

Section Web Site: [www.sae-arizona.org](http://www.sae-arizona.org) - Sign up for your newsletter on our website.

**HIGHLIGHTS...**

- Racing Trucks
- Coffee Talk

- Message from the Chair
- Recap of February Meeting

- A World in Motion
- Mercedes DI Engine

Dinner Presentation...

## Racing Trucks By Nick Vanderwey

Nick Vanderwey is a Mechanical Engineer who has been racing off-road trucks since 1992. He will talk about his racing experiences and race truck design. And assuming his truck survives a race that will be held the weekend prior to our meeting, he will have his truck on display at the meeting.

His race truck is painted like a Holden cow (his family owns a dairy) and it carries the statement: "Got Milk?" on the side. This is a great opportunity for members to bring their high-school-age children to the meeting. And they will be entitled to the student rate on the price of dinners.

Together with his three brothers he has won the Baja 1000 once and the Baja 500 four times in Class 8 (full size production trucks). Nick designed his current race truck from the ground up. The truck has 700 hp, 600 ft-lb of torque, 20 inches front wheel travel, 26 inches rear, and carries 65 gallons of fuel. The only stock original parts on the truck are the frame rails and the front grille, every other part is either modified or custom built for racing from the steering box to the axle.

Nick will be racing in the San Felipe 250 March 11, 2006. With nearly 300 entries expected to compete in 24 Pro and 5 Sportsman classes, the green flag will drop at 6 a.m. on Saturday, March 11, for the motorcycle and ATV classes, followed by the car and truck classes two hours later at approximately 8:30 a.m. All vehicles will have a 10-hour time limit in the elapsed time race and vehicles will start in 30-second intervals.

Nick and will present his truck for hands on inspection at the March 16 SAE meeting. He will discuss its design as well as share racing success stories, and a first hand report on the events at the San Felipe 250 race.



## Coffee Talk

Mr. Eric Barta, the Operations Manager for AutoZone's Phoenix Distribution Center, will join us on March 16th at our monthly dinner meeting at the Crowne Plaza. He will give a brief presentation on the business of distribution, as it relates to the automotive parts industry. He will also share with us some recent opportunities and initiatives AutoZone is working on within their supply chain.

DATE	TIME	LOCATION	COST	With Dinner	Presentation Only
Mar 16	Social	- 6:00 pm	Crowne Plaza Hotel (Holiday Inn)	Members - \$20	\$10
	Dinner	- 6:30 pm	44th St. & Washington	Guests - \$25	\$10
	Presentation	- 7:30 pm	602-273-7778	Students - \$10	no charge
<b>RSVP by 2:00 pm Monday March 13.</b>			<b>Call Mindy Erway: 602-364-7122</b>		

## Message from the Chair

Our February meeting was very successful with 45 attendees including ten students from Arizona universities. The main presentation by a panel of former leaders of the American automobile industry was very interesting and informative on the issue of the current problems that the American automobile manufacturers are facing. Special thanks go to panelists Bernard Robertson, Ed Mabley, and John Leinonen, and panel moderator Claude Verbal for the excellent presentation. The section is very fortunate to have these gentlemen as section members, who are regular attendees at our meetings. As an added bonus, three of the panelists are former SAE International Presidents.

I would also like to thank Northern Arizona University SAE student section members Oliver Meade and Curtis Estevo for telling us about what the NAU section of SAE is doing. And I would like to thank Brian Minchuck of the Arizona State University SAE student section for telling us what the SAE student section is doing at the Tempe campus. The ASU Tempe campus students are also scheduled to be back at a later meeting this year to tell us more about what they are doing. The section makes financial contributions to the student sections to help cover expenses of the formula and mini Baja cars, but these contributions only cover a small part of the expenses. Section members and their companies are also encouraged to help provide financial support for the student sections.

Joshua Rudin of our section has been working on "A World in Motion" (AWIM) an SAE-sponsored program to teach elementary and high-school students about careers in science and engineering. Joshua has put together a PowerPoint presentation to give to students in a single class period, and has been going to schools to put on the presentation and answer the student's questions. This presentation has become very popular at valley schools, and Joshua is looking for other section members to help present the program to students. If you would be interested in helping, please let Joshua, me, or another Board member know.

Immediate past chair, Kevin Willson, is heading a committee to nominate candidates for the Section Governing Board for next year. Serving on the Governing Board is a meaningful experience that provides an excellent networking opportunity as well as the opportunity to give something back to the profession and to the community. Several openings exist with different roles and time commitments. If you would be interested in serving on the Governing Board, or know someone who you would recommend, please contact Kevin, me, or one of the other Board members.

Allan Watts  
Section Chair



Allan Watts, Section Chair.

## Recap of February Meeting by Allan Watts

The February, 2006 dinner meeting of the Arizona/Nevada section of the SAE featured a panel discussion on the problems being faced by the American automobile manufacturers. Former General Motors director of Service Parts Operations and 1996 SAE President Claude Verbal moderated the panel, which included John Leinonen, former Executive Engineer of Production Vehicle Safety & Compliance at Ford Motor Company and 1995 SAE President; Ed Mabley, former director of Ford Truck Operations and 1989 SAE President; and Bernard Robertson, former Senior Vice President of Engineering Technologies and Regulatory Affairs at Daimler Chrysler.



Left to right, Bernard Robertson, Ed Mabley, Claude Verbal, John Leinonen, Allan Watts.

The panelists shared their experience, knowledge, and ideas with the section and fielded many interesting questions from the floor. These former leaders of the American automobile industry discussed issues including the recent financial losses and loss of market share of the big three automobile manufacturers in North America. Some reasons identified for current problems are that the manufacturers bear the burden of certain legacy costs, such as obligations to pay retirement and health care benefits to retired employees, and obligations to meet commitments with labor unions including commitments to employ employees in job banks employees whose jobs on assembly lines had been replaced by automation.

The panelists mentioned that automobile manufacturers must compete in a world market, not just in the U.S., and that in order to make a profit, manufacturers must produce nearly at full capacity. Further, that recent efforts to regain market share by offering incentives had not proven to be effective, and that once market share is lost, it is very difficult to regain. Further, panelists stated that the American automobile manufacturers had made some poor investments, including in other automobile companies, in other industries, and in advances in technology that had not proven to lead to viable product lines.

Potential solutions to the current problems that were discussed included solving problems and inefficiencies between labor and management through employee ownership of companies, development of product that is more exciting to consumers, and development of new technology, including use of alternate fuels. A number of particular vehicles were identified that are exciting and have been successful, like the Chrysler 300 and the Ford Mustang. And for those who are starting careers in the American automobile industry, current conditions offer many significant challenges that promise to provide meaningful and rewarding challenges for engineers.



Students explained the SAE programs at NAU and ASU. Our section provides financial support to the student chapters in our section area. ASU is looking for technical mentors. NAU students need your financial support as well. Please contact Allan Watts if you would like to make a contribution or provide technical assistance.

## Become Involved in SAE's "A World In Motion" Program

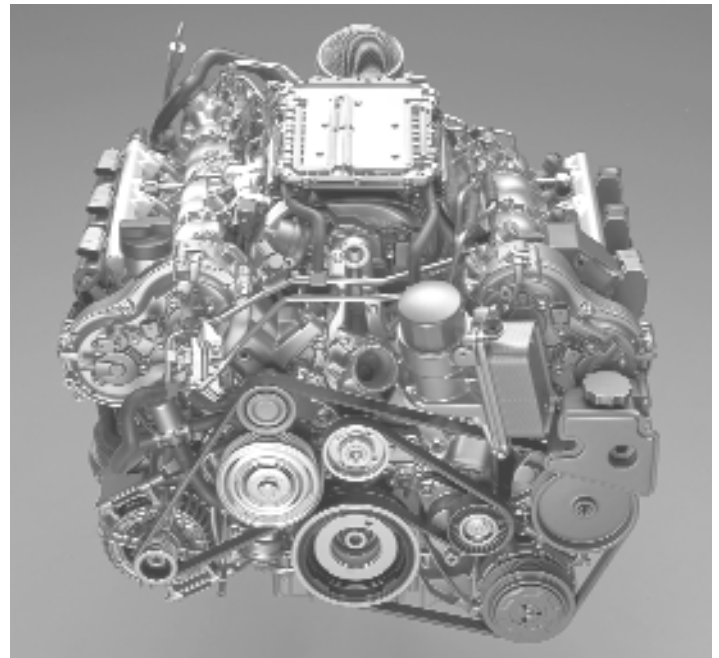
A World In Motion, now in its 16th year of distribution, makes the challenges of math and science exciting by bringing authentic engineering design experiences into the classroom. The AWIM program is comprised of a series of four curricula referred to as Challenges for students in grades 4 -10.



At this month's meeting, Joshua Rudin will announce the opportunities available to members to experience the gratification of sparking the interest of young students in the engineering field. Joshua visits local schools with SAE's PowerPoint AWIM presentations. You can download the PowerPoint presentation at our section website.

## Mercedes Direct Petrol Injection System Gives Ten percent lower fuel consumption with more output

Stuttgart, Feb 24, 2006 - Following intensive development work, Mercedes-Benz is now presenting the world's first petrol engine with piezoelectric direct injection and spray-guided combustion. This 215 kW/292 hp six-cylinder engine will enter the market in the second half of 2006 in the CLS-Class. In the European driving cycle, this innovative injection technology from Mercedes-Benz achieves fuel consumption improvements of ten percent over the highly efficient V6 petrol engine with port injection and fully variable valve timing: the figures for the CLS 350 CGI are 9.1 litres per 100 km. Thus Mercedes-Benz has succeeded in combining a substantial increase in output with a significant increase in fuel economy.



New Mercedes Direct-Injection gasoline engine achieves 10 percent greater fuel economy and more power.

The main advantage of the CGI engine (CGI = Stratified-Charged Gasoline Injection) lies in the stratified operating mode from which it takes its name. During this mode the engine is run with high excess air and thus excellent fuel efficiency. Now, thanks to multiple injection, it is for the first time possible to extend this lean-burn operating mode to higher rpm and load ranges too. During each compression stroke, a series of injections takes place, spaced just fractions of a second apart. This has the effect of significantly improving mixture formation, combustion and fuel consumption. While stratified charge operation was previously only possible in the low part-load range, the new Mercedes direct-injection engine can still operate in this lean-burn stratified mode at speeds in excess of 120 km/h.

THE UNIVERSITY OF ARIZONA ANNOUNCES:

**The 32nd Annual Applied Reliability Testing Institute** provides coverage of how to implement and manage the Design-for-Reliability process through testing; how to implement an integrated Reliability & Maintainability Engineering management strategy; a practical approach to attain the high Reliability goals demanded nowadays; how to improve our worldwide competitive posture by creating more Reliable products through testing; solder joint durability and their useful life estimation; the determination of the time-to-failure distributions, failure rates, mean lives, reliabilities, and their confidence limits at desired high confidence levels; small-sample-size, high reliability, short-duration, efficient tests; nonparametric testing; test duration, sample size, and number of failures determination; HALT and HAST; burn-in testing, Qualification and Reliability Demonstration Testing; failure analysis technologies; product assurance techniques for becoming more competitive in today's markets; development cycle time reduction; productivity improvement techniques to achieve U. S. leadership in world markets; all types of goodness-of-fit test; determination of the confidence limits of the actual Reliability, Mean life and Failure Rate of all types of components, products and systems at high confidence levels; Customer Satisfaction Strategies to provide the tools required to design, test and manufacture products which are highly reliable with a minimum if any product recalls, easy to maintain, safe and less costly to operate, and sold at globally competitive prices; plus much more! Numerous practical applications of these methodologies are presented. This Institute will also prepare and help participants pass their ASQ Certified Reliability Engineer (CRE) Examination. Consultation Workshops, plus much more.

**The 44th Annual Applied Reliability Engineering and Management Institute** provides all engineers, and particularly Reliability Managers and Engineers, and Product Assurance Managers and Engineers in government and Industry a working knowledge of Reliability Engineering Theory and Practice; Mechanical Reliability Prediction; Reliability Testing and Demonstration; Accelerated Testing; Failure Analysis Techniques; Complete Industry Product Assurance Techniques; Maintainability; Customer Satisfaction, Strategies to provide the tools required to design, test and manufacture products which are highly reliable with minimum if any product recalls, easy to maintain, safe and less costly to operate, and sold at globally competitive prices, plus many more! Numerous practical applications of these methodologies are presented. This Institute will also prepare and help participants pass their ASQ Certified Reliability Engineer (CRE) Examination.

THE 32nd ANNUAL APPLIED RELIABILITY TESTING INSTITUTE

May 8-11, 2006

THE 44th ANNUAL APPLIED RELIABILITY ENGINEERING AND MANAGEMENT INSTITUTE

November 13-16, 2006

Clarion Hotel, Tucson Airport

6801 S. Tucson Blvd.

Tucson, Arizona 85706

520-746-3932 or 800-526-0550

Registration Fee: \$1500

Proceedings Cost: \$50

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## Meeting Schedule

March	- Racing Trucks
April	- Hybrid by Toyota
May	- Orbital Launch Vehicles

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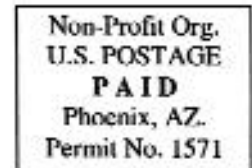
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