California Automotive Teachers

Spring/Fall 2022

Issue #58

CAT NEWS

www.calautoteachers.com

Newsletter Highlights

- CAT President Change
- Understanding Emission Systems
- Board Member Reports
- Conference Registration

What's in this issue?

The CAT Fall 2022 Conference is being hosted at Antelope Valley College in Lancaster

- Please plan to join fellow members for two days of workshops and exhibitors on October 14th & 15th, 2022!
- The recent resignation of CAT President Pete Escoto has led to the interim presidency of Vice President Salvador Diaz.
- As George Hritz officially retired from the Executive Director position, the CAT Board has been unable to find a suitable replacement. This has led to the creation of an interim Executive Director Committee.
- Be sure to visit http://www.calautoteachers.com/conferences.html and pay your dues for the current fiscal year.
- For more information about the Executive Director Position and Committee, refer to current CAT By-laws.

Please continue to look for emails and notifications from CAT. Together we will remain strong for Automotive Education in the state of California.

The California Automotive Teachers will meet at Antelope Valley College for the Fall Conference on October 14th and 15th.
We are looking forward to the interaction of our members.

President's Letter by Salvador Diaz

My fellow California Auto Teachers members, I have some news to share. I am writing to let you know that as of October 6, 2022 at 11:19am I assumed the role of President of our organization.

Pete Escoto has submitted his letter of resignation as President of CAT. He had a wonderful tenure as president. I was honored to serve alongside him as Vice President. I learned a great deal from Pete and appreciated his service and dedication to CAT and to automotive technology education in general. I, on behalf of the board and all of the members, thank you, Pete.

Pete and the past presidents have all left large shoes to fill, and I have a lot of work to do in order to make them proud and keep the greatness of CAT.

I look forward to serving as your next President, and I am excited for what's to come and the future of CAT. I will work alongside our board and general body members to continue our traditions, work to increase membership, improve our web presence, and enhance our knowledge of the automotive field. After all, as members of CAT we are committed to our students and their education.

With my succession to President, this leaves an opening in our board - the position of Vice President. If you would like to serve as a leader alongside amazing colleagues, please feel free to contact any one of us for details. We additionally have the position of Executive Director available.

I look forward to seeing you all at the Fall Conference.

aeswave.com

For Quotes or Questions
877-351-9573
carlos@aeswave.com

FLUKE

BOSCH

ATS
AUTOMOTIVE
Test Solutions

Executive Director Committee Report

FALL 2022

BAR Advisory Group Committee & Workshop Summary 7/21/22 by Jack Molodanof

Introductions. BAR Chief, Patrick Dorais made opening comments that included, BAR celebrating 50 years as Bureau and introduced BAR staff in the audience. Members of the BAR Advisory Group Committee introduced themselves.

DCA News & Updates. The Governor signed bill allowing for government entities to continue remote meetings along with in-person as long as specified guidelines followed. The DCA representative provided updates on new DCA staff.

Legislative Bill and BAR Regulations Update.

Legislative bill update included summary of the following: AB 646-Expunged Convictions; AB 1733-Open Meetings; AB 2350- Zero Emissions Aftermarket Conversion Project; AB 2496- Vehicle Exhaust Systems and the following Catalytic Converter Bills: AB 1740, AB 2407, AB 2682, SB 986, & SB 1087.

Discussion and concerns surrounded AB 2682, which requires auto shops that install or replace catalytic converters to ensure that they are permanently marked with VIN and requires smog stations to visually inspect and notify customer whether or not converter engraved with VIN. Questions regarding the letter/number font size, placement, etc. of the VIN on the catalytic converter as well as details of the visually inspection. Regulations may need to be implemented to clarify and properly enforce, if the bill passes and signed by Governor.

Regulations Adopted in 2022 included: Smog Check Repair Assistance; License and Regulation Training and STAR Program Update. Pending Regulations: Smog Check Equipment-Bio Metrics; Smog Check Inspection Equipment-DAD Specification Update; Citation & Remedial Training Requirements for ARD's; ARD Registration Application Requirements & Vehicle Safety Inspection Program.

See link for Presentation. https://www.bar.ca.gov/pdf/bag/202207/legislation-and-regulations.pdf

Storage Fee Referrals. In response to concerns raised from the insurance industry about unreasonable storage rates charged by shops, BAR created a dedicated email to respond to vehicle storage and fee issues. BAR reviews and determines the appropriateness of storage fees and makes recommendations. BAR also educates ARD on laws pertaining to storage fees. Over 30 processed referrals to date and 16 cases have resulted in storage fees being reduced or eliminated. About 15 cases resulted from adjuster/insurer delays in picking up total loss vehicle. Discussion and concerns were raised re: insurer delays in inspecting vehicles (insurers have within 6 business days to inspect vehicle damage after being notified of claim) which increases storage rates and failure of insurers to pay for required repairs which also causes delay. Comments included allowing shops to also use dedicated email to contact BAR re: storage issues, instead of only insurers. BAR will continue to mediate and educate stakeholders regarding the storage laws and fees. See link for Presentation.
https://www.bar.ca.gov/pdf/bag/202207/storage-fee-referrals.pdf

(Continued on page 5)

(Continued from page 4 - Executive Director)

Enforcement/Licensing Modernization Update. BAR is in the process of consolidating all DCA regulatory entities into a single licensing and enforcement system. The intent is to modernize business process on-line. See link for Presentation.
https://www.bar.ca.gov/pdf/bag/202207/ELM.pdf

BAR-OIS Smog Check Security Update. BAR is concerned about security risks re: computers running on the BAR-OIS. BAR recommending all BAR-OIS users move to a Windows 10 or Windows 8.1. BAR-OIS will be certified for use on Windows 11 at a date to be announced. See link for Presentation.
https://www.bar.ca.gov/pdf/bag/202207/BAR-OIS.pdf

STAR Smog Check Program Changes. Changes include deleting outdated Gold Shield provisions; modifying existing equipment and eligibility standards and establishing a STAR certification suspension rather than invalidation process. See link for Presentation.
https://www.bar.ca.gov/pdf/bag/202207/star.pdf

2022 Smog Check Performance Report. BAR reported that vehicles certified by "high performing" smog check stations failed at lower rate at roadside inspections compared to vehicles certified by stations with lower FPR scores. BAR and CARB believe that smog could have been reduced if all stations operated as effectively as high performing stations. See link for Presentation.
https://www.bar.ca.gov/pdf/bag/202207/smog-check-report.pdf

Enforcement Statistics. Consumer complaint trends as of 21-22 YTD are as follows: Engine Repair 34%; General Repair and Maintenance 18%; Auto Body 15%; Transmission 8%; Smog 6%; Used Car Transactions 5%; Vehicle Warranty 5%; Unlicensed Activity 2%; Towing and Storage 1%. See link for Presentation.
https://www.bar.ca.gov/pdf/bag/202207/enforcement-statistics.pdf

Licensing Statistics. The BAR has currently 34,093 registered automotive repair dealers in the state. See link for Presentation. https://www.bar.ca.gov/pdf/bag/202207/licensing-statistics.pdf

Public Comment- Johan Gallo, Cal-ABC provided history of BAR Advisory Group Committee and how it was formed approximately 30 years ago working with Governor Wilson.

Next BAR Advisory Group Meeting is scheduled for Thursday October 20, 2022

Vehicle Safety Inspection Program Regulation Workshop

The BAR held a regulatory workshop regarding the proposed vehicle safety inspection program. The new program, based on the passage of AB 471, is designed to protect consumers when purchasing revived total loss salvage vehicles. Many unsuspecting consumers are purchasing rebuilt total loss vehicles that may not have been repaired properly and are unsafe. The new safety inspection combines the brake and lamp program and adds additional safety criteria before total loss salvage vehicles are approved to obtain revived salvage title certificates. The salvage vehicle safety inspection consists of the following nine (9) sections: information on technical access and vehicle identification; lightning system; passenger compartment; tires and wheels; braking system; steering and suspension system; body structure inspection; road test; and

(Continued on page 6)

(Continued from page 5 - Executive Director)

equipment requirements. The vehicle safety technician will also possess ASE certification and pass a licenses examination. Comments and concerns included how the program would specifically work and the impact to current brake and lamp licensees. Suggestions included the need for additional inspection requirements such as pre-accident photo's showing damage, wheel alignments, measuring, bond or liability insurance requirements for vehicle inspection shops, additional certification requirements for inspectors. BAR will review all comments and suggestions and make changes accordingly. See links below for presentation, text and manual.
https://www.bar.ca.gov/pdf/workshops/202207-vehicle-safety-inspection/presentation.pdf

https://www.bar.ca.gov/pdf/workshops/202207-vehicle-safety-inspection/draft-text.pdf

https://www.bar.ca.gov/pdf/workshops/202207-vehicle-safety-inspection/draft-manual.pdf

CAWA Meeting Report by Donal Howell

As CAT appointee to the California Automotive Wholesalers Association board of directors, I attended a series of meetings in February and another in June. Besides the opportunity to travel to some picturesque locations, these meetings gave me an insight into the world of automotive aftermarket parts. This is a huge part of the automotive industry and comes alongside automotive repair in many ways. They also are facing many of the same challenges with increased use of technology, service of electric vehicles, and shortage of available workforce.

The February meetings saw the organization of an eCommerce Task Force, predictions about the future of electric vehicles, and formation of a group of volunteers to review scholarship applications. See announcements below regarding scholarships provide by CAWA.

The June meetings included more information on eCommerce, a push for CAWA to have social media presence, and in-depth discussion in the Membership & Education Committee. This led to the formation of a Recruitment, Mentoring & Training Task Force, of which yours truly is now a member. As part of recruitment, mentoring and training the next generations of parts professionals, I hope to create connections between automotive education and the auto parts industry. This could be a great partnership!

CAWA, Representing the Automotive Parts Industry, is pleased to announce the recipients of its 2022 scholarship awards.

CAWA provided over $13,000 in scholarships this year to thirteen individuals. *"Once again, CAWA is proud to assist these young people in pursuing their education and careers in the auto care industry",* said Rodney Pierini, President and CEO, in announcing the awards.

Recipients of this year's scholarships are:

- Marcos Alvarez-Guzman – Rio Hondo College received the Mort Schwartz Award – given to the highest ranked applicant
- Ethan Times – Arizona State University
- Joel Harvey – WyoTech
- Luke Waters – WyoTech
- Emmanuel Figueroa – Universal Technical Institute
- Edenilson Cuatete-Hernandez – Universal Technical Institute

(Continued on page 7)

Melina Camarena – Citrus College

Joaquin Cruz Roldan – Las Positas College

Yasmin Garcia – Fresno City College

Ben Ebright – Solano Community College

Leonardo Zuniga – Los Angeles Pierce College

Diego Martinez – San Jacinto College

Kacrana Chamroeun – San Diego Miramar College

CAWA, Representing the Automotive Parts Industry, is pleased to announce the recipients of its 2022 automotive high school teachers' scholarship awards. Named the Motorcar Parts of America - Selwyn Joffe awards, CAWA provided two scholarships this year to high school teachers to support their automotive programs. *"CAWA is proud to assist these automotive high school teachers, in part, to assure their programs remain viable and well-resourced for the benefit of their students and our industry",* said Rodney Pierini, President and CEO, in announcing the awards.

Recipients of the scholarships include:

Keith Benson, Petaluma High School (purchase parts and supplies for classroom use)

Chris Lacey, Livingston High School (opportunity to get EV training and to bring back student aids to their Program)

The primary scholarship fundraising effort by CAWA is its annual dinner gala, underwritten by Motorcar Parts of America, to be held the Sunday night before the AAPEX and SEMA Shows. This year it will be held at the Venetian in Las Vegas on October 30, 2022. Scholarship funding also comes, in part, from a grant provided by the University of the Aftermarket Foundation.

To contribute to the Association's scholarship fund or to donate prizes for the annual fundraising auction, contact Rodney Pierini at 800-332-2292 or **admin@cawa.org** or visit **www.cawa.org**.

FINAL REMINDER

The CAT Board has been recruiting for a new Executive Director during the past four years but none has been appointed. As a result, the CAT Board with the membership's approval will add "Executive Director Committee" to the CAT By-Laws. The language follows:

If the Executive Director's position becomes vacant, and a replacement cannot be found: The CAT Board shall appoint a person to represent CAT on Automotive and Industry related Boards and Associations that are mutually beneficial to CAT and its membership. The Boards and Associations CAT is affiliated with are, but not limited to the following.

Automotive Service Councils of California (ASCCA): participate in Team Weekends and join relevant committees.

Bureau of Automotive Repair Advisory Group (BAG): participate in the quarterly Advisory Group meetings.

California Automotive Coalition (CalABC): attend the quarterly board meetings and participate in monthly conference calls.

California Industrial and Technology Education Association (CITEA): participate in the yearly conference.

California Automotive Wholesalers Association (CAWA): participate in the summer and winter educational forums and the fund-raising gala at the SEMA show.

California Department of Education (CDE): participate in the industry advisory committee meeting.

Legislative Lobbyist: Designate a person to establish a relationship with the lobbyist for ASCCA and CalABC to

stay informed on legislative activities and attend CTE legislative committee hearings.

<u>Capital Legislative Day:</u> As many people as possible (at least one person) should attend the "Legislative Day" and participate in visiting legislators for the Industry and Career Technical Education.

Each person will submit an expense report to be reimbursed for travel expenses to the meetings to CAT Executive Treasurer at least twice a year.

Write an association report for the CAT Newsletter. The Newsletter editor will organize the reports into a single report for the Newsletter.

Give an Association report at all CAT Board meetings.

The interim assignments will be:

ASCCA - Wendy Lucko who is a member of the ASCCA Board.

BAG - Ruben Para who is a member of the advisory group.

CalABC - [Vacant] will be responsible for attending CalABC board meetings and monthly conference calls.

CITEA - we are looking for a CAT member who attends the CITEA conferences who could give a board report.

CAWA - Donal Howell has been appointed to the CAWA Board.

California Department of Education - Armando Hernandez who is a member of the Advisory Group and other committees.

Wendy will work with Jack Molodanof who is the legislative advisor for ASCCA and CalABC.

Wendy has attended the Capital Legislative Day in the past and plans to continue doing so.

MAKE YOUR SHARE OF

$274 BILLION

OUTLIVE THE VIRUS

Nearly everything in our catalog aligns with the Consolidated Appropriations Act funding guidelines. And while many responses to the COVID-19 pandemic will become obsolete after the virus runs its course, our time-tested training systems will continue to enhance learning outcomes for many years.

AVAILABLE NOW

All COVID-related funds have been disbursed to your college or school district. You have until the end of 2024 to spend it, but you'll have to hurry to beat the competition.

DAKTIC CAN HELP

We've already helped secure over $230,000 for one customer, and are working with many other schools on similar projects. Put together your wishlist and ask your local DAKTIC rep for help writing a proposal that details how your request aligns with COVID-19 funding guidelines.

DAKTIC

Visit **DAKTIC.COM** to request a consultation.

The Case of the Stolen Catalytic Converter

by Rick Escalambre

It is early morning, you start your car, and immediately hear a loud roar from the exhaust. Low and behold you have been hit by the Catalytic Converter thieves. This happened to my 2007 Honda Accord SULEV May 2021. This vehicle and its aftermarket Catalytic Converters are now an interesting case study. So, let's go…..

After realizing the CAT had been stolen, I notified our local police department. The Officer was an expert at this because he handles 4 to 5 of these a night. Then I notified my insurance company, after getting an estimate for the repair from a local repair shop, which had to quote OEM parts, I received a generous check for my claim. This took a few months for everything be done, I was in no rush as I have two other vehicles.


STATE OF CALIFORNIA
Bureau of Automotive Repair
VEHICLE INFORMATION LABEL
N0306666
10/18/2021
DATE
XF799188
SITE
IC0729477
YR/MK/MDL: 2007 HONDA ACCORD
ENG.YR/MK/SIZE: 2007/HONDA/2.40L
FUEL IND.: FUEL INJECTION
REQ.ECS: PCV, EVAP, TWC,EGR, SPK, H02S, CEC, MIL
COMMENTS: D-193-141, 5561354, EFN:7HNXV02.4CMC
TYPE: P CA/FED: CA
TRANS: A GVWR:
TIMING: N/A
V.I.N.
1HGCM56847A177166

I contacted a former student who is a Referee and he looked up the vehicle at https://asktheref.org/CatalyticConverterConcerns and found two BAR approved CATs for the vehicle. In late August the new exhaust was installed with a BAR approved MAGNAFLOW 5561354 CAT that was advertised as SULEV approved. I drove the vehicle through a few trips and the MIL was OFF! After a few more trips the MIL was ON! On a follow up trip, the MIL was OFF. All of this is happening while I am waiting to get an appointment with Smog Check Referee to have a BAR Emissions Label installed for the replacement Catalytic Converter and to get a Smog Inspection. Unfortunately, I could not get a referee appointment until mid-October in Monterey, CA. I took this appointment and made a vacation of this trip with my wife. I was driving around with expired tags, but I paid my registration fees in case I got stopped or in an accident and to avoid late fees.

The morning I showed up at the Referee the vehicle was all set to pass. Unfortunately, the Referee was only installing replacement Emissions Labels, he was not doing Smog Inspections because they were handling so many stolen Catalytic Converter issues. He installed the new label, and I was on my way.

After leaving the Referee and for a few weeks after, the MIL was OFF and then ON multiple times. I checked for a TSB and there was one dated September 14, 2012. It stated that the PCM was misinterpreting data and setting a false P0420 DTC. I could not see how a bulletin that old could fix my problem. Heck, I had been driving around for 8 years with the original Engine Calibration and it did not set any DTCs for the CAT on this vehicle.

The vehicle still needed to pass Smog Inspection so I could get my registration tags. On a day when I wanted to do some further testing, I hooked up my scan tool and saw that all Readiness Flags were Completed and that the CAT Monitor passed at 13 out of 16. I immediately drove to get my vehicle inspected, it passed, and I had my new tags.

The MAGNAFLOW CAT list cost was $1695 but I got 20% off, it was installed with the original Engine Calibration. During the next few trips, the CAT Monitor passed 50% of the time. MODE $06 indicated the Passing Tests Results between 13-15 out of a MAX 16. When the CAT Monitor failed the Test Results were between 17-22 out of MAX 16.

Because I had leftover insurance money, I decided to do some extra research, so a BAR approved Walker CAT was purchased from ROCKAUTO for $485. The Walker CAT immediately failed and continued to fail 75% of its CAT Monitor trips. MODE $06 indicated Passing Test Results between 15-16 out of a MAX 16. When Failing the Test Results were between 17-26 out of MAX 16.

Getting somewhat frustrated that both CATs were failing I contacted the California Air Resources Board (CARB) for some help. Their answer was simple, there were no approved aftermarket CATs for the SULEVs.

I contacted BAR and explained the situation. They did a search of Smog Check Vehicle Inspection Database (VID), it indicated that the 2006-07 Honda Accord SULEVs with an aftermarket CAT passing a Smog Check Inspection all had the updated Engine Calibration (37805-RAD-L830) installed.

Despite my previous doubts about the effectiveness of this updated Engine Calibration, I reprogrammed the PCM and noticed that the Max Limit for the CAT Monitor increased from 16 to 17!

At this point I drove the vehicle enough times to test the effectiveness of the Walker and MAGNAFLOW CATs. After I installed each Catalytic Converter, I cleared the memory and drove the vehicle. This can be seen in Completions/Results 1 and 9. Please refer to the spreadsheet that shows the overall results of my testing.

Calibration: 37805-RAD-L830	Completions	Results	MAX		List Cost
Walker CAT- EO# D-182-64					**$485**
3/5/2022	1	15	17	After Recalibration	
3/7/2022	2	7	17		
3/8/2022	3	8	17		
3/18/2022	5	9	17		
3/19/2022	6	9	17		
3/30/2022	8	8	17		
		9.33			
MAGNAFLOW - EO# D-193-141					**$1,695**
3/31/2022	9	13	17	First Trip with Magnaflow	
4/1/2022	11	6	17		
4/3/2022	12	10	17		
4/4/2022	13	5	17		
4/112022	14	10	17		
4/18/2022	15	6	17		
		8.33			

The CAT Monitor Test Results don't indicate much difference between the two. Both aftermarket CATs have a 5/50k warranty at much different prices. I am confident these CATs will last through the warranty period. I have to say the Walker CAT is quieter than the MAGNAFLOW. If I was starting over, I would go with the Walker 82895 CAT, now down to $406 at ROCKAUTO.

Moral of this case study, make sure the latest Engine Calibration is installed when installing a replacement CAT. Looking back at some scan data I collected from this vehicle in 2018 and seeing the way it is running now: improved idle quality, lower fuel trims, and increased gas mileage, I believe the OEM CAT was masking the issues with the original Engine Calibration. In my opinion, the replacement CATs cannot mask the original Engine Calibration issues.

CAT Monitor test results should never fluctuate as much as they did with the aftermarket CATs, when they do look for a software update or questionable AFS/O2s because they are the reporting components to the PCM. Let MODE $06, especially for CAN Powertrain systems, guide you because the PCM is still the best judge of the CAT's efficiency.

This closes my case study. It was a real learning process and I hope it helps someone in the future. OEM CATs will continue to be stolen. Thieves don't rest, OEM CATs are like Gold, or should I say Rhodium, when they are easily accessible.

Rick Escalambre is a former instructor at Skyline College, a longtime member of CAT, and the former newsletter editor. He has also authored a number of textbooks and offers BAR certified update courses.

"New" BAR 16 - hour Update Course Coming this Fall/Winter

BAR Update Module

1. License Renewal Procedures for Repair Tech and Inspector
2. Biometrics
3. Electronic Simulators
4. Certificate Blocking
5. Data being collected by BAR
6. Data Check Failure
7. Modified Software
8. Cal Verification Number
9. Permanent DTCs
10. NASTF Website
11. Unit Quiz

Handling Incomplete Readiness Flags/Monitors Module

1. Defining differences between a Readiness Flag and a Monitor
2. Following a Systematic Approach To Handling Incomplete Readiness Flags
3. Understanding Monitor Status
4. Identifying the Frequency of Readiness Flag Completion
5. Differences between an OEM Trip and a CARB Trip
6. Multiple Case Studies using MODE $06 and MODE $09
7. Unit Quiz

Variables for Completing non-Continuous and Continuous Monitors Module

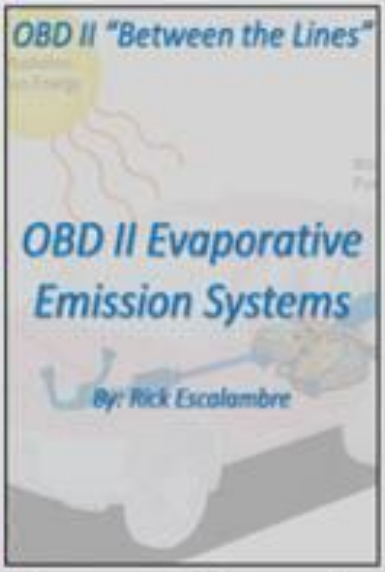
1. Non-Readiness vs. Readiness Operation
2. Utilizing MODE $06 and "Ghost" Monitor Tests
3. Preparing to Run Readiness Flags/Monitors using key PIDs
4. Individual Readiness Flag Criteria
5. Parallel vs Series Monitor Tests
6. Minimum and/or Maximum time to run a Monitor Test
7. Exhaust Time vs Exhaust Temperature
8. Samples and Flow Counts
9. Exponentially Weighted Moving Average (EWMA)
10. Fast and Normal Filtering
11. Continuous Readiness Flags: Misfire and Fuel System
12. Unit Quiz

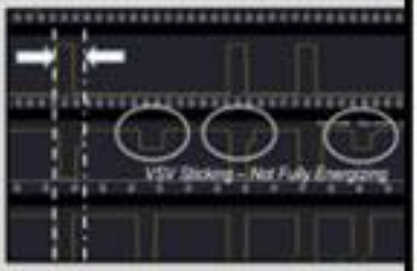
For the Student:
**Worksheets for Lab
**Textbook for students
**Content that can be immediately applied on-the-job

For the Instructor:
**Training videos of how to teach class
**Presentations include Instructor notes
**Course is designed for in-person, online, or hybrid instruction

Still Available and Newly Updated UT-007 OBDII Evaporative Emission Systems

Course Modules:
1. EVAP Intro and Safety
2. EVAP Components and Systems
3. EVAP Readiness Flag and Monitor Tests
4. EVAP System Testing





Support Materials:
1. Presentations include Instructor notes
2. EVAP Videos linked to Slides
3. 90-page textbook for students
4. Content can be applied immediately
5. Worksheets for lab assignments
6. Unit or Final Exam question bank

Authored by Rick Escalambre – for more info email rescalambr@aol.com

rescalambre@aol.com

CARS FOR SCHOOLS PROGRAM

VEHICLES RETIRED BY THE CONSUMER ASSISTANCE PROGRAM ARE AVAILABLE FOR INSTRUCTIONAL PURPOSES

SCHOOLS WILL NOT BE CHARGED FOR USE OF VEHICLES

- Transportation to the school and back to the dismantler must be arranged by the school at its own cost.
- Vehicles must be returned to the dismantler by May 30, 2025. However, they may be returned or exchanged earlier depending on availability.
- Schools must sign a memorandum of understanding with BAR.

INSTRUCTORS CAN USE THESE VEHICLES TO

- Teach mechanical and auto body repair techniques.
- Design troubleshooting activities for students.
- Disassemble systems as needed to demonstrate principles of operation.

STUDENTS CAN GAIN HANDS-ON EXPERIENCE

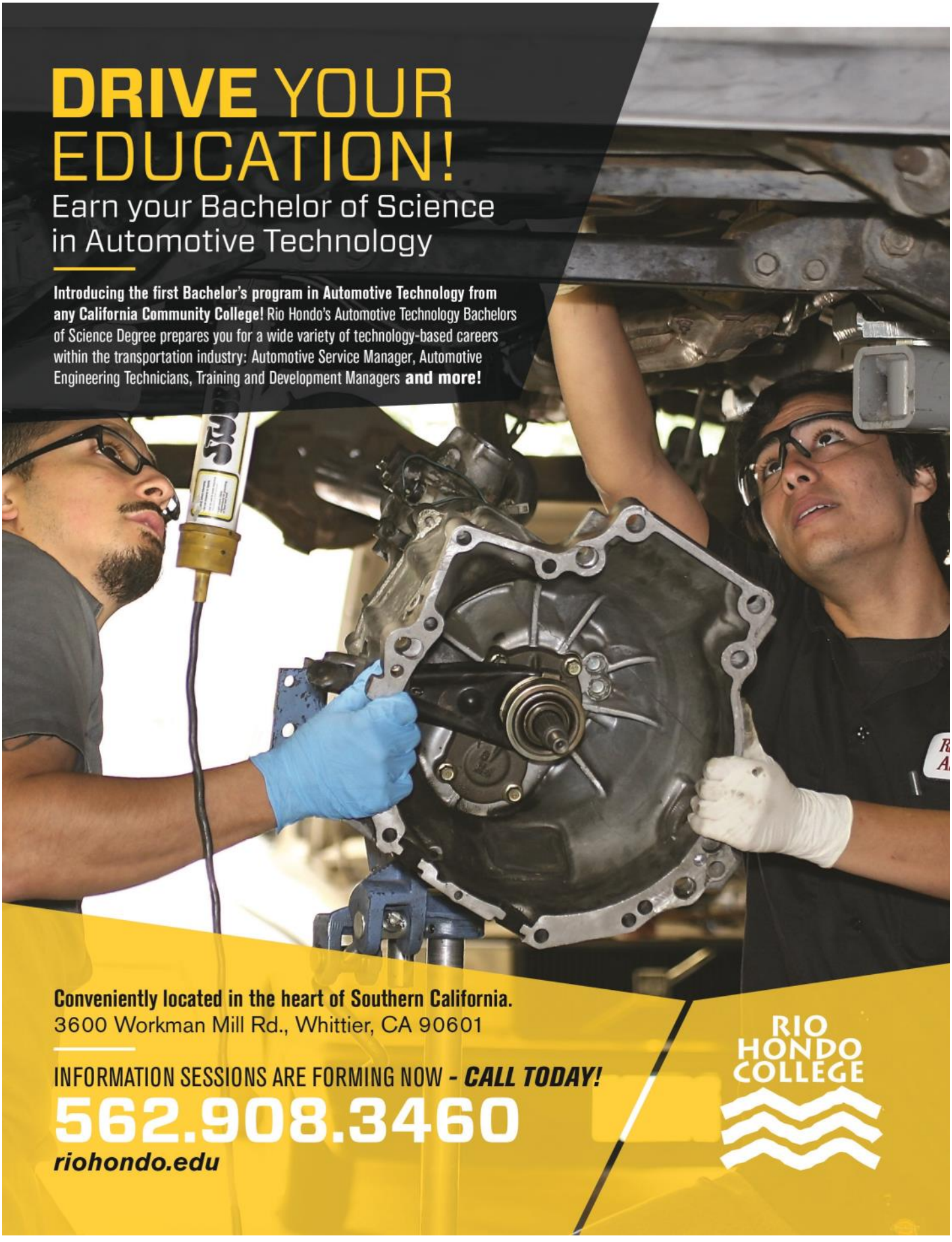
- Assembling, disassembling, and troubleshooting vehicles as needed to complete assignments.

FOR MORE INFORMATION, PLEASE CONTACT:
CARS FOR SCHOOLS
BUREAU OF AUTOMOTIVE REPAIR
10949 NORTH MATHER BLVD.
RANCHO CORDOVA, CA 95670
PHONE: (916) 403-8800
EMAIL: CARSFORSCHOOLS@DCA.CA.GOV

BAR
Bureau of Automotive Repair

STATE OF CALIFORNIA
dca
DEPARTMENT OF CONSUMER AFFAIRS

PDE_19-294 Revised 05/02/22


DRIVE YOUR EDUCATION!
Earn your Bachelor of Science in Automotive Technology
Introducing the first Bachelor's program in Automotive Technology from any California Community College! Rio Hondo's Automotive Technology Bachelors of Science Degree prepares you for a wide variety of technology-based careers within the transportation industry: Automotive Service Manager, Automotive Engineering Technicians, Training and Development Managers and more!
Conveniently located in the heart of Southern California.
3600 Workman Mill Rd., Whittier, CA 90601
INFORMATION SESSIONS ARE FORMING NOW - CALL TODAY!
562.908.3460
riohondo.edu
RIO HONDO COLLEGE

EVAP: A Stand-Alone Explanation For Entry Level Students

Rick Donia, Cypress College

Writer's note: This is designed to stand alone as a quick overview or intro to the EVAP system. You could expand on the types of EVAP system and emphasize the systems that you have in your school fleet. It doesn't get into a lot of specifics. It assumes the student is fluent in OBD.

There are three types of emissions from the automobile which are regulated by the US Government. Most people think of the first type: tailpipe emissions, and how they help create smog. The second type, called Evaporative Emissions, or simply EVAP, consists of raw fuel vapors which simply escape unburned. The third category, "other," includes things like R-12 refrigerant gas. Each type can cause the MIL to illuminate.

Vehicles using gasoline have inherent hydrocarbon emission problems. Visualize the car's tank full of fuel that slowly is consumed. The tank must be vented to allow air to enter or the tank will collapse. Conversely, when the car sits in the hot sun, the vapors in the tank increase in pressure and must be vented. When a 10 gallon emptied tank is refueled, 10 gallons of fuel vapor must be discharged to somewhere. To accomplish these tasks, most vehicles are equipped with two systems. The EVAP system monitors the fuel tank and hardware for leakage. The ORVR (Onboard Refueling Vapor Recovery) system removes fuel vapors from the air discharged during refueling. The design of each system varies from vehicle to vehicle, but the purpose is the same: Reduce or eliminate raw hydrocarbon emissions. Here's a look at how each system works:

EVAP (Evaporative Emissions System) function. Automakers are required to design cars so that the fuel system does not allow fuel to evaporate to the atmosphere. The PCM conducts pressure or vacuum tests on the fuel vapor canister and tank system, looking for the presence of leaks, either large (gross) or small, that could allow vapors to escape to the air. The strategies for this vary from car to car, but most involve sealing the fuel system and watching the system air pressure to change over time. Some systems perform this testing after the car sits for hours, using a pressure pump. Others use engine vacuum or natural pressure changes to detect a leak. If a leak is detected, the PCM may set a DTC (Diagnostic Trouble Code). These DTCs generally are two-trip 5-digits in this format: P04xx. The P means Powertrain computer, where the DTC is stored, the 0 means it is a generic code for all carmakers, and the 4 means EVAP system. The last two digits define the type of problem: low flow, electrical problem, small leak, large leak. You can retrieve these DTCs with an inexpensive code reader. The driver will notice that there is a problem because the amber "Check Engine" or "Service Engine Soon" MIL (Malfunction Indicator Lamp) is illuminated.

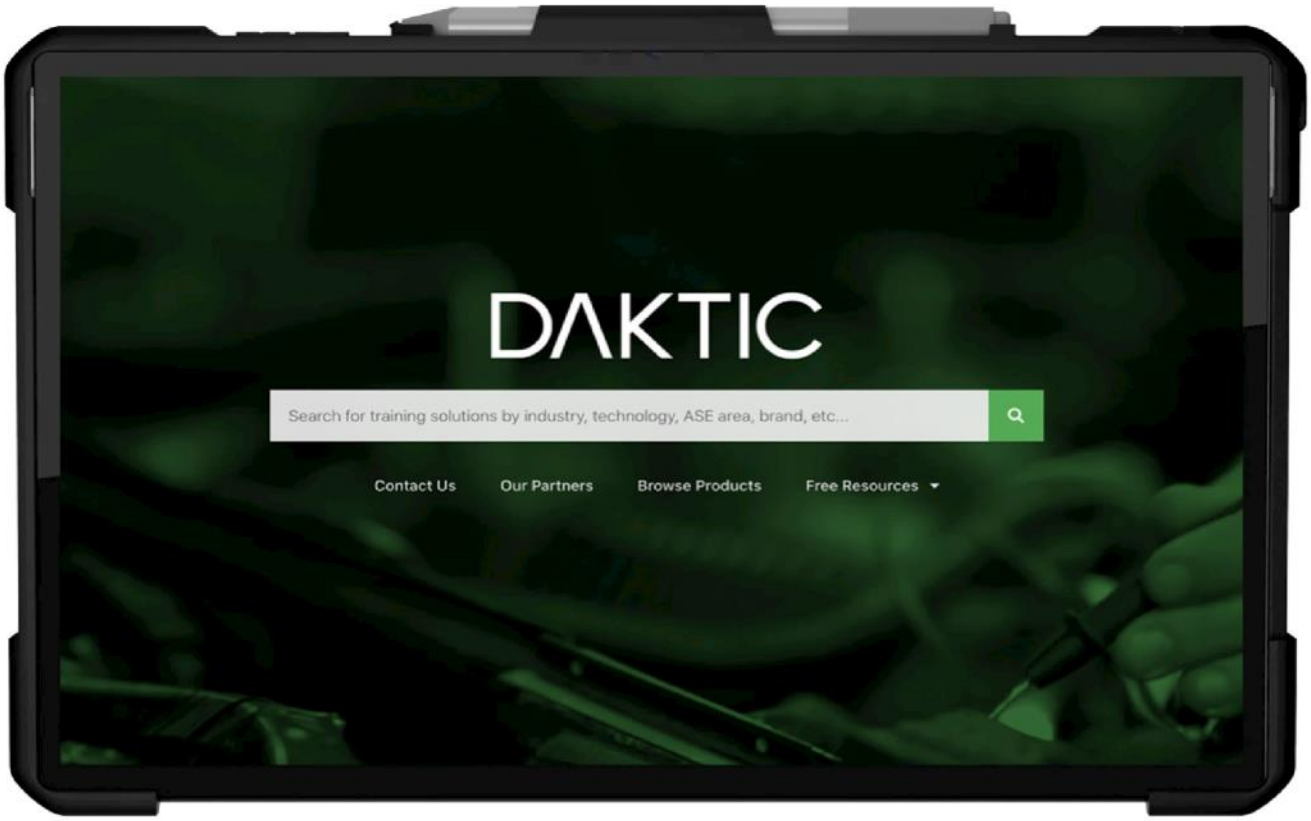
ORVR (Onboard Refueling Vapor Recovery) function. When the vehicle is refueled, the air and fuel vapor mix that is in the tank must go somewhere. It wouldn't make sense to release the vapors to the air, so air/vapors mix passes through the special "activated" charcoal in the canister, which adsorbs the fuel vapors and stores them. The cleaned air is exhausted through the canister vent. Once the engine is started and the Powertrain Control Module (PCM) computer is satisfied that it is okay to do so, the computer allows the vapors to be slowly cleaned off from the charcoal and burned by the engine. This cleaning prepares the canister for the next refueling event.

The EVAP and ORVR systems share components. The most common failure of the system for many years was that the fuel cap was either loose, missing or damaged. Fuel cap removal tools are even advertised on Amazon! Fuel cap design has changed (capless design, single click, etc.). Now, the industry seems to be seeing more "real" DTCs that point to problems with the canister (leaks), purge valve (blocked by debris from a failed canister bag), and corrosion of metal components. Spiders continue to be an issue.

At this point you could create a "research" assignment about P044x DTCs. You could ask about pressure / smoke testing and ask what type of pressures are allowed. This allows you to introduce the unit "inches of water." Compare it to inches of Mercury. You are working with very low pressures, be careful! The conversion

is almost 28 inches of water = one PSI. When you assign a vehicle to research, you can introduce or reinforce the concept of enable criteria. Many EVAP DTCs have bizarre criteria which yield bizarre effects. For example, a 2018 Corolla with a missing gas gap will disable the cruise control once the MIL is illuminated! Once the DTC is cleared, normal function is resumed. This is also where you can show the value of a bi-directional scan tool, as it is required to close the canister vent valve for leak testing.

Rick Donia spent 22 years wrenching in Michigan, and fifteen years working for OE companies in California helping with automotive training. He retired from full-time teaching in 2017 and is now adjunct at Cypress College.



WHAT'S ON YOUR WISHLIST?

Instructors who plan early are most likely to get the funding they need to build their program. That's why **DAKTIC honors quotes for up to one year** on most of the training products we carry. And whether you give us your wishlist in person, over the phone, via email, or using the quote request tool at **DAKTIC.COM**, we'll work hard to get you pricing in 24-hours or less.

ConsuLab

SWITCH VEHICLES INC

fluidpower TRAINING INSTITUTE

zSpace

Visit **DAKTIC.COM** and submit your wishlist today.

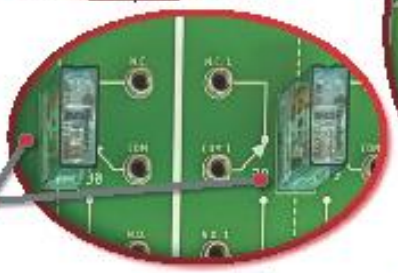
Electrical Skill Development Troubleshooting

Model 5810TT

Electrical Skill Development Troubleshooting (ESDTT) provides an in-depth, hands-on study of automotive electricity and electronics. Allows for troubleshooting skill development and competency testing. The internal fault board offers different computer-controlled hard faults. Both serial and parallel circuits can be configured to perform the activities in the ESDTT courseware.

Features:

- ~ Optional submounts can be added to create customized circuits
- ~ Courseware included: Student Manual and Instructor Guide
- ~ Classroom Management Program (CMP) compatible
- ~ Network display and storage of student's performance
- ~ Fault insertion with keypad or ATech Lab System (ALS)



Specialized Circuits:

- ~ DC to AC voltage inversion
- ~ DC motor generator
- ~ Force sensitive resistor
- ~ Precision temperature sensor
- ~ Clear relays (observe contact movement!)

12290 Chandler Drive
Walton, Ky 41094

Sales@atechtraining.com
ATechTraining.com

1-888-738-9924

@atech_training

Newsletter Editor Report

Apologies First

I am once again starting my report with an apology. This time, not for presenting a newsletter which is lacking content, but for totally dropping the ball on the Spring newsletter. I am truly sorry to all members that I promised a Spring newsletter, but instead am publishing a combined Spring/Fall edition.

Appreciation

There is so much we each face in our personal and professional lives and I appreciate the examples I see of those who continue in the face of such adversity. All of you stand up each day in front of your students and impart knowledge that comes from your years of experience, but more than that, you speak to them as mentors or even fathers and mothers.

An Idea and a Request

As the years go by, I find myself falling into a routine of instruction--on autopilot, so to speak. This may not be a bad thing, but I realize it can lead to apathy. If you have some experience with this, why not reach out and help a younger teacher along their path? Can you speak to the need for routine, so one does not become overwhelmed and buried in new work? Are there ways in which you have been able to automate learning, leaving time for trying new things? How do you organize time and space in your program to maximize student-focused learning? If you have answers to these questions, or similar, please send answers that I can publish in future newsletters. Remember, this publication reaches hundreds of your peers throughout the state and beyond, who may benefit from your words. Send comments and questions to donalh@cos.edu.

EXECUTIVE DIRECTOR

Open (Interim Committee)

OFFICERS

PRESIDENT:
Salvador Diaz, Pasadena City College
sal@calautoteachers.com

VICE PRESIDENT:
Open

EXECUTIVE TREASURER:
Julius Varga, College of the Desert
vargs2523@aol.com

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

BOARD OF TRUSTEES

1st Past President—Wendy Lucko, Pasadena City College
wllucko@pasadena.edu

2nd Past President—Ruben Parra, Skyline College
Parrar@smccd.edu

3rd & 4th Past President—Donald Schumacher, Resigned
5th Past President—Phil Jelinek, Retired
pjelinek@calautoteachers.com

California Automotive Teachers

PRESIDENTIAL APPOINTMENTS

HISTORIAN:
Open

CONFERENCE COORDINATOR:
Wendy Lucko, Pasadena City College
wllucko@pasadena.edu

EXHIBITOR CONTACT:
Wendy Lucko, Pasadena City College
wllucko@pasadena.edu

NEWSLETTER:
Donal Howell, College of the Sequoias
donalh@cos.edu

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 March 25th for the spring issue and October 1st 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.

California Automotive Teachers was founded in 1966 by these five visionaries:

Orville Page and James Kenley of Reedley College, Norm Gibbs and

Mel Edwards of Chabot College, and Bob Barkhouse of Yuba College.

www.calautoteachers.com

CAT Conference
Fall 2022
Hosted by Antelope Valley College
October 14th & 15th, 2022

Conference Information:

Register for the Fall Conference by clicking the link below.

REGISTRATION