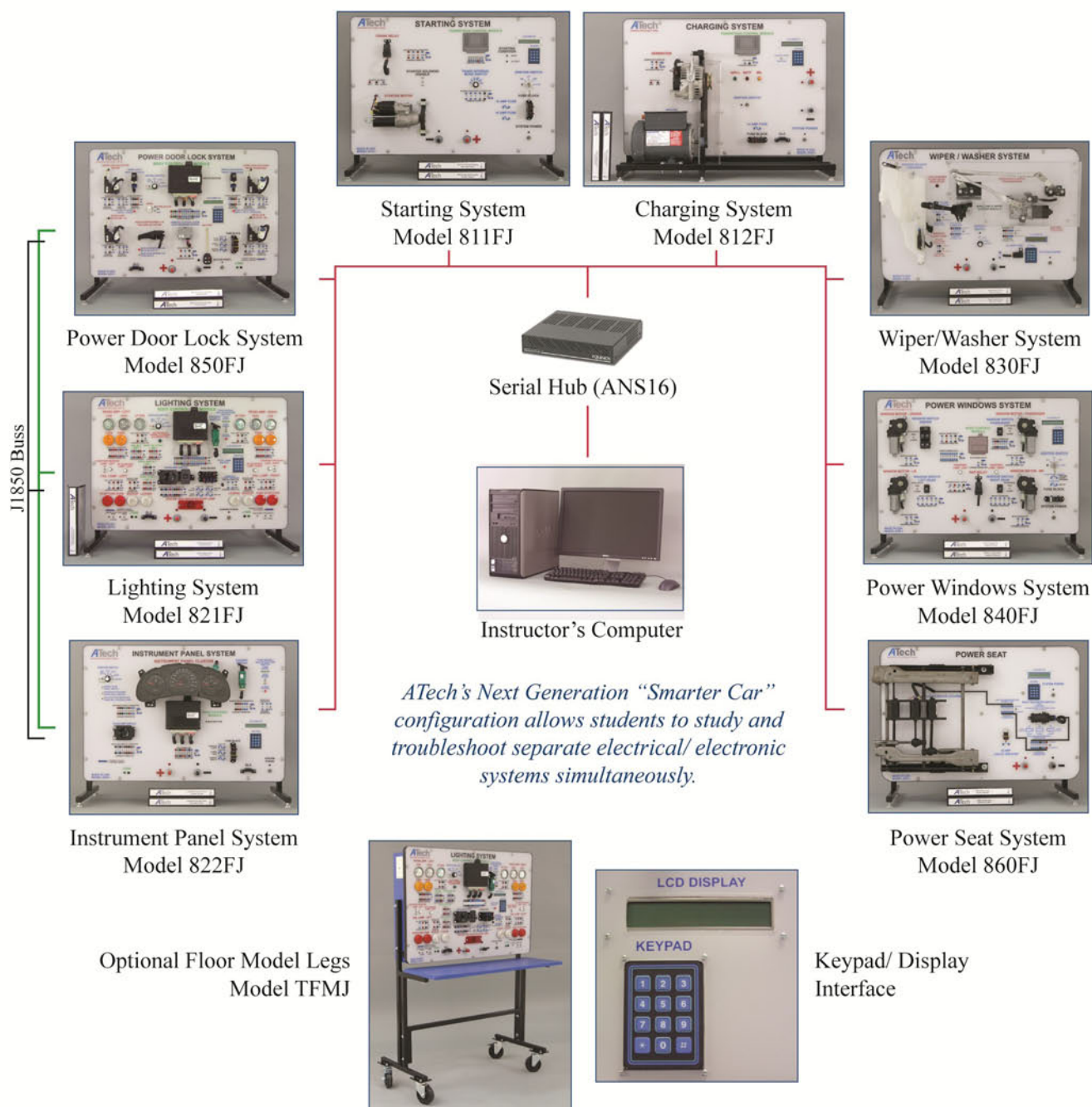
One of the main values of this definition is that it does not confine our abilities to "nuts and bolts" assemblies. This is an important point since most mechanics tend to be hands-on visual learners.

It is also important because many hands-on visual learners feel limited in their learning abilities. For those who do feel limited, I suggest that it is no more a limitation for us than it is for others who never get our hands-on opportunity. You see, it is our real life hands-on experiences that

(Continued on Page 18)

**The California Automotive Teachers will meet at Yuba College
for the spring 2010 Conference on April 23 & 24.**

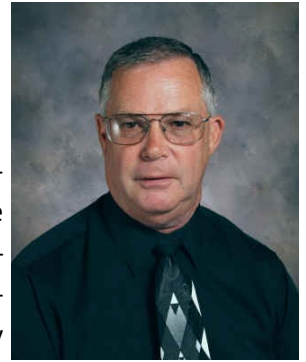
Next Generation "Smarter Car"



ATech
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President's Letter by John Overton



The older I get the faster the time seems to go. It has now been one year since I took office. As some of you may know I am retiring from Bret Harte Union High School this year. One of our biggest challenges is finding qualified teachers to replace those teachers leaving the industry. I remember back in 1971 when I first got into teaching there was an abundance of students in the pipe-line for Industrial Arts Teaching credentials. Now I understand there are only a handful of teachers preparing to go into the field. We need to maintain contact with the Universities to help ensure our field remains strong. As time permits take time to talk to your students about a career in teaching. Usually every few years I have had a student that shows skills that would coincide with those of a good teacher. We should encourage those students to look at the teaching field. As far as my job, by the time you read this, my job will be posted and the district will be seeking a well qualified instructor to back fill my position. I am lucky that I have a very supportive district. Take a look at my web site for an idea about the program:

<http://www.bhuhd.k12.ca.us/BHHighSchool/Automotive/default.htm>

We continue to work on our CAT web site to improve our communications with you. Please take time to review the changes: <http://calautoteachers.com/>. One change was to include the option to join CAT under an "Institutional" membership. This allows the schools to register multiple instructors for membership as well as the possibility of utilizing Perkins/VETEA funds to cover the costs. Another change was to the "auto links" page, as you may find the favorites on this page to be very useful.

I would also like to remind you that the membership and conference registration may be accomplished on-line at this time. This has made it much easier for conference coordination and tracking of membership by Steve Vail our Treasurer. My thanks to Jim Custeau, Steve Vail and Tom Broxholm for the work they have put into making this system so successful.

During our winter board meeting we reviewed our current constitution and by-laws. We found that some items were no longer appropriate or have changed over the years due to progress with the web site. We will post a copy of the changes on the website as well as provide a posted copy for review at the Yuba College conference. We will be asking for ratification of those changes at our general meeting.

As I am sure you, are all aware, Yuba College will be hosting the spring conference on the 23rd and 24th of April. From what I have heard, this is promising to be an excellent conference that I am sure you will find beneficial. Please take some time to register for the conference on our web site and use the on-line payment features to save you time in registration. Don't forget that late registration, after the 12th of April, increases the overall cost from \$35.00 to \$55.00. I want to thank Jim Custeau, Conference Coordinator, and Don Schumacher, Conference Leader for Yuba College, for all the work setting up this conference.

Bill Kersten, NATEF President, has recently sent out a survey in regards to the issues you may have completing the NATEF certification. Having just completed our second recertification it is gratifying that the organization recognizes that there are issues and is seeking input from the industry on where we perceive to see problems. Please take time to complete the survey and review the results once you have submitted your information. Our input is important to improving the overall process of improvement. Below is a copy of the email most of you received with the website:

[\(Continued on page 4\)](#)

"Dear Educator,

NATEF would like your valuable feedback so that we might gain a better understanding of some of the challenges facing automotive educators and administrators. The link provided will take you to a short 20-question survey that should take you about 10 minutes to complete.

<http://www.keysurvey.com/survey/289812/178ee07c/>

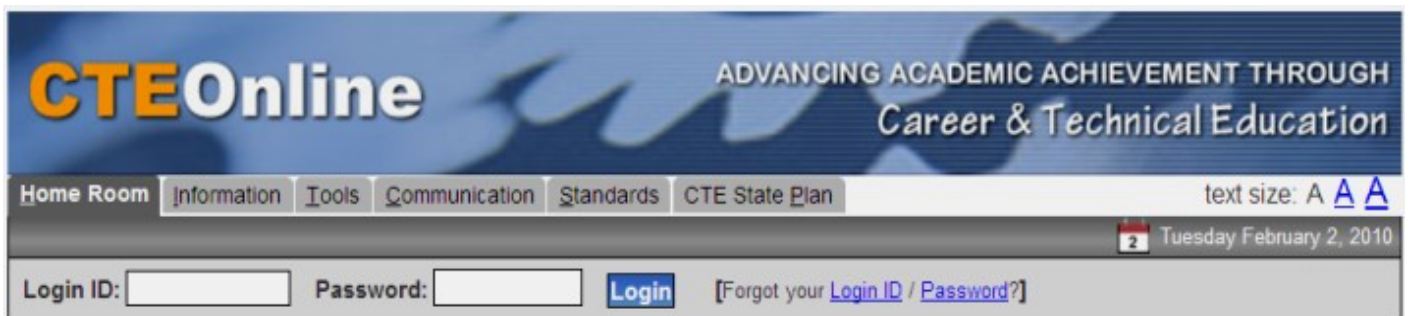
If you have any questions about the survey, call the NATEF office at 703-669-6650 or write to webmaster@natef.org.

Thank you for your opinions on these critical issues!

Bill Kersten

President, NATEF"

On a final note I am currently working with the California Department of Education on the CTE Online project for curriculum development. They are developing model curriculum materials to be shared with others in industry. This crosses all CTE sectors. I feel it important that we be involved in this process to help ensure CAT representation. I would recommend that you take a look at the web site to see if there is anything you may put to use in your programs. This is focused on secondary level programs. Some materials are already available. See web site:



<http://www.cteonline.org/index.cfm?>

I want to thank everyone for helping make my first year as president successful.

I hope to see you all at Yuba College on April 23rd and 24th for the spring conference.

A Message from the Newsletter Editor!

We are looking for a sponsor or sponsors to pay for the cost of printing the complete newsletter in color!

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



Executive Director's Report by Bob Barkhouse



Welcome back to the newsletter. I hope your new year is a good one in spite of the financial crisis. I am truly concerned about the many roadblocks the high school CTE programs are encountering. When you stop and think about "Exit Exams", "No Child Left Behind", "everyone is going to college", "increased academic requirements for graduation" and now "Race to the Top" using up elective hours, where does CTE fit in??? It does not make sense when we have a 30% dropout and 80% of those that do graduate from high school are leaving with no salable skills. Can it be that those in charge at the State Department of Education would just as soon eliminate CTE at the high school level and leave career training up to industry, proprietary schools or the community colleges. I certainly hope not.

Another CTE tragedy just happened at Sierra College. Their Board has proposed to eliminate Construction, Agriculture, Automotive and minor sports in spite of one of the automotive instructors agreeing to work a year with no pay while the other would take a 25% pay cut if they would keep Automotive alive. I met a retired Sierra College Automotive teacher, Steve Ledbetter, at a swap meet and he said that the board proposed courses will go away at the end of this semester. If this is the result of tight money, then we must be concerned about a trend of the community college CTE programs being cut back or eliminated completely as money gets tighter. Sounds like a familiar scenario we have experienced over the last few years at the high schools.

Enough bad news. All of you should feel proud of your Officers and Board Members. For the last several years, they have met for a all day session between Christmas and New Years. The business of CAT has become so complex that they were unable to keep the organization running smoothly with just the Friday night Board meetings at the conferences. I was particularly proud of the last meeting. All the egos and agendas were left behind and a lot was accomplished. Minutes of the regular Board meetings and the all day session are posted on the web site. Take time to read them. When you see your Officers and Board Members at the CAT conferences, take time to thank them for their dedication.

As you might expect, legislation in these tight budget times is very difficult. A bill did get signed at the end of the last legislature that forces the State Universities to accept CTE courses as electives. This should help the grade point upon entering community colleges or universities.

At the Fall Conference, we had a very welcome visitor from ASCCA attend the CAT Board Meeting. Kevin Donohoe is from the Monterey area and currently serves as a member of the ASCCA Board of Directors. Kevin expressed a strong desire to reestablish a working relationship between both organizations. Years ago, we had that relationship and a lot was accomplished. Thanks Kevin and I hope we are in for a lot of years ahead working for the mutual good of technician availability and training. Kevin also expressed an interest in hosting a CAT conference in Monterey. It has been a long time since CAT was at Monterey. Monterey is a great place and for a change I will bet many wives will be interested in the weekend in Monterey/Carmel area. Keep tuned in for this one.

How about the Rick Escalambre newsletter! Everyone that I have talked to is very pleased with his effort. We can help Rick by sending him copies of technical articles or articles of interest to Automotive teachers at 874 Madigan Ave, Concord, CA 94518 or email to rick@calautoteachers.com. If you have ever done a newsletter, you know that it becomes very difficult to find articles. Lets load him up with articles. He keeps a file and uses them as space allows.

There is a great tour on Friday the 23rd of April along with the CAT Conference at Yuba College. The tour will be all day at Beale Air Force Base starting at Yuba College at 9:30 a.m.. Tour is limited to the first 40 to sign up. You will see

(Continued on page 9)

Summer Training Opportunities—Southern California

Ford Motor Company (workshop is tentative at this printing)									
Location: 14923 East Desman Road, La Mirada, CA 90638							Dates:	June 28- July 1, 2010	
Contact: Eric Gillanders 714-522-2791 email: egilland@ford.com							Times:	8:30am-4:30pm	
Topics (include but are not limited to): Ford's New 6.7 Diesel Engine : All aspects of the new Ford-manufactured engine with emphasis on emissions controls and exhaust system with Urea Injection.									
Mercedes Benz USA									
Location: 9571 Pittsburgh Ave, Rancho Cucamonga, Ca 91730							Times:	TBA	
Contact: Mark Gibson 909-476-7501 email Mark.Gibson@mbusa.com							16 enrollees, max		
Topics: Networking systems overview: (CAN , Herman scope shop session); Powertrains (Petrol and diesel engines, transmissions, 4-matic, and AMG vehicles)									
American Honda Training Center (workshop is tentative at this printing)									
Location: Torrance							Times:		
Contact: TBD							* NEED TO FILL OUT HONDA ENROLLMENT FORM TO GAIN ACCESS TO CLASS *		
Topics: Honda's unique "Individualized Skills Training" approach allows students to concentrate their learning on subject areas of their choice. Due to high demand for this course, it is important that you can commit to all five days when you enroll.									
Toyota LA Region Training Center									
Location: 2 Banting, Irvine, CA 92618							Times:	8:30 - 5pm	
Contact: Rick Donia email: Richard_Donia@toyota.com							*Limited to 12 enrollees, early registration encouraged*		
Topics: Networking: from BEAN to CAN and MOST, New Technology: 2010 Prius, Active A/F Sensor Testing, Permanent DTCs, Hybrid Maintenance Procedures . If you have specific questions or requests for topic material please include that in your early registration.									
Rio Hondo College									
Location: 3600 Workman Mill Road, Whittier, CA							Dates:	July 14-22 2010	
Contact: Steve Tomory (562) 908-3433, FAX (562) 463-4603							Material Fee \$30 each course		
Topic 1: July 14, 15, 16 - BioDiesel Seminar . An introduction to one of the fastest growing, cleanest liquid alternative fuels – Biodiesel. This course will primarily cover an overview of this renewable energy source, including its background, history, and use as an alternative fuel. This course will also discuss in detail Biodiesel production and some of the operational and fuel quality issues.									
Topic 2: July 20 - ATech Electronics This course is designed around the ATech S.E.T. boards that provide hands on technical training. This course will cover a general overview of the basics in vehicle electrical and electronic diagnosis, and discuss basic theory and wiring diagrams, diagnostic strategies, Ohm's Law, Kirchhoff's Theories, series/parallel/series-parallel circuits, volts/amps/resistance/ voltage drop testing, and battery/charging/starting systems. Proper use of the latest testing equipment (DVOM) is an essential hands-on component of this course.									
Topic 3: July 21-22 - ATech Advanced Electronics. This course is designed and uses the ATech 3600 series trainers utilizing computer assisted electronic testing boards. Intended for the individual who needs a detailed overview of vehicle electrical and electronics as it applies to Powertrain Management systems. This course will discuss semiconductor theory and application, computer-controlled inputs and outputs, wiring diagrams, diagnostic strategies, and use of DVOM and DSO. Upon completion , the student should be comfortable in diagnosis of OBD II Powertrain control systems.									
BMW of North America, LLC									
Location: 1175 S. Dupont Avenue, Ontario, CA 91761							Times:	8:30am-4:30pm	
Contact: Brianna Lee 909 975-4301 or Brianna.lee@bmwnaext.com							*Min enrollment 10 students*		
Topics (time permitting): History of BMW, Diagnostic equipment and usage, Basic Diagnosis, Overview of Coding and Programming, Overview of BMW Drive Train components. Engines, Transmissions, Power distribution components Overview of BMW Body electronics. Control modules, Communication network, Climate control, Customer Convenience systems etc.. After that class the participant with prior approval can enroll in a current technician class of their choice to make up the rest of the forty hours. This would be based on seat availability, certain classes would be off limits based on content or the need of our centers.									

Summer Training Opportunities—Northern California

PERFECT SKY, INC. (JACK ROSEBRO)									
Location: 3300 College Drive, San Bruno, CA 94066								Dates:	June 26-July 1, 2010
Contact: Register with Kelly Karlstein (310) 801-7818 email: perfectskysupport@mac.com						Cost: \$950 each course		Times:	9am- 4pm
Topic 1: June 26-28 Hybrid/ElectricVehicle Workshop for Educators, Level One. Permanent AC motor construction, AC and DC drive-by-wire motor operation, Switching modes of voltage-source inverters, Static and dynamic HV insulation testing, Speed and torque control loops for traction motors, DC brushed electric steering assist systems, Failure modes with and without DTCs. Limit 20.									
Topic 2: June 29-July 1 Hybrid/ElectricVehicle Workshop for Educators, Level Two Level II Due to the nature of the hands-on exercises, Level II workshops are limited to 20 instructors who have completed Perfect Sky's Level I workshop. Topics covered include: HV battery pack failures and diagnostics, Drive motor failure modes and diagnostics, Using Toyota's Techstream/Techstream Lite, Criteria for specific diagnostic trouble codes, Differentiating motor and inverter issues, Alternative hybrid/EV diagnostic strategies, and Plug-in vehicles and charging system operation									
Ford Motor Company San Francisco Training Center									
Location: 1035 Serpentine Lane, Pleasanton, CA 94566								Dates:	July 13-16, 2010
Contact: George Swanson email: GSwanson@Ford.com				NOTE: Enrollment deadline 30 May Minimum Class Size- 10				Times:	8:30am- 4:30pm
Topic (include but are not limited to): Ford's New 6.7 Diesel Engine : All aspects of the new Ford-manufactured engine with emphasis on emissions controls and exhaust system with Urea									
								Dates:	July 20-22, 2010
Contact: David Organ email: DOrgan@ford.com				NOTE: Enrollment deadline 30 May Minimum Class Size- 10				Times:	8:30am- 4:30pm
Topic(s): New Ford Fusion Hybrid and Ford Escape Hybrid, with hands-on work on the Fusion									
Chrysler Group LLC San Francisco Training Center									
Location: 4777 Bennett Drive, Suite C, Livermore, CA. 94551								Dates:	July 26-30, 2010
Contact: Scott Jefferis 925-373-0357, or SAJ@chrysler.com Limited to 18 participants.								Times:	4:30pm
Topic(s): Body Electrical (16hrs), NVH (8hrs), Pentastar Engine (8hrs), Asian Automatic Trans (8hrs)									
American Honda Northern California Training Center									
Location: 123 Val Devin Parkway, Stockton, CA 95206								Dates:	August 2-6, 2010
Contact: Christine Vinson (209) 983-4500 for enrollment procedure				* NEED TO FILL OUT HONDA ENROLLMENT FORM TO GAIN ACCESS *				Times:	8:30 a.m. - 4:30 p.m.
Topic(s): Honda's unique "Individualized Skills Training" approach allows students to concentrate their learning on subject areas of their choice. Due to high demand for this course, it is important that you can commit to all five days when you enroll.									

These classes provide an excellent opportunity to enhance your automotive teaching skills, network with your peers, and meet your annual NATEF training requirements.

Check the Website for additional workshops not listed!

Other summer training opportunities not listed: NACAT 2009, see page 27.

This fall in Las Vegas is the CARS/NACE Conference October 10-13.

<http://www.carsevent.com>

Note: Drew Carlson and Quentin Swan did all that they could to line-up a variety of manufacturer sponsored workshops. So make sure to sign up early and to attend the classes, so our training partners will continue to support future summer training workshops.

New titles from PEARSON

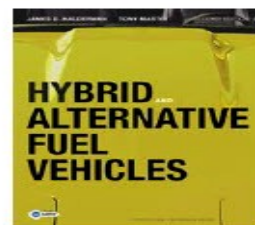
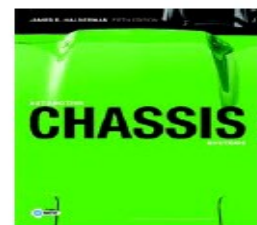


MyAutomotiveLab is an easy-to-use online resource designed to supplement a traditional lecture course. It provides robust assessment and personalizes course content to address students' specific learning needs. The objectives in MyAutomotiveLab are mapped to the ASE test content taught in each chapter. Customized study plan tools include: an e-book, interactive media exercises, and engaging garage simulations

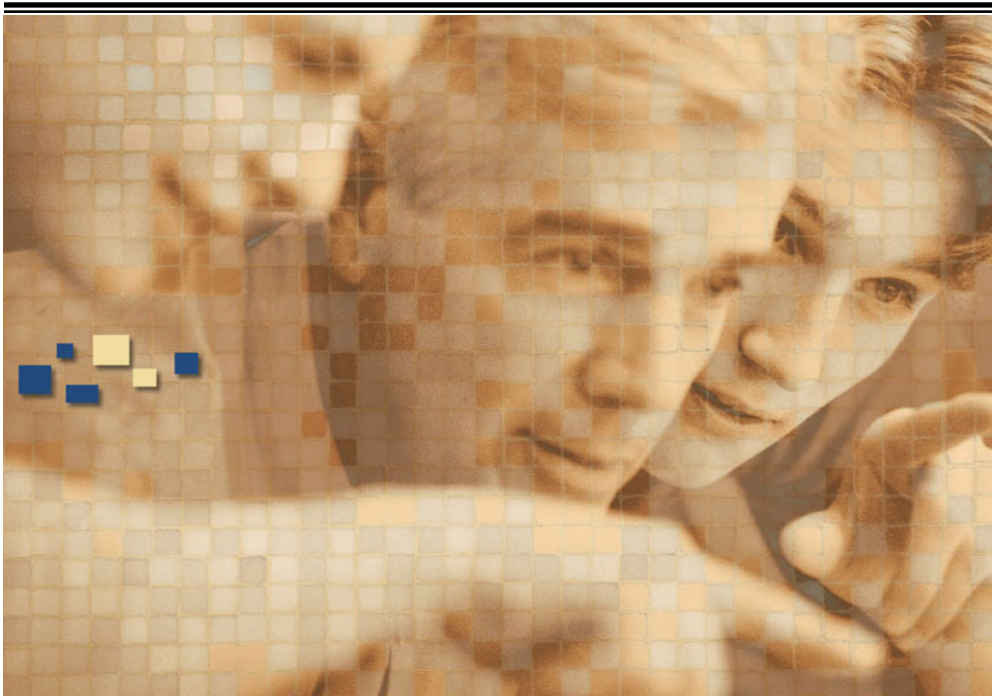
<http://www.myautomotivelab.com>

MyAutomotiveKit is an online supplement that offers book-specific learning objectives, chapter summaries, flashcards and practice tests as well as video clips and activities to aid student learning and comprehension. Also included in MyAutomotiveKit are Interactive 3D Virtual Garage Simulations that mimic the working shop environment and reinforce diagnostics, critical thinking, and effective communication

<http://www.myautomotivekit.com>



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the high altitude U2 and the space suit they wear at altitude. The Global Hawk, which is a plane without a human aboard that they fly all over the world, right from Beale. You will see the imagery that is taken from altitude and will marvel at its capability. A couple lucky CAT members will have a chance to ride in the chase car that is used to recover the U2 - fast ride!!!! You will have a chance to walk around a static display of the SR71 - fast plane!!! You will see a briefing on the training that goes into developing Smart Bombs and much more. Tour ends by 4:30 p.m.. Details on ID needed to go onto the base will follow in a Yuba Colleges mailer.

BAR recently announced that Gary Hunter (retired from BAR) has been hired as a consultant by BAR to work two days a week with BAR Clean Air Instructors and the BAR. Gary is a good man and comes from a CTE background. He will be in attendance at Yuba College and would like to hear from you, good or bad.

CalABC, California Automotive Business Coalition, has a foundation and recently set up a policy that each member pays dues and contributes to the Foundation. The Foundation pays for high school certification and we will be working on possible Educator Grants for their technical training which is in the talk stage now. We will keep you informed.

Tom Broxholm, from Skyline College, has taken over the webmaster for our web page. WOW, what a great job! Last conference we started preregistering on the web. It went very well. Sure makes planning for an event a lot easier. I don't have the actual figures, but would estimate that there was at least 80% of you that took advantage of web registration. The web page is open for your registration. If you see any places that we can improve, let Tom know. If not, at least tell him thank you. He has spent hundreds of hours trying to perfect the process.

That is it for now. Remember, keep the shiny side up and the greasy side down. Bob

ASE Sunsets Some Certification Tests



The National Institute for Automotive Service Excellence (ASE) announced today that, effective December 31, 2010, it will no longer offer the Truck Aftermarket Brake Parts (P3), Truck Aftermarket Suspension & Steering (P9), or the Engine Machinist (M-Series) tests as part of its certification program. The last opportunity to take a regular or recertification P3, P9, or Engine Machinist test will be the 2010 Fall testing administration in November, which will extend ASE certification credentials in the affected areas to 2015.

"The decision to end the Engine Machinist, P3 and P9 tests was not made lightly," said Tim Zilke, ASE President & CEO. "Our Board of Directors carefully examined trends in the industry, as well as the numbers of candidates required

to provide enough data to ensure a quality testing product beyond 2010. Since producing anything less is not an option, based on the results of the study, our Board decided to discontinue these tests." No other ASE certification tests are affected and the remaining Truck Dealership Parts (P1), Automobile Parts (P2) and General Motors Parts Consultant (P4) will continue to be offered.

"The real strength of the ASE program has been and continues to be our certified professionals," Zilke continued. "We want those affected by this decision to know that ASE will continue to provide information and support to all of our Machinist, P3 and P9-certified professionals through 2015."

Incorporated on June 12, 1972, the National Institute for Automotive Service Excellence was established

as a non-profit organization to help improve the quality of automotive service and repair through the voluntary testing and certification of automotive technicians and parts specialists. Today, there are nearly 400,000 ASE-certified professionals at work in dealerships, independent shops, service stations, collision repair shops, auto parts stores, fleets, machine shops, schools and colleges throughout the country. For more information about ASE, visit the Web site at www.ase.com.



Testing the Mechanical Integrity of an Engine, Part II by Rick Escalambre

In the fall 2009 issue of the CAT News I introduced “Testing the Mechanical Integrity of an Engine” using Compression Waveform Analysis. It was determined that in this day of visual learners, students easily adapted to this form of engine testing. I addressed the benefit of this testing, the required equipment and software options, and the basic points of Compression Waveform Analysis. In this issue I will present a couple of problems we faced and how this method of testing was used to improve overall engine performance.

How many times in your teaching career have been told and probably believed a student when they said they did everything the correct way? We have found this to be true of Honda/Acura four-valve per cylinder engines. Using the compression waveform has allowed us to easily identify a misadjusted valve or valves.

The first vehicle is a 1991 Acura equipped with a 1.8L engine and 160k on the original engine. The vehicle passed a smog inspection after receiving a new catalytic converter. The LAMBDA readings were 1.0. Anytime a CAT is replaced we want to know if it was the cause or the effect. The student also mentioned the engine was a little sluggish; heck, it had a lot of miles on the engine.

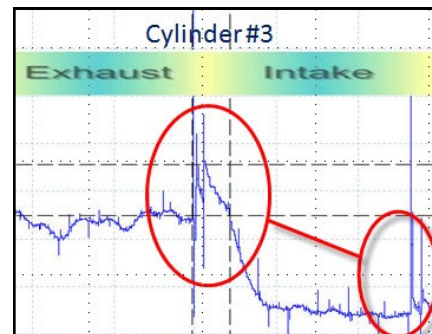
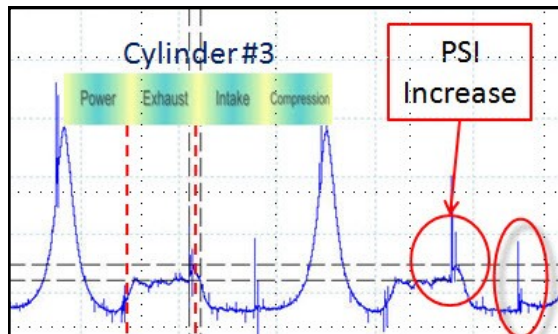
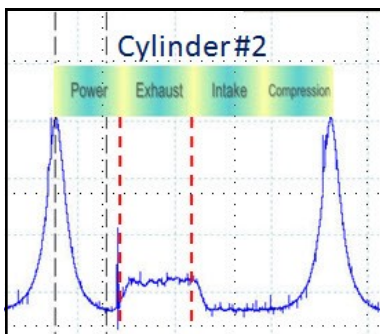
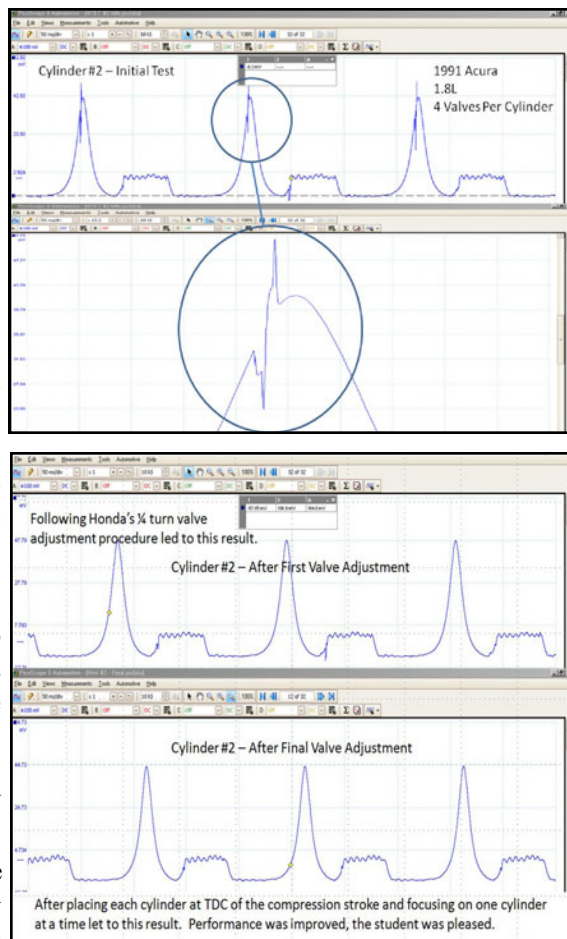
He was confident he had all sixteen valves properly adjusted. So he did a compression waveform test and the pictures to the right reflect the results. A conventional vacuum gauge showed a minor fluctuation. A conventional compression gauge showed the peak pressure, not the drop off. Think about it, to get a compression gauge to show this problem it would have had to be burped at just the right time. A running compression test using a conventional gauge with the Schrader valve installed would only have showed the peak pressure. Performing the same test with the Schrader valve removed would have made it difficult to see the drop off because the needle would normally be fluctuating rapidly.

To correct this problem he readjusted the valves using two methods. First, he used Honda’s recommended 1/4 turn adjustment procedure, shown in the top waveform. It definitely improved the waveform. The bottom waveform was captured after bringing each cylinder to TDC of its compression stroke. Please note that the bottom waveform is smoother.

All valves were adjusted following the same procedures and they all netted the same results. His performance improved and he was a happy camper.

What did we learn from this experience? Students are now required to note the valve lash prior to making any adjustments. This way they can confirm how misadjusted valves relate to the compression waveform they are seeing in the cylinder they are testing. An analogy would be rebuilding a carburetor (remember them?). Before disassembly and rebuilding, we asked: what is it doing and when is it doing it? This way we knew before going inside the carburetor, whether we looking for a common problem (float) or something related to a specific circuit (accelerator pump). Always have a purpose for the work being done!

The second vehicle is a 1991 Acura, sixteen valve engine without an EGR valve. The vehicle failed a smog inspection for excessive NOx. All the external basics were checked. A conventional vacuum gauge showed minor fluctuations. Once again, the student



(Continued on page 11)

Q: What Do YOU Need to Succeed in Today's High-Tech Classroom?

A: Everything YOU Need Is at GOODHEART-WILLCOX!

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MAST



Attend the MAST presentation
at the CAT Conference
April 24th, 10:15–11:15 a.m.

(Continued from page 10 - Escalambre)

was confident he had all sixteen valves properly adjusted. He did a compression waveform analysis test and the results are shown at the bottom of page 10. Fortunately, he had a properly performing Cylinder #2 to compare a misadjusted Cylinder #3 to.

The highlighted area in the left circle of Cylinder #3 is the valve overlap area. Now ask yourself, how important is valve overlap to a vehicle with no EGR? In this case, very important. What you are seeing in the highlighted area in the left circle is a pressure increase at the point the intake valve should begin to open. If you look closely to the right of the circle you will see the point where the intake should be starting to close. Compare the smooth transition shown in Cylinder #2 to the pressure increase shown in Cylinder #3. Further testing showed that Cylinders #1 and #4 had similar problems.

What was the final outcome of this vehicle? Were we able to document the final valve adjustments and smog inspection? We have all heard the phrase “the check is in the mail”. In this case, I am going to ask you to trust me. All of this was done before the winter recess. The student went home for the break and returned in January for the new semester. Immediately he approached me and told me he once again adjusted the valves and the vehicle passed a smog inspection at our on-site referee station. I remember being excited because I wanted to document the final compression waveform analysis readings. I asked him when we could document the readings and he said probably never! I was a little puzzled and asked him why? He stated that he worked in San Francisco as a Bartender and that his car was stolen from where he worked. I now knew why he was driving a new 2009 Civic. I spoke with our referee and he assured me that the vehicle had passed its smog inspection and NOx was considerably lower.

The moral of the story is, valve adjustment and overlap are critical. When we teach engine theory and Variable Valve Timing on late model vehicles, especially those without an EGR valve, we need to stress its importance to proper engine performance and tail-pipe emissions.

Compression Waveform Analysis is an excellent teaching tool for the visual learner, especially those with limited automotive experiences. I hear people ask why we teach an engine rebuilding class? The answer is simple, In order to diagnose it, you need to visualize what it looks and like how it works.

I don't claim to have all the answers; my intent has been to show you another way of teaching the “basics” to your students!



Excellence in Education

Stan Smith

Sonora High School

Stan Smith, 61 years old, has taught at Sonora High School for thirty-five years. He has also been an adjunct faculty member at Columbia College for thirty-five years. Stan has a BA from Humboldt State University, a MA from Cal Poly San Luis Obispo, is a certified ASE Master Technician, and a licensed Smog Check Technician.

Stan and his wife, Earlene, live in Crescent City have two daughters: Jamil and Lahna. He loves any traditional acoustical guitar music, riding horses, watching the San Francisco 49ers, and eating his wife's homemade bread. He enjoys reading Road & Track, MOTOR, and Rodder's Journal.

How did you get your start in Auto Mechanics?

Building Street Rods and Dragsters at Bill's Auto Repair in Crescent City. Stan Thompson, retired from Cuesta College, was my automotive teacher at Del Norte High School.

Do you have a Life-Changing experience?

Having my wife Earlene placed in my classroom as a special education aide. Aides in shop are generally a nuisance rather than a help. She wasn't. We got married.

What person do you most admire and why?

Bill Sample, owner of Bill's Auto Repair, recently deceased. He was part of the first wave of the Normandy invasion, he was the best mechanic in town for three decades, 1940-1960s. He put up with his son, Jerry, and me underfoot building hot rods growing up.

What is closest you've been to a famous person?

In the local Swenson's Ice Cream shop the cast of "Little House on the Prairie" which was filmed in Toulumme County.

If granted one wish, what would it be?

I would do my life, career, and marriage all over again exactly the same.

What changes have you seen in the classroom during your career?

Many kids from a single parent background with absolutely no experience with tools of any kind. I have had to adjust downward my expectations for beginners.

What are toughest challenges facing the automotive teacher?

With the emphasis on testing and college, kids with good grades are rare in auto. Producing that engineer, business owner, or teacher is becoming impossible.

What are toughest challenges facing the automotive industry today?

The pressure to produce cars loaded with gadgetry in order to sell them. Today's car is more difficult to repair and as it ages and is worth less the owner is less likely to pay for repairs. The result is a throwaway vehicle. The aftermarket repair industry has fewer years to make an income on a particular vehicle. It is just not worth it to an to pay for expensive repairs on a worthless car.

What is your dream job?

Playing backup guitar for Emmy Lou Harris or being on a pit crew at Indy. This is a toss-up!

Do you have any Favorite Quotes for your students?

If it ain't broke, don't fix it.

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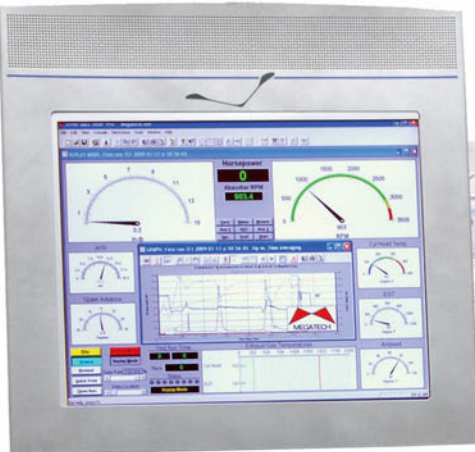
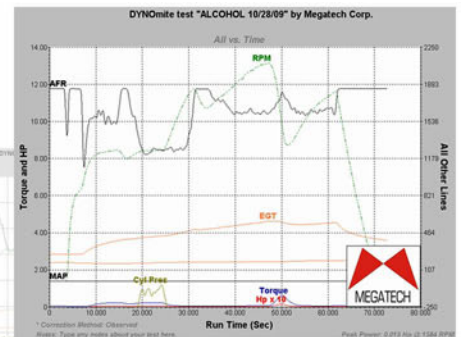
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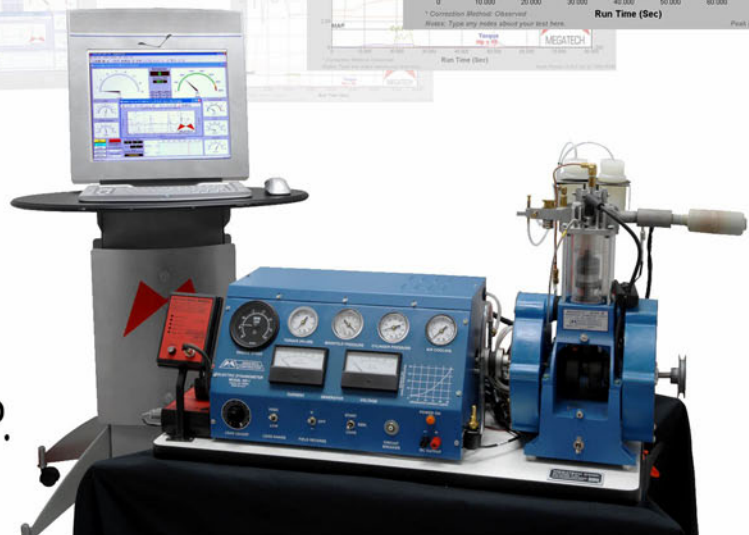


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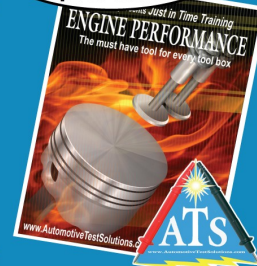
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Farewell from a Friend of CAT

By George Adelsperger



Dear CAT Members:

If you *can* read this, thank a teacher.

If you *are* reading this, thank Dewey Edward Stone. I completed every automotive course he taught at Santa Ana College.

Before graduating from high school, I worked on everything from an MG-TD to a Powell (if you don't know what that is, ask Barkhouse) to ambulances and my 1937 Chevy coupe. My employer was a good mentor, but I needed to know more about how and why things worked. Reading every copy of Hot Rod I could get my hands on was beneficial, but Mr. Stone's classes put things in perspective. He was infinitely patient with those who wanted to learn. Only when reading his recent obituary did I learn that he was a US Navy survivor of Pearl Harbor.

I grew up around cops, but didn't have the eyesight to become one. I started my State career in 1972 performing roadside safety & emissions inspections with CHP. BAR hired me in 1975 when California's pilot loaded-mode emissions inspection program started in Riverside. We conducted workshops to help technicians understand how to reduce emissions and deal with that thing called "Knocks" (NOx). I taught a couple of evening smog classes at San Bernardino Valley College. Next was the loaded-mode change of ownership inspection program in the LA basin. I did a two-year sabbatical with ARB in El Monte, and interacted with BAR while there. My most significant accomplishment at ARB was decertifying the NOx retrofit device (if you don't know what that is, ask Barkhouse) for air-cooled VWs.

After the Smog Check bill was signed, I moved to Sacramento and again worked on technician training. We obtained a USEPA grant and developed Modules 6, 7, and 8. (if you don't know what they were, ask Barkhouse). We learned that there were plenty of educators that could deliver training in addition to BAR. We adapted EPA funded materials to fit California's needs, resulting in the 54-hour and 80-hour Clean Air Car courses. There were hundreds of 35mm slides and a giant binder of materials to go with it. (Barkhouse can explain VEC and FEA for you).

I think my first CAT Conference was at Rio Hondo College, in the mid-1980s. Jay Ray and Jim Hughes were the hosts, as I recall. There was some ruckus over a bucket of dill pickles (if you don't know about that, ask Barkhouse).

Instructors have always been the first contact with the intricacies of Smog Check for aspiring smog techs. It always has been tricky to explain to instructors the technical aspects and decisions in a politically driven program. No matter the topics, I enjoyed the BAR discussions at CAT Conferences. The strangest was making a presentation under a street light because the person with the key had not yet returned from the CAT dinner at a brewpub. A side benefit of the conferences was getting to tour places such as Cosworth, the Nethercutt Collection, Chevron Research, and, especially, the Jacques Littlefield Military Vehicle Collection.

One of my best choices was hiring Wayne to work on training. Of course that included bringing him around from an enforcement perspective to one of working with educators. Word processors are great, but it took a long time to wean him from using **bold**, underline, *italics*, and CAPITALS in the same sentence!

We have struggled far too long with a kluge of materials and guidelines. I apologize for that. The current BAR Chief commissioned the study that is now posted on BAR's website. The recommendations have merit, but, as always, the enemy is in the details.

After 38 years with the State of California, and two years away from my main passion, it is time to move on to retirement. I have aging parents, three granddaughters (Does anyone know where I can find a baby rattle shaped like a wrench?), and a Gold Wing calling my name.

It continues to amaze me how far I have come on an AA Degree and some common sense. The best part, and the worst part, of this job was needing to make it up as I went along.

I cannot close without giving credit to two individuals: my Lord and Savior Jesus Christ, and my mentor since 1975, Gary Hunter.

Happy Trails To You,

George Adelsperger

allow us to build an instinctive understanding which cannot be forged in any other way. Perhaps we just have to apply it in new ways. To do so, I suggest we start with the right definition, and then, learn to see the world through the eyes of a mechanic.

To See the World through the Eyes of a Mechanic

To see the world through the eyes of a mechanic is to direct the desire for understanding how things work beyond just nuts and bolts. Specifically, it is to purposefully apply our mechanical tendencies, understandings, awareness's, and expectations into the full spectrum of learning and problem solving.

We have a powerful opportunity because everything can be modeled as a system (or part of a system). Further, all systems will hold true to the same fundamental dynamics, the same dynamics that we have learned through our hands-on experiences. Consider that this applies to an engine just as it does to circuits, software programs, and even information and learning!

This shared connection, once realized, can be used as a learning framework to build from and work within. It is like having multiple jigsaw puzzles that have the exact same border pieces. Put the border pieces together for one puzzle and you have a framework for all. The result is a stronger learning foundation that will allow us to more competently and confidently reach into higher complexity levels.

Making the Connection

Making the "system" connection starts with discovering what you know about systems. Interestingly enough, I have found that much of our knowledge regarding systems is found in the analysis of very simple experiences. Consider these examples based on an engine rebuild:

- An engine abides by the rules of physics.
- An engine can be broken down into smaller pieces.
- A piston is made of a different material than the rod.
- The piston connects to a crankshaft via the rod.
- The rod has to be connected to the piston before the piston is inserted into the block.
- If the engine is assembled properly it can run.
- Turning the key to the start position should result in a running engine.
- Drive the car to go to work.

Even if you have not built an engine, you can probably easily relate to all of these. If you have built engines, you probably have not put much thought into any of them and don't have to. Why? Because you instinctively know that it is just the way things are. You simply have an innate understanding of the meaning and implication. And that is the beauty and value of our experience!

The next step is to determine what these experiences tell us about systems. In short, this is accomplished by restating and replacing all of the key words with terms that reference the fundamental dynamics of a system. Of course, it also helps to know what the system is. In the above list, it's the engine.

- All things are governed by **rules**.
- All systems consist of **building block elements**.
- All building block elements have unique **characteristics** that define its application.
- Building blocks join through **relationships** forming **patterns** (assemblies).
- The right thing first leads to the next right thing first (**process** of putting together an assembly).
- If the proper relationships and patterns have been formed, and if the **requirements** have been met, and the **conditions** are accounted for, it will result in a functioning system.
- Every system supports a **process** in which an **input** initiates a series of events that result in an **outcome**.
- Every **system** is part of a bigger system.

The result is fundamental and generic descriptions of our engine rebuild experiences. In other words, our experiences are now universal and can easily be applied to new challenges.

In review: Our experience gives us the foundation; this fundamental perspective gives us a universal connector. Now, let's make a connection to a different type of system, a sentence:

- Rules of grammar and punctuation.

[*\(Continued on page 19\)*](#)

- A sentence is made of words. Words are made of letters.
- Some words are nouns, others are adjectives, etc. Some letters are vowels and others are consonants.
- Letters join to make words. Words join to make sentences.
- The order of words determines meaning. Tim wrote a book. A book wrote Tim.
- With proper spelling and sentence structure, a sentence will convey the intended information.
- Joining together the meaning of each word, through reading, forms a greater meaning.
- The sentence is a step in transferring information from the writer to the readers.

Hopefully, I presented this clear enough so you can see the value of the fundamental perspective and how it used to make a connection. Keep in mind that this is a simple connection and application and only offers a hint of the value.

The maximum value is realized when it is purposefully applied to new learning challenges. Still, performing mental exercises like this and applying it to things you already know is an excellent way to develop a higher level of awareness, to reinforce your existing knowledge, and to strengthen the ability to make new connections.

Examples

Following are two examples of mastering the complex through the mastery of its simpler parts. The first one focuses on my Wiring Diagram Color-Coding system. I selected it for this article because the process of developing it for a seminar sparked a higher level of self and learning awareness that resulted in the second example...and then to this article.

Wiring Diagram Color-Coding

Basically, Color-Coding is the process of using colors to mark the expected voltage conditions of a circuit. Originally, I developed Color-Coding because of a need for efficiency. When I decided to add it as a subject in my seminar, I knew I needed to have a high level of understanding of wiring diagrams, the process of color-coding, and learning.

Without planning it, I did what came natural. I took out my wrenches and took things apart. Just as I would an engine rebuild.

I did a tear down of every diagram I could find. I took them down to sub systems, then to circuits, and then to components and back together again.

Keeping it short...with each step, I looked for similarities, and within the similarities, I looked for the lowest common denominators. It is within this simplicity that I found the “connector” between wiring diagrams, circuits, Color-Coding and learning. The result is what I call the Color-Code Legend and the process of teaching Color-Coding.

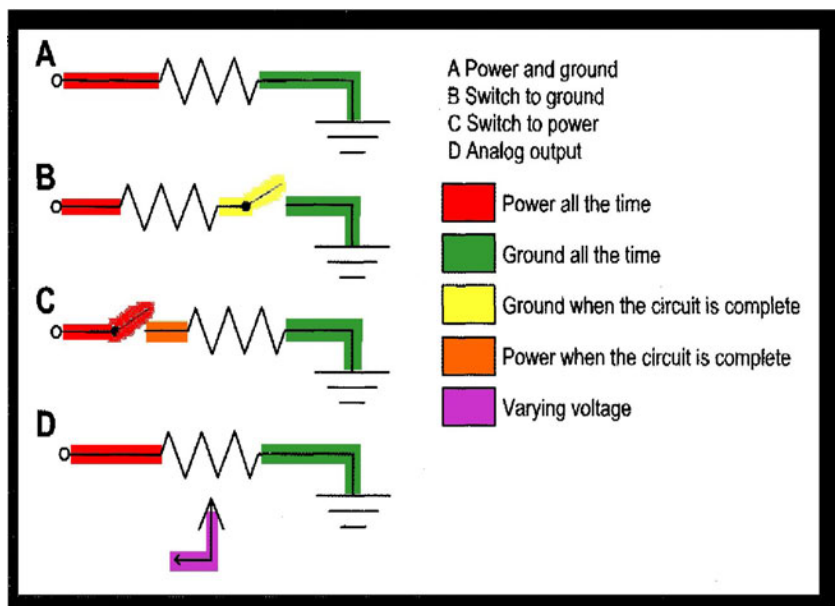
The Color-Code Legend depicts the circuit “must have” in the simplest form. The teaching method is fundamentally based on a visual process of assembly.

- Teach the simple “must have” relationships, circuit patterns, states and conditions.
- Show how to find these simple “must have” within the complexity of the diagram and identify them with colors.

As a result, it becomes easy to see how the complexity of the diagram is made up of simple patterns. In effect, the variables of the diagram are visually organized and a foundational familiarity is established. This then becomes the foundation for focusing on the processes and strategies of the system.

The Golden Outline of Systems

All of my learning experiences, especially as related to my seminars, led to purposely getting out the wrenches to tear down and rebuild the concept of a system. In this case, once the system components and dynamics were identified, reassembly took place on paper with each element represented as labeled blocks.



(Continued on page 20)

Using a graphical representation made it more “hands-on”, consequently, making it easier to experiment with how the component blocks fit together. The result is the concept of a system displayed as an assembly that I have named: The Golden Outline of Systems.

The visual format of the Golden Outline helps to strengthen the “system” concept. Also, the ability to see the system dynamics as components and to see their relationship to each other opens up new applications:

- Add these words, “What are the...”, in front of each label starting with “rules” and work your way up. How often can these simple questions be used in a diagnosis?
- Compare the Golden Outline to the process of Wiring Diagram Color-Coding, reverse engineering, or from turning the key to a running engine.
- Reread the “Making the Connection” section of this article.
- From a vehicle owner’s perspective: The customer cares about two things, the stimulus and the outcome. The rest is left to you!

Conclusion

To some degree, we all see through the eyes of a mechanic. Perhaps, it is because that is just the way things are. Still, little did I know, when I walked into Mr. Haas’ auto class, how auto mechanics would influence the way I learn and think. How amazing is it to realize that going to work and getting paid to diagnose and repair is to be paid to develop learning and analytical skills.

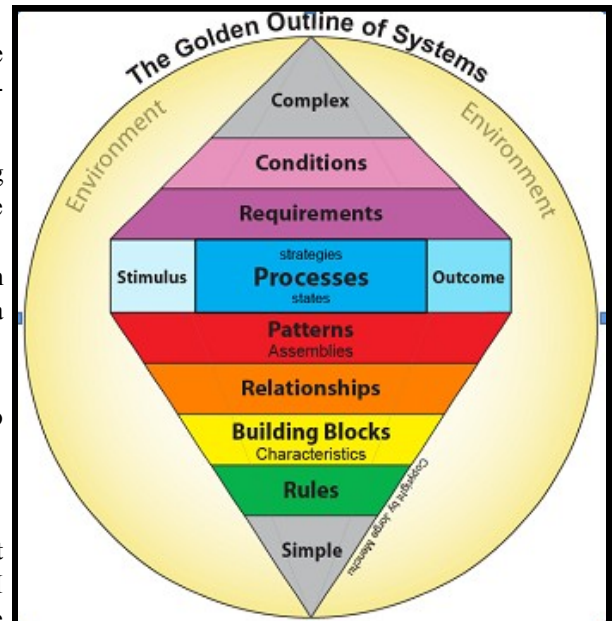
Outside of making a living, I have to say that the learning aspect of automotive is one of the biggest joys and greatest benefits I have received from this career path. Interestingly enough, it was not by design...but what if it could be? I wonder what would be the impact on our personal lives, as well as our career and our industry.

What if we started with:

- An open definition that does not confine us to nuts and bolts?
- A self awareness that allows us to realize the value of our hands-on experiences?
- A learning awareness that allows us to capture the techniques and principles of learning?
- An understanding of the mechanics of making the “connection”?
- A goal of making deliberate connections to the challenges we are faced with as we progress from mechanics to technicians; novices to experts; students to teachers?

I believe the future would look very bright through the eyes of mechanic, regardless of which career path is eventually traveled.

To learn more about Wiring Diagram Color-Coding, The Golden Outline of Systems and see other examples please visit www.TheLearningPathway.com/blog/



Website Update — Thomas G. Broxholm

Website registration goes smoother every conference, I want to thank everyone who registered and paid online this spring. CAT recently started to offer institutional registration. Institutions who register with CAT often apply for reimbursement through Perkins funds. The institutional registration covers the member registration and two conference fees for each registered member from July 1st to June 31st. This year we have asked all of our institutional registered members to please fill out the online conference form. This has been wonderful because we no longer have to guess how many institutional members will show up for the conference and want lunch. Right after the spring conference CAT will be launching our institutional registration form online. Those institutions who need to renew and those wishing to register for the first time should check the CAT website after May 1st, 2010.

Please don't hesitate to contact me with website suggestions, corrections or registration help.

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BAR, CARB, COMIRA and Sierra Reports, and AB 2289

By Jim Custeau

In order to understand how smog training got to where it is today you need a little history lesson, albeit a fuzzy one as I'm not sure I can remember that far back. When I first got involved in smog training, the smog program was run by the California Highway Patrol and we issued a paper MVPC certificate after doing a visual inspection and checking CO and HC's, timing, and idle speed. There was no computer or phone line to talk to the VID (Vehicle Identification Database). Sometime in the late 70's (I'm guessing) the Bureau of Automotive Repair (BAR) took over the smog program. In the mid 80's a new smog machine was introduced that tested HC, CO, O2 and CO2. The machine kept a database of the smogs that were done by vehicle on a cassette tape which a BAR representative would occasionally exchange for a new blank tape – what the BAR did with the data was anybody's guess. The machine also held the smog inspection certificates which were spit out by the machine at the end of a pass smog inspection.

Around this same time, BAR came out with the original "Clean Air Car Course" (CACC). It was actually not bad training and our own Bob Barkhouse was the author of the student training manual. There was an instructor guide and a slew of color slides which we instructors carefully dropped into Kodak slide carousels (it's the way us old guys did Powerpoint back in the day). I can remember going to the BAR office here in San Diego with my good friend and colleague, Mike Kolbeck, to be trained by BAR staff as a "certified smog trainer". Prior to this, smog training wasn't a very formal process. There were no certified instructors or certified schools. We all just taught what we thought technicians needed to know to pass the state smog test and correctly diagnose and repair vehicles that failed smog. Cars were a lot more simple back then too!

As time went on the CACC took on additional modules of instruction. But it was when the BAR 97 smog machine with its dynamometer and NOx testing capability was mandated that the training really stepped up a notch. Training became much more formal for smog instructors and as I recall, I had to attend a multi-day course led by Jim Moore from Aspire in order to be ordained as an "Basic and Advanced Clean Air Car Course Instructor". We also needed to be ASE Certified in Electrical, Engine Performance and Adv. Engine Performance. New smog instructors now must go through a workshop with the BAR and be graded on a "live teaching segment". Many don't pass. There have been some concerns about the way that whole process is done, but that story will have to wait for another time. I have heard that BAR wants to revamp this process and hopefully CAT will be consulted as changes are made.

With the new "BAR 97" smog program requirements and equipment we had to train our students on how to not launch a car off the dyno and to hold the vehicle speed steady during the 15 mph and 25 mph test. Plus, teach old techs and new techs alike how to diagnose NOx failures. And that a car failing for a rich condition would possibly fail for high NOx once you got the vehicle leaned out. Not only that, but now we had Basic Area and Enhanced Area licenses, alternative ASE training in electrical, engine performance and advanced engine performance and the new "Technician Update Training", which trained and tested current technicians in lieu of taking the BAR Smog Exam.

This is where things started going haywire in the CACC training program. Someone in the state "bureaucracy" decided to embed each "update training course" into the CACC when it reached the end of its two year training cycle. Well, you can imagine what that did to the continuity of the CACC when disassociated update courses were dumped into the CACC. At first it wasn't too bad, but now, after more than twelve years of update training we've got at least 6 embedded update courses in our CACC curriculum. Oh yeah, I almost forgot, some of these courses are part of the Basic Clean Air Car Course and some are part of the Advanced Clean Air Car Course. We smog instructors have been complaining for years that the current curriculum is out dated and clearly not well organized, mostly due to embedding many years of update training courses into the CACC. But, little has been done to change the curriculum. Now though, we have an unprecedented opportunity to make major strides in improving smog training in California. The BAR is asking for smog instructors to serve on an advisory panel to help mold a new training program. These changes are largely being driven by the results of the COMIRA Report, which suggests among other things, that the current training program is outdated and needs to be revised and that there needs to be a "test only" license as well as the current "test and repair" license and possibly a "repair only" license. These changes will come to us courtesy of Assembly Bill 2289, being carried by Assembly member Eng, and likely written as a joint venture by BAR and the ARB using both the COMIRA Report and the Sierra Report as ammunition for the changes the bill, if passed, will enact. You need to read this bill, as it will affect your training program, even if you don't teach smog. Here is the link to the bill:

http://www.leginfo.ca.gov/pub/09-10/bill/asm/ab_2251-2300/ab_2289_bill_20100218_introduced.pdf

The Sierra Report essentially accused the smog testing and repair industry of doing a very poor job and suggests "fraud" may be widespread. A clear "cheap shot" at the 95% of automotive businesses in the state that are honest and highly professional. Have you heard the term "clean piping". Well, there is small percentage of these "fraudulent" smog shops that are in business to test vehicles

(Continued on page 23)

sight unseen and charge big dollars to overlook illegal engine swaps, modifications and “gross polluters” providing them with a passing smog certificate. Unfortunately, these shops give our entire industry a black eye. Until such time that the BAR and local authorities can put all of these crooks behind bars for this kind of behavior it is likely to continue, virtually unabated. I digress – back to changes in the smog program that are coming up and AB 2289. This bill would establish that newer vehicles would no longer need to have tailpipe emissions tested. Just drop by your local smog check kiosk and have the friendly person that works there simply connect a data link to your vehicle’s OBD II connector and the smog machine will talk to your vehicles computer and if all well in the emission monitors, your are good to go. How much training do you think these folks are going to need to do this job? I suspect not much more than the kid working at the local Burger King and making the same minimum wage – can you see the impact on smog training?

There are lots of other changes that this bill will bring to the current smog program. The bill has a clause in it that really got my attention and if we can get the bill modified slightly, could actually help us with our very expensive and upgrade thirsty smog and engine performance equipment. Here it is:

*It is the intent of the Legislature that the department work with the California Community Colleges and other training institutions to **encourage the development** of innovative training programs for motor vehicle technicians that focus on reducing air pollution from vehicles needing repair and that increase the number and skill level of motor vehicle technicians.*

I believe it is imperative that the language include some money to assist the publicly funded smog training program due to the very high cost of updating/maintaining smog inspection and repair related equipment, such as: dyno and related smog inspection equipment, scanners, DSO’s, diagnostic repair information, DMM’s, etc. We can accomplish this by simply changing language in AB 2289 directing a portion of the fine money collected from shops who fail to follow the law to our smog training programs in the public schools. The words in bold underline above need to be removed and replace with specific language to support the funding of our smog programs.

Email me if you are interested in joining in the political process! Jim126@cox.net . The bureau and our legislature needs to hear from us – this is our one shot at fixing the smog training program. We need to all be activists and get this done. See me at the spring conference if you want to discuss this some more. Look for more on this subject in the fall CAT newsletter. By the way, the BAR wants our input – so attend the spring conference and the Friday BAR meetings and the special forum with the BAR on Saturday afternoon! See you at Yuba College.

Jim Custeau—First Past CAT President

BAR Smog Check Training Restructure

The Bureau of Automotive Repair is moving forward with plans to improve the way that BAR training is developed. BAR is currently recruiting BAR Certified Instructors to become Subject Matter Experts (SME). SMEs will help to identify the objectives and ultimately develop the classroom for the technology portion of the 2011-2012 BAR Update Training. These experts will also take a lead role in our goal to update the Clean Air Car Course.

On February 11, 2010, BAR sent an email to all Certified Instructors asking anyone interested in developing the curriculum for these courses to send in an SME application. SMEs will participate in a two-day workshop to be held at any one of four locations in Sacramento, San Jose, South El Monte and San Diego. Additional workshops will be scheduled as needed.

SMEs are paid at the rate of \$200 per day and 50 cents per mile. If an SME lives more than 50 miles from the nearest workshop, they are eligible for reimbursement for a hotel room at the current state rates (\$84 for Sacramento County; \$110 for Los Angeles and San Diego Counties; and \$140 for San Francisco, Santa Clara, Alameda and San Mateo Counties).

BAR wants any future training to reflect the needs identified by BAR Certified instructors. BAR’s Training and Compliance Branch looks forward to working with the SMEs to ensure that the training program reflects the changing needs of the industry.

Lead by Example by Jim Morton

We must teach our students to be “Self-Learners”. The reality is, even if they do learn everything you teach them in school, technology will continue to advance beyond what they have learned. The automotive industry is in a constant state of change!

Today, being a self-learner is not an option. The fact is we all are to some degree, especially those of us that have worked in our field. In the old days, I called it, “just getting it done”. Perhaps you called it something else. Regardless of what we called it, we have all faced times when the only way to make a processional repair was to teach ourselves how the “system” worked.

I expect that we all agree on the importance of a technician being a self-learner. I think a big part of conveying the importance to our students is to lead by example. Personally, I put in a lot of effort into keeping up with the latest technology, tools and techniques. My philosophy is that if I do it and am excited about it, they are more likely to be also. Lead by example!

One example of learning by example in the classroom is when I am asked a question by a student that I do not know the answer to. When possible, I turn this into an opportunity for us all to work together in the computer lab and research the subject material. Teaching to be a self-reliant...self-learner.

If you or if you know someone that attended college, most colleges teach a course on “How to study or How to learn” this is a subject that I don’t know too many technicians that have gone through. I know I was never instructed on a proper method of learning, but when I started to read up and investigate the subject, it sure helped me. A good friend of mine that most of you already know, Jorge Menchu from AES has taught and written many articles on this needed subject, one article that Jorge wrote back in 1996 that I’ve read over and over is “Learning to Learn”.

http://www.aeswave.com/Articles/Jorge/1996_01_Motor_Learning_to_Learn.pdf

Jorge’s newest project is called “The Learning Pathway” which in my opinion should be mandatory reading for every instructor and student. <http://www.thelearningpathway.com/blog>

We have to remember that we are teaching the next generation of technicians that will be repairing the vehicles that your family members and friends will be driving. That next generation technician will need to know exactly how that ABS or regenerative brake system is supposed to function. They will have to be experts in the ability to read and understand wiring diagrams, it is absolutely mandatory to have color markers in my class for color coding wiring diagrams *before* we touch the vehicle. These are all examples of “Leading by Example”.

Again Jorge has written two articles on color coding wiring diagrams that are excellent and available on his website, the picture [on page 25](#) is an example of his color coding technique ([A color diagram can be found on page 19](#)).

Attending a seminar from someone like Jorge Menchu or an Instructor workshop conducted by Rick Escalambre at Skyline College are perfect ways of satisfying your NATEF training hours and “Leading by Example”.

Another point I want to make is we have to stop what I refer to as “POWERPOINT COMA” as Jeff Curtis said in his NACAT 2009 presentation, “The student will either listen to you *or* watch the POWERPOINT, not both”.

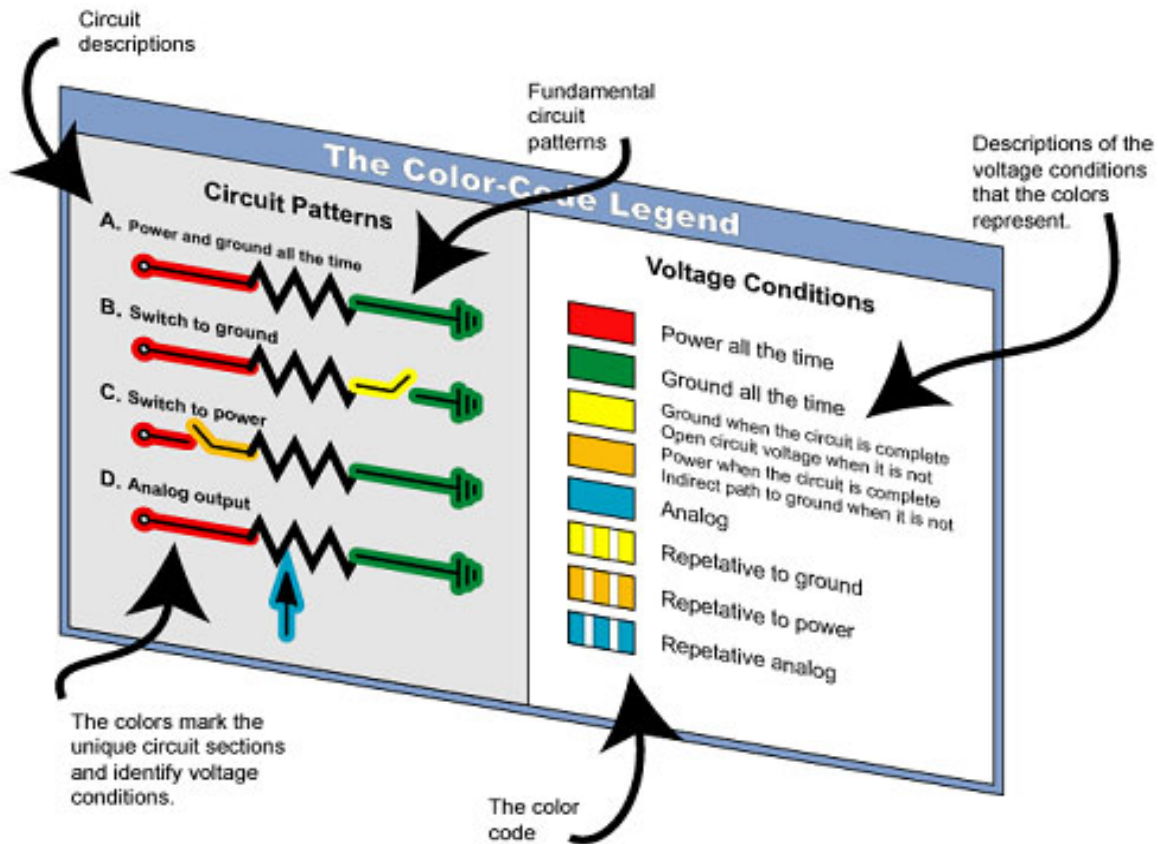
LEARN TO BE CREATIVE IN YOUR LESSON PLANS

Start thinking of ways to teach a very important subject manner ACTIVELY, some examples that I use, I will be presenting this year at NACAT 2010, **which will include:**

Powering up an alternator rotor with a set of booster cables attached to the slip rings of the rotor and a power supply, and then asks the students to take a metal object (socket, screwdriver, wrench etc) and toss it at the rotor. In no time you will have a beautiful “*work of art*”, then ask the students if they want an “A” or “B” style charging circuit. When they answer, remove the power cable if they requested a “B” circuit or the ground cable if they requested an “A” circuit. Either way the tools will fall to the ground when the rotor is no longer a magnet. They will learn that the magnetic field can be controlled with either power or ground and that the alternator can spin all it wants but if there is not a magnetic field being generated, there will be no alternator output. I have run into students that I taught 10 years ago and still remember that lesson plan.

The late Fred Hines taught me years ago the key to understanding A/C theory. Have a student measure their breath temperature with an open mouth, then cause a restriction with their lips like they are going to whistle and measure the temperature again. The restricted breath temperature will be reduced simulating an air conditioning orifice.

(Continued on page 25)



Use a straw and a glass of water to show that you will need a pressure differential for fluid flow. Put the straw into the glass of water, then cover the top of the straw with your finger and remove the straw from the glass. Hold the straw over a student's head; ask the student if he or she wants to experience the effect of a pressure differential.

The way I teach the principals of Variable Valve Timing operation is to relate it to the Epcot Center. There is a show going on that has capacity for 100 people and there is an entrance door and an exit door on either side of the room. When the show is over, the exit door opens and people begin to flow out, on the other side of the room the entrance door opens and people begin to flow in (one in, one out) when 80 people have exited the exit door closes. Only 80 new people have entered, this leaves 20 people in the room that had already seen the show and are only going to be doing nothing other than taking up space. This is exactly what happens on exhaust phasing Variable Valve Timing.

Meet Jim Morton

Jim has been an instructor at Automotive Training Center in Exton and Warminster Pa for over 14 years, teaching engine performance and advance engine performance. He and his wife Mary own and operate Morton's Automotive Technical Services, which offers training seminars for working technicians. With more than 40 years in the industry as a technician, shop owner and trainer, Morton has held ASE Master Tech and L1 certifications for more than 25 years and is a member of CAAT , IATN and NACAT.

CAT NEWS AD Space!

			Color	Black & White
1.	Full page	(H 9 3/4" x W 7 1/2")	\$300.00	\$200.00
2.	Half page	(H 4 7/8" x W 7 1/2")	\$150.00	\$100.00
3.	Quarter page	(H 4 7/8" x W 3 3/4")	\$ 75.00	\$ 50.00

rick@calautoteachers.com

AUTOMOTIVE TECHNICIANS TRAINING STANDARDS (ATTS) UPDATED

By George Hritz

Over the past year a group of dedicated automotive professionals volunteered their time to update the ATTS Program to meet the changes in the Automotive Repair Service Industry. A revision task force was formed to review the standards for all three levels addressing both the Program Inspection and the Skills Inspection. The group reviewed the procedures for the inspection of the three program levels. All the requirements that a program must meet to earn industry endorsement were discussed and updated as identified. Skills the students must demonstrate proficiency was revised to meet current industry standards. The revisions were reformatted by Mary Megarry in the ATTS office. The new standards are posted on the CalABC website www.calabc.org and the California Automotive Teachers (CAT) website www.calautoteachers.com.

ATTS is a process developed by industry and educators to evaluate educational automotive programs. The process will evaluate a program to an ATTS defined minimum level of job entry skills. After evaluation, program strengths and weaknesses will be identified and a determination will be made if the program meets industry training standards. If the program meets ATTS standards, it will receive certification. The ATTS Program is administrated by the California Automotive Business Coalition (CalABC) Educational Foundation.

The industry participants were Paul Frech of AUTO-CA and CalABC, Glen Davis of GDA Enterprises and Stuart Terry who owns Stuart Terry Auto Repair. Paul has forty-one years of experience he is an ASE Master Tech and has a Smog, Brake and Lamp License he is a member of the CalABC Executive Board. Glen has owned his own repair dealership for twenty-seven years and is the ASCCA President for 2009. Terry is a repair dealership owner and has been a technician for the last thirty-four years he is the 1st Vice President of ASCCA. Representing education were Richard Williams of Oxnard College, Chuck Rockwood of Ventura College, Tim Gilles of Santa Barbara City College and George Hritz of College of Marin. Richard a technician with thirty plus years of industry experience and has taught full time at the high school level for eleven years and now is a full time instructor at Oxnard. Chuck has fourteen years industry experience and twenty-nine years of teaching college, Chuck is a past President of CAT. Tim has been a college automotive teacher for over thirty years he is also the author of several textbooks, Tim is a past president of CAT. George has been an automotive instructor for over thirty-three years at both the high school and college levels he is a member of the Advisory Group to the Bureau of Automotive Repair and is a past President of CAT.

What's next? In the Spring of 2010 ATTS will organize a group of industry technicians and educators to develop a new certification in the area of Light Duty Diesel Technologies. A skills list of entry level procedures will be developed to be used by automotive training programs for teaching new technicians. Professional technicians who need to learn these technologies for their jobs will be able to take advantage of these new certified training programs.

Attention all NATEF certified programs and BAR Certified Training Institutions! If your program is NATEF certified in any of the eight automotive areas or is a BAR Certified Training Institution you only need to apply and send copies of your certifications to gain ATTS Certification. ATTS recognizes NATEF or BAR certification as equivalent to ATTS certification. There is only a \$250.00 processing fee and no inspection is necessary. All NATEF and BAR certified programs should apply to be certified by all three agencies.

For more information contact George Hritz, ATTS Program Manager at george.hritz@sbcglobal.net

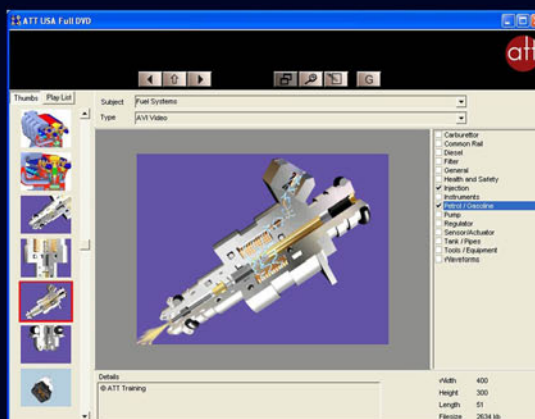


Seminole State welcomes you to the 2010 NACAT Conference

Seminole State College, located near Central Florida's many attractions, is proud to host the 2010 North American Council of Automobile Teachers Conference July 19-23, 2010. At Seminole State, automotive academics and the regional automotive industry converge in a high-tech training facility, open to you, our special guests and professional peers.

For NACAT Conference information go to www.nacat.com

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The CAT Newsletter is always looking for technical articles and advertisements! The deadline for submitting articles and ads is March 15th for the spring issue and September 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 costs and sizes for advertisements can be found on our Website.

For additional information about the California Automotive Teachers' organization,

future conferences, job announcements and much more:

visit our WEBSITE at

www.calautoteachers.com

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Fall 2010
UTI Rancho Cucamonga
October 15 & 16

Conference Host Information

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