California Automotive Teachers

October, 2009

Fall Issue #36

CAT NEWS

www.calautoteachers.com

Newsletter Highlights

- Our president, John Overton writes his first letter to the membership.
- Bob is barking about what's going on in Sacramento?
- CAT News needs technical articles!
- ASSCA support for CAT, scholarships, and job opportunities.
- CARS Conference offers valuable training for Instructors.
- A Variety of quality Ads from our Industry supporters.

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Please take the time to read the following compelling essay. The author discusses the book "Shop Class as Soulcraft" authored by Matthew Crawford. Mr. Carey describes some of the book and relates it to his minor repair of an old Jeep. I believe this book should be required reading for all of the "A-G" Academic Purists who believe everyone needs to complete a four year degree in order to compete in today's world!

I'm just about done reading Crawford's book and I think it helped me understand myself a little better. Like, why I was so driven to succeed as a stock car racing crew chief and the appreciation of the tacit skill one develops only by doing something with one's hands and doing it well. As I discussed with one of my fellow automotive instructors, it's impossible sometimes to tell students how we knew what was wrong with a car and how we got to the answer so fast, at least sometimes anyhow! Many times a series of failures followed by finally succeeding helps us on our journey to this "mystic sixth sense" that comes with experience.

ESPECIALLY WHEN ONE IS DRIVEN BY THE QUESTION, "WHY?"

Jim Custeau 1st Past President CAT

The Pure Joy Manual Labor, by Art Carey

(Art Carey is a Philadelphia Inquirer staff writer)

"Reprinted by permission of The Philadelphia Inquirer."

The nifty thing about my old Jeep is that it's simple and understandable. It was built in 1947, well before cars became electronic and computerized, complicated and inscrutable. In the engine compartment, the major parts are apparent, and anyone with a modicum of mechanical aptitude can figure out what they do and how they work. It's an Erector set for adults.

I unbolted the starter motor and began studying it. I was fascinated by how clever it is, the way it whirls a small pinion gear to the end of a shaft, where it engages the teeth of the ring gear on the flywheel. Once the engine ignites, and the flywheel reaches a certain speed, the

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CAT 2009 Fall CONFERENCE, October 16 & 17

Cypress College, Marty Orozco, 9200 Valley View Street, Cypress, CA 90630
Phone: 1-714-484-7000 x47236 or Email: lorozco@cypresscollege.edu

President's Letter by John Overton

As these financial times get tight we often start making difficult choices as to where we feel we should spend our money. The California Automotive Teacher Association's membership continues to be an extremely strong support group. No California Automotive Teacher member should ever get the feeling that there is no one out there to turn to. Please utilize your membership to the maximum. I want to encourage you to retain your membership as well as seek out other automotive instructors that could benefit from our organization.

The yearly membership fee of $50.00 is money well spent. The yearly spring and fall conferences offer you the chance to reap extra benefits that pertain to the classroom as well as your own personal growth. The conference workshops will continue to allow you to update your skills and has the added benefit of helping maintain a portion of the minimum 20 hours of instruction for NATEF recertification. The conferences have allowed us to both maintain and expand our personal network of teaching professionals. Sitting down and networking with other instructors has always been the highlight of the conferences. The work done by our Executive Director Bob Barkhouse often provides direct benefits to programs.

Please be sure to remember that our 2009 Fall Conference will be held at Cypress College in Cypress, California on October 16th and 17th. Jim Custeau, First Past President, and Tom Broxholm, web master, are working on opening our online registration for the conferences. Be sure to check the web site www.calautoteachers.com for online conference registration as well as membership renewals.

Since I am a high school instructor some of my focus may well be different than that of previous presidents. High school instructors face different challenges than our comrades in the universities and colleges. But, we all face the challenge of maintaining our enrollments. At the high school level we compete with the core curriculum classes for students. We need to find a way to entice students into our programs. The advantage we as automotive instructor have is that students on the average want to be in our classes rather than in the other core curriculum classes. How does the automotive instructor compete with the current philosophy that all high school students should be college bound and that those students already in college should take only the classes necessary to reach a specific categorical degree? I have not found the answer yet but for now I continue to talk with the parents, counselors, and administrators about how important it is to provide our students with a "well rounded education". A well rounded education provides more marketable skills as well as the ability to apply what is learned in the core classes to reality in our industry.

As the next few years proceed I hope to continue our discussions on how we may all convince parents and administrators that automotive programs are critical to the success of our students in all aspects of their lives. Life skills are automatically generated through well thought out curriculum development. Successful programs do not just happen. They are developed and maintained by dedicated instructors putting in endless hours to upgrade and improve their programs. I imagine that very few of you only work classroom hours; you are busy building your programs on weekends, after school, holidays and summers.

Success comes from the extra hours. It comes from the work you do with your local advisory committees. I have been fortunate enough to have an excellent advisory committee. They attend both of my yearly advisory meetings. My advisory committee provides direction to my program. They are there when I do not have answers for my students on the correct performance of certain repairs. They are even there with material donations. Be sure that you foster their help and recognize their contributions on an ongoing basis.

Here are a few suggestions for those of you who want to raise the level of your programs but are not sure where to start. Successful automotive programs come from the support of your schools administration. Administration will help but in order to get their

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(Continued from page 3 - Overton)

the attention you will need to be involved in the processes that will lead to change. Consider becoming involved in the Facilities Committee, Curriculum Committee, Budget Committee, or even the School Site Council. Each of these provides an avenue of discussion where you can direct attention to areas of concern in your program.

Take a look at potential grants. Writing grants are not an easy process but if one becomes available be sure to pursue it. There are grant writing workshops out there. Become familiar with the grants that your school has in place and how the money is being spent. These are public records that are available for your viewing. Find out how the money is being spent and how the funds are being allocated. You need to find out if your program is getting the fair share it deserves.

The next item pertains to our High School members. Work with your local colleges to ensure your program is articulated. This will help you convince the parents that your program is beneficial to the students beyond high school. If they can receive college credits for passing in your classes they can see that you are supporting their child in the pursuit of additional education.

We are all faced with difficult challenges but with hard work, cooperation and a positive attitude we will accomplish our objectives.

I want to sincerely thank the membership for electing me president and I look forward to working with all of you over the next couple of years. I also wish to thank the Board of Directors for all of their support and direction since my term began and look forward to our continued success.

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

The ASC Educational Foundation offers a set of scholarships every year to students pursuing a career in the automotive field. Our scholarship program is open to high school seniors that plan to enroll in post high school technical/academic training or college under-graduates in the automotive service field satisfying certain criteria and can range from $500 to $1,000 toward tuition and books.

The deadline to apply is FEBRUARY 1, 2010 in order for our committee to complete a thorough review of the applicants and make the awards prior to the end of the school year.

We've also expanded our educational mission statement to include setting up new and innovative programs like offering resources to ASCCA members to obtain referrals from educators to qualified technicians.

http://www.ascca.com

Executive Director's Report by Bob Barkhouse

From what I hear up and down the state, classes are full at the community college level. It appears that the cut-back on State finances forced the State Universities to scale back on their class offerings along with the number of students allowed to enroll. This works for us, because the University bound students are forced to complete their lower division work at the community college. I also hear through the grapevine that these academic minded students are showing up in the auto shop and it is a pleasure to work with serious students.

At the High School level, things still look bleak for vocational classes. I still hear of an occasional closing of auto programs. As long as our fearless leaders continue to push "No Child Left Behind", "Exit Exams", "everyone is going to college" and other miss guided programs, there will be pressure to eliminate Career Education. After all, they are expensive and there are no elective hours left to teach CTE programs. How dumb, who is going to fix their cars, fix their plumbing, repair their software, etc. As to everyone going to college, if they did go on to college, where would they put them short of a need for a massive expenditure to build new buildings and campuses? This coupled with University budget cuts and the fact that they are turning away students, someone needs to get a grip on what the Education Code mandates and get back to reality.

I don't need to tell you that there is a money crisis in Sacramento and any effort to get legislation through this year that requires money is almost certain to die. We laid low this year but hope the climate is better for change next year. We have had a good run with Arnold Schwarzenegger at the helm but next year he terms out and we will have a new Governor. We need to be vigilant next election and support a candidate that will support career education. Jack O'Connell certainly has not been a champion of Career Education and as most of you already know, he speaks out of both sides of his mouth when it comes to CTE.

This crisis we find CTE is nothing new, I can remember in my community college days, going through financial hard times and course elimination in the late 60's and early 70's. Money was tight. We had $1,000 total operating budget. No repairs, no new equipment, no replacement, no shop towels, no summer school and no janitor. But, as history has shown, the pendulum swings back and forth, just hang on, good times will return.

Steve Tomory from Rio Hondo College is working through the Chancellor's State VTEA Industries and Technologies Advisory Committee to research a very interesting concept that could benefit all automotive teachers in the state. This summer he pulled a panel together in Ontario that met all day. He was looking into the feasibility of the Chancellor hiring professional recruiters to visit high schools and talk up the idea that high school CTE, and especially automotive students, should continue on to complete their training at the community college. I was at that meeting. Steve did an excellent job, it looks feasible, but will the concept sell to the Chancellor?

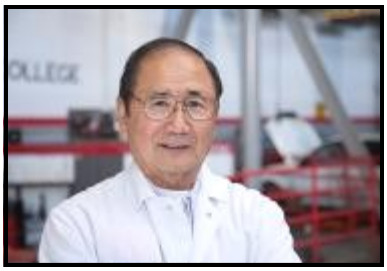
See you at the next CAT meeting. Remember, you can register for the next meeting and pay through PayPal using the CAT web page by going to www.calautoteachers.com.

Also remember; keep the shiny side up and the greasy side down. Bob Barkhouse

LATE BREAKING NEWS

SB 147 by DeSaulnier is on the Governor's desk for signature. The Bill requires the university to recognize the completion of all high school CTE courses that meet model curriculum standards established by the Superintendent **(*Note: probably will be Frameworks standards*)** as satisfying the completion of a general elective course requirement for the purpose of admission to the university by January 1, 2014.

The CAT NEWS will highlight one educator for their excellence and dedication to the automotive teaching profession. If you know of someone who would be a good candidate contact rick@calautoteachers.com.



Excellence in Education
Hiram T. Hironaka
El Camino College

Hiram T. Hironaka, 71, is in his thirty-seventh year of teaching. He has been teaching at El Camino College since 1983. He is married to Janet, a retired educator and his high school sweetheart. They have two daughters, JoLani and Jody, and a son, Ross. Hiram and Janet are also the proud grandparents of Aimee and Stephane. His hometown is Honolulu, Hawaii, and they currently reside in San Pedro.

How did you get your start in Auto Mechanics?

Mechanical devices always intrigued me as a kid and once I took apart a wind-up Westclox at age 6. Mom blew a cranial gasket and bemoaned having to purchase a replacement clock. Hours later, she was presented with the same operational clock. When asked why I took it apart, I answered, "I wanted to see how it works."

A significant influence was the purchase of my first copy of *Hot Rod Magazine* in 1949, which excited me endlessly. How amazingly that engine performance can be greatly enhanced just by changing parts! I studied photos of engine components from Clay Smith, Harmon Collins, Isky, Edelbrock, etc. and compared these pictures with an article depicting a disassembled engine. In this way, I learned independently through observation. In addition, I discovered that engines could also run on propane.

Another key factor was the Honolulu Police Activities League, which sponsored free auto mechanics instruction every Friday night at Petrous 76 Union Station in Waikiki. As a 14 year old, I enjoyed every minute of the opportunity to learn. Bert Koga, the shop foreman who instructed the class, eventually invited me to the repair shop on Saturdays to help out and to learn how to grind valves, etc. I discovered my passion for cars and became hooked.

Do you have a Life-Changing experience?

After working for ten years as a licensed aircraft mechanic, I discovered that there had to be more to life than just putting "rice in the bowl," caring for, educating, nurturing and marrying off my kids and having them do the same for their kids. A politically orchestrated coup to demean me as a lead-man at an aerospace company convinced me that I should seek what I really enjoyed. I realized that I really wanted to become a high school auto shop teacher and to focus on the "D" and "F" students who needed help and could become taxpayers. I knew that "A", "B", and "C" students would succeed regardless of external factors.

Rather than going the route of the Swan Bill, I chose the arduous four years of a BA program with a major in Industrial Arts and a minor in sociology, plus a fifth year for a teaching credential. Sending my wife back to teaching, a 6-month old son to the sitters and two young daughters to after school care, I worked and attended school full time. The years were fraught with hard work, sleeplessness, and insanity, but all eventually paid off. Now I am my own boss in my own classroom, and even if the educational environment is less than ideal, I can enjoy challenging my students, making them feel capable of achievement, and getting paid for this enjoyment. What a gig! When students say thanks for teaching us about automobile systems and about life lessons and when some students say thanks for being the father they wish they had, I am a happy, grateful soul.

What are your Hobbies and Interests?

Going deep sea fishing; boating; target shooting with 22 to 45 to 308 caliber rounds; developing recipes for my restaurant, Wasabi Sushiya, across the street from El Camino College; problem solving -- taking a liability/challenging problem and turning it into an asset; using my lathe and mill; MIG and Gas welding; building 5 string baritone ukuleles; building things like my '29 Ford roadster pick-up all add flavor to my life.

If granted one wish, what would it be?

Live to 120! My dad passed at 97, Mom at 95, paternal uncle at 103, my maternal great-grandparents passed at 103 or 107. Although I have three stents in my chest (angioplasty), my cardiologist says that my heart and lungs are like those of a marathon runner, and another doctor told my wife that I am "in remarkably good health." With advancements in

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Keep it simple with one P.O.

Developing a Shop Class for the 21st Century

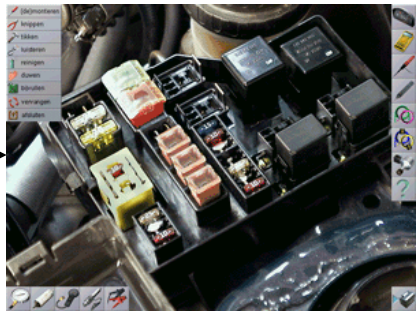
By Sonny Reeves

"You can do the work of the mind without the hand, but not that of the hand without the mind." Danish Proverb

This is the way I teach automotive service technology in a Georgia High School secondary program. Currently, Georgia requires four areas of NATEF task list to be presented to the student. Most secondary programs do not have the contact hours for more course work. I have four 150 hour semesters and one150 hour summer internship to do this in. If you are post secondary the method will work for you as well. I have taught at the post secondary also using these same methods. This is not the only way or may not be the best way, or it may not meet your teaching style but it works for me. The freedom I have as an instructor, this way of delivering instruction gives me to meet more of my student's learning styles is awesome. I like for the students to work and I have fun. If this is practiced in your class/lab and adjusted for your student's needs then you will become the facilitator instead of the sole fount of all knowledge. Your students will become learners of their own right and you will have fun teaching.

After years of being a shop owner and not knowing a better way, I developed my automotive class as I would a shop or service center with lots of employees. My class/lab reflects the world of work more than the average academic classroom. As in the workplace assessment is in the finished product. I use a hands-on performance test to prove mastery of the individual student of the task. I feel that the use of this rubric empowers the student to become a self learner with critical thinking skills instead of a recorder of facts for memorization and preparing for a pen and paper test.

I begin the class with a demonstration (shown below) from the class site provided by Argo in the course area of my lesson plan for the week. See https://autoteacher.net/E_Learning.html for examples. All of my lesson plans are on the Georgia Dept of Education Peach State Pathways here: http://www.gactaern.org/curriculum_transsup.html. For example, I may use a website as a "Spark Plug" for the student to visit while I get the day going. I use a lot of the websites on the links at: www.autoteacher.net.



I think I could teach for a year and not exhaust all the resources in these sites. Our main resource is an online interactive learning management system with courses and modules based on learning by doing instead of reading and listening. The students are assigned interactive modules using virtual vehicle components and engaging course work that requires active movement to progress through the course from beginner level to master level. Each student has access to our web site and a 24/7 sign in to our custom set up Argo learning management system. Each student can have a separate learning plan or be in a class of students online. The course modules are easy to assign and they will not run out of modules to do

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online. Students have access to all classroom resources and all the routine paperwork on the web site or I can download and print out for them the required paperwork for class; examples, Class Handbook, Home work assignments, Shop Rules, etc. See https://autoteacher.net/Class_Papers.html. Even if they don't have a computer at home they have access to one in the Media Center and of course each student has a computer in the classroom. I burn the syllabus, course description, handbook, homework assignments, and all required papers for the class onto a CD or flash drive for them if they want.

After about 20 minutes of learning using a "Smart Board Symposium", LCD projector, with the online Argo module of my choice (I require notes each day for daily grade) I see eyes are getting sleepy, then I shift gears for the day's assignment. A set of tasks for each week are assigned to the class which was divided into teams during the first week of school. Tasks are "Performance Tests" and these are NATEF tasks required for the course. Students have access to all their Performance Tests online for instruction on their computer. They will be challenged to compete as teams to solve the failure in the virtual vehicle in the online module using the classroom's LCD and Smart Board.

After preparation and practice with the virtual modules online, I will have students in the lab on actual vehicles with failures and problems to solve in their teams. Peer teaching and student sign off of each other's performance test keeps all active and engaged. The real world training modules and technical explanations can be absorbed by each learner at their pace. The tests are used as guides for learning, and an Assessment much like a job sheets. The students print off the Performance Tests/tasks sheets as needed and keep them in their notebook which remains in the classroom/lab. I have a HP 9015 B&W printer that is cheaper to run than a copier. All class papers and performance tests are on the class server with hard copy files for back up in file cabinet. A quick look at the Argo LMS and I know who needs instructor attention. I can see where all students with their online course work any time during. I can even see which module is being used and how the student is doing in all of Bloom's taxonomy.

Teams of students practice the tasks online after a through study of theory then they can practice the tasks in the lab or challenge the other teams in performance of the tasks. Students use video to film their practice and some are created to demonstrate mastery of the tasks. Creating a video of their work or developing a training module in the lab is very uplifting for students and is the highest learning order for Bloom's Taxonomy.

I use a simple performance evaluation rubric to evaluate the task or set of tasks. I give these Performance Tests to each student during the first week of the semester so they know what they are expected to do. This is the "Beginning with the End in Mind' way of teaching. The desired outcome is the mastery of the tasks on the Performance Test. It is important to walk them through the NATEF task list, how to print and use the Job sheets to practice.

The simple assessment form is an adaptable word document, and covers the job/tasks similar to how you would actually do the service in a real shop. Example: To service a disc brake I combine the tasks for; writing a brake repair order, service of the caliper, rotor, wheel bearings and checking pedal height. You need to combine the related tasks into a sequential order to suit your lab and resources. Ask your self how you would do the service on a customer vehicle. Make it real! I like for each student to practice the tasks three times if possible. Each must have a team member sign off that they practiced the task properly with the other student. Then if that student cannot meet the performance objective for the teacher's observation of the task both students are redirected and must practice the tasks until they are successful.

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The use of a hands-on Performance test meets the requirements of Standard Six of NATEF Industry Certification. Some students do the tasks, and others don't. Attitude defines the outcome and student progress is monitored in the lab by teacher observation. Being a facilitator of the learning environment provides you more one-on-one time some of our students need. You have the time to "Differentiate Instruction" and meet all those different learning styles of your students. I feel more learn this way than not.

Furthermore, I can prove they know what they are doing when they are done because of the hands on mastery recorded on the Rubric. Each student keeps up with their tests, supporting documents and records the completion in their notebooks. You sign off after the observation of the student's final practice. Security is maintained by knowing your students, and having the notebooks to back up what they say they did with Job Sheets signed by you. You will know who is working because now you have time to observe. I give very few written tests other than practice for the NATEF end of course test and then only to evaluate what I teach in theory. Do all students complete? Do all learn? No! Are all engaged? Yes!

Positive comments welcome. Email or call for more information.

HTH,
Sonny Reeves
sonnyjreeves@hotmail.com

Sonny is an Automotive Educator, Consultant to DOE, Schools, Colleges and Teachers. He has co-owned and managed a Nissan Dealership; owned a NAPA Auto Care Service Center, and has been teaching Automotive Service Technology for fifteen years at the secondary level and two years post secondary. Sonny is currently an AYES instructor at his second Career Center in a NATEF certified program. In 2001, Sonny became an AYES instructor and was selected school system Teacher of the Year in 2003 and 2008 by two different school systems. His program was recognized by AIPC and ASE in 2003. He is ASE Master Certified (1975) and a NATEF ETL since 2000.

A Message from the Newsletter Editor!

We always need technical articles to share with our members.
If you have an article for the newsletter
(it is never too early) please email them to:

rick@calautoteachers.com

(Continued from page 6 - Hironaka)

medical technology, I should be able to remain in closed loop without significant pending codes. I will maintain my regimen of scheduled preventative maintenance to achieve my goal. I tease my students that I intend to outlive them and attend their funerals, and that some of them will be tardy for their own memorial services.

Hiram demonstrating WD-40 as a vapor!

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

Photocopiers replace mimeograph and ditto machines. (Ah, I remember the smell of ditto fluid and purple stains from ditto masters.) Dry markers substitute for chalk sticks; VHS/DVD players supplant filmstrip and 16mm projectors; Smart rooms with ceiling projectors, computers, and Ethernet/Wi-Fi create magic without AV carts and wires. Changes with generations of students provide new challenges and opportunities for teachers: Kids are basically the same but share traits marking different generations of students: Veterans - hard workers, goal oriented; Baby Boomers - similar to vets and had it easier financially than their parents; Silents – followers, listeners, achievers, similar to predecessors; Generation X - smart, goal oriented, challengers of the *status quo*; Millennials – smart, world savvy, lovers of technology-iPods, cell phones, play stations, computers, etc., gregarious, social with peers of all ethnicities, know what they want, pampered by parents, goal oriented, need to be shown how to get from point A to Z to achieve goals.

What are toughest challenges facing the automotive teacher?

The world and technology are evolving at warp speed, and the auto teacher has to evaluate what is important to develop and maintain an effective learning environment. With the current economic downturn and diminishing funding sources, we are called on to do more with less. But this liability can be an asset in generating new thinking and problem solving. We change and streamline the curriculum to include new technologies but remain focused on basics.

What is your vision for the future of automotive training?

I envision schools and districts sharing equipment such as brake lathes; teachers collaborating with each other for support and help, partnering more with industry, local communities, and higher education; updating school shops by moving into empty dealership facilities with space and lifts, etc.; and automotive teachers assembling "think tanks" through CAT to address identified issues. We will continue to emphasize basic automotive knowledge and skills with new media, new delivery systems, and new applications, including new modes of transportation.

Do you have any Favorite Quotes for your students?

Sow a thought, reap an act;
Sow an act, reap a habit;
Sow a habit, reap a destiny.
We reap what we sow.

I also like telling my students that love is blind, and marriage is an eye opener:

When a guy gets married, he hopes his girlfriend does not change, but when a girl gets married, she hopes to change her husband.

In closing, do you have anything you would like to add?

I knew I would marry my high school sweetheart, go to aircraft school and become a licensed aircraft mechanic because aircraft engines and systems were interesting. I worked and saved for four years to pay for a wedding, airfare from Hawaii to California, $75 rent for the first month, $250 for purchasing household essentials, $800 for a used car, and tuition for aircraft school. Janet had a teaching contract with Los Angeles Unified School District, so we knew we could live on her salary and not starve (in 1961).

Since life changing circumstances prevailed, I prepared for and found my dream job in teaching. Along the way, I earned an MA and Quadruple ASE Master Technician Certification, owned Auto & Truck Lab, served as CAT president, and participated on seven WASC accreditation visitation teams. I now look forward to running Wasabi Sushiya, going to school every day, and getting paid for having fun while helping young people intellectually, emotionally, and vocationally. This is a great life.

PEARSON

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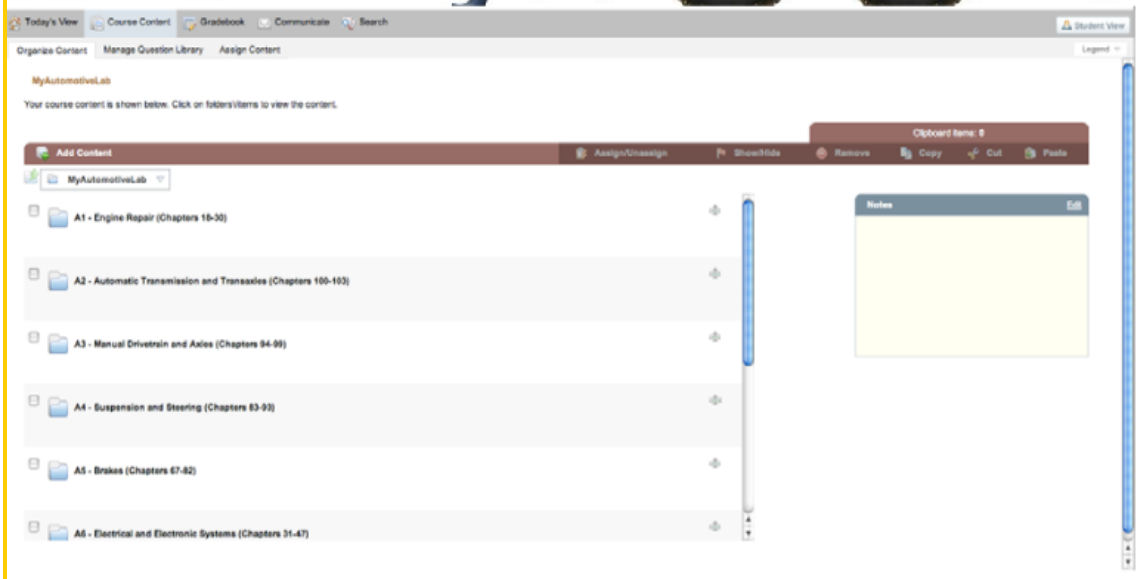
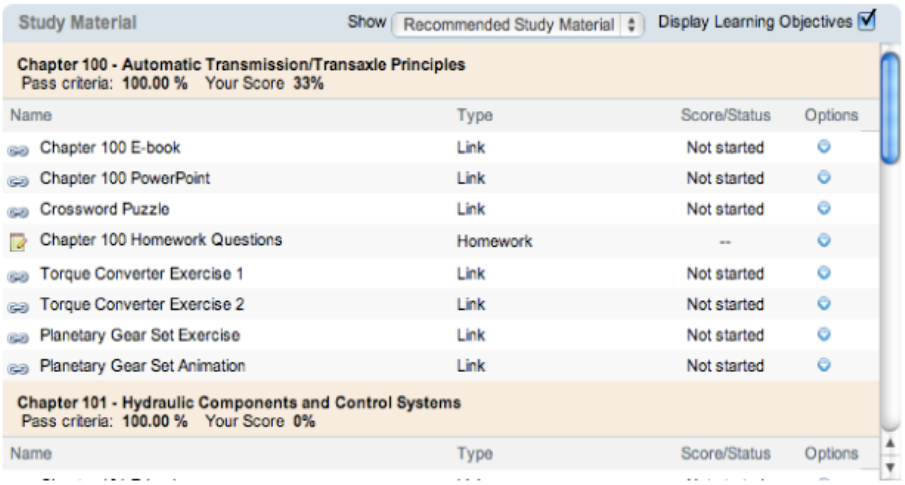
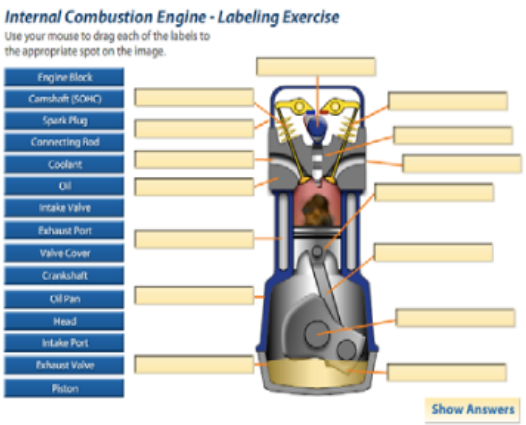


MyAutomotiveLab is an easy-to-use online resource designed to supplement a traditional lecture course. Instructors are provided with basic course management capabilities in the areas of course organization, grades, communication, and personalization of content. Instructors benefit with access to key course management tools such as a robust grade book, integrated course email, and reporting tools.

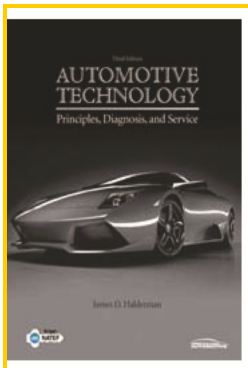


MyAutomotiveLab tests students on chapter objectives, which identify the ASE test content taught in each chapter, and creates a personalized study plan based on their results. Customized study plan tools include: an e-book, interactive media exercises, and engaging garage simulations.

Identifying the parts of an internal combustion engine—just one of many fascinating media assets available in MyAutomotiveLab!



Automotive Interactive: at a glance
These simulations pull automotive diagnosis and troubleshooting all together for students.

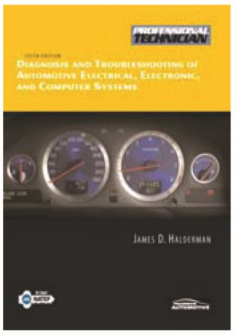


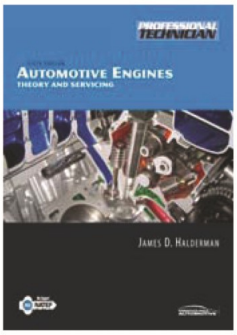
Automotive Technology: Principles, Diagnosis, and Service 3/e
James D. Halderman

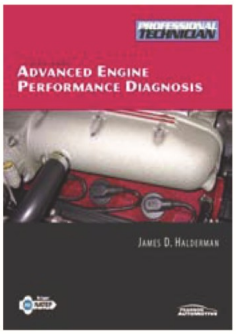
New To This Edition

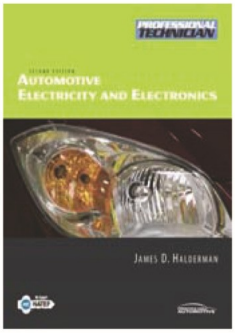
- Careers in the Automotive Service area
- Additional chapter questions added to reinforce student understanding
- Content reformatted to allow instructors more flexibility in teaching content
- New chapter on basic math needed by service technicians
- 3 new chapters on Hybrid and Fuel cell vehicles and vehicle safety procedures

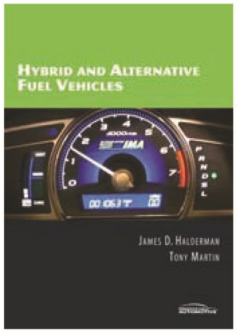
Pearson's Professional Technician Series offers comprehensive coverage of all aspects of engine repair. This series is written to correlate to the content needed for the ASE Technician Certification test and the NATEF task list, and provides a major emphasis on diagnosis and why operations are performed. Tech Tips and Real World Fixes provide real world applications. The volume includes a multimedia CD ROM with fully illustrated PowerPoint slides and a workbook with correlated activities.



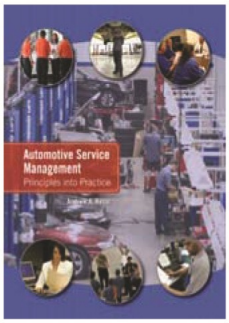




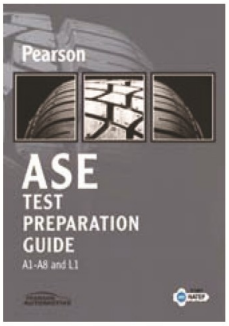




Hybrid and Alternative Fuel Vehicles
- Halderman



Automotive Service Management
-Rezin



ASE Test Preparation Guide
-MOTOR

www.myautomotivelab.com

PEARSON

A Message from the CAT Webmaster!

I hope everyone is doing well and the state our economy is only having a minimal effect upon you and your family. The CAT Website is alive with its own heartbeat. When you return to our website you will find a few animations that I have placed on a few pages. I hope you enjoy them. I am continuing with the effort to make registration for our CAT Conferences simple, easy and painless for our members, vendors and CAT conference coordinators.

Online registration started for the spring 2009 conference and we are continuing to improve it for our fall 2009 conference. We are hoping to go 100% paperless with conference registration for the fall 2009 conference and all future conferences. Members are encouraged to fill out the conference registration form online. After clicking the submit button you should be redirected to a page with information on how to make your payment. You will be given the option to pay with credit card or check. In addition, an e-mail should be sent to the e-mail address you provided to us on the form. This e-mail should contain all the information you've entered into the form, as well as information needed to make your payment by either check by credit card.

It's important to me to know if this process is working properly and easy to use. I would like to encourage everyone to contact me if the online registration process does not work as I have stated or is difficult to use. For those of you who may be uncomfortable using the Internet to register for the CAT conference I'd like to take a moment to point out to you that not only are we helping our environment by not using paper, we are also helping out our CAT conference coordinators. Conference coordinators take on a huge task to put on the wonderful conferences we attend. Using the online form simplifies their job by saving them hours of work.

My best to everyone and I hope to see you at the fall 2009 conference.

Thomas G. Broxholm
Skyline College Automotive
TGB Computing

Spring 2009 CAT Conference Hosted by UTI

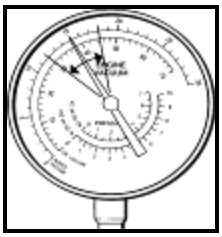
Drew Carlson addresses the membership!

Conference Tour - Blue Angels Fighter Jet

Bob Barkhouse—Exec DIR
and
John Overton—President

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

Two of our most tried and true tools over the years are the vacuum and compression gauges. They have served us all well over the years, but have they seen better days and possibly been surpassed by modern electronic vacuum/pressure transducers and lab scopes?



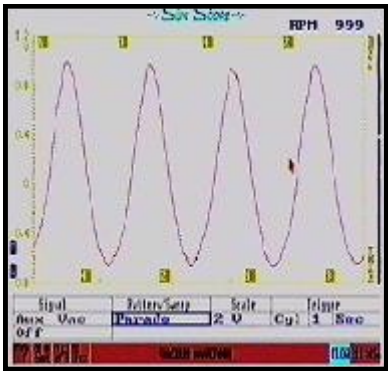
Lab scopes have become a way of life for today's diagnostic technician. Combined with accessories such as: current probes, secondary ignition pickups, vacuum and pressure transducers the lab scope has become a more effective tool. These tools allow the technician to electrically verify engine, fuel, and ignition operation.

A Vacuum Gauge shows the ***average*** engine vacuum, but it does not display a visual waveform or graph. A Compression Gauge shows the engine compression, but it does not display a visual waveform or graph. If compression is low a cylinder leakage test might need to be performed. If a cylinder has a pressure change while running a cranking compression test the gauge will only show the highest reading during that cycle.

One of the first electronic test at supplementing the vacuum and compression gauges was the relative compression test. A relative compression test displays RPM change or amperage draw per cylinder while operating the starter motor. The lowest cylinder reading is relative to the highest cylinder reading. The highest or best reading(s) may not be a mechanically sound cylinder(s). ***Just best of the worst!***

Using the FORD IDS scan tool this test result shows 0% cylinder variation. The vehicle was a 2002 Crown Vic with 245,000 miles and in need of new timing chains. Engine vacuum was only slightly lower than normal, but compression was evenly low at about 120 psi.

Another electronic test is the vacuum probe connected to the intake manifold. The vacuum waveform provides a detailed visual waveform of each cylinder's vacuum and the pressure change created during two complete crankshaft revolutions, or 720° of crankshaft rotation. Performing this test showed the vacuum/pressure for an individual cylinder and its running mate. This test is still a valid test using a vacuum pressure transducer and lab scope. The problem with this type of testing is no book of known good/bad waveforms is available. Another deficiency of this test is not seeing what is occurring inside the combustion chamber. The key to this testing is to compare cylinders looking for abnormal waveforms making sure the problems are repeatable.



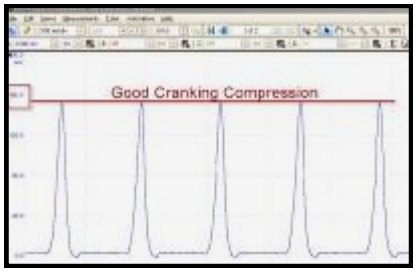
In this day and age of visual learners how can we perform a test of the combustion chamber that is more definitive of mechanical events of the four stroke cycle? The compression waveform produced from the internal combustion engine holds the key to determining if the mechanical condition of the cylinder is in good working order or if there is a mechanical deficiency within the cylinder. This test is performed with fuel and spark disabled on the cylinder being tested.

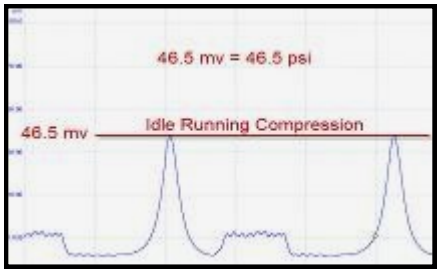
How have my students been using this technology and what are the benefits? Using the compression waveform to perform cranking, idle, and running compression tests has enhanced their understanding of the four stroke cycle. While performing the tests I have them include a vacuum gauge so they can relate intake manifold vacuum to cylinder pressure. Boy, has this improved their understanding of the relationship between vacuum and pressure. The test data provided by using this method can be compiled by simply freezing the screen and then saving it to a file or printing the waveform. You don't have to be standing over them watching

(Continued on page 19)

(Continued from page 18 - Escalambre)

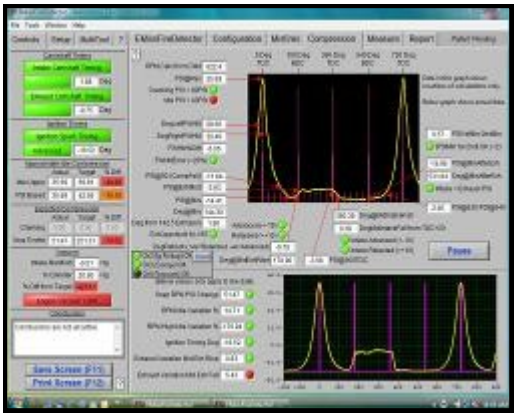
them perform a standard compression, though I still make them do this first as part of the learning process, you can visit them at anytime and ask them to see their test results. Most scopes will allow a series of waveforms to be recorded and played back as a snap-





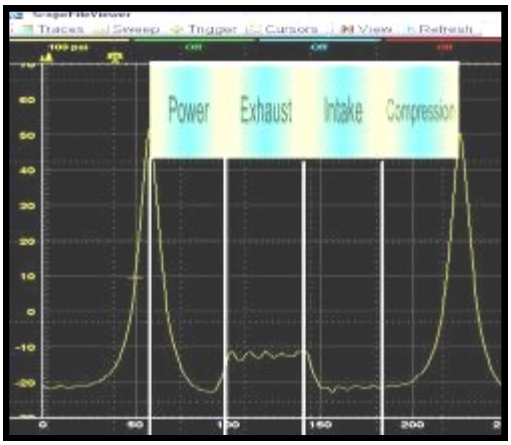
shot or movie. A compression gauge is real time, you either see it or you don't. A snapshot or movie can be used to teach the process to a class because it can be paused and discussed. I collect saved waveforms to use for lecture/discussions, tests, and homework assignments. If it is used in the workplace it can provide valuable documentation for warranty claims or to show the customer that a problem does exist; computer printouts can be a convincing visual aid even when the customer doesn't understand what they are seeing.

What do I need to perform these tests? A compression hose (Schrader valve removed) or a leakdown hose, a vacuum/pressure transducer, lab scope, and a jumper wire to prevent a secondary spark are required. Do not use a modified spark because the arcing spark can create a noise that will affect the transducer.



Who makes the equipment and software to perform and analyze these tests? Currently, we use the Fluke PV-350 Vacuum/Pressure Transducer and a PICO scope. We have used the MODIS, which worked well, but the Fluke 98 was not effective because of the screen size. The PICO, MODIS, and Fluke require you to manually setup the screen and perform calculations in order to analyze test results. We also use Automotive Test Solutions' **EMissFire Detector** kit. The software, shown to the right, that comes with the kit is terrific for teaching, it offers numerous automated calculations and it generates a custom report of the test results. There is also excellent online support on their website at http://atsnm.com.

What are some basics points to learn when using cylinder waveform testing? By measuring the time it takes the piston to move from TDC to TDC, or 720°, the action of each piston stroke can be identified. The picture below shows the four stroke cycle divided into four 180° sections. During the **Power** stroke you can follow the movement of the piston and the action of the exhaust valve. At the end of the **Exhaust** stroke you can follow the action of the intake valve opening. At the beginning of the **Intake** stroke you can follow the valve overlap and the closing of the exhaust valve. At the end of the Intake stroke you can follow the closing of the intake valve. Finally, the **Compression** ramp can be followed to TDC looking for a loss of pressure.



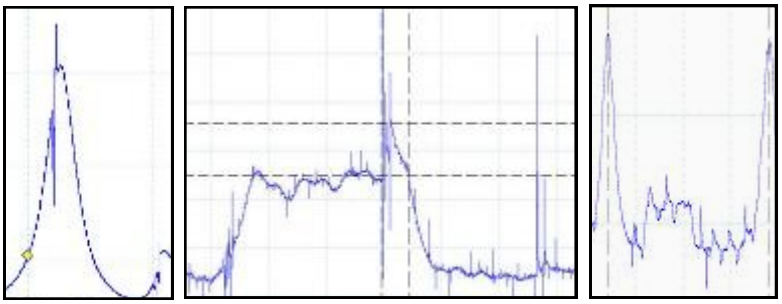
An important point to using this test is to compare each cylinder's activities. By doing this you can identify a common problem, like a cam timing problem; or a problem particular to a cylinder or two caused by a valve adjustment problem.

What have I learned about teaching cylinder waveform testing? This semester I am introducing this to the entire class for the first time. I was a little concerned that it might too difficult for many students; to the contrary, it has been well received by all and the student's understanding of it has exceeded all my expectations.

(Continued on page 20)

(Continued from page 19 - Escalambre)

***Testing the Mechanical Integrity of an Engine, Part II* will be covered in the spring issue of the CAT NEWS.** It will address the specific parts of the waveform and how we have used it to diagnose and repair vehicles. To the right are three waveforms collected from different vehicles. They will be discussed in the next issue so please give them some thought.



FALL CAT CONFERENCE
Cypress College
October 16 and 17, 2009

Our spring conference is rapidly approaching and we hope many of you plan to attend. Below you will find the latest details to assist you in planning the weekend. **For the most current conference agenda go to: wwwcalautoteachers.com.**

If you are traveling by air the closest airport is the Long Beach Airport, which is 7 miles away (16 minutes). However, John Wayne Airport has more choices in terms of scheduled flights and is 19 miles away (45 minutes). If you plan to bring a RV and park overnight on campus it must be self contained since there are no electrical hookups or lavatories provided. Please contact John Alexander by email (jalexander@cypresscollege.ed) to make reservations, and general parking information.

Conference Registration

Conference Registration is online – go to www.calautoteachers.com**. For** general conference questions call the Conference Coordinator, Marty Orozco 714-484-7485 or email lorozco@cypresscollege.edu.

Friday Activities

On Friday morning, there will be early bird registration for all members that have pre-registered. This means no waiting in registration lines Saturday morning. For early arrivals we have a full agenda scheduled for Friday (see tours and agenda). There will be free continental breakfast and lunch served on Friday. **Tours will go to The Petersen Automotive Museum and Scat Manufacturing. Tours** will start promptly, be on time!! **Friday presentations include** Air Streams/Wind Turbine technology, Super flow - How to test your cylinder heads with a flow bench, BAR Meeting (Tentative), Ride and Drive Toyota Fuel Cell Vehicle – Ford Fusion Hybrid (possible), and Toyota Museum opens to CAT members (Free – Dinner on your own).

Saturday Activities

On Saturday, we are planning a variety of technical seminars to help you sharpen your skills. Vendors will be out in full force to show you the latest in books, training materials, and equipment. Door prizes will be given away at the end of the workshop on Saturday. We will finish by 5:00 PM., so try to arrange your travel plans so you can stay to the end.

Here is a tentative workshop/presenter agenda: Toyota Fuel Cell Technology (Doug Sato, Toyota Motor Sales); OBD II in 2009: Tips, Tools & Solutions (John Astley & Tim Flannery Automotive Training Group); Ford Fusion Hybrid (Possible, Manny Patron, Ford); Bio Diesel Fuels (John Frala, Rio Hondo College); How to test your cylinder heads with a flow bench (Super Flow); Testing Evaporative Emissions Systems (Rick Escalambre, Skyline College); Hardware to teach basic electricity in Auto courses (John Chocholak, Ukiah HS); You Know Cars, they Know You Tube-Bridging the Gap (Michael Gray, Rolling Hills Publications); Implementing CDX online resources, How to apply for and write grants (Mike Klyde, Cypress College); The benefits of implementing high school skills competition into your program (Russ Bacerella); Automatic Transmission Fluid, ATF & Coolant (Tom Birch & Jim Halderman); and Being more effective with Email (Thomas Broxholm, Skyline College).

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- Transparent tubing for orifice tube, five sight glasses;
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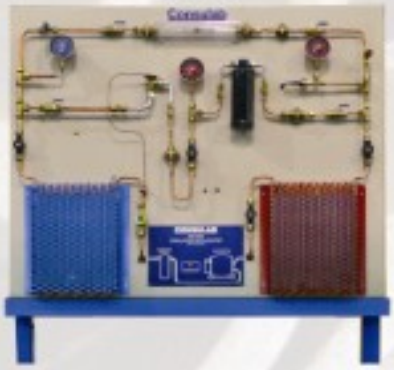
- Before disassembly, students can run engine, check all parameters on a scan tool, check for leaks and ensure proper operation; and,
- Following manufacturer's procedures, students can remove the engine from the Starting Station and perform a complete disassembly.



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The Passing of a Great Friend!

By Jack Erjavec

On May 7, 2009, I lost a friend as did **all** automotive educators. After years of fighting cancer, Fred Hines (CEO of ATECH Training) was given relief from his pain and suffering. He is survived by his wife, Mary Ann. Fred was a very special person. He was a Vietnam vet; an electronics instructor for 17 years at high schools, community colleges, and universities; and a true friend to all who teach. Fred joined ATECH in 1986 and stayed in the background until he bought out the previous principals of the company. Since that time, Fred had pushed the envelope to improve automotive education. He did so much for us. He, in his own way, was a strong supporter of ASE/NATEF. He revived AIPC and contributed his time and energy to that effort. He took over the AIPC newsletter encouraging all of us to pay attention to things such as nontraditional students, why students don't learn, etc.

He also spent countless dollars, in terms of donations and free training, for hundreds of automotive instructors and schools (Perhaps you were able to benefit from that!?).

To me, as well as others, Fred was an excellent example of practicing what you preach. One of the highlights of my career, besides working with him on numerous projects, was to present an award to him (along with another friend John Ball of Honda) at the NACAT conference in Long Beach in 2007. We presented him with recognition for Outstanding Support to Automotive Education. (As a testament of who he was, Fred hid for the rest of the conference. His humility got to him and he could not deal with what we had done – I later talked with him, and he said he was too moved to face others. The ultimate recognition of an individual is to honor him or her while they are living, not after they are gone – NACAT did that and I feel so good about being a part of that!)

This was the same year he tried to assemble representatives from each state to combat problems that faced all instructors. This event had two things of importance to me: in spite of his lingering health problems, Fred still kept in focus what he was all about and he paid for the get-together out of his pocket. The unfortunate thing was he had few that stood up and said they would do something.

Two things linger with his passing, we need to respect and emulate what Fred was all about and do whatever we can to enhance our careers and the careers of OUR students. If it moves you to make a donation in his name, send it to ATECH in care of Laura Lyons at ATECH or the NACAT foundation. Laura is working on a scholarship fund in the name of Fred, through NACAT. In any case, you can contact me and I will take care of it.

The following article (page 23) "Earning RESPECT for your Program" was written in response to a post on IATN. I felt it appropriate to include it in the CAT Newsletter because of our good friend, Fred Hines from ATECH, who past away earlier this year. It represents what he spent a large portion of his life trying to help automotive programs accomplish. Fred liked the article enough to include it in an previous ATECH Newsletter.

It is also appropriate during these difficult financial times. While enrollments are at an all-time high, vocational programs will be scrutinized with a magnifying glass because our FTES Loads cannot match those of the "general education" population. As college enrollments approach or exceed CAP and CSUs close their doors to spring 2010 applicants, vocational programs will feel even greater pressure to survive. While we train people for the "Blue Collar" workforce, students enrolled in our programs are not recognized by the masses as attending college! We need to overcome this perception by ……...

(Continued on page 23)

Earning RESPECT for your Program, **by Rick Escalambre**

I prefer not to use the word "funding" because it implies that money is the answer. In some cases it might be in other cases it isn't. I have met with Deans from other colleges who wanted to see why our program is so successful. When they see what we have they are in awe. No amount of money would have fixed there programs at that time because they had people problems, by that I mean instructors who did not get along or were not willing to work cooperatively in the best interest of the students who are their program. Those instructors have now retired and the programs are slowly improving. Might additional funding help them now, the answer is yes!

I prefer to use the word "support" because it encompasses a number of items. First and foremost is administrative support. Does the administration allow the program to control its destiny? Does the administration support your program when enrollment has hit a decline? Do they allow the program to be creative with how they teach and what they teach? Do they understand the role vocational programs play in the college's mission statement? Do they understand and accept the fact that vocational programs, per student, are expensive to operate and a vital part of the college?

My theory is, people make a program and people break a program. Quality people (instructors and support staff) establish control of their program by being proactive. Are the instructors involved in campus activities and committees? Are they seen and heard by the administration? Administrators will come and go, so the program has to be positioned so the next administration understands to "leave them alone because they will do what is right". Are the instructors known by local industry?

Quality people make quality programs. I say, "take a proactive approach and not a reactive approach". Quality people are creative and they plan ahead. I was told years ago by Dell Cooper, always have a Plan A; if Plan A doesn't work move on to Plan B; if Plan B doesn't work move on to Plan C. I can't tell you the number of times we have reverted to Plan B and occasionally Plan C.

At Skyline College we make it clear that the students come first and automotive comes second. Without the students we would not have a program. Once you establish that and the administration acknowledges it, the program will take an immediate upturn. We do this by hosting a Christmas Luncheon where the students provide all the food and we invite the college administration, the Chancellor, and the Board of Trustees. We also invite people from campus who have helped our program: building and grounds, admission and records, etc. At the end of the year we have a graduation/awards banquet and parents are invited along with the administration, Chancellor, and Board. On a regular basis each class has a barbeque. We make sure the students understand that it is THEIR program. Most administrators feed off of the students. Our administrations over the years have had a feast with all that we do for the students.

Vocational programs have to be aggressive, involved, creative, and most importantly respected by their students, administration, and industry. Administrators feed off of the enthusiasm of their faculty. Let that enthusiasm flow from vocational programs. Then the support and good things will start to happen.

Realistic goals!

Enthusiasm for what you do!

Students come first!

Professionalism is contagious!

Energy that is renewable with each new day!

Commitment to the student, program, & college!

Teach less and they will learn more!

(Continued from page 1 - Carey)

gear disengages and retreats. I marveled at the genius of Vincent Hugo Bendix, the Illinois-born son of Swedish immigrants who invented this revolutionary gadget early in the last century.

One problem was obvious: The teeth on the pinion gear were worn and mangled. Inside the motor I discovered a frayed wire that probably caused a short. I replaced the wire and installed a new Bendix drive with a fresh gear. I bolted the starter motor back on, connected the battery cables, and pressed the floor starter switch with my foot. I was thrilled with anticipation. Was my diagnosis correct? Would my repairs succeed? Or would I be chastened by failure?

Matthew B. Crawford knows the feeling. As a motorcycle mechanic and former electrician, he knows the joy of fixing things, of working with his hands, of applying his brainpower to solving material problems, of doing tangible work that is straightforwardly useful.

He is, proudly, a gearhead. But he is also an egghead, a philosopher fluent in the airy abstractions of academia. A think tank refugee, Crawford, 43, has a doctorate in political philosophy from the University of Chicago and is a fellow at the Institute for Advanced Studies in Culture at the University of Virginia.

He is also the author of an unusual new book, Shop Class as Soulcraft: An Inquiry Into the Value of Work. It's a mechanic's manual that quotes Aristotle and Heidegger, a collection of cerebral essays that includes drawings of an intake manifold and clutch rod oil seal. And its thought-provoking themes are well worth considering this Labor Day, as millions of unemployed Americans struggle to find work, any kind of work, let alone work that suits their skills and talents and offers, in Crawford's words, "a tighter connection between life and livelihood."

The work Crawford considers most valuable is manual work. He argues that making and fixing things with your hands not only deserves respect but also fulfills basic human needs and nourishes the soul in ways that so-called knowledge work, for all its prestige, cannot match.

"The satisfactions of manifesting oneself concretely in the world through manual competence have been known to make a man quiet and easy," he writes. "They seem to relieve him of the felt need to offer chattering interpretations of himself to vindicate his worth.

"He can simply point: the building stands, the car now runs, the lights are on. Boasting is what a boy does, because he has no real effect in the world. But the tradesman must reckon with the infallible judgment of reality, where one's failures or shortcomings cannot be interpreted away."

Why is it, Crawford wonders, that when working with his hands, he feels not only a greater sense of agency and competence but also more engaged intellectually?

Reflecting on the challenge of troubleshooting problems during his fledgling years as a motorcycle mechanic, Crawford realizes "there was more thinking going on in the bike shop than in my previous job at the think tank." "When you're fixing stuff, you have to be mentally nimble. You have to improvise," Crawford told me when we spoke on the phone the other day. "The service manual is never fully adequate."

The separation of thinking from doing has degraded work, Crawford argues, and stems from a prejudice that overlooks the cognitive richness of manual labor, the exhilarating reliance on hunches, intuition, and seasoned judgment. That same prejudice has led schools to cancel shop class and to push every student with a pulse into college.

(Continued on page 25)

(Continued from page 24 - Carey)

"Some people, including some very smart people, would rather learn to build and fix things," Crawford says. "We don't do a very good job of promoting that. We've developed an educational monoculture where everyone is hustled onto a certain track and ends up working in an office.

"Some very smart people are totally ill-suited both to higher education and to the kind of work you're supposed to do once you have a degree. You're likely to be less damaged and quite possibly better paid as an independent tradesman than as a cubicle-dwelling tender of information systems or low-level 'creative.'"

Colleges and universities mint flexible generalists with pleasing personalities who "know that" rather than "know how." These eventual cubicle captives submit to the soft despotism of manipulative managers and conform to corporate culture by being joiners with "a disposition of teaminess." Meanwhile, they toil at ghostly work in white-collar jobs that have been routinized and stupidified and that are all about process, not product. At the end of the day, their accomplishments are not visible and palpable but elusive and vaporous, resisting measurement by objective standards. Over time, this takes its toll on the soul. It stultifies and emasculates.

"The physical circumstances of the jobs performed by carpenters, plumbers, and auto mechanics vary too much for them to be executed by idiots; they require circumspection and adaptability," Crawford writes. "One feels like a man, not a cog in a machine. The trades are then a natural home for anyone who would live by his own powers, free not only of deadening abstraction but also of the insidious hopes and rising insecurities that seem to be endemic in our current economic life."

Crawford urges a renewed appreciation of "the useful arts" and the "yeoman aristocracy" - "those who gain real knowledge of real things, the sort we depend on every day." Above all, he exalts craftsmanship - "learning to do one thing really well, dwelling on a task for a long time and going deeply into it because you want to get it right." Craftsmanship, he suggests, is a potent defense against planned obsolescence, wastefulness, consumerism, narcissism, alienation, isolation, and the outsourcing of jobs.

"Practical know-how is always tied to the experience of a particular person," Crawford asserts. "It can't be downloaded; it can only be lived." Speaking of practical know-how, you may be wondering about the fate of my Jeep. When I pressed the foot switch, the starter motor responded instantly. The gears meshed with the silky, buttery sound of a well-oiled sewing machine, and after a couple of revolutions, the engine sputtered to life. The satisfaction I felt was deep and sweet. I had figured it out myself, done it with my own hands. I was the sort of "spirited man" Crawford would admire.

"The mechanical arts have a special significance for our time because they cultivate not creativity, but the less glamorous virtue of attentiveness," Crawford says. "Things need fixing and tending no less than creating."

Stanford study of exit exam shows fallacy

The Sacramento Bee

By Dan Walters, April 22, 2009

California celebrates diversity and individualism as virtues, but oddly, when it comes to public education, we try to stuff 6 million students from countless ethnic, cultural, linguistic and economic backgrounds into rigidly constructed curricula and expect them to adhere uniformly to arbitrary "standards."

This approach -- imposed by adults for their own reasons -- manifests itself in such fallacious policies as compelling all students in some districts to take college prep classes, denigrating vocational and other nonacademic offerings and, most illogically, decreeing that no one can obtain a high school diploma without passing a so-called "exit exam."

Such one-size-fits-all policies undermine the very essence of education, which should be to provide students with widely varying aptitudes, talents, interests, aspirations and, yes, intelligences with the opportunity to develop to their fullest potentials, whatever they may be.

Not surprisingly, that approach has failed miserably. California ranks near the bottom in nationwide achievement tests of basic skills. At least a quarter of its students don't make it through high school -- more than 50 percent in some districts.

Stanford University has been at the forefront of conducting deep research into California's educational shortcomings, most notably a 1,700-page study a few years ago calling for a top-to-bottom reform, which so far has been ignored by politicians whose interest in education begins and ends with money.

Stanford's Institute for Research on Education Policy has released a new study, this time zeroing in on the high school exit exam that was finally implemented a few years ago after several false starts, concluding that it's been a bust.

The study found no evidence that exit exams had elevated overall academic achievement. It did determine that female, African American and Latino students underperform on the mathematics portion of the test, while all nonwhite students do relatively poorly on the English language portion.

"The exit exam has reduced graduation rates among girls and students of color in the lowest-performing quartile by nearly 20 percentage points," says a synopsis of study findings.

One aspect of the Stanford study's findings is what researchers call the "stereotype threat," defined as the extra stress on female and nonwhite students to do well on tests, fearing that failure would confirm negative stereotypes.

California's education crisis will not be solved by quick fixes such as exit exams, no matter how superficially appealing they may be. The earlier Stanford studies showed the way -- policies based on sound research into what really works in the classroom and what doesn't, backed up by enough money to provide the varied curricula that an infinitely diverse student population requires.

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