



NEXT MEETING FEBRUARY 19

HIGHLIGHTS...

- This Month's Presentation... *What's Happening to 42V?*
- Message from the Chair
- Recap of January's Meeting
- March Panel Discussion
- Honda to Introduce V6 Hybrid
- Sign Up for the Electronic Newsletter
- Newsletter Ad Section

Dinner Presentation...

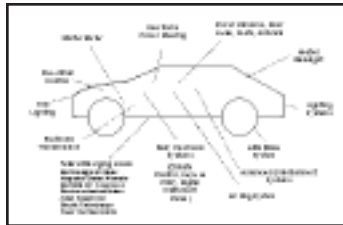
What's Happening to 42V?

Presented by

Randy Frank

Randy Frank & Associates, Ltd

The performance and features in today's vehicles require an increasing amount of electrical power. Recognizing that the 14V power supply on vehicles would eventually have to be increased, the automotive industry developed a standard for a 42V power supply system. The International Standards Organization (ISO) in cooperation with other organizations such as the Society of Automotive Engineers (SAE) expects to have the first ballot for approving the draft international standard later this year.



The 42V standard provides a roadmap to address future load requirements but one that will be pursued only when it is absolutely necessary. To provide the performance that customers will require from the digital electronics on their vehicles - including the digital control systems - vehicle manufacturers and their suppliers must consider the power required for each system, the power sources and alternatives that can prolong the use of the current 14V system. This presentation will provide background on the development of the 42V standard, a discussion of future 42V systems, and examples of how the automotive industry is addressing the power for advanced vehicles systems today - without using 42V.

Randy Frank

Randy Frank is an SAE Fellow with over 30 years experience in automotive and power electronics. He is co-author of the recent report "Power Management in Today's and Future Vehicles" (http://www.intertechusa.com/studies/PowerManagement/PM_Study.htm)

At American Motors, now part of DaimlerChrysler, Randy was responsible for introducing their first electronic engine control systems and he also developed ignition, cranking and charging systems. At Motorola, he was involved with the product engineering, marketing and applications aspects of semiconductors including the introduction of several new power MOSFETs, IGBTs, smart power ICs and sensors. At International Rectifier, Randy identified and launched dozens of new automotive power management products. In 2002, he founded Randy Frank & Associates, a Scottsdale, Arizona-based consulting company focusing on power, sensors and automotive electronics.



Randy is former Chairman of Sensor Standards Committee in the Society of Automotive Engineers as well as a Senior Member of the IEEE, former Chairman of the Automotive Electronics Technical Committee of the IEEE Power Electronics Society, and former member of the MIT Consortium on Advanced Automotive Electrical/Electronic Components and Systems.

Randy has three patents issued in the semiconductor packaging area and has written more than 300 papers, several book chapters and the book *Understanding Smart Sensors*, 1995, 2000. He has made over 50 presentations at technical conferences including an invited paper at Vice-President Gore's Fifth Partnership for a New Generation of Vehicles (PNGV) Symposium.

DATE	TIME	LOCATION	COST
Thursday February 19	Social - 6:00 pm	Holiday Inn (Phoenix Airport)	Students - \$10
	Dinner - 7:00 pm	44th St. & Washington	Members - \$18
	Presentation - 8:00 pm	602-273-7778	Guests - \$19

***RSVP by 2:00 pm Monday February 16. Call Robert Q. Riley: 623-872-3475**

Message From the Chair.....

Who could have thought that asphalt could be so exciting? January's presentation by George Way was another interesting and informative presentation that was enjoyed by all who attended the dinner meeting on January 15th. Mr. Way's humorous anecdotes added an extra dimension to a topic that at first glance doesn't appear to be the most interesting.



The presentation highlighted those aspects of an engineer's career that really make the profession so fulfilling and rewarding. Way demonstrated that the development of rubberized asphalt required perseverance, creativity, and out-of-the-box thinking. His story of the inventor boiling rubber on his wife's stove was priceless! His talk also gave strong credence to another aspect of the engineer's job that is often overlooked: good stewardship of our natural resources and protection of the environment to the greatest extent possible. Did you know that Arizona recycles 15 million tires annually in the paving of its highways? I didn't either.

Here's something else you may not know-Arizona's SAE section is more than just dinner meetings and a good social time. Involvement in SAE can contribute to your career in many ways. Involvement in the local section can develop and hone your leadership skills, improve your self-confidence, develop your public speaking skills, and give you a great network of professional peers that you can turn to for advice and counsel when needed. It also gives you greater insight into SAE as an organization and how SAE as an international entity can be a great asset to each member personally. The time of the year when we nominate our leaders for the next year is fast approaching. Take time to think about how you can contribute to the success of our local section. Think about volunteering your time to serve on the governing board-it's a great experience!

Our February meeting will again feature an automotive-related topic: "What's Happening with 42 Volts?" Many of you have probably read at least one article on the proposals to change the basic electrical architecture in automobiles. Our speaker, SAE Fellow Randy Frank, will give us greater insight into this emerging technology in February.

I also want to make a special pitch for the March dinner meeting. It will be a little different! SAE Executive Vice President Emeritus Max Rumbaugh has put together an executive panel which will discuss the topic of "Can Aero and Auto Engineers gain technology from one another?" The panel will be made up of several high-ranking executives from local Valley industries and promises to be an interesting discussion. We also want to make this a "Bring your Boss to SAE" night so be sure to make your supervisor's calendar is free NOW so they can plan to attend with you!

We'll see you in a few weeks!

Todd Zuercher

Recap of January's Meeting by Howard Daudet, P.E.

In the interest of journalistic efficiency and resource conservation, please permit this column to serve a dual purpose. The first purpose is to extend to George Way, P.E., a most sincere and enthusiastic "thank you" for an exceptionally interesting and educational presentation. George detailed all aspects of the Arizona Department of Transportation's (ADOT) program and process to apply a thin coat of "Rubberized Asphalt" to many major thoroughfares in the state. We are particularly appreciative for his special effort because he had just flown in that afternoon from a business trip to Washington D.C. and came directly to our meeting. He proceeded to put on an outstandingly professional presentation and technical commentary. Many thanks, George!



Chair, Todd Zuercher, presents George Way with a special SAE gift basket.

The second purpose of this column is to recap that presentation for those who were unable to attend. It is impossible to provide an adequate word-picture of the presentation because (1) of the complex nature of the project, (2) much of it was accomplished with the latest color graphics techniques and (3) it included firsthand observation and handling of a number of exhibits, including the raw materials and samples of the various actual finished products.

Rubberized Asphalt (and now concrete) projects serve to solve a critical environmental dilemma: "What to do with millions of discarded rubber tires that are accumulated each year." They serve also to provide us with an economical paving material that substantially extends the useful life of highway, road and street surfaces under all conditions, particularly under alternately freezing and thawing conditions. They offer a much superior surface repair material and, most noticeably to the motorist, a significant reduction in road noise.

Fundamentally, the process involves salvaging the rubber from discarded tires by a unique process developed under direction of George Way, our presenter, Manager of the Pavement Design Section and Materials Group of the Arizona Department of Transportation. This is done by a process that grinds up the tire carcass, magnetically separates the steel of the belt, pneumatically separates the cord fibers

and granulates the remaining rubber. Using a hot process, this granulated rubber is combined in a mixture of 80% asphalt and 20% rubber. To this mixture is added an aggregate mixture the size and type are determined by the intended application.

Arizona produces about five million waste tires annually. About 75% of which go into Arizona pavements. Since 1988, ADOT has successfully engineered the use of over 15 million recycled waste tires into pavement for of 3,000 miles of State Highways. Few projects, governmental, industrial, or commercial have made such a beneficial impact on our society at such a low cost. And it all began right here in Arizona, Managed by George Way, P.E.

March Panel Discussion...

Can Aero and Auto Engineers Gain Technology From One Another?

In March, our Arizona Section will host a panel discussion on the feasibility and potential benefits of technology transfer between the aerospace and automotive industries. This though-provoking and highly educational presentation was arranged by Max Rumbaugh, recently retired Executive Director of SAE International, and a member of our Section.

It is usually obvious that many aerospace technologies are being adopted by the automotive industry. Less obvious is the increasing use of automotive know how by the aerospace community. Many aero companies are adopting lean thinking in their engineering and manufacturing operations. The principles of these were developed and deployed from the auto industry. On the other hand, the ground vehicle industry is rapidly adopting advanced electronics on their vehicles. Some now describe the automobile as being a computer with four wheels.

Here is a rare opportunity to hear what senior executives in our community think about the future directions of engineering. What are their perspectives on "Not Invented Here", Technology Transfer, Lean Thinking, Systems Engineering, Network Centric Warfare and Netted Weapons, Product Line Architectures with modular components, and/or the need or lack of need for technology interfacing between the these two industries? How well is technology transfer taking place within a company? Are there opportunities to use your knowledge to develop new products within your company for use in the other industry?

Often it is stated that creativity springs from the application of one technology or concept in a completely different situation. Should you use your valuable time to keep abreast of new technologies in another industry? Can your

love of cars be useful on your job, or can your interest in airplanes be more than a hobby?

Can smart cars and hybrid electric cars and fuel cell driven cars use aerospace technology or should it be reinvented by the auto industry? Does the aero industry need to re-create modular systems and lean thinking concepts, or should this know how be imported from the auto industry? Are there opportunities for you in this effort?

The executives who have committed to serve on the panel are:

Panelists

Alan R. Dohner, Ph.D.
Senior Fellow
Raytheon Missile Systems

Vicki E. Panhuse, Ph.D.
Vice President, Programs and Site Leader
Honeywell Aerospace Electronic Systems
Business, Regional and General Aviation Avionics

Albert L. Winn
Vice President
Apache Programs
The Boeing Company

Moderator

Gretchen McClain
Vice President of Engineering,
Technology & Program Management
Honeywell Engines, Systems & Services

Come to SAE in March, bring your boss and be challenged.

Honda To Introduce V6 Accord Hybrid

Slated for introduction later this year as a 2005 model, the mid-size Accord Hybrid brings hybrid power to Honda's best-selling model, delivering an even higher level of performance than the already powerful 240-horsepower Accord V6 Sedan with the fuel economy of a four-cylinder, compact-class Civic. The Accord Hybrid is the first V6 application of Honda's Integrated Motor Assist technology and the first hybrid vehicle to employ Variable Cylinder Management technology (VCM). VCM allows for the deactivation of three of the engine's six cylinders under certain conditions - such as highway cruising - to deliver even greater fuel efficiency with no sacrifice in performance. VCM will also be applied to another new model being introduced later this year.

Sign up to Receive Your Newsletter by Email

We are in the process of making a gradual transition to an electronic Newsletter. Members who subscribe will receive a monthly email containing a link to the newsletter. Simply click on it to receive your newsletter. To subscribe, go to: <http://www.sae-arizona.org/newsletter/> and click on the appropriate link.

Meeting Schedule

February 19	- What's Happening to 42V?
March 18	- Panel Discussion - Can Aero and Auto Engineers Gain Technology from One Another?
April 15	- Intelligent Vehicle Technology: What is it, What has been implemented, What is in the future?
May 20	- Nissan Titan Pickup

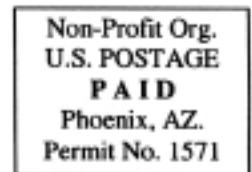
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Your ad can appear in this newsletter. For more information and advertising rates, please go to: <http://www.sae-arizona.org/newsletter/>

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