Technical foundation of new fuel economy labels formed by SAE standards committee

The EPA and Department of Transportation are proposing new fuel economy labels that would include more information about a vehicle’s environmental impact, including information about a vehicle’s fuel consumption, emissions, and a comparative rating. Beginning with model year 2012 cars and trucks, this action will also include new label development for certain advanced technology vehicles, which are poised to enter the U.S. market, in particular plug-in hybrid electric vehicles and electric vehicles.

SAE International’s Hybrid Committee was instrumental in formulating the technical foundation for these proposed new labels.

It is cited in the rule that the “The EPA has worked closely with stakeholders including vehicle manufacturers, SAE International, the State of California, the Department of Energy (DOE), and others to develop an approach for estimating fuel economy, fuel consumption, cost, CO2 emission, or any other metric for vehicles that can operate using more than one energy source. EPA believes the appropriate method for combining the operation of vehicles that can operate with more than one fuel would be a weighted average of the appropriate metric for the two modes of operation. A methodology developed by SAE and DOE to predict the fractions of total distance driven in each mode of operation (electricity and gas) uses a term known as a utility factor (UF). UF’s were developed using data from the 2001 Department of Transportation.”

SAE documents J1711, Recommended Practice for Measuring the Exhaust Emissions and Fuel Economy of Hybrid-Electric Vehicles, Including Plug-in Hybrid Vehicles and J2841, Utility Factor Definitions for Plug-In Hybrid Electric Vehicles Using Travel Survey Data are referenced throughout the proposed rule. Both documents were issued by the Hybrid Committee and their reference can be seen in the following excerpts taken from the Motor Vehicle Fuel Economy Label report. (EPA, 40 CFR Parts 85, 86 and 600; DOT/NHTSA, 49 CFR Part 575).

PHEV Test Procedure and Calculations

- The EPA proposes to incorporate by reference SAEJ1711, in part, for PHEV test procedures.

Charge Depleting Operation – FTP or “City” Test and HFET or “Highway” Test

- The EPA proposes to incorporate by reference SAEJ1711 chapters 3 and 4 for definitions and test procedures, respectively, where appropriate, with the following exceptions and clarifications. UF weighting is not intended for use with criteria pollutants.

- Net Energy Change Tolerance, NEC, is to be applied to the RESS to confirm charge sustaining operation. The EPA is proposing to adopt the 1% of fuel energy NEC state of charge criteria as expressed in SAEJ1711.
A long history of setting the standard

It’s one of those things that is rarely thought about, yet touches lives on a daily basis. Each morning as you put your key in your vehicle’s ignition, turn it, and head off down the road—SAE standards have been implemented. As you board a plane and stow your carry-on baggage and slide into your seat, SAE standards are used. And, when you climb into the cab of your industrial-grade tractor to begin a day’s work of farming, again, SAE standards are there.

No matter the mode of transportation or use—car, SUV, pickup truck, tractor, two-seater airplane, or jumbo jet—SAE standards are at the heart of your vehicle.

SAE standards have made vehicles safer, more reliable, more comfortable, and more cost-effective for manufacturers and consumers. In fact, in the U.S., SAE standards are referenced by many government regulations—a marriage of government safety and environmental efforts and current top technical industry solutions.

“SAE standards are relevant because they are created and developed by the professionals who design and create the vehicles themselves,” said Jack Pokrzywa, Manager, Ground Vehicle Standards. “If it moves on- or off-road, we’ve had our hands—literally and figuratively—on virtually every part of it.”

Ed Manns, Manager, Aerospace Standards, said SAE has been a critical player in the development of the aerospace industry almost since the day that Orville and Wilbur Wright made their famous flight in Kitty Hawk.

“The aerospace mobility engineers who sit on our committees put a life’s accumulation of talent and education into creating standards that benefit not only manufacturers but anyone who has ever stepped on an airplane,” Manns said. “This has been recognized by the leaders of our industry for decades. Our membership rolls are very impressive, including some of the best and brightest aviation minds of the past and present.”

The types of standards developed by SAE International are as varied as the personalities of the people who have helped to develop them. And, the relevance of those standards is crucial for industry and consumers alike. Some recent automotive standards include communications between plug-in vehicles and the utility grid; guidelines for electric vehicle safety; and recommended practice for measuring the exhaust emissions and fuel economy of hybrid-electric vehicles.

“Standards must change to meet technological changes,” Pokrzywa said. “SAE plays a critical role in meeting these challenges, and it’s a role that SAE developers take very seriously.”
Manns noted that, on the aerospace side, SAE created a standard to thwart the growing problem of counterfeit electronic parts. The standard calls for maximized availability of authentic parts, procurement of parts from reliable sources, assuring authenticity and conformance of parts, and control of parts identified as counterfeit.

According to a study by the U.S. Department of Commerce Bureau of Industry & Security, the number of counterfeit incidents reported by 387 participants climbed from 3868 in 2005 to 9356 incidents in 2008, an increase of more than 140%. About 9% of the companies documented cases related to government applications. Sobering statistics, and SAE is there to help find solutions.

These are just a few examples of the thousands of technical standards that SAE develops and maintains. SAE now reaches beyond the working professionals to embrace the next generation of mobility engineers. If you know a student who participates on a Collegiate Design Series (CDS) event, he or she for the first time ever will have access, free of charge, to about 50 SAE standards—both ground vehicle and aerospace. The intent is twofold: to help better prepare their vehicle or airplane for their registered competition and to get them acclimated to SAE standards so that they will be more familiar with them once they enter the workforce.

“This is an excellent way to blend present needs with tomorrow's informational needs," said Bob Sechler, Manager, Educational Relations. "The CDS students gain much-needed knowledge to help them compete while learning the value of SAE International standards—a value that will help them throughout their careers."

The program is new and innovative, just like the thinking that goes into the development of every SAE technical standard. Whether it makes an aircraft safer or makes a vehicle or piece of equipment more cost-effective, the standard is created by mobility engineering professionals, in a neutral forum, for consumers.

So, the next time you step onto an airplane or into a car or piece of heavy equipment, take a moment to think about the SAE technical committee members and the SAE standards that have helped to make that vehicle better and safer. In the future, as you plug in your hybrid vehicle, SAE standards will be there, too.

And, rest assured that Ed Manns, Jack Pokrzywa, and the entire SAE standards team will continue the tradition—the crucial tradition—of leading the mobility engineering industry in standards development.

From Automotive Engineering International Online, 16-Sep-2010

David L. Schutt, SAE Chief Executive Officer
SAE plugs its plug for EV charging

Because so few car models of the type are on the road yet, the ratio of electric vehicles to charging stations is healthy. Whether the ratio stays in balance remains to be seen.

A General Motors engineer who is in the thick of the matter believes that the good progress to date in development of a charging infrastructure owes heavily to standardization of the plug and in-vehicle receptacle that EV owners will use for charging. The engineer, Gery Kissel, is Chair of an SAE International task force that wrote and recently published J1772, the connector standard to be used in the U.S. and, he hopes, in many other places around the world.

“[We’re] just seeing an explosion of EVSE [electric vehicle supply equipment] infrastructure projects going in,” he told Automotive Engineering International. “You seem to hear about a different project being announced every day—in cooperation with certain cities, very frequently. I don’t think any of that could have been done unless we had the standard in place. It’s having an impact I didn’t quite foresee, and it’s given people opportunity to do things a little bit quicker than what may have been previously anticipated.”

The J1772 coupler (includes the plug and the vehicle receptacle) currently addresses Level 1 (120 V) and Level 2 (240 V) charging. The standard is also used in Korea and in Japan, where several EVs from major automakers already are on sale. J1772 accommodates any country’s electrical system, said Kissel, whose title at GM is Engineering Specialist, RSS Charging Systems, Charging Codes, Standards, and Infrastructure.

He noted that China has come out with its own coupler standards, at least for now as the country carries out EV fleet demonstrations. “I’ve been starting to have very good dialogue with China and trying to harmonize [our standards] as we go forward,” Kissel said.

The group in Europe that is working on a connector standard is the IEC (International Electrotechnical Committee). Its proposed IEC62196 has three specifications, according to Kissel, and is expected to be adopted next fall. One specification is the same as J1772, with the others accounting for differing requirements among European countries, including availability in some of three-phase electricity for fast charging.

SAE hopes J1772 becomes the main global standard for all types of charging. Kissel said that some European OEMs are incorporating the J1772 specifications into their EV designs because the standard is well established. He noted that J1772 is a good solution for Europe because there is no other established standard there and because there are no “completed production tools” for the proposed IEC connectors, "where with the SAE standard, you can actually go out and buy the [Level 1 and 2] connector and plug-in receptacle today."

But it's not clear that J1772 will win out. Richard Lowenthal, CEO of charging station maker Coulomb, said his company’s biggest client is the city of Amsterdam, whose 120 stations will be equipped with something other than a J1772 connector. “In the U.S., everyone pretty much wants J1772. The story is over,” he said. “In Europe, not so much.”

However things pan out in Europe, at least the J1772 physical interfaces and communication protocols will be the same between the SAE and IEC plugs, said Kissel. The main difference would be in the plastic housing.
Kissel noted that Europe hopes to move from the three couplers in the current draft standard to a single one by 2017.

Also unresolved in terms of global harmonization is a standard for fast charging. Only in Japan is such a standard in place. Kissel said his J1772 task force is working feverishly to develop a dc fast-charging standard. Most of his task force members want to see J1772 updated so a single plug can accommodate both dc fast charging and the slower ac charging of Level 1 and 2, Kissel said, “but it’s a very big challenge.” He noted that pins would have to be added to the current five-pin J1772 plug, and as a consequence it would have to be larger.

The task force is also considering how to incorporate features of, or perhaps outright adopt, the Japanese fast-charge standard. Either way, the goal is to have one plug for all types of charging so vehicles need not be designed with two space-eating receptacles, Kissel said.

Coulomb and ECOtality are developing dc fast chargers, and the latter will be installing such units as part of its EV Project. But Level 2 is where the real action is in the short term.

From Automotive Engineering International Online, 15-Sep-2010

NHTSA aligns rule with SAE EV standard

The U.S. National Highway Traffic Safety Administration has revised its rule addressing electrolyte spillage and electrical shock protection for electric-powered vehicles to align more closely with SAE J1766, Recommended Practice for Electric and Hybrid Electric Vehicle Battery Systems Crash Integrity Testing, issued by the SAE Fuel Cell Standards Committee. The standard currently requires manufacturers to design their vehicles so that, in the event of a crash, a vehicle’s propulsion battery system will be electrically isolated from the vehicle’s electricity-conducting structure. As amended, the rule provides greater flexibility, requiring manufacturers to design their electrically powered vehicles so that, in the event of a crash, the electrical energy storage, conversion, and traction systems are either electrically isolated from the vehicle’s chassis or their voltage is below specified levels considered safe from electric shock hazards. The agency says that since the physiological impacts of direct current are less than those of alternating current, the rule specifies lower electrical isolation requirements for certain dc components than for ac components. The current standard does not recognize the difference in safety risk between dc and ac components.

As requested by the Alliance of Automobile Manufacturers, the final rule now specifies electrical isolation requirements of 500 ohm/V for ac and dc high-voltage sources and 100 ohm/V for dc high-voltage sources with continuous monitoring of electrical isolation. The revised rule takes effect Sept. 1, 2011.

From Automotive Engineering International Online, 25-Jun-2010

Engineering Aids from SAE

SAE provides products that support testing procedures set forth in SAE standards, Recommended Practices, Information Reports, and other SAE documents including the OSCAR H-Point Machine, which is used in the design of seating and interior packages and in conjunction with SAE J 826 (rev. 1995), FMVSS regulations, and ISO standards—making it the required design and auditing tool for current production.

Also available is the newly designed HPM II H-Point Machine, which includes enhancements over the OSCAR H-Point machine for use in advance design applications.

Available at http://store.sae.org/ea/
SAE standards bring order to EV battery world

As electric vehicles of various types begin to appear in greater numbers over the coming years, danger to drivers, first-responders, mechanics, and others will grow right along.

SAE International is trying to limit the potential for danger by developing standards that cover everything from the design to the recycling of large advanced-technology batteries used in what for this article are called electric vehicles (EVs) but which include pure EVs and hybrid-electrics of different kinds. Battery standards are useful for several reasons, but safety is paramount.

“We’re running as fast as we can to develop these standards by assisting industry professionals in designing safe vehicles for the general consumer,” said Robert Galyen, Chair of SAE’s Battery Standards Committee and General Manager of the Battery and Materials Testing Group in the newly formed E-Car group at Magna.

In addition to the safety benefits to consumers and others who interface with EVs and EV batteries, another motive for developing standards in this area is the reduction of costs across “the entire food chain,” Galyen said. “Standardization helps drive costs down because they allow multiple battery manufacturers to make products of a similar form factor and rating so that vehicle manufacturers can produce lower cost product, and that lower cost can be passed on to the consumer.”

The standards also will make it easier for automakers to evaluate batteries, said Galyen.

Expectations of safer and lower-cost products apply not only to cars but also to trucks of all sizes. Standards are being developed to apply to the off-highway, aerospace, and marine industries as well.

SAE created the Battery Standards Committee in November in response to the fact that “emerging battery technologies are creating a new paradigm in the areas of materials, safety, performance, manufacturability, and shipping/transportation,” Galyen said. The organization already had in place many battery-related standards, which until then were under the domain of different SAE committees. “We wanted to get all battery standards under the same roof, so we could cover both cranking and traction applications,” said Galyen.

The work of developing new standards and updating existing ones has been taken on by about 140 volunteer engineers or other professionals from about 80 companies. The Battery Standards Committee has grown faster than any ever at SAE, according to Galyen, and currently is its largest. Each of 10 task forces is or will be working to develop new standards or updating outdated ones.

The Battery Safety task force is moving at “warp speed” to complete J2929, Electric and Hybrid Vehicle Propulsion Battery System Safety Standard, which is of “utmost importance,” said Galyen. The hope is that the standard will be put out for ballot by year’s end and published soon after. The others will follow, but there is no precise timeline, according to SAE.

With respect to standardization of battery/battery pack dimensions, Galyen hopes that too will come sooner rather than later as automakers are currently using different sizes.

Another standard of high priority is J1798, Recommended Practice for Performance Rating of Electric Vehicle Battery Modules. This is the document that will help automakers better determine which batteries are most suited to specific applications. Since J1798 is still under revision by the Battery Testing task force, the only publicly available portion of the revised document is the Scope: “This SAE Recommended Practice provides for common test and verification methods to determine electric-vehicle battery module performance. The document creates the necessary performance...continued on page 5
standards to determine (a) what the basic performance of EV battery modules is; and (b) whether battery modules meet minimum performance specification established by vehicle manufacturers or other purchasers. Specific values for these minimum performance specifications are not a part of this document.

Other standards at the work-in-progress stage include: J2758, Determination of the Maximum Available Power from a Rechargeable Energy Storage System on a Hybrid Electric Vehicle; J2936, Vehicle Battery Labeling Guidelines; J2946, Battery Electronic Fuel Gauging Recommended Practices; J2950, Recommended Practices (RPs) for Transportation and Handling of Automotive-type Rechargeable Energy Storage Systems (RESS); and J537, Storage Batteries.

From SAE Update, October 2010

**New standard sets best practices for measuring dry stopping distance**

The SAE Highway Tire Forum Steering Committee, chaired by William John Woehrle of Tire Forensics Investigations, has completed work on a document that will aid manufacturers and media organizations in evaluating and comparing vehicle and tire stopping distance performance. Specific to stopping distance performance on dry asphalt pavement in a straight path of travel, the standard is expected to significantly improve the accuracy and repeatability of performance results obtained among various organizations when used consistently.

J2902, Light Vehicle Dry Stopping Distance was developed with support and participation from NHTSA and US TAG for ISO TC 31-Tires and was sponsored by David Howland of General Motors. It is available for purchase at http://standards.sae.org/j2909_201005

**Safety of first responders during off-road tire fires is focus of standard**

A burning tire from an earth-moving may pose potential dangers to first responders and those nearby.

Because the potential danger is considerable, SAE International has published a report to help first responders and firefighters safely battle fires involving large, off-road vehicles.

**J2828—Off-Road Tire Fire Handling Guidelines** provides specific information to help ensure the safety of the machine operator, rescue personnel, and firefighters when battling an off-road tire fire. It also provides information on the causes of tire fires and methods to reduce the likelihood of such fires.

The guidelines were published with the assistance of the U.S. Department of Labor’s Mine Safety and Health Administration.

**J2828** was created by SAE’s Mtc8, Tire and Rim Committee and is available http://standards.sae.org/j2828_201004.

From SAE Update, September 2010
R-134a recovery and recycling service equipment standards updated

In December 2009, SAE International's J2788, HFC-134a (R-134a) Recovery/Recycling Equipment and Recovery/Recycling/Recharging for Mobile Air-Conditioning Systems was published. J2788 superseded the requirements of SAE J2210, HFC-134a (R-134a) Recovery/Recycling Equipment for Mobile Air-Conditioning Systems to reduce refrigerant emissions during servicing and provides requirements for charging refrigerant into mobile air conditioning systems.

In October 1995, SAE International's J1770 automotive refrigerant recovery/recycling equipment intended for use with both R-12 and R-134a was issued. This equipment does not meet current start of art to assure refrigerant recovery from the MAC system and does not provide any method to assure the system is accurately recharged with refrigerant.

Both J1770 and J2210 Standards have been canceled because they don't meet current industry refrigerant containment of emissions criteria when recovering and charging R-134a refrigerant during service of MAC systems.

SAE International's Interior Climate Control Standards Committee has developed requirements for the new R-1234yf refrigerant to be used in future MAC systems. Among the new SAE standards is J2843, R-1234yf Recovery/Recycling/Recharging Equipment for Flammable Refrigerants for Mobile Air-Conditioning and J2851, R-1234yf Refrigerant Recovery Equipment for Mobile Automotive Air-Conditioning Systems. It is anticipated that the new R-1234yf SAE Standards and Recommended Practices will be published in 2011.

This past June, the committee conducted a "Mobile Air Conditioning Indirect Emissions Workshop" in conjunction with the SAE 2010 Automotive Refrigerant and System Efficiency Symposium in Scottsdale, Arizona, USA.

The purpose of the workshop, which featured presentations and panel discussions, was to begin discussions on the establishment of a common global industry standard that can be used to identify increased load on a vehicle's engine due to air conditioner usage, measuring this impact on vehicle fuel efficiency and CO2 emissions.

Regulatory agencies such as the U.S. EPA and the California Air Resources Board have discussed the benefits of such a proposed standard with the Interior Climate Control Standards Committee, indicating that a common test procedure to determine indirect emissions caused by Mobile Air Conditioning systems would result in environmental and economic benefits globally.

An economical pathway for joint venture research: the Cooperative Research Program of SAE

Cooperative research ventures serve to bring more minds to the challenges and issues faced by industry. The result is a more robust project than each participating organization could complete independently. The pooling of financial resources also affords each participant more efficient use of their research budgets and eliminates duplication of efforts. Whether moving forward on the development of fuel cell standards…researching alternative refrigerants to HFC 134a…or developing a database of human body measurements to foster ergonomic designs, SAE’s Cooperative Research Program can assist your company in its collaborative research needs.

To learn more contact Gary Pollak, Program Manager +1-724-772-7196; gary@sae.org
Volunteer spotlight: SAE Awards

Technical Standards Board Outstanding Contribution Award

This award recognizes individuals for outstanding service in the technical committee activities of the Society. This includes valuable contributions to the work of SAE technical committees, unusual leadership in the activities of an SAE technical committee, significant contributions as a representative of the Society to the accomplishments of technical committees of other organizations or of government agencies, and outstanding contributions to SAE technical committee work in the form of research, test methods and procedures, and/or development of standards. It is administered by the SAE Technical Standards Board.

Construction, Agricultural & Off-Road Machinery Council

Thomas Ihringer, Bobcat Co.

Stan Mullins, Retired, Charles Machine Works Inc.

Truck and Bus Council

Jim Clark, Vehicle Brake Systems Consulting LLC

Charles Groeller, Retired, Mack Trucks Inc.

Tom Sheikh, Carlisle Motion Control Industries Inc.

Bobcat’s Thomas Ihringer receiving the Technical Standards Board Outstanding Contribution Award from SAE International Commercial Vehicle President Ric Kleine at the recent SAE Commercial Vehicle Congress.

Delivery options for SAE Technical Standards

- Handbook Supplements (HS) – Bound collections of technology related standards and reports offered at less than the collective price of the individual standards in the collection.
- JPaks - Online Standards Plans – A customizable subscription plan that lets you pay for just the documents you need and use, full text search capabilities and an alert page keep you aware of changes and updates.
- Standards on CD-ROM – An entire SAE standards library in a medium that is fast, easy to use and remains current throughout the year.
- Databases and customizable corporate solutions.

For detailed information, visit http://standards.sae.org/
Wheel conformance program and registry to launch

The wraps are about to come off a program under which wheel makers whose aftermarket rims meet SAE's J2530 standard get an opportunity to distinguish themselves and their products from wheel makers and products that do not meet the standard.

The SAE program is voluntary, so if a wheel maker has one or more rims that meet J2530, it can choose to have the rim(s) listed in an online registry/database. The registry will be created and maintained by SAE as a consumer aid and will feature free access to basic information including the list of participating companies and basic test results. There will be a charge (not yet established) for more detailed information.

"SAE recognizes that the Internet is a powerful and easy-to-access resource for consumers," said John Kinstler, Vice President (retired) of Engineering at Hayes Lemmerz International and Chair of the Aftermarket Wheel Test Certification Conformance task force of the SAE Wheels Committee. "What makes our online wheel registry even more valuable is that it will serve as a resource for professionals within the rim industry as well as everyday consumers."

Participating companies will be permitted to place an SAE logo on rims that conform to J2530, providing another visual distinction (in addition to registry listing) from products that do not conform to J2530 (or that do conform but have not been submitted for listing in the registry). Companies may choose not to participate or to submit only certain wheels for the registry. It is SAE's hope that all wheel makers will take full advantage of the registry. To participate, a wheel maker would pay an initial $200 entry fee, then a $100 annual renewal fee. There also will be a fee (to be determined) for each wheel family registered.

Wheel makers currently may stamp onto their rims "J2530" if they comply with the standard. But it is only by participating in the registry that they may also use an SAE logo, which is now being designed.

SAE will not conduct the wheel testing, but it will accredit facilities to do so. Wheel makers may conduct the testing themselves, or they may outsource it. Either way, information confirming that testing for a particular wheel family was conducted in accordance with procedures spelled out in J2530 must be submitted.

The wheel-registry program is similar in some ways to SAE's power rating program under which companies can have their engines tested for conformity with the relevant SAE engine standard (J1349 – Engine Power Test Code – Spark Ignition and Compression Ignition – Net Power Rating). In that program, the goal is to draw a distinction between one automaker's unverified engine rating claims and another automaker's SAE-verified claims. In both programs, participating companies may place the SAE logo on their qualifying products and tout SAE verification in written materials.

SAE has completed almost all of the legwork to implement the first phase of the wheel program, which is to activate the online registry website and begin listing all wheel manufacturers that choose to participate. As part of this phase, participating wheel makers will have to submit the mark they use on their wheels. SAE hopes to complete phase one in the next month or so.

It could be a matter of only a few weeks after phase one is implemented that phase two can begin. In phase two, wheel makers will be able to submit test data for their various rims. Once determined by SAE that the test data proves conformance to J2530, a wheel maker will be permitted to put the SAE mark on the conforming rims.

J2530 was adopted by SAE near the end of 2009. Some wheel makers already have J2530 test data for their existing products, Kinstler said. "Wheels can be grandfathered in with previous testing results if done by a certified laboratory. Therefore, we would expect a large number of wheels to be listed [in the registry] in a shorter period of time than necessary to retest wheels."

Alcoa's Classic Dually is available in 16- and 17-in sizes. All Alcoa wheels meet the J2530 standard, according to the company.

...continued on page 9
“My Standards Tracking,” new benefit for SAE members

Anyone who uses SAE Standards will be interested in a new benefit launching soon for SAE Members only. “My Standards Tracking” will provide members with the ability to request email alerts with updates for selected documents. Standards for both the aerospace and ground vehicle sectors are included in this feature, and members can select individual documents or all documents by technical committee.

Once you select your SAE Standards, you will be kept informed of the status and know immediately when your documents are being updated. Email alerts will be sent for the following scenarios:

- **Revised** – Email Alert: At your request, SAE would like to notify you that a revision, for example, J1939 has begun. If you would like to get involved in drafting this revision, please contact SAE Customer Service at CustomerService@sae.org

- **Final Ballot** – Email Alert: At your request, SAE would like to notify you that the final ballot, for example, J1939 has begun. This document is nearing publication. A final email alert will be sent to you when it is published.

- **Published** – Email Alert: At your request, SAE would like to notify you that, for example, J1939 has been published. To purchase this document, go to http://www.sae.org/servlets/works/documentHome.do?comtID=TEAA21&docID=AIR5715A&inputPage=dOcDeTaIlS

- **New Project** – Email Alert: At your request, SAE would like to notify you that a project, for example, J1939 has begun. For details on this document, go to http://www.sae.org/servlets/works/documentHome.do?comtID=TEAA21&docID=AS9876&inputPage=dOcDeTaIlS

SAE Members will be able to add the “My Standards Tracking” link through EngineerXchange™. Watch for the announcement when this new SAE Member benefit is officially launched.

SAE: A Global Partner in Standards Development

In addition to the maintenance and development of its family of technical standards, SAE International is also an active partner with other standards development organizations, government agencies, and regulatory bodies to support the newest, most robust, and comprehensive standards products for a changing global marketplace.

- US Department of Transportation
- Society of Automotive Engineers of Japan (JSAE)
- German Electrical and Electronic Manufacturers Association (ZVEI)
- US Federal Highway Administration
- China Automotive Technology & Research Center (CATARC)
- National Highway Traffic Safety Administration
- Korean Agency for Technology and Standards (KATS)
- US Department of Energy
- Japan Automobile Research Institute (JARI)
- US Environmental Protection Agency
- Brazilian National Standards Organization (ABNT)
- American National Standards Institute (ANSI)
- Automotive Electronics Council (AEC)
- International Organization for Standardization (ISO); US representative

...continued from page 8

“The wheel industry is very aware that the wheel is a safety component in the vehicle,” Kinstler continued. “While most wheels are designed and manufactured to meet vehicle requirements, some wheels may not meet this requirement. SAE J2530 was created to ensure that the basic strength of the wheel is present.”

*From Automotive Engineering International Online, 08-Sep-2010*
### Construction, Agricultural & Off-Road Machinery Council

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### Fuels & Lubricant Council

**Fuel & Lubricants TC2**

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**Truck and Bus Control and Communications Network Committee**
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- J3001 Brake Shim Damping Procedure
- J3002 Dynamometer Low-Frequency Brake Noise Test Procedure

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- J2047 Tire Performance Terminology

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J2844 R-1234yf New Refrigerant Purity and Container Requirements Used in Mobile Air-Conditioning Systems

J2941 Service compressor oil for HFO–1234yf [R-1234yf]

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J2831 Development of Design & Engineering Standards for In-Vehicle Text Messages

J2944 Driving Performance Definitions

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J2039 Child Restraint Systems/Latch Terminology – Glossary of Terms

Dummy Testing And Equipment Committee
J2854 User’s Guide for the Six Month Old Infant Dummy - CRABI (EA-28)

J2855 Instrumented Arm User’s Manual (EA-36)

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A current schedule can be found on the SAE website.

http://www.sae.org/standards/

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Hybrid III 3-Year Old Child Dummy User’s Manual (EA-31)

Hybrid III Ten-Year-Old Child Dummy User’s Manual (EA-34)

Hybrid III Large Male Drawing Package (EA-32)

User’s Manual for the Hybrid III Large Male Test Dummy (EA-26)

CRABI Twelve- and Eighteen-Month-Old Infant Dummies User’s Manual (EA-27)

User’s Manual for the Small Adult Female Hybrid III Test Dummy (EA-25)

Calibration and Linearization methods for Potentiometers used in ATD

H-III5F Spine Box Update to Eliminate Noise

H-III5F Chest Jacket Harmonization

Performance Specifications for a 50th Percentile Male Pedestrian Research Dummy

Pedestrian Dummy Full Scale Test Results and Resource Materials

Linear Impactor Calibration Procedure

Rollover Test Methods

Linear Impact Procedure for Occupant Ejection Protection

Vehicle Sound Measurement at Low Speeds

Measurement of Minimum Noise Emitted by Road Vehicles

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High Voltage Shielded Primary Cable

Circuit Protection and Switch Device Steering Committee

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Fuses with Female Contacts – 32V System

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Automotive Electronic Systems Reliability Standards Committee

Modeling and Simulation methods for Automotive Electrical/Electronic Components and Systems

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Use of Model Verification and Validation in Product Reliability and Confidence Assessments

Acoustical Materials Committee

Laboratory Measurement of Random Incidence Sound Absorption Tests Using a Small Reverberation Room

Laboratory Measurement of Tortuosity and Characteristic Lengths of Acoustical Materials

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Standard Text File Format for Exchange of Stress-Strain Data from Tensile, Compression, or Fatigue Tests

Standard Text File Data Format for Reporting and Exchange of Lap-Shear / Coach-Peel Spot Welded or Point Fastened Specimen Fatigue Data

Standard Text File Data Format for Reporting and Exchange of Lap-Shear / Coach-Peel Fusion Welded Specimen Fatigue Data

Metallic Tubing Committee

Hydraulic Tube Assemblies Design and Fabrication

Hydraulic Tube Assemblies General Specifications and Performance Requirements

Hydraulic Tube Assemblies Procurement

Sheet and Strip Steel Committee

Categorization and Properties of Dent Resistant, Structural, High Strength Low Alloy, and Recovery Annealed Sheet Steels

Personal Watercraft Committee

Top Speed Measurement of Personal Watercraft

Ship Systems – Fasteners Committee

Fastener Specification – Vibration-Proof Bolt-Nut System
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The important work of the SAE Standards Development Program depends on people like you, volunteers from industry who give their time and expertise to serve on SAE technical committees. And, while the committees are some 7,000 volunteers strong, there is a current need for participants in the areas noted below.

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**Electrical** Circuit Protection Committee; Vehicle Electric Power Supply Committee

**Fuel Cells** Fuel Cell Performance

**Green Systems Technology Group** As related to chemicals and materials that are benign to human health and the environment; materials as related to sustainability.

**Materials** Acoustical Materials Committee; Metals Technical Committee; Carbon and Alloy Steels Committee; Automotive Adhesives and Sealants Committee; Plastics Committee; Spring Committee; Vibration Control Committee

**Powertrain** Starter Battery Committee; Gasoline Fuel Injection; Belt Drive; Battery Standardization

**Vehicle Engineering Systems** Odometer / Speedometer

**Vehicle Safety Systems** Safety System Components Standards Advisory Group; Inflatable Restraints Standards Committee

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Standards. The workhorse documents that commonize practices, processes, and products throughout the ground vehicle industry are also paramount to the advancement of technology. Standards documents are more than the practices of today. They account for history and anticipate the future of technology, regulation, and business. The direct benefits of standards are simple in concept but extraordinary in their global impact toward ever-safer, cleaner, more efficient worldwide transportation.

Technical standards enable and enhance:
- consistent and clear expectations for product performance and reliability
- regulatory compliance
- consistent product quality
- compatibility and interoperability
- more efficient procurement

Standardization also:
- lowers trade barriers
- lowers purchasing costs
- decreases design time
- promotes innovation
- increases new technology speed to market

Because industry can rely on standards for globally harmonized solutions to common issues, individual companies can devote more time and resources to advance their proprietary technology. In this way, standards help foster competition, which advances the collective technology of industry and in turn, creates the need for new and revised standards. This has been the cycle for ground vehicle standards solutions.

And, at the heart of those solutions is SAE International, the recognized leader in mobility engineering for over 100 years. It plays the central role in developing North American automotive standards and a key role in bringing US documents to the global standards table, working hand-in-hand with the global community to advance industry.

While participation in the standards development process helps the advancement of the industry it can also contribute to the advancement of your company and personal career.

Corporate Benefits
- Input into the direction of the standards
- Competitive intelligence through advance knowledge of standard direction
- Advance warning of pending regulations and influence over the technical basis of the regulation
- Insight into the competitive environment
- Product liability protections
- Strong relationships with customers and suppliers
- Association with the leading society for advancing mobility technology

Individual Benefits
- Professional development from continuous working contact with peers
- Peer recognition for advancing your industry's sectors technologies
- Excellent networking and learning opportunities from product developers/users around the world
- Discover emerging technologies
- Contribute to the industry's body of technical knowledge

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- Common Tests Technical Steering Cncl
- Heating & Cooling Systems
- Cold Weather Operations
- Human Factors Technical Advisory Grp
- Machine Controls - Operator
- Machine Display & Symbols
- Operator Seating and Riding
- Operator Accommodations
- Machine Technical Steering Cncl
- Loaders, Crawlers, Scrapers & Attachments
- Sweeps, Cleaner & Machinery
- Industrial Equipment
- Forestry & Logging Equipment
- Roadbuilding Machinery
- Tract Rmks
- Trenching & Boring
- Operator Protection Tech Advisory Grp
- Personal Protection (General)
- Blanking
- Lighting and Marking
- Protective Structures
- Sound Level Technical Steering Cncl
- Earth Movers Machinery Sound Level
- Back-up and Forward Warning Alarms

### Fuels & Lubricants Council
- Technical Committee 1 – Engine Lubrication
- Technical Committee 3 – Driveline & Chassis Lubrication
- Technical Committee 7 – Fuels
- Technical Committee 8 – Aviation Piston Fuels and Lubricants
- Industrial Lubricants

### Automotive Quality & Process Improvement Council
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- IMAC
- CRP150 Low GWP All Refrigerants Assessment
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- Gage R & R HPFM
- On-Road Diagnostics Standards
- Plastic Standards for use with H2
- Automotive Standards Development Programs
- H-Point Machines
- J2746 Software Assessment Repository
- WM/WIN
- WMC/PIN
- MAC Equipment Conformance

### Specialized Vehicle & Equipment Council
- Personal Watercraft
- Snowmobile
- Special Purpose Vehicle
- Motorcycle Technical Steering Cncl
- Motorcycle Sound
- Marine Technical Steering Cncl
- Marine Engine Fuel Systems
- Marine Electrical Systems
- Trailer
- Gooseneck & Fifth Wheel
- Trailer Dynamics
- Conventional Towing to 20,000lbs
- Trailer Terminology
- Ship Systems & Equipment Steering Cncl
- Fluid Systems & Components
- Fasteners
- System Cleanliness & Filter

### Motor Vehicle Council
- Engine Lubrication
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- Power Transmission & Propulsion
- Power Fluids & Tribology
- Powertrain Systems Group
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- All Wheel Drive Standards
- Automatic Transmission Friction Material Standards
- Automatic Transmission Transaxle
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- Battery Testing
- Safety
- Recycling
- Recycling
- Towing & Bus
- Diesel Exhaust Aftertreatment
- Diesel Fuel Injection Equipment
- Driveline
- Engine Power Test Code
- Filter Test Methods
- Fuel Systems
- Gasoline Fuel Injection
- Hybrid
- Electric Motor Rating
- Connector
- Communications
- Emissions
- Instrumentation
- Lcv II Filter Policy
- Assembly
- Manual Transmission Transaxle
- Perturbation
- Pinion
- Power Test Code
- Transmission Axle Driveline

### Vehicle Engineering Systems
- Chassis Systems Group
- Brake Forum Steering Cncl
- Brake Linings Standards
- Dynamic Test Code Standards
- Road Test Procedures Standards
- Brake NVH Standards
- Highway Tire Forum Steering Cncl
- Vehicle Dynamics Standards
- Wheel Standards
- Brake Fluids Standards
- Automotive Brake & Steering Hoses
- Hydraulic Brake Components
- Power Steering Pump Noise Steering Cncl

### Powertrain Systems Group
- Air Cleaner Test Code Standards
- All Wheel Drive Standards
- Automatic Transmission Friction Material Standards
- Automatic Transmission Transaxle
- Battery Committee
- Battery Testing
- Safety
- Recycling
- Recycling
- Towing & Bus
- Diesel Exhaust Aftertreatment
- Diesel Fuel Injection Equipment
- Driveline
- Engine Power Test Code
- Filter Test Methods
- Fuel Systems
- Gasoline Fuel Injection
- Hybrid
- Electric Motor Rating
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- Emissions
- Instrumentation
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- Assembly
- Manual Transmission Transaxle
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### Vehicle Electric Systems
- Automotive Electronic Systems Reliability
- Circuit Protection & Switch Devices
- Electrical Distribution Systems
- Electromagnetic Compatibility (EMC)
- Electronic Design Automation
- Embedded Software
- Sauer Motor
- Vehicle Architecture for Data Communications
- Vehicle E/E Systems Diagnostic
- Vehicle Electric Power Supply
- Vehicle Flat Panel Display
- Event Data Recorder

### Fuel Cells Standards Cncl
- Thermodynamics
- Performance
- Safety
- Service Development Technical Cmte
- Service
- Cell
- System
- Veh.
- Safety
- Graphics Based Service Info

### Truck & Bus Council
- Advanced & Hybrid Powertrain Steering Cncl
- Alternative Fuels
- Axle
- Chassis, Transmission & Power Take-Off
- Engines
- Hybrid & Electric Vehicle
- Hybrid Safety
- Hybrid Energy Storage
- Hydraulic Hybrids
- Fluid Conductors Connectors Steering Cmte
- C1 Hydraulic Tube Fittings
- C2 Hydraulic Hose & Hose Fittings
- Tire & Rims
- Stability Control Systems
- Air Brake Tubing & Tube Fittings
- Total Vehicle Steering Cncl
- Tire Pressure Management Systems
- Corrosion
- Vehicle Characterization
- Coupling & Interchangeability
- Noise
- Vibration and Harshness (NVH)
- Aerodynamic/Fuel Economy
- Tire

### Materials, Processes & Parts Council
- Automotive Corrosion & Prevention
- Acoustical Materials
- Fasteners
- Metals Technical Steering Cncl
- Carbon & Alloy Steels
- Metals Test Procedures
- Automotive Iron & Steel Castings
- Sheet & Strip Steel
- E TF Top Prop of Ferrous Metals
- Automotive Adhesives & Seals
- Plastics
- Spline
- Spring Steering Cncl
- Coil Spring
- Leaf Spring
- Pneumatic Spring
- Torso Bar Spring & Stabilizer Bars
- Textile & Flexible Plastics (IFA1)
- Fatigue and Durability
- Component Testing & Simulation
- Torsional & Hanger
corrections
- Ground Vehicle Reliability

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