



California Automotive Teachers

Spring2016

Issue #46

CAT NEWS

www.calautoteachers.com

Newsletter Highlights

- End of an ERA
- Officer Reports
- Running OBD II Monitors
- Variety of ADs

What's in this issue?

End of an ERA	1
President's Letter	3
Executive Director's Report	4
Running OBD II Monitors	6
WEBMASTER's Report	9
Toyota Summer Training	9
ATTS Certification	10
ASCEF Scholarships	12
CAT 50th Anniversary	22
Primacy of the Automobile	24
Fall 2015 Conference	26
Fall Conference Pictures	27
CAT Information	28

End of an Era!

Thank you "Uncle" Bob

All good things must come to an end. Over 50 years ago three men created the California Automotive Teachers organization. Bob Barkhouse, Mel Edwards, and Norm Gibbs laid the foundation for many people: educators, exhibitors, presenters, students, administrators, and some of our elected officials. The spring CAT Conference being at held at Modesto Junior College will be "Uncle" Bob Barkhouse's last one as our Executive Director. He has decided to finally pull in the reins and enjoy full retirement while he is still young!

Almost any successful person can look back at their life and find people who have greatly influenced their life and profession. "Uncle" Bob has done that for many people. If newsletter space and time was not an issue, the tributes that follow would be a novel. We are all thankful he is going out on his terms and that he is here to read them all.

Rick Escalambre:

When I was teaching high school automotive in the mid-70's I taught myself engine repair using a book titled "Engine Repair, Head Assembly and Valve Gear" from McKnight Publishing. The author was a person named Bob Barkhouse. At that time, little did I know that he would someday have a tremendous impact on my career.

My first experience getting to know Bob was through the 1989 summer GM Job Shadowing Program at BOC Engineering in Flint, MI. Bob, Mike Morse, and I spent three weeks and lots of time together. I found out that Bob loved his desserts, liked to play practical jokes, enjoyed being chauffeured around Michigan by Mike Morse, and was a fascinating and committed person.

In 1990, he hooked me up with the Bureau of Automotive Repair which resulted in my first writing contract. Bob, Wayne Brumett, and I co-authored the Clean Air Car Course Student Workbook. Not long after that at the 1991 spring conference hosted by Skyline College, he was influential in my becoming CAT a board member. When I was

(Continued on page 17)

The California Automotive Teachers will meet at Modesto Junior College for the spring 2016 Conference on April 29 & 30



Register TODAY for these Summer Workshops!

Sponsored By

Advanced Vehicle
Training Group NW

Training By

Panoptic Training
-Powered by AR&D-

Hosted By



**Portland
Community
College**

Sylvania Campus
12000 SW 49th Ave
Portland, OR 97219

Week I

Advanced Vehicle
Systems Week
June 27 – July 1, 2016
\$1,695.00

This is a collection of short courses that cover Lithium Ion batteries, regenerative braking, motor-generators, HEV air conditioning & heating systems, Plug-In and EV charging, Fuel Cell power systems, and more!



Week II

SAE Int'l Advanced HEV Diagnostics
Certificate of Competency (Lvl 1)
August 8 - 12, 2016
\$2,120.00

This course results in a credential from SAE International. It covers systems and architecture unique to Hybrid Vehicles and prepares the participant to perform advanced diagnostics. A written and practical exam will be administered.



For more info and to register:
www.panopticttraining.com/AVTGNW
email: training@go2hev.com
call: 800.266.4535

President's Letter by Don Schumacher

2016 marks a very special year. It is the 50th Anniversary of CAT! You have probably noticed by now this is the theme running through the newsletter. With good reason. Very few organizations of any kind last 50 years. CAT can trace it's roots back to three guys, Mel Edwards, Norm Gibbs and Bob Barkhouse. We owe them a great big "Thank You", for without those three CAT would not exist.



When I was preparing to write this letter I thought about what is required for an organization like CAT to exist for 50 years and counting. I came up with three main principles.

1st, an organization has to have strong leadership. Mel, Norm and Bob recognized this and developed a leadership model that has worked very well for CAT. Yes, it has evolved over the last 50 years but with their guidance CAT has flourished. Anyone who has participated in the leadership of this great organization over the past 50 years will tell you how much they enjoyed being a part of it.

2nd, our Industry Partners. We as an organization can never thank them enough for their support of CAT. Some of our partner's travel from other countries to attend. All our partners take the time to meet with as many members as possible, donate items for our raffle, and ask very little in return. I am sure you feel the way I do at every conference, meeting with our partners is like seeing an old friend twice a year.

3rd, but certainly not last, the CAT membership. You are the back bone of the organization. Without you and your support, CAT would have not lasted 50 years. The members and schools that volunteer to host conferences really do an outstanding job. It's not easy and really takes a year of planning to pull it off.

Moving on to other items of interest,

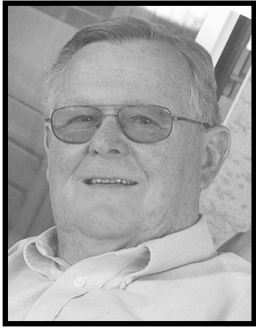
As our Executive Director Bob Barkhouse noted in his letter, 2016 will be his last. He has been a pillar for CAT and we will miss his guidance. Having said that, his position is open and your CAT Board is looking for a replacement. We are asking anyone who is interested in the position to join us at the CAT board meeting held Friday night before the conference in Modesto.

Also we are looking for a new Treasurer. Steve Vail has tendered his resignation. Steve has done an excellent job for CAT and we need a replacement. If you are interested, please attend the Friday night board meeting.

On February 5th, California Community Colleges Chancellor Brice Harris issued a statement about a newly Proposed Community College Partnership Tax Credit. Under the proposal, employers who bolster Community College programs with contributions like equipment, curriculum design and instructors would be eligible for a one-time tax credit of \$5000 each for hiring students full time who graduate from your program. A total of \$500 million dollars in credits would be available each year for five years, 2017-2021.

Well, that's about all I got for you. See you in Modesto!

Executive Director's Report by Bob Barkhouse



Rick Escalambre asked me to write this report and reflect on my time with CAT. As you know by now, I have told the CAT Board that I would retire my position with CAT in concert with CAT's 50th year celebrations. CAT officially is 50 years old this year. It appears this 50 year thing is in vogue this year. CAT is 50 years old, I have served CAT for 50 years and the NFL just celebrated 50 years this last Super Bowl! It is hard to think back 50 years, so you will have to put up with me as I ramble through time. Please excuse me if I overlook an event or leave someone out. It is all time and old age.

I hope all of you are experiencing a good academic year. It appears that CTE is turning for the good. The State Legislature is coming around on CTE and budgeting for CTE. The same old problems still exist, however, discretionary funding and differential funding

Enough of this, let's get back to my reflections of 50 years with CAT. Let's start in the beginning. I started with an idea to pull the Automotive High School and "Junior College" (in later years it became "Community Colleges) teachers together for a half day on Saturday, once a year, to share experiences and promote articulation. Well, it bombed out. I could not get teachers to come out. There was a few but not enough. I was at a CITEA conference somewhere in the South where the CAT idea was incubated. After two days, I was sitting down to rest my dogs when Mel Edwards and Norm Gibbs sat down with me. As the conversation progressed the concept of CAT was hatched. Our very first official CAT meeting occurred at Sierra College. There were approximately 35 or 40 college auto teachers in attendance with the end result being, let's go with CAT! Originally CAT stood for College Automotive Teachers, but it was not long before the high school automotive teachers wanted in on the action. Hence, we had to change CAT's name to California Automotive Teachers. The first few CAT conferences were held mainly north of Fresno. It was not long before the Southern teachers wanted in, so we expanded into Southern California. This was not without some hassles. It appeared that a gentleman named Nicholson had his own Auto Association in Southern California and he did not want us competing with them. In addition, the gentleman that was then in charge of Industrial Arts at the State Department of Education got pulled into the Nicholson camp and he made an effort over several years to kill this upstart program from the North by scheduling his SoCal meeting at the same time as ours. We held our ground and CAT grew from there.

The next issue that presented itself as a problem to CAT was Program Certification. A College Automotive Teacher in Georgia came up with a Automotive Certification program. He reached out to some select automotive programs in the United States to conduct a pilot run of his program. In California he selected Yuba College and Rio Hondo. It was later to become NATEF. It was not long before CAT saw the inadequacies of NATEF, especially towards our high schools. I was selected by NATEF to go back east and participate with the committee the developed their standards. I reported back to CAT that they were not willing to change. CAT decided to send Jim Hughes and I back to Georgia to meet with the Inter-Industry Council which was in overall charge of NATEF to get change. As Jim said, "they were waiting for us and were afraid we were coming to wreck their program". Needless to say, we were shut out. A couple years later, CAT decided to write a grant and develop California standards. Over the next couple of years, CAT conducted workshops to develop standards that later became ATTS. The developing committee was comprised of 12 people, half were teachers and the other half were shop owners from ASC (now ASCCA). These standards were trial run and then became the full ATTS, which has been updated many times by industry and teachers. After a few years, an industry association called ARC (now called CalABC) wanted a Certification Program and CAT turned the program over to them. The only other hassle that the ATTS program had is with the Department of Education. It appears to me there was a conflict of interest. The person in charge of CTE at the time was in bed with NATEF and continued to throw up road blocks. As each was met, there was a new issue in the way. There is hope as new management occurs, a

(Continued on page 5)

(Continued from page 4 -Executive Director's Report)

new vision will occur and it will be seen, that regardless of who is certifying, the positive offshoot will be more programs to be brought up to industry standards.

Another milestone in CAT's history is the Board. In the beginning, officers were elected for one year terms. They would learn the position and be done with no continuity occurring. A change to two year terms cured that problem. Plus, once one had completed as President there was a need to retain their experience. To prevent this loss of experience, three new two year positions were established; First Past President (in charge of conferences), Second Past President and Third Past President (with no duties at this time). To enter the chairs, it became a 10 year commitment making CAT stronger than ever.

Other milestones that have contributed to CAT's success are as follows: the first milestone was the newsletter put out by Rick Escalambre. This newsletter is second to none! Through his newsletter, our members are well informed. Through his efforts, the advertisements pay all the printing cost. I have had a lot of exposure to other associations newsletters and none can beat Rick's effort. Even the paper it is printed on is first class. Rick needs all of our help with articles. If you have one or want to write, get it to Rick

The second milestone was Tom Broxholm's registration process. It is so simple and fast now compared to previous years. He knows instantly where we are financially. And, if you have once registered using the program, it almost automatically registers you on all future registrations.

The third milestone is Tom Broxholm's web page. Everything that you need to know is there. What a great job Tom. If you have something that you need posted and it fits into CAT's philosophy it probably will get posted. If you have never been on our Website, give it a try at www.calautoteachers.com.

The fourth milestone was the Historian. Tony Jewel collected a lot of items over many years, in boxes, that he thought had historical potential but never got it into print. Tom Birch sorted through these boxes putting in countless hours filtering through those historical items and was able to get most of it down on paper. Thanks Tony and Tom! We now need someone to finish their work putting this info into book fashion and keep up with current events. Any volunteers?

The fifth milestone was when CAT created a new position on the Board called "High School/ROP". Since the Board was predominantly Community College instructors, it was felt that High School instructors should be on the Board and have a vote. This has worked quite well. John Chocholak was the first in this position and did a great job representing the High Schools and CAT with the Department of Education. His small engine donation program (just short of a miracle) along with numerous other donations were a huge wind-fall to CTE. Thanks John! Your new representative is Armando Hernandez.

I am always amazed at the Leadership of the CAT Board. Over the years, CAT has been very fortunate to have some great leaders step up and do a very creditable job for CAT. Once CAT went to two year terms for its officers with a 10 year commitment things have gotten even better. Your current Board has exceeded all expectations and I hope we can continue this excellence. If any of you have a desire to help with the future of CAT, let a Board Member or me know.

Another proof of how great our members are is their involvement in NACAT and how many CAT members have published great textbooks to name a few; Jim Hughes, Tim Gilles, Tom Birch, Rick Escalambre and Chuck Rockwood. I know I have missed a few so I apologize to them, (Yes he did, Humble Bob forgot himself, see Rick's tribute to Bob on page 1).

(Continued on page 12)

Running OBD II Readiness Monitors by Rick Escalambre

In the fall issue of the CAT Newsletter I wrote an article “Addressing the Incomplete Monitor Issue. The article addressed reasons why technicians don’t run monitors, generic Enable Criteria, running a CAT Monitor, setting up your dyno to run monitors, why monitors remain incomplete, and how to locate the Enable Criteria to run a monitor. This article will address building a Drive Cycle, how Controller Area Network (CAN) has changed how to look at Readiness Monitor Status, and how OBD II Regulations provide another way to look at monitors.

A “Drive Cycle” is the result of connecting the Enable Criteria for each monitor together into one key-on and key-off trip. During this key-on and key-off cycle if the Enable Criteria is met for each monitor and all monitors run to completion, pass or fail, you have a “Drive Cycle”. The following steps are designed for Nissan/Infiniti vehicles with O2 Sensors.

- 1 - 2 Start with a cold engine (ECT/IAT within approximately 10°F of each other and above 40°F). **NOTE: A cold start is not critical to running NISSAN/INFINITI Monitors if the engine is already warm.** Allow the engine to idle in Park/Neutral until the ECT reaches 160°F. The Heated Oxygen Sensor Monitor will run during this time.
- 3 Accelerate (holding RPM between 1400 and 1600 Rpm) to approximately 58 MPH, decelerate to 53 MPH allowing 10 seconds, and return to 55 MPH. The EGR Monitor should run during this time.
- 4 Maintain 55 MPH at a constant throttle for up to 10 minutes. The Oxygen Sensor Monitors and Catalytic Converter Monitor should run during this time. Decelerate to a stop and allow the vehicle. **NOTE: Depending on the Fuel Tank Temperature increase, the EVAP Monitor might run after deceleration to a stop.**
- 5 If the EVAP Monitor has not run, accelerate to 30-35 MPH at ¼ throttle allowing approximately 10 seconds.
- 6 Once the 30-35 MPH is achieved maintain the throttle and speed for 20 seconds, then quickly decelerate to a stop. Idle for 10 seconds and then repeat the previous acceleration and deceleration. The purpose of this procedure is to create fuel slosh in the tank. If you can monitor the Fuel Tank Temperature Sensor PID through the OE side of the scantool look for a minimum of a 4°F rise. Repeat these steps until the fuel tank temperature increase is achieved. Then quickly decelerate to stop and allow the vehicle to idle in drive until the EVAP Monitor runs. Nissan runs the EVAP Monitor under pressure so following these steps are very important.
- 7 If the EVAP pressure test should fail, then run the vehicle at 55 MPH for up to 15 minutes so the system can perform a Vacuum Decay EVAP test on the system.
- Recheck the I/M Readiness Status to verify that the Monitors have run to completion. In addition, check for any DTCs or Pending DTCs and look at your MODE 6 Test Results.

(Note: Drive Cycles like this one can be found, free of charge, at RLEscalambre.com under OBDII. Recently I received an email through IATN from a member in Cypress, TX, Allen Stephenson. He said “I wanted to thank you for the Drive Cycles that you’ve posted on your Website. I’ve used them many times over the years and they’ve saved me lots of time and headaches. I now print them out for shops that call me out for a reflash because “it won’t run monitors”).

Do these steps guarantee the monitor will run? The answer is No! The intangibles, such as load, time, vehicle speed, and air flow can impact the ability to run the monitor. Do these steps have to be completed in the exact order listed above? The answer is No! If you want to complete a specific monitor the steps can be done out of sequence or

[\(Continued on page 7\)](#)

(Continued from page 6 - OBD II Readiness Monitors)

individually. In the process of attempting to run a specific monitor you might actually complete another monitor. In the example of the Nissan/Infiniti Drive Cycle, it appears the engine must be cold to start (Step 1-2). From experience you learn that this is not necessarily true. Unless the engine is really hot the EGR, O2s, and CAT can be run starting with a cold or warm engine. If you start cold just allow extra time for the ECT to warm up. The Evaporative Emission Monitor is one that can be run with the engine at operating temperature at startup. Nissan/Infiniti EVAP systems have fuel tank temperature sensor in the tank. The PCM looks at this temperature at startup and will not let the monitor run until the fuel temperature rises a minimum of 4°F and driving conditions have been met. Understanding the intangibles is the key to successfully running monitors.

Readiness Monitor Status changed starting in 2005 for Controller Area Network (CAN) equipped systems. When looking at MODE \$01, Readiness Monitor Status, you will see **Three Options**. **Option One** will allow the viewing of the Readiness Monitor Status history since cleared, as seen on pre-CAN equipped systems. Depending on each Readiness Monitor's history, the monitor status will be either Complete or Incomplete. **Option Two** reports the Readiness Monitor Status as Enabled or Disabled for this cycle. If certain Enable Criteria is not met, the monitor will report as Disabled, which means it won't run during that key cycle. **Option Three** reports all monitors as Incomplete at each key-on cycle. During the current key cycle the Readiness Monitor Status will switch to Complete once the monitor has finished testing. If the monitor does run, but does not complete, remember to check for a two trip pending DTC which can be found in MODE \$07.

Only Global OBD II is required to display the **three Readiness Monitor Status options**. Depending on the scan tool being used this information might look different. What you will typically see is each monitor is listed three different times, so you will need understand the information presented and match the Readiness Status to each of the **Three Options**.

Why was this done? For pre-CAN systems the only way to verify a monitor had run to completion, **Option One**, was to perform MODE \$04 DTC Clear, cycle the key off, wait 5 seconds for the PCM to go to sleep, cycle the key-on and then drive the vehicle. If you have GM background you might recall how they reported DTC Status check. If you entered in a specific DTC the system would report what happened to that DTC monitor for the most current trip, the previous trip, and if it was responsible for the MIL being illuminated. Before **Option Two** the technician had to know the exact Enable Criteria to have a "clue" if the monitor might run. **Option Two** has basic Enable Criteria programmed



(Continued on page 23)

Diagnostics for Professionals

Let AESwave support your tool & equipment needs.



Hands-on Hybrid and Electric Vehicle Diagnostic Motor-Generator Set

A set of 4 motors, one good reference and three with unique faults or combination of faults. Which motors are faulty? Why is it faulty? Guide your students as they use a variety of meters to document their test results and make a diagnosis.



Fluke Thermal Imagers and meters and leads, 25% off!



uScope! A single channel, pocket-sized, Scope that's small, quick, and powerful.



The PicoScope: free demo software, training videos, and software updates



NACAT2015

Search



Instructor Discounts Available!
All you need is just one contact:

one Email address: one@aeswave.com

one Phone number: (877) 351 9573

www.aeswave.com

WEBMASTER Report by Tom Broxholm

Making Payment By Check

One of the most frequent request I get from an administrator is “who do we make the check to” and “Where do we mail it”. Please note that after you register you are sent an email with all of this information in it. Please forward that email to the administrator who is responsible for making the payment. In addition you can always point them to our website. On the conference page there is a link with “Pay by Check” instructions they can follow. Forwarding this information will make it easier for everyone.



Split Your Payment

Everyone who must 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 \$65 early bird or \$85 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 <http://www.calautoteachers.com/conferences.html>.

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. You 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.

Toyota Summer Instructor Workshop

Where: Toyota Region Training Center in Irvine, CA.

When: Tuesday through Friday, July 12 to 15, 2016.

Topics of Enlightenment: Direct and Port Fuel Injection (D4-S) system as used on the new Tacoma V-6; Update on the Hydrogen Fuel Cell vehicle which is now being sold in southern California; Oscilloscope tips and tricks – using current waveforms; DVOM tips and tricks; and Network Systems Diagnosis (including CAN).

For registration please contact Rick Donia, Tech Trainer at Toyota LA Region at Richard.donia@toyota.com

Class size is limited to 12 participants.

Rick Donia
Field Technical Training Specialist
Los Angeles Region
Toyota Motor Sales USA
(916) 804-3757 cell

Automotive Technician Training Standards ATTS by George Hritz



In the early 80's many California automotive teachers recognized the obstacles of the NATEF Certification program and brought the issue to the California Automotive Teachers (CAT) Board. There were four issues of concern to CAT:

1. California high schools are "comprehensive," which means that the student has limited hours in automotive courses along with a full plate of academic requirements.

2. In addition, there is limited funding and equipment necessary to seek certification. NATEF requires a significantly higher number of instructional hours, a costly range of tools and high certification and recertification fees.

3. The automotive program's certification should have different standards for both the high school and the community college programs.

4. NATEF has aligned itself with AYES, which is a program that benefits the new car dealers and manufacturers, not the independent repair dealers.

When we were unsuccessful in having NATEF reconsider their requirements so their program could work in California, a decision was made by CAT to develop a certification program that would bring the high schools to an acceptable skill level for the industry and establish a smooth articulation with the Community College's Automotive Programs. For a year or more, automotive teachers, shop owners and technicians met to develop a certification program.

Most of the industry participants were from ASC, now ASCCA. These meetings produced 3 levels of certification. They were:

Level 1 for first year High School (consumer orientated);

Level 2 for advanced High School;

Level 3 designed for Community Colleges and Propriety Schools.

In addition, ATTS added a seventh certification area called "Emission Control" with the help of BAR staff. At the end of the certification term (5 years) the automotive program must be recertified. This process requires an ATTS Evaluator to perform a "Compliance Check" of the automotive program to make sure it has made improvements and is meeting current ATTS standards.

The ATTS Program was developed to improve automotive training. The benefits the automotive programs receive from certification include; identifies your program strengths, delivers evidence to school administration that your program meets industry standards and provides students with a high quality education and strengthens the link to local automotive business.

Over the past several months a partnership between Automotive Service Councils of California (ASCCA), Independent Automotive Professionals Association (IAPA), and California Automotive Business Coalition

(Continued on page 11)

(Continued from page 10 - ATTS)

(CalABC) has been formed to foster better automotive programs throughout the state. The end result is to provide an improved job entry standard for automotive education throughout the State.

We believe that by renewing our partnership with ASCCA, IAPA and CalABC, we would have the broad support the schools need to thrive and deliver qualified candidates to the industry. Our past history has proven that this relationship works, through CalABC's support; their members have donated over two million dollars of equipment and over a hundred thousand dollars in scholarship funds, not to mention job placements.

The goal would be that when a school is not reaching industry standards, the local Automotive Repair Dealers would be able to assist the program staff to resolve any problems or deficiencies. They could provide leadership, mentor students and might be able to help with the tools and equipment needs by donating surplus parts and used equipment that's still in good condition and functional. The program would be in a better position to earn ATTS certification.

We have identified the geographically closest ASCCA Chapter, IAPA and CalABC member to each Community College Automotive Program and are in the process of updating the list of High Schools that have automotive classes. When that is completed, we will be able to link the ASCCA Chapters and IAPA and CalABC members to their local auto programs.

These relations will benefit ASCCA, IAPA and CalABC members by allowing them to get to know the local instructors and gain access to the graduates of job entry level technicians. Employers could expect a High School graduate of an ATTS Certified Program to be able to perform general maintenance skills with supervision, while a Community College graduate would be able to work the ATTS Area of Certification with minimal supervision.

The ATTS Program is in the process of updating the certification standards and is seeking industry involvement. We plan to revise the ATTS Program and to form a committee made up of: five shop owners or technicians; two members from ASCCA; two members from IAPA; and one from CalABC; and three automotive educators who would be responsible for updating the three levels of certification.

You are invited you to learn more about the benefits of earning ATTS certification and apply soon. The application, inspection forms, and the minimal costs for certification are available at <http://calautoteachers.com/calAbcInfo.html>, if you have any questions please contact George Hritz, ATTS Director at george.hritz@sbcglobal.net or call 707-486-5148.

You can learn more about the automotive associations by visiting their websites:

www.ascca.com,

www.iapasb.com,

www.calabc.org.

ALEX GIAMPETRO
Account Manager
Snap-on Industrial
Cell: (209)581-8374
Fax: (209)289-0033
alexander.giampetro@snapon.com
Snap-on
INDUSTRIAL

(Continued from page 5 -Executive Director's Report)

I feel CAT is offering what you want, at least the attendance seems to prove we are on the right track. Remember, we started out with 35 or so members. For a number of years now, our conference attendance has been averaging around 200. It does not matter whether it is in North or South. We need to keep up the good work, which means we need your input on how we can meet your needs and do a better job. If you have input, contact a Board Member, attend a Board meeting (which is normally held the Friday night before the conference), or myself. You can also help by bringing an automotive teacher that you know that has never attended.

What will I miss? I always look forward to seeing many of my old friends and vendors and keeping up with technology through our many seminars. Probably a long lasting memory is my many flights up and down the state to conferences with my old traveling buddy, Tom Birch.

THANK YOU CAT, for a great 50 years, you all made it happen. I have to finish out this year and have no interest in disappearing. See you at Modesto an at all future conferences, God willing.

Remember those famous words, "keep the shiny side up and the greasy side down".



SCHOLARSHIPS NOW AVAILABLE!

APPLY TODAY!



Must be a qualified California high school senior who plans to enroll in post-high school technical academic training, or a CA college undergraduate in the automotive service or mechanical engineering field*



To date, ASCEF has awarded 127 scholarships, totaling \$89,000



Each scholarship ranges from \$1,000 to \$2,000



For more information on ASCEF and other automotive education scholarships, visit <http://www.automotivescholarships.com> and click ASCEF to the right of the page

*Scholarships available to mechanical engineers are limited. See website for more details.

The ASC Educational Foundation, Inc. is a nonprofit corporation dedicated to supporting and advancing the entire automotive service industry. Governed by the Code of Ethics, the Foundation serves the industry through educational scholarships, endowments, training solutions, and professional development.



Inspection Camera

- ▶ Articulating Tip
 - Gets where others can't go
 - Sees what other cameras can't see
- ▶ Surgical Grade at an affordable price
- ▶ Display on any Windows computer with USB port



"After trying borescopes from 7 different manufacturers, I bought the ATS borescope. It is by far the best borescope I have ever used."

Rick Layton - Diagnostics On Wheels
ASE Master Tech L1
Professional Technician for 37 years
Using ATS Equipment for 9 years



1-800-572-6112

www.AutomotiveTestSolutuions.com

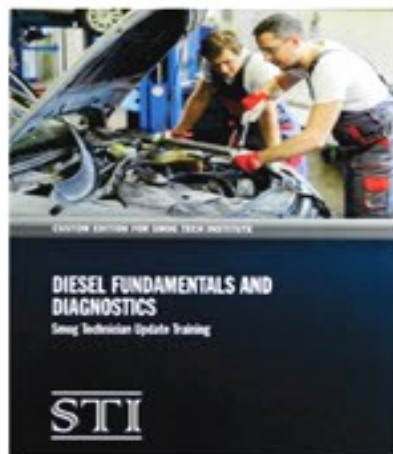
ATS
AUTOMOTIVE
Test Solutions



SMOG TECH INSTITUTE

PRESENTS

Smog Tech Institute has four 16-hours BAR approved update classes to choose from:



Diesel Fundamentals and Diagnostics (UT26)

© 2015

SKU ISBN-13: 978-1-323-04891-7

Price: \$36

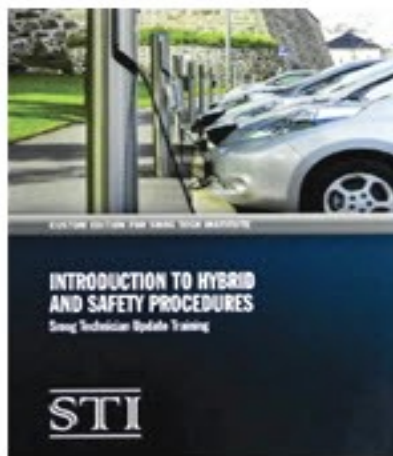


New Technologies (UT28)

© 2015

SKU ISBN-13: 978-1-323-04888-7

Price: \$36

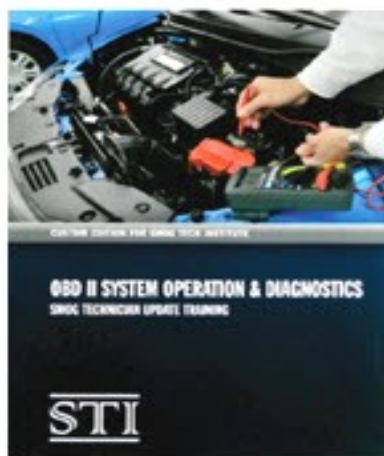


Introduction to Hybrid and Safety Procedures (UT29)

© 2015

SKU ISBN-13: 978-1-323-04889-4

Price: \$42



OBD II System Operation & Diagnostics (UT27)

© 2015

SKU ISBN- 1323078118

Price: \$36

Shipping is free and each class will include all the materials to properly teach your classes.

Call 951-741-0799 to order.

For more details, visit our book store at <https://smogtechinstitute.com/smogtech/products/books>

www.SmogTechInstitute.com

ConsuLab

TRAINING AIDS

Phone: 810-222-4525
Email: sales@consulab.com
Website: www.consulab.com

Trainers for under \$2000

ConsuLab has many affordable training aids that can help you teach technology. Here are just three of the many training aids that are under \$2000.

Cutaway Open Rear Differential EC-430



- Allows visualization of the internal function of the rear differential
- Driven by hand crank

Ohm's Law and DC Circuits Trainer CL-1919-05



- Comprehensive student project manual provides NATEF correlated tasks, circuit schematics activities and testing
- Self-powered board has a power supply with overload protection

Your ConsuLab educational consultant

Brian Stranahan is a familiar face in California. He is a consultant for Matco Tools and is also your educational consultant for the state of California. Brian can get you a quote on any of the trainers listed here and also help provide quotes on any of the other training aids ConsuLab offers. Contact him at stranahan@earthlink.net



Electric Power Steering Trainer EM-200-18

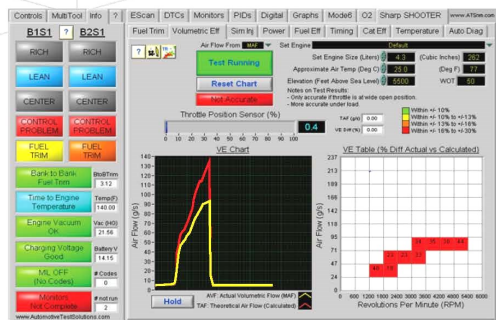


- Students can "feel" the assist effort being applied
- Built in ammeter
- Fault box with 4 faults

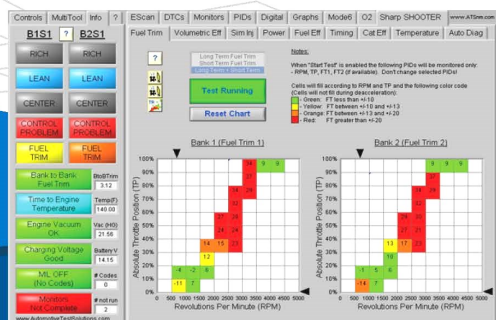
ESCAN^{PRO}

Intelligent Power Scan

Patented



Volumetric Efficiency



Fuel Trim

EScan Pro with Diagnostic Intelligence System DIS

- ▶ Automated MAF testing for operational verification at all Load and RPMs
- ▶ Fuel Trim Analytics – Plot Fuel Trim in Load/RPM Matrix - Know exactly where Fuel Trim deviates from spec.
- ▶ Catalytic Converter Fast Accurate Diagnosis
- ▶ Volumetric Efficiency Calculation – Diagnose Engine Mechanical and Pumping problems
- ▶ Never miss anything - Unlimited data recording with zoom and playback
- ▶ Mode 6 - Decoded into plain English
- ▶ Power Test Calculates Horsepower at the Flywheel
- ▶ Fuel Efficiency Test Calculates How Well the Fuel is Being Used
- ▶ Temperature Test Finds Cooling System Problems



1-800-572-6112
www.AutomotiveTestSolutions.com

ATS
 AUTOMOTIVE
 Test Solutions



(Continued from page 1 - End of an Era)

finishing my one year term as CAT President in 1994, Bob said to me, “are you willing to serve as the first two term president”? I said yes!

What have I learned from “Uncle” Bob? One of many things that stands out is sitting in meetings with him listening to things people would say that made my blood boil. Then I would look at Bob, who appeared to be asleep, and I would wait for him to jump in. When he spoke everyone listened. I learned he was sitting there listening and planning a logical response. I have never quite mastered this technique, but when I sit in a meeting now I remind myself, think of how “Uncle” Bob would do it.

Thank you “Uncle” Bob. You have influenced me to the point that I often ask myself, how would “Uncle” Bob handle the situation? See you this summer by the swimming pool at your house watching my grandkids playing in the water with “Auntie” Gayle. I could go on and on, but there is not enough space or time.

Mike Morse:

This month, as Bob Barkhouse steps down from his position as Executive Director of CAT, I would like to take a moment to honor and reflect on Bob's contributions to the field of Automotive Teaching and to CAT. When I think of Bob, I think of his warm greeting, his sense of humor, and his passion for education.

Bob retired from teaching in 1987 and has served as a mentor to many since his retirement, while continuing to serve as CAT Executive Director. I personally, and, as a result, my students, have benefited from Bob's expertise and mentorship during that period since his retirement, when I was hired to fill the vacancy he left at Yuba College. Throughout the time I have known and worked with Bob, I have come to greatly admire him both as a friend and a mentor.

In the years since his retirement, Bob has received much recognition and many rewards for his continued commitment to education and especially to the field of Automotive Technology. Bob has dedicated himself to making a difference in education, and continued his own update training long after retirement. One of his accomplishments was several years ago when Bob wrote and obtained a grant to establish the ATTS program certification to establish standards for training institutions to certify them at three different levels: beginning to advanced.

They say that all good things must come to an end, and although CAT continues to embrace the future of technology and move forward to meet the challenges of education and automotive technology in the future, it is with a sense of heartfelt gratitude that I look to the many contributions which created this foundation upon which we build. At this time, I wish to extend my heartfelt, "THANK YOU!" to Bob Barkhouse, who has been one of the key contributors to the foundations upon which we now build the future of automotive technology education. Thank you, Bob! I appreciate all your hard work and will miss your presence on the board.

Drew Carlson:

I heard about him before I met him, but I can't recall the context. I started teaching part-time in 1997, and I may have heard the division dean mention Bob Barkhouse. I think it was in reference to curriculum in auto technology, or maybe it was in reference to his work with BAR's Smog Check Program.

Regardless, I started attending CAT conferences in 1998, and that's where I first saw and heard Bob, at the CAT lunch business meeting. What impressed me at the time was, first, he's not a large man in the physical sense, but as I heard him speak passionately about legislation and policies, I came to realize he was a large force for automotive education in California. I was impressed that CAT, a relatively small organization of auto teaching professionals, had such a knowledgeable and powerful force working on its behalf.

Later, as I came to serve on the CAT board, I learned a lot more about him. I loved the discussions of issues and policies we had at board meetings, some of which were pretty heated. Invariably, Bob would let the discussion run its course, then he might make a minor suggestion, one informed by the wisdom born of his experience, and then the discussion became much clearer in terms of the issue. In my experience, Bob never directly told the board what to do,

(Continued on page 18)

[\(Continued from page 17 - End of an Era\)](#)

but he did a great job of providing the board with perspective. He always carried out the decisions of the board, some of which he likely did not agree with. I appreciate that Bob could do that.

In the years I served on the board, I got to know him personally. He and his terrific wife, Gayle, had adult offspring about my age, and, somehow, I took to addressing him as “Uncle Bob.” I don’t know if he ever got comfortable with that term of endearment, but after lots of meetings and a few dinners together, it was an easy fit for me.

With Bob’s retirement from CAT as its Executive Director, CAT will undergo a big change, I’m sure. There are few, if any, among us with the experience and skillsets he has developed both with CAT, and in his influence on legislation and policies in Sacramento. Thank, you, Uncle Bob!

Tim Gilles:

Bob Barkhouse has been a good friend and mentor to me for so many years now. He is one of my two honorary big brothers.

In 1985, when the first edition of my Automotive Engines book was published, Bob made a point of taking me aside at a CAT Conference and telling me he’d read the book and I should be very proud of the job I did. This was at a time when Bob had a very successful engine book and I was potentially competition to him. Bob is a true professional! He set a fine example by this behavior and I’ve never forgotten how much his encouragement meant to me. I always tried to pay that forward by congratulating fellow authors on their book projects, many of whom are competitors as well.

I’m not sharing any secret when I say that Bob’s pet project has always been CAT. Bob has mentored a long list of CAT Presidents and officers since he was a co-founder of this association that started in 1966 (fifty years ago this year). This was before my time, as I didn’t start teaching until 1973.

I became CAT President in 1992, after serving on the Board for a couple of years. Bob taught me a lot about politics. Fighting political battles for our automotive programs can be discouraging at times. One of my favorite quotes from Bob goes like this, “You need to keep leaning on fences. Occasionally a section of the fence will fall down.” I’m retired now, but I heard this one often and I hope those of you who are still fighting the battles will keep this quote in mind. I’ve definitely found it to be true and it helped me to keep leaning on those fences. We’ve made a lot of progress for our students, but it will evaporate quickly if you don’t “keep leaning.”

I’ve attended many conferences and meetings with Bob over the years. We were on the Community College Chancellor’s Advisory Committee for CTE together for at least 20 years. I always looked forward to our dinners and long chats on the night before the next day’s meeting. That’s because Bob is one of the good guys. He’s always positive and fun to be around.

Bob has a great sense of humor and loves to be kidded. Otherwise, I don’t think he’d like me much, because I’ve always been one to make jokes and think up pranks. One of my favorites was at the raffle at the end of the Ventura College conference one year. Bob had won a giant bottle of pickles one time at a previous conference and he was always being kidded about that. I had this plastic dog turd that I put in an AC Delco box. I peered over Bob’s shoulder and memorized his ticket number which I gave to Chuck Rockwood, who was running the raffle. He called out Bob’s number and gave him that AC Delco box. I can still remember Bob opening the box and pulling out the dog turd. He immediately turned in my direction and shouted “Gilles!”

My wife and I don’t often get as far north in California as Yuba City, but when we do the welcome mat is always out with Bob and his lovely wife, Gayle. Bob has been mayor of Yuba City multiple times and when you get the grand tour of the city, you can really appreciate the pride he has for his other pet project besides CAT. Best wishes in your third retirement, Bob! Keep up that golf game.

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

(Continued from page 18 - End of an Era)

George Hritz:

My first memories of Bob were at the GM training center during the summer instructor's workshop in the 70's. Even though there were about 200 instructors attending the week of classes Bob and I were able to spend a lot of time together and I got to know him. Bob is a founding father of CAT. Father is the correct word because he felt like a father to us. This is the fiftieth year of CAT and he has never missed a meeting.

Bob always makes you feel like an important friend. He urged me to get involved with CAT. Later he encouraged me to become part of the CAT leadership. Without his mentoring I would not have developed into a person who can speak in front of large groups and have the confidence to be a leader. What I think Bob's most important skills are the ability to stay calm and to listen. He has a great sense of humor, he can laugh with you and take a joke. I'm sure there are many who feel the same way I do and want to thank Bob for all he's done for them.

Don Schumacker:

I met Bob after I was hired at Yuba College. He stopped in one afternoon and introduced himself. It was nice to finally meet the man behind the stories and the plaque that hangs on the auto shop wall. Bob was very pleasant, but direct. I think even then he was sizing me up as a possible candidate for a CAT board position.

Over the next couple of years as a member of CAT I came to know Bob. I was amazed then and still today at his selfless service to CAT and his passion to protect High School and Community College automotive programs. Right about that time before I had even finished my tenure process at Yuba College "Uncle Bob" came by for a visit. We all know he is very direct so he laid it on the line quickly. Bob asked me if I would like to join the CAT board. I was shocked and honored at the same time. But I was just barely getting used to my new job at Yuba and I thanked him but I had to turn down the offer.

Well we all know Bob, when he wants you to do something he let go until you say OKAY! When the next northern V.P. position was open guess who I received a call from? This time he just said here's the deal, "I need to know right now if you want the job", at this point I had no excuses so I accepted.

Because of Bob Barkhouse I have had the great honor of serving on the CAT board with him. That is how Bob has influenced my life.

Tom Birch:

I have kind of been following behind Bob since I graduated from Chico State College in 1960. He had joined a group of Sacramento Valley Auto Teachers working with Robert Moran, CSC Instructor developing auto teaching materials through the 1960s before I did. In spring 1969, I was teaching Auto Shop at Luther Burbank High when the Sacramento City Schools ran out of money and started cut backs. I was the Industrial Arts Department Newbie, only 6 years, so the Metal Shop Instructor was going to bump me to the Continuation High School, a destiny that I did not want. That same year, Bob was granted a sabbatical, and a single-year job opened up to replace him at Yuba College. I got that job and a one-year leave of absence from Sac. City.

Bob appeared to be concerned that I might screw-up his program, so he shared his thoughts on teaching Automotive Technology and the fine points of how the program ran. He responded favorably to every question I had on subject matter, shop procedures, and student goals. (A side note: after watching how much work that Bob put into the book he was working on, there was no way I was going to even think about writing an auto book).

I did my job successfully, enjoyed teaching at Yuba, and was not looking forward to my projected return to Sac. City. I think that Bob, working with our division chairman, helped create a second-year job for me that included an ROP class: half in Colusa at an old, closed service station and half at Yuba; Ag. Science classes: hydraulics and farm buildings; plus Automotive Technology classes. The next year, another of Yuba's automotive instructors moved to a college down south, and this opened my way to a full-time position in Yuba's Automotive Technology Department.

I enjoyed 25 – 50+ years of teaching and working with Bob with an emphasis of improving our student's ability to be

(Continued on page 20)

[\(Continued from page 19 - End of an Era\)](#)

successful. Supporting CAT became Bob's top priority, and this included many, long, late-night board meetings the night before each conference and dashing through airports to catch the last flight home.. We should not forget that the plans for CAT were made by Bob Barkhouse working with Norm Gibbs & Mel Edwards (Chabot College) and Orville Page & Jim Kenley (Reedley College) in the late 1960s, and that Bob provided most of the power to keep CAT growing for quite a few years.

John Chocholak:

I am not sure when I first met Bob Barkhouse. It was a long time ago though when we both looked like movie stars and also at a time when we had a shot at looking as good as our very supportive wives. Our wives still look good and we both....well I will not go into that.....

I was in my 30s and wanting to do something to improve the condition of SHOP classes/programs in the high schools throughout California. Bob spotted me the very first time I came to a CAT conference and he right then began to mentor me and encourage me to step up and "make a difference".

He would often call me and include me in some meeting he was going to in Sacramento. He sent me all kinds of stuff related to legislation. Slowly, and very deliberately, he began to guide me into political action in Sacramento. He also got me to show up at CAT Board meetings and eventually convinced me to take on a board responsibility related to supporting high school SHOP programs.

It was Bob Barkhouse that introduced me to Chris Walker. Bob got CAT and CITEA to support Chris and political action in Sacramento to save and support SHOP programs in the California public school system. Any connections I made in Sacramento came about because Bob had set the stage before I ever arrived on the scene.

I often was discouraged at my own failures to make change. Bob would always tell me to "KEEP LEANING" as all the things blocking change would eventually fall over. He was right. In fact, he usually was always right.

Bob taught me not to say "I" but to include people and always say "WE" because no one person can accomplish everything. In this regard he led by example.

Bob Barkhouse is the secret weapon behind the scenes. He generates the energy that includes and encourages people to do their professional best to be of service to others and the profession. He was, and is my mentor, and the mentor to others. Along with others, "WE" helped to make positive change.

Jim Custeau:

Bob Barkhouse is one amazing guy. We on the board affectionately call him, "Uncle Bob" – when, in fact, we should call him the "Godfather". He and a couple of other guys had the vision 50 years ago to start CAT. I don't recall the first time I met Bob, I only remember that it was a nice encounter with a highly professional educator who deeply cared about our cause. Bob was the founding President and has single-handedly, at times, kept this organization afloat. Even lending money to CAT during a time the organization was struggling financially. He has been our Executive Director for many years, spending countless hours driving or flying to meetings to speak on our behalf. He is highly respected by other automotive professionals around the country and always seems to know the right path to take at every fork in the road.

Bob is one of a kind and it's unlikely that anyone will ever be able to match his 50 years of service to our organization – a truly remarkable record. I'm honored to have been able to serve with Bob on the CAT Board for the last 11 years. Thanks for the inspiration you gave me, so I could do a good job as a board member. I know Bob likes me because we tease each other all the time. I will never let him forget the time he had a blowout on the freeway in his Ford on the way to the winter board meeting after picking us up at the airport in Sacramento. He safely brought that old wagon to a stop like a seasoned race driver. And we jumped on the tire change like a NASCAR pit crew. Of course the spare only had 10 pounds of air in it – leading to more teasing of our chauffer.

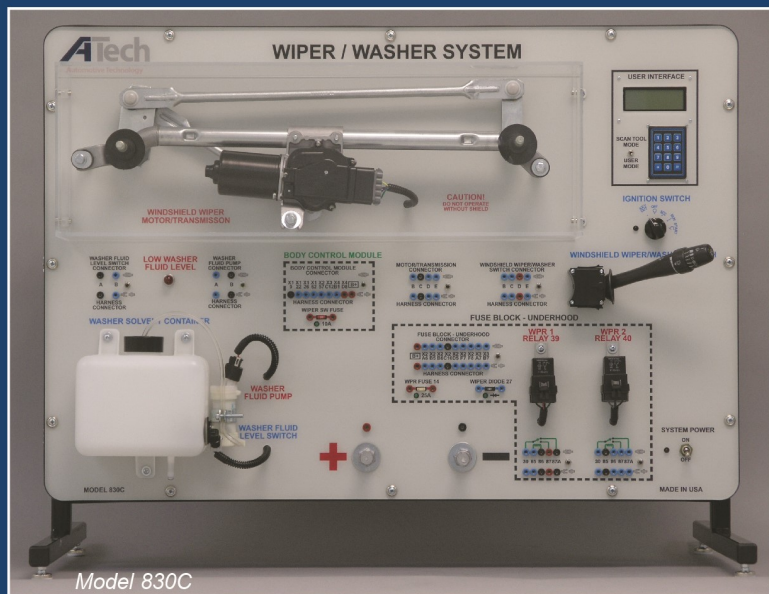
[\(Continued on page 22\)](#)



Wiper/Washer System

Features:

- New vehicle components, connectors, and factory wire colors.
- Provides an advanced level of instruction by duplicating actual on-vehicle troubleshooting procedures.
- Intermittent and hard faults can be inserted using the Instructor Management Program (IMP) via a computer connected to the trainer or over the ATech Network System (ANS).
- Hard faults can be inserted by using the built in keypad on the Wiper/Washer System.
- Ability to perform actual service manual test procedures.
- Compatible with ATech's Instructor Management Program (IMP).
- Courseware includes Instructor Guide, Student Manual, and Service Manual Information.
- Battery posts are protected against polarity reversal.
- Includes external power supply for fault activation.



The A Tech Wiper/Washer System Trainer (model 830C) is designed to teach computer and network controlled automotive wiper/washer system operation. This trainer allows for instructor demonstration, student hands-on reinforcement and troubleshooting practice. Powered by a 12VDC automotive battery or a 12VDC/23A power supply (not included).

CALL NOW TO PLACE YOUR ORDER!

ATech Training, Inc.
12290 Chandler Drive • Walton, KY 41094
Toll Free: 1-888-738-9924
E-mail: sales@atechtraining.com

www.atechtraining.com

(Continued from page 20 - End of an Era)

I've witnessed firsthand the unbridled enthusiasm Bob has for CAT. It only makes sense – for CAT is Bob's baby. I wish you the best – you're one hell of a good guy! I love you Bob!

In all the years I have dealt with him he has displayed traits that I truly admire: Patience, Humility, Trustworthiness, and most important Dedication. Bob will always be a person you can go to for advice, yet the one thing Bob has done as Executive Director is allow the Board Members to lead the organization. He allows discussion to flow and will only provide input if he feels something is amiss in the direction the Board is taking. Again, I will always appreciate Bob's counsel and friendship.

John F. Overton:

First, let me say the Bob Barkhouse will be sorely missed as Executive Director for the California Automotive Teachers (CAT) and all education dealing with the automotive field.

My first real personal dealings with Bob were when I was a CAT officer. The conference was being held at Yuba College and Bob had set up dinner for the CAT Board members at his local Country Club. I remember how comfortable he made me feel accepting my ideas even though I was very new to the Board. Bob has a way of getting the best out of you because he expects the best from himself.

CAT is Celebrating a 50th Anniversary

CAT will celebrate its 50th Anniversary at Modesto Junior College April 29th and 30th. We hope you can all attend and make it a memorable event. The automotive program has scheduled some excellent tours and workshops for Friday. The Friday workshops provide you with the opportunity to collect additional hours towards your NATEF requirements.

Friday activities include an industry sponsored “free” dinner in the evening for everyone: members, guests, exhibitors, presenters, etc.. The companies sponsoring the dinner are: MATCO Tools (Brian Stranahan), TecHelp (Doug Mueller), Goodheart/Wilcox, Drive-Rite Auto (Hari Dhaliwal), ATECH, AES Wave (Carlos Menchu), Electude (Thomas Synder), NATEF/AYES (Trish Serratore), STAR Envirotech (Jim Saffie), RLEscalambre (Rick Escalambre), Pearson (Tony Webster), and Perfect Sky (Jack Rosebro). Be sure to pass along a thank you to each of our industry sponsors and friends. The dinner provides a wonderful chance to relax and enjoy a meal while networking with many of your peers. After the dinner BAR will host a workshop starting at 7 PM.

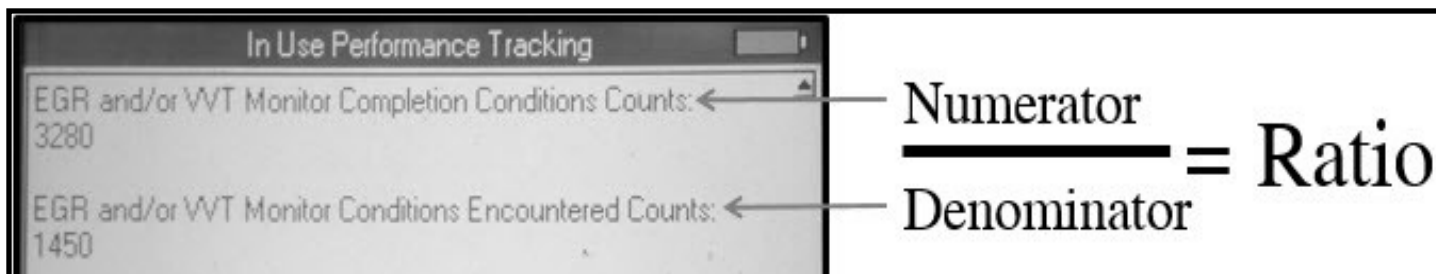
Saturday's schedule is a full one. They have many workshops planned that will allow you to upgrade your skills, meet your NATEF requirements, and still have time to visit with all the exhibitors. When visiting with the exhibitors please take a moment to say “Thank you” for their participation. Without their support it would be difficult to host a quality workshop.

For those of you attending please take the opportunity to greet “Uncle” Bob and say thank you for all he has done for CAT. I am sure he would love to hear from everyone, unfortunately that was not possible to do in the newsletter. Share some thoughts with not only Bob, but other CAT members. Networking is an excellent way to build and maintain a quality program.

(Continued from page 7 - OBD II Readiness Monitors)

in to the PCM. The plan here is to save the technician time and the customer money by not spinning the wheels attempting to run a particular monitor that was Disabled for that key cycle. **Option Three** eliminates having to perform a MODE \$04 to verify a monitor runs to completion. This option allows the technician to see what happens to each monitor during the most current key-on cycle., regardless of how it reported in **Option One**.

OBD II Regulations have added another report to MODE \$09; previously, this MODE reported the Vehicle Identification Number (VIN) and the Calibration Verification Number (CVN). For CAN equipped systems MODE \$09 now includes “**In Use Performance Tracking**” of the non-continuous monitors (CAT, EGR/VVT, O2s, EVAP, etc.). This was added so the manufacturers would be held responsible for each non-continuous monitor that does not run with a minimum frequency. *If only this had been done from the start of OBD II then we would not be dealing with so many vehicles not running their monitors and failing a smog check when there is really nothing wrong with the vehicle!*



Numerators count as actual monitoring event (trip) when the enable monitoring conditions run long enough that a malfunctioning component would have been detected. The figure above shows the EGR being tracked and reported. In this case there were 1450 trips counted and 3280 opportunities for the monitor to run to a fail condition. For any monitor where you see a higher numerator (monitoring events) than denominator (trips), it means that the Monitors are running on trips that aren't even counted as trips against the manufacturer.



What does the report above tell about the EVAP Monitor? The Numerator shows that the Enable Criteria to detect a failing Evaporative Emission Systems has been met 170 times. The Denominator shows that there have been 550 trips counted against the manufacturer. Think about the EVAP Monitor and its Enable Criteria, This ratio makes sense because there are more multiple things that could interrupt the monitor from running (Temperature, fuel level, etc.)..

What does this mean to you and your students? I think an instructor you should have a general understanding of MODE \$09 to better educate your students. Tell your students it is a way to identify if the monitors are running with some type of frequency. Once again, we have a “clue” instead of an excuse that a monitor won’t run. The data provided here shows it definitely has the capability to run with a high frequency as long as the Enable Criteria is met.

Will this data be cleared with a MODE \$04 DTC Clear? The answer is no. The technician in the field does not have the capability to clear this information!

When it comes to running monitors, continue to educate yourself about the requirements for running monitors. Steady throttle, patience, and a reasonably good understanding of Enable Criteria is of the essence. I hope this helps!

The Absurd Primacy of the Automobile in American Life

(This is a reprint from the “The Atlantic”)

Considering the constant fatalities, rampant pollution, and exorbitant costs of ownership, there is no better word to characterize the car’s dominance than insane.

The car is the star. That’s been true for well over a century—unrivaled staying power for an industrial-age, pistons-and-brute-force machine in an era so dominated by silicon and software. Cars conquered the daily culture of American life back when top hats and child labor were in vogue, and well ahead of such other innovations as radio, plastic, refrigerators, the electrical grid, and women’s suffrage.

A big part of why they’ve stuck around is that they are the epitome of convenience. That’s the allure and the promise that’s kept drivers hooked, dating all the way back to the versatile, do-everything Ford Model T. Convenience (some might call it freedom) is not a selling point to be easily dismissed—this trusty conveyance, always there, always ready, on no schedule but its owner’s. Buses can’t do that. Trains can’t do that. Even Uber makes riders wait. But convenience, along with American history, culture, rituals, and man-machine affection, hide the true cost and nature of cars. And what is that nature? Simply this: In almost every way imaginable, the car, as it is deployed and used today, is insane.

What are the failings of cars? First and foremost, they are profligate wasters of money and fuel: More than 80 cents of every dollar spent on gasoline is squandered by the inherent inefficiencies of the modern internal combustion engine. No part of daily life wastes more energy and, by extension, more money than the modern automobile. While burning through all that fuel, cars and trucks spew toxins and particulate waste into the atmosphere that induce cancer, lung disease, and asthma. These emissions measurably decrease longevity—not by a matter of days, but years. The Massachusetts Institute of Technology calculates that 53,000 Americans die prematurely every year from vehicle pollution, losing 10 years of life on average compared to their lifespans in the absence of tailpipe emissions.

There are also the indirect environmental, health, and economic costs of extracting, transporting, and refining oil for vehicle fuels, and the immense national-security costs and risks of being dependent on oil imports for significant amounts of that fuel. As an investment, the car is a massive waste of opportunity—“the world’s most underutilized asset,” the investment firm Morgan Stanley calls it. That’s because the average car sits idle 92 percent of the time. Accounting for all costs, from fuel to insurance to depreciation, the average car owner in the U.S. pays \$12,544 a year for a car that puts in a mere 14-hour workweek. Drive an SUV? Tack on another \$1,908.14

Then there is the matter of climate. Transportation is a principal cause of the global climate crisis, exacerbated by a stubborn attachment to archaic, wasteful, and inefficient transportation modes and machines. But are cars the true culprit? Airplanes, for instance, are often singled out as the most carbon-intensive form of travel in terms of emissions per passenger-mile (or per ton of cargo), but that’s not the whole story: Total passenger miles by air are miniscule compared to cars. In any given year, 60 percent of American adults never set foot on an airplane, and the vast majority who do fly take only one round trip a year. Unfortunately, air travel is not the primary problem, contributing only 8 percent of U.S. transportation-related greenhouse gases. Cars and trucks, by contrast, pump out a combined 83 percent of transportation carbon.

Annual U.S. highway fatalities outnumber the yearly war dead during each Vietnam, Iraq, the War of 1812, and the American Revolution.

Driving an SUV or even a mid-size car from New York to L.A. is worse for the planet than flying there. This is true in part because cars’ fuel efficiency has improved far more slowly than planes’, but also because of Americans’

(Continued on page 25)

(Continued from page 24 - Primacy of the Automobile)

increasing propensity to drive alone, which has made car travel less efficient and more carbon-intensive per passenger-mile in recent years.

So cars pose the biggest threat on the climate front, with all the costs that global warming imposes on infrastructure, homes, and lives through increasingly severe storms, droughts, rising sea levels, and pressure on food supplies. If the price of gasoline and the vehicles that burn it actually reflected the true costs and damage they inflict, the common car would go extinct. Gasoline would cost way more than \$10 a gallon. That's how big the secret subsidy is.

And that's not even counting cars' most dramatic cost: They waste lives. They are one of America's leading causes of avoidable injury and death, especially among the young. Oddly, the most immediately devastating consequence of the modern car—the carnage it leaves in its wake—seems to generate the least public outcry and attention. Jim McNamara, a sergeant with the California Highway Patrol, where officers spend 80 percent of their time responding to car wrecks, believes such public inattention and apathy arise whenever a problem is “massive but diffuse.” Whether it's climate change or car crashes, he says, if the problem doesn't show itself all at once—as when an airliner goes down with dozens or hundreds of people on board—it's hard to get anyone's attention. Very few people see what he and his colleagues witness daily and up close: what hurtling tons of metal slamming into concrete and brick and trees and one another does to the human body strapped (or, all too often, not strapped) within.

In contrast, a roadside wreck is experienced by the vast majority of drivers as a nagging but unavoidable inconvenience—just another source of detours and traffic jams. Increasingly popular and powerful smartphone traffic apps eliminate even those brief close encounters with the roadway body count, routing savvy drivers away from crash-related congestion. The typical car wreck is becoming all but invisible to everyone but those who are killed or maimed and those whose job is to clean it up. Many are aware at some level that troubling numbers of people are injured and die in cars, but most remain unfazed by this knowledge.

This disparity in attention between plane crashes and car crashes cannot be justified by their relative death tolls. Quite the contrary: In the 14 years following the terrorist attacks of 9/11, there were eight crashes on American soil of passenger planes operated by regional, national, or international carriers. The death toll in those crashes totaled 442. That averages out to fewer than three fatalities a month.

The death toll on America's streets and highways during that same period since 9/11 was more than 400,000 men, women, and children. The traffic death toll in 2015 exceeded 3,000 a month. When it comes to the number of people who die in car wrecks, America experiences the equivalent of four airliner crashes every week.

A normal day on the road, then, is a “quiet catastrophe,” as Ken Kolosh, the statistics chief for the National Safety Council, calls it. He ought to know: He makes his living crafting the annual statistical compendium of every unintentional injury and death in the country.

Car crashes are the leading cause of death for Americans between the ages of 1 and 39. They rank in the top five killers for Americans 65 and under (behind cancer, heart disease, accidental poisoning, and suicide). And the direct economic costs alone—the medical bills and emergency-response costs reflected in taxes and insurance payments—represent a tax of \$784 on every man, woman, and child living in the U.S.

The numbers are so huge they are not easily grasped, and so are perhaps best understood by a simple comparison: If U.S. roads were a war zone, they would be the most dangerous battlefield the American military has ever encountered. Seriously: Annual U.S. highway fatalities outnumber the yearly war dead during each Vietnam, Korea, Iraq, Afghanistan, the War of 1812, and the American Revolution. When all of the injuries from car wrecks are also taken into account, one year of American driving is more dangerous than all those wars put together. The car is the star.

Fall 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.

This will be my last column, as I will be moving on to the 2nd Past President position after our 50th Anniversary Conference at Modesto College on April 29th and 30th in Modesto, CA.

Our Fall conference was at MiraCosta Community College, in Oceanside, CA. We had spectacular views of the ocean from the cafeteria during our Friday night dinner and Saturday luncheon.

The Friday tours were to the Antique Gas and Steam Engine Museum, The Deer Park Winery and Auto Museum and a Tour of Camp Pendleton. I attended the Antique Gas and Steam Engine Museum, in Vista, CA and The Deer Park Winery and Auto Museum, in Escondido, CA, and those of us who attended enjoyed it greatly. If you haven't been to either one, it is quite a step back in time at the Antique Gas and Steam Engine Museum. They have two active (everything in operation) weekends each year and we happened to visit during one, so there was a lot going on.

The Deer Park Winery and Auto Museum had an eclectic mix of vintage convertible autos, antique bicycles, appliances, cameras, tube television sets, neon dealership signs, etc..... In addition, there was also wine tasting for some of their estate wines produced on site.

We had 22 vendors share their wares with our members and show us the latest and greatest in education. The seminars informed and educated our members in topics from Electricity, the Internal Combustion Engine, Diesel Diagnosis, and 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 goes to our own Steve Vail and his staff from MiraCosta College for putting on a great conference.

Hope to see you at our 50th Anniversary Conference at Modesto College next month.

***A "BIG CAT" Thank you To Roddy Rampersad for the pictures he takes at each conference
and for making them available for the WEBSITE and CAT Newsletter!***



EXECUTIVE DIRECTOR

Bob Barkhouse, bob4cat@sbcglobal.net

OFFICERS

PRESIDENT: Donald Schumacher, Yuba College,
dschumac@yccd.edu

VICE PRESIDENT:
Ruben Parra, Skyline College
parrar@smccd.edu

EXECUTIVE TREASURER: Steve Vail, Mira Costa College,
svail@miracosta.edu

HIGH SCHOOL/ROP: Armando Hernandez, Schurr HS
hernandez_armando@montebello.k12.ca.us

BOARD OF TRUSTEES

Jim Custeau, Cuyamaca College,
jim.custeau@gcccd.net

John Overton, Retired,
jovertan@calautoteachers.com

Phil Jelinek, Retired,
pjelinek@calautoteachers.com



**California
Automotive
Teachers**

PRESIDENTIAL APPOINTMENTS

HISTORIAN: Tom Birch (1 Year Interim),
Retired,
tbirch@sebastiancorp.net

CONFERENCE COORDINATOR: Phil Jelinek,
Retired,
pjelinek@calautoteachers.com

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 and ads is April 1st 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
Fall 2016
Fullerton College
October 14 & 15

Conference Host Information:

Jose Miranda

jmiranda@fullcoll.edu

Mailing Address:

Fullerton College
321 E Chapman Avenue
Fullerton, CA 92832