

Ground Vehicle Standards Newsletter

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SAE International

Creating harmonized standards solutions. Moving the on- and off-road vehicle industry forward.

J1772™, new fast-charging “Combo Coupler” standard for PHEVs and EVs, released

SAE International's much-anticipated technical standard for plug-in hybrid electric vehicle (PHEV) and electric vehicles (EV) has been approved and published.

Developed in a consensus environment by more than 190 global experts representing the automotive, charging equipment, and utilities industries, as well as national laboratories, “J1772™: SAE Electric Vehicle and Plug in Hybrid Electric Vehicle Conductive Charge Coupler” enables charging time to be reduced from as long as eight hours to as short as 20 minutes.

“This new standard reflects the many hours that top industry experts from around the world worked to achieve the best charging solution – a solution that helps vehicle electrification technology move forward,” said **Gery Kissel, Engineering Specialist, Global Battery Systems, GM, and Chairman of the SAE J1772™ Task Force**, which developed and issued the standard. “We now can offer users of this technology various charging options in one combined design.”

“This new technical standard is a real game-changer,” **Andrew Smart**, Director of Industry Relations and Business Development for SAE International, said. “It reflects the advancements in technology within PHEV and EV engineering and we are pleased to represent the collaborative efforts within industry that made it possible.”

The original version of J1772™ defined AC Level 1 and AC Level 2 charge levels and specified a conductive charge coupler and electrical interfaces for AC Level 1 and AC Level 2 charging. The new revision incorporates DC charging where DC Level 1 and DC Level 2 charge levels, charge coupler and electrical interfaces are defined. The standard was developed in cooperation with the European automotive experts who also adopted and endorsed a combo strategy in their approach.

The standard permits automakers and other companies involved in the development and production of plug-in electric vehicles to use the same vehicle charge port for both traditional home chargers and the new fast chargers, which allow plug-in electric

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Photo of AC/DC Combo Coupler and Receptacle based on SAE 1772 TM courtesy of REMA USA LLC. REMA recently received UL certification to build J1772 equipment.

Table of Content:

J1772™, new fast-charging “Combo Coupler” standard for PHEVs and EVs, released.....	C1
J1772™ explained	C2
SAE partners with NREL to support hydrogen and fuel cell standards.....	2
V2V/V2I demo area opens in Michigan; uses SAE standard for wireless communications technologies.....	3
New ambulance standards for SAE	4
Heavy-duty OBD workshop held at SAE	4
New SAE committee chairs	4
Battery industry continues to grow, committees continue important standardization work.....	5
Martin C. Kapanowski receives Technical Standards Board Outstanding Achievement Award	7
China automotive regulations developments	7
Nominate a deserving individual for an SAE award... ..	8
SAE committees seeking experts and volunteers	8
SAE Ground Vehicle Standards “On the Road”	9
Volunteer recognition: document sponsors	10
New, revised & stabilized SAE standards.....	10

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World Headquarters, 400 Commonwealth Dr., Warrendale, PA 15096 USA; 1-724-776-4841

Automotive Headquarters, 755 W. Big Beaver, Suite 1600, Troy, MI 48084 USA; 1-248-273-2455

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Editorial Directors: Jack Pokrzywa, Keith Wilson

vehicles to fully charge in minutes (compared to the hours it takes with traditional chargers). U.S. and European automakers have already cooperatively designed the new Combined Charging System into their plug-in electric vehicles that will be coming to market in 2013.

The needs of electric vehicle users are varied. For example, some owners may wish to charge their vehicles at home using the household electricity supply. For longer trips these same motorists may also want to take advantage of the quicker charging time provided by high-speed public charging stations. The SAE Combined Charging System lets them plug into either type of charger using the same compact inlet, which fits into the space a fuel tank cap would occupy in a conventional car.

J1772™ explained

Adapted from an article previously published in Automotive Engineering International Online

By updating its standard related to the charging of electric vehicles, SAE International is doing its part to help advance the EV market by allowing for much faster charging times—as little as 20 minutes.

Formally approved October 2 after a vote of the relevant SAE committee members, revisions to “SAE J1772™: SAE Electric Vehicle and Plug-in Hybrid Electric Vehicle Conductive Charge Coupler” make it the only official DC charging standard worldwide, according to **Gery Kissel, General Motors Technical Specialist and Chair of the SAE J1772™ Task Force.**



Kissel told *Automotive Engineering International* that the lack of standardization to date has resulted in an unhealthy mix of charging systems—to ill effect for potential buyers of EVs and plug-in hybrids.

“If you don't have appropriate standardization,” he explained, “you're going to see continued fragmentation in the industry. That will lead to great confusion in the market and perhaps reduce customers' appetite for this type of technology. Standardization really helps anchor things.”

Central to the revised J1772™ is the so-called Combo Connector. The preceding version of the standard, adopted in 2010, spelled out the specifications for the J1772™ connector that is used for charging with AC power at comparatively low levels (AC Level 1 for 120-V charging and AC Level 2 for 240-V charging). The connector is in wide use today, being directly compatible with the Nissan Leaf, Chevrolet Volt, and Mitsubishi.

The Combo Connector (specifications for which are spelled out in the revised standard) maintains all of the functionality of the previous connector standard but includes two extra pins for the optional delivery of DC current for fast charging. The Combo Connector's big payoff comes in the future as automakers can equip their upcoming EVs with a single receptacle that can accommodate the smaller first-generation AC connector or the larger second-generation Combo Connector that can deliver AC or DC current at two different rates each.

Automakers will derive economies of scale related not only to the single-receptacle hardware, but also to the standardized digital communications technology behind it, according to Kissel. Similar economies of scale related to hardware and communications are expected “on the other side of the interface,” he said, referring to the Combo Connector and the charging stations in which they are used.





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Europe is heading in the same basic direction, though it lags the U.S. in the pace of standardization and uses multiple IEC/ISO standards to produce the same end result as the single J1772™, said Kissel. He prefers the generic term “combo charging system” to get across the idea that in both regions vehicles will be equipped to accommodate charging with first- or second-generation connectors. Each region's connectors differ in appearance, mainly because Europe's have two extra pins to accommodate the region's three-phase electrical system (vs. one-phase in the U.S.)—but the communications and control behind the region-specific hardware is identical. The two regions worked together to agree on a combo charging system approach.

The word “connector” is somewhat ambiguous in that a connector (or plug) is only half of the physical system. The other half is the vehicle receptacle. Together they constitute a coupler, and that is the term used in the official title of the standard.

Beyond DC fast charging, the newest J1772™ revision enables advanced digital communications to be conducted over one of the pins within the legacy portion of the combo connector. The ultimate effect of this revision is larger bandwidth (a “fire hose, where before there was a straw,” Kissel said) to enable larger data files to be downloaded quickly into the vehicle.

SAE J1772™ Charging Configurations and Ratings Terminology			
	AC Level 1 (SAE J1772™)		DC Level 1 (SAE J1772™)
	PEV includes on-board charger 120V, 1.4 kW @ 12 amp 120V, 1.9 kW @ 16 amp Est. charge time: PHEV: 7hrs (SOC* - 0% to full) BEV: 17hrs (SOC - 20% to full)		EVSE includes an off-board charger 200-500 V DC, up to 40 kW (80 A) Est. charge time (20 kW off-board charger): PHEV: 22 min. (SOC* - 0% to 80%) BEV: 1.2 hrs. (SOC - 20% to 100%)
	AC Level 2 (SAE J1772™)		DC Level 2 (SAE J1772™)
	PEV includes on-board charger (see below for different types) 240 V, up to 19.2 kW (80 A) Est. charge time for 3.3 kW on-board charger PEV: 3 hrs (SOC* - 0% to full) BEV: 7 hrs (SOC - 20% to full) Est. charge time for 7 kW on-board charger PEV: 1.5 hrs (SOC* - 0% to full) BEV: 3.5 hrs (SOC - 20% to full) Est. charge time for 20 kW on-board charger PEV: 22 min. (SOC* - 0% to full) BEV: 1.2 hrs (SOC - 20% to full)		EVSE includes an off-board charger 200-500 V DC, up to 100 kW (200 A) Est. charge time (45 kW off-board charger): PHEV: 10 min. (SOC - 0% to 80%) BEV: 20 min. (SOC - 20% to 80%)
Voltages are nominal configuration voltages, not coupler ratings Rated Power is at nominal configuration operating voltage and coupler rated current Ideal charge times assume 90% efficient chargers, 150W to 12V loads and no balancing of Traction Battery Pack			
Notes: 1) BEV (25 kWh usable pack size) charging always starts at 20% SOC, faster than a 1C rate (total capacity charged in one hour) will also stop at 80% SOC instead of 100% 2) PHEV can start from 0% SOC since the hybrid mode is available.			
			ver. 100312

SAE partners with NREL to support hydrogen and fuel cell standards

SAE International has contracted with the National Renewable Energy Laboratory (NREL) to support the coordination and development of hydrogen-related standards for fuel cell-powered vehicles.

Under the agreement, titled "Vehicle Codes and Standards for the Commercial, Hydrogen, and Fuel Cell Products and Systems," SAE will submit quarterly technical progress reports to NREL, which detail coordinating activities plus issues affecting the development and/or harmonization of international and domestic standards. These reports are also shared with the U.S. Department of Energy (DOE).

This effort provides support for NREL's national leadership in facilitating the development of hydrogen and fuel cell-related codes and standards by the appropriate standards developing organization (SDOs) and code developing organizations (CDOs), and incorporation of needed hydrogen and fuel cell-related safety requirements into existing codes and standards.

Quarterly reports, which provide an overview of SAE Fuel Cell Standards Committee activities and any other issues needing NREL approval, are being prepared by **Mike Steele, Chair of SAE's Hydrogen Fuel Cell Committee** and Principal Engineer at Steele Consulting. A detailed summary report and a final technical report will also be delivered in the future.

Steele says that the Fuel Cell Standards committee has been working with NREL for years, and cites "J2719: Hydrogen Fuel Quality for Fuel Cell Vehicles" as a document that "could not have been put out without NREL participation." This standard was originally published in 2005, and revised in 2011. Another relevant standard currently under revision is "J2600: Compressed Hydrogen Vehicle Fueling Connection Devices."

Standards Consortium Administration

With over a century of experience providing the common engineering requirements for new mobility vehicles, SAE can be a key component in developing any consortium-based activity, providing the expertise and worldwide technological and human resources to help you turn your vision into a successful operating reality.

Each client maintains its desired degree of autonomy, flexibility, and control. Client/project-tailored services include:

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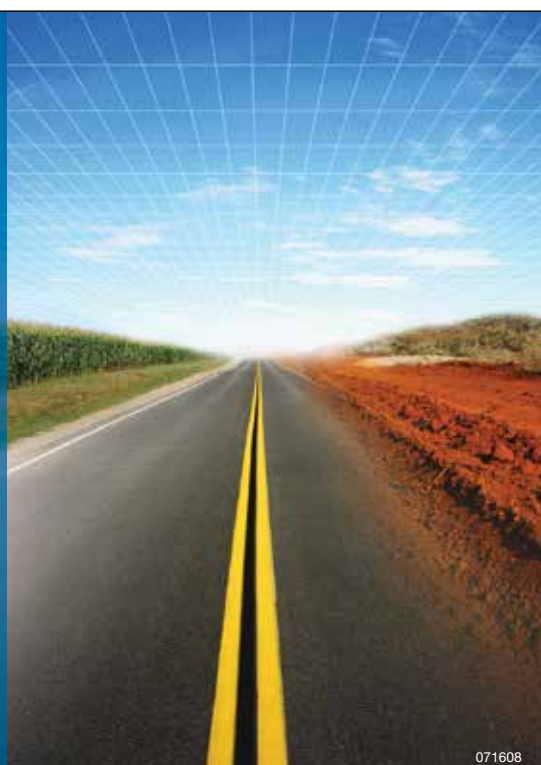
For On- and Off-Road Harmonized Standards Solutions, All Roads Lead to SAE

Since 1905, SAE International has been providing the common engineering requirements for new mobility products, advanced technologies, and applications. It is uniquely positioned to provide innovative standards solutions to the global on- and off-road industries and their engineering challenges.

For automotive vehicles, SAE plays the central role in developing essential North American emissions and safety standards to meet some of the most stringent regulations in the world. Through ISO, it plays a key role in bringing standards for and from the United States market to the global table. As the center of expertise on Commercial Vehicle/ConAgg standards development, many of its standards are adopted by ANSI and ISO.

SAE offers a full suite of standards capabilities—committee management, consensus-based standards development, consortium administration, cooperative research, and database development—providing industry, companies, and individuals with extensive opportunities to participate, influence, grow, and prosper.

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V2V/V2I demo area opens in Michigan; uses SAE standard for wireless communications technologies

Adapted from an article originally published in Automotive Engineering International Online

The August 2012 launch of a major real-life demonstration of vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) technologies in Ann Arbor, Michigan, U.S. is the largest-ever road test of connected-vehicle crash-avoidance technologies. Roughly 3000 cars, trucks, and transit buses are involved in the one-year project. Most of the vehicles are supplied by volunteer participants and equipped with vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) communication devices that will gather extensive data about system operability and its effectiveness at reducing crashes.

The test area consists of about 75 lane miles (121 km) of public roadway to the north and east of Ann Arbor, including highway. According to the U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA) unit, V2V safety technology could help drivers avoid or reduce the severity of four out of five unimpaired vehicle crashes. To accomplish this, the Ann Arbor road-test vehicles will send electronic data messages, receive messages from other equipped vehicles, and translate the data into a warning to the driver during specific hazardous traffic scenarios such as an impending collision at a blind intersection, a vehicle changing lanes in another vehicle's blind spot, and a rear collision with a vehicle stopped ahead.



The status of upcoming traffic signals will be communicated to drivers. (U.S. DOT)

The road test will produce empirical data for determining the technologies' effectiveness at reducing crashes. These capabilities will also be extended to a limited set of applications in which vehicles will communicate with roadway infrastructure. The information collected from the demo will be used by NHTSA to determine whether to proceed with additional V2V communication activities, including possible future regulations.

The V2V and V2I Test Bed enables network users to send SAE J273 ("Dedicated Short Range Communications (DSRC) Message Set Dictionary") compliant road sign, advisory and probe data management messages to vehicles, and enables the distribution of J2735 compliant probe data from vehicles through roadside equipment to network user subscribers.

"It is essential that common standards and security framework be established for V2V and V2I technologies so that vehicles from different automakers can communicate and interoperate with each other in a consistent manner," said Nady Boules, Global R&D director of General Motors' Electrical and Control Systems Research Lab. Originally issued in 2006 and revised in 2009, J2735 is under review for possible further revision. Several related standards are also in development.

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



New ambulance standards for SAE

SAE's Truck and Bus Council will be the administering Standards Developing Organization (SDO) for the standards activities of the Ambulance Manufacturers Division (AMD) of the National Truck Equipment Association (NTEA).

Experts from AMD met with SAE's Truck and Bus technical committees during the recent SAE Commercial Vehicle Engineering Congress. SAE will acquire and become the administering SDO for safety standards related to interior equipment placement, patient and worker restraints, and patient compartment structural integrity.

Acquisition of this activity will provide SAE with as many as eight new standards, plus numerous work projects, which will lead to additional future standards. Ambulance safety experts will also serve on existing SAE committees and new committees. Additional projects were also identified that will position SAE as the leader in occupant safety standards for ambulances.

Heavy-duty OBD workshop held at SAE

The Environmental Protection Agency (EPA) participated in a Heavy-duty On-board Diagnostics Workshop, which was held at SAE Automotive Headquarters in Troy, Michigan on August 10. Workshop attendees were members of **SAE's J1939 Hybrid Communications Task Force**.

Mike Sabourin, Program Engineer in the Compliance Division, Office of Transportation and Air Quality at the EPA, presented information regarding new certification demonstration requirements that will provide assurance that any hybrid system used with a heavy-duty on-highway engine will not interfere with that engine's on-board diagnostic system. These new requirements are spelled out in 40 CFR 86.010-18(q).

New SAE committee chairs – thank you for your important volunteer efforts

Jason Leuschen, National Research Council of Canada, Chair, SAE Truck and Bus Aerodynamics and Fuel Economy Committee

Peter Kilcline, PACCAR, Vice Chair, SAE Truck and Bus Aerodynamics and Fuel Economy Committee

Chuck Trueman, PACCAR, Chair, SAE Truck and Bus Brake and Stability Control Steering Committee

Bob Larsen, OboTech LLC, Chair, SAE Green Racing Committee

William (Bill) Cornish, Navistar Defense, Chair, Road Test Procedures Standards Committee

Mark Smith, Veyance Technologies, Chair, SAE Automotive Brake and Steering Hose Standards Committee

Francis Duffey, CCI Manufacturing - IL Corp, Chair, SAE Cooling Systems Standards Committee

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/>



Battery industry continues to grow, committees continue important standardization work

*In his fifth update from the **SAE Battery Safety Standards Committee** for the **Batteries International Magazine**, Chair Bob Galyen discusses an international view of battery standardization from his new base in China.*

I've made a big move clear across the world, yet my new job opportunity drives home the point that SAE International really is a worldwide organization. And this professional development for me fully supports the organization's global reach. ATL, Amperex Technology Limited (of which I am a Senior Technical Fellow), and CATL, Contemporary Amperex Technology Limited (the firm I recently joined as CTO), designs, manufactures, sells and markets rechargeable lithium ion/polymer battery cells and related battery packs and systems. ATL/CATL is advancing into electrical vehicles and electrical energy storage markets (which I am very excited about)!

My move also allows me to maintain two work days out of each 24-hour day (this is half a joke and but mostly serious!) – my “real time” office day in China, and checking in with our SAE International standards developments in the evenings when the U.S. is up and running. I'd like to think the extra hours are paying off and I am confident that rather than sitting on the sidelines and throwing rocks about what is not getting done, I've taken a proactive approach to accomplishing things.

I'm also pleased that my new employer, ATL/CATL is embracing the opportunity for me to remain at the helm of the SAE Battery Standards Steering Committee and encouraging me to create new synergies with Chinese standards with our SAE International standards. To that end, I will be liaisioning between SAE International and CATARC, the center for auto technology and research in China, which is the Chinese organization for testing, evaluation, and research in the auto industry. The organization is now expanding into the battery industry for all of the obvious reasons. Exciting stuff! Now that I am witnessing more movement and cooperation between the U.S. and China, I would also like to see more coordination with European organizations.

Before I jump into the SAE committee updates, I want to cover some other goings-on that will impact our work. During the Battery Show in Michigan (November 13-15), I will chair a Second Life EV batteries panel featuring Arthur Holland of P3 North America, Dirk Spiers of ATC Drivetrain, and Steve Tolen of Indy Power Systems. I hope our panel will enlighten the audience on the opportunities in – and importance of – secondary use batteries. We will cover a range of topics from testing and qualifications to sorting, value chain analysis and recycling.

Everyone knows that when batteries in vehicles lose capacity and don't meet specs for the EV usage there is still about 80 percent capacity available. We want to ensure that as the EV vehicle industry grows, so does the business associated with secondary use (with standards) of those batteries.

Also, the 14th International Power Supply Conference and Exhibit from October 24 to 26 in Nice (Nice!) promises to bring you up-to-date on the latest in R&D, new products, recycling and ultracapacitors, among other topics. Both of these conferences will showcase where the industry is going in the next few years.

I also want to acknowledge the work achieved at the Fire Protection Research Foundation meeting on best practices for emergency responders in Washington in August. Well attended by professional fire personal and members of the National Automotive Alliance, the meeting resulted in an action plan for testing on battery packs and training for first responders.

On to the Committee updates:

Joern Tinnemeyer, committee chair for the **SAE Electronic-Fuel Gauge Committee**, reports that his committee is tackling one of the greatest issues of the e-car: range anxiety! “It is annoying if your cell phone runs out of power,” he writes. “It is inexcusable if your car does.” The committee works on standardization of the information flow from the individual cells to the driver. The challenge

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Upcoming Standards Technical Committee Meetings

A current schedule can be found on the SAE website.

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



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is to develop methods that take the large volume of information such as voltage, currents and temperature from hundreds of cells and furnishes it in an easy-to-read display that provides the time remaining until empty. A tall order.

Most important is addressing the concern on safety, as well as supplying the vehicle systems/user with the necessary state of the battery pack. We are trying to do this while also not limiting new technologies currently under development from being easily implemented in the future, says Tinnemeyer. A technical information report to be published this year will describe an aspect of battery fuel gauging which attempts to define how to depower or safely discharge an electric or hybrid battery. Such a procedure may be performed by first responders when an accident has occurred. It is of primary importance that the situation is safe if the discharge is needed, while at the same time ensuring the battery is not damaged in the process. The document classifies the type of event, and information available from the vehicle management system, and clarifies the decision on what level of discharge is necessary along with other diagnostic information, according to Tinnemeyer.

The **SAE Battery Materials Testing Committee**, headed up by **Dr. Monique Richards**, focuses on methodologies for the measurement of key properties of the various materials that go into making batteries. The committee is comprised of members with extensive materials testing expertise including those from national labs, material and battery suppliers, and automotive OEMs. The combined knowledge of these experts results in recommended practices for the testing of various materials necessary for successful battery function.

To clarify, says Dr. Richards, it is not the purpose of the committee to establish criteria for these test results, but instead to provide testing methods to help make necessary assessments. The initial focus of the committee has been on materials used in making lithium batteries. Members are presently completing activity on a Recommended Practice for Determining Properties of Li-Battery separator materials (J2983), expected to be published by the end of 2012. The next focus will be development of recommended practices for determining materials properties of cathode active materials, followed by those related to Li-battery electrolyte, anode active material and current collectors. Future efforts should extend to methodologies for testing materials in non-Li battery systems, says Dr. Richards.

The **SAE Battery Terminology Committee Chair Perry Wyatt** gives us the facts on an area that sounds simple, but simply is not. The committee is dedicated to defining and harmonizing the common use and application of terms relating to automotive batteries. Terminology covered includes automotive electrochemical energy storage systems at all levels; component, sub-component, subsystem and system-level architectures including terms pertaining to testing, measurement and system function related to energy storage. Currently the committee is finalizing J1715/2 Battery Terminology document which includes a comprehensive superset of terms relating to automotive energy storage. The document is targeted for publication in the second quarter of 2013.

Finally, the **SAE Ground Vehicle Technical Committee**, parent organization to the Battery Standards Committee, has issued a plea for help on two committees: the Capacitive Energy Storage Battery Committee, chaired by **Oliver Gross**, and the Propulsion Battery Field Discharge Committee, chaired by **Dom Gabrielli**. Participants in these committees are made up of OEMs, suppliers, consulting firms and government works. The newly formed capacitive group will begin discussing specifics for the development of SAE J-documents. The propulsion discharge people will focus on recommended practices to enable safe field procedures to determine if capability of field discharge of a propulsion battery is necessary and useful, and whether field discharge capability should be determined necessary and useful. This committee will also work on developing standardized methods, interfaces and design guidelines.

Martin C. Kapanowski receives Technical Standards Board Outstanding Achievement Award

Martin C. Kapanowski, global core brake engineering supervisor at Ford Motor Company, was presented with a Technical Standards Board Outstanding Achievement Award from SAE International at the 2012 World Congress.

The award recognizes individuals for outstanding service in the technical committee activities of the Society. This includes unusual leadership in the activities of an SAE International technical committee, significant contributions as a representative of the Society to the accomplishments of technical committees of other organizations or agencies, and outstanding contributions to SAE International technical committee work in the form of research, test methods and procedures and/or development of standards.

Kapanowski was recognized for his role as task force chair of "SAE J2879: Automotive Hydraulic Brake Tube Joints," which was published in 2011. For more than two years, he led the team generating the standard to address a perennial issue affecting the area of automotive brakes. As part of this effort, Kapanowski and his team conducted a thorough review of previous design standards, engaged in an in-depth study to diagnose issues with previous designs and captured the learnings in the comprehensive standard.

China automotive regulations developments

- A new version of the Chinese Safety and Technical Specifications for Motor Vehicles (National standards), GB 7258-2012, was recently released. This is the basic general safety standard for motor vehicles in China. It covers vehicle inspection, new car factory inspection, and imported motor vehicle inspection. The standard was updated to include technical safety requirements for large passenger vehicles, special motor vehicles, coach vehicles, public transportation and buses.
- Draft editions of two national standards, "gasoline for motor vehicles" and "diesel for motor vehicle" have been released for public review.
- A draft edition of the national standard "the marker of school bus," GB 24315-2009, has been released for public review.
- Five recommended national standards related to road vehicle fuse links have been submitted for public review.
- A subcommittee of the National Technical Committee of Auto Standardization has completed draft versions of "the technical standard of radio monitoring vehicle" and "the technical standard of radio administration vehicle" for public review.

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



Nominate a deserving individual for an SAE award

As our most valued resource, those engaged in SAE's mission are best qualified to identify outstanding achievements made by their peers. Look closely at those with whom you work. Honor their excellence and celebrate their dedication and consider nominating them for an SAE award related to the work of the SAE Standards Development process. Submit nominations at www.sae.org/awards. Need assistance with an award nomination? Contact the SAE Awards staff at awards@sae.org, 1-877-606-7323 (U.S. and Canada only) or 1-724-776-4970 (outside U.S. and Canada).

Technical Standards Board Outstanding Achievement Award - Administered by the SAE Technical Standards Board, 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. **Nomination Deadline: December 31.**

SAE committees seeking experts and volunteers

The **Propulsion Battery Field Discharge Committee** works to establish recommended practices to enable safe field procedures to determine whether capability of field discharge of a propulsion battery is necessary/useful, and if so, develop standardized methods, interfaces, and design guidelines to enable field discharge.

The current effort focuses on high-voltage propulsion systems in light-duty vehicles exceeding 60V DC. In addition to evaluating the value of standardized methods, interfaces and design guidelines, the committee will also consider required capability of any end-user expected to utilize developed field procedures. The committee will evaluate the value of standardization of various attributes such as: level of discharge sophistication ("smart"/"dumb"); interface characteristics; and level of required user training. Participants include OEMs, suppliers, consulting firms, government, and other interested parties.

The committee is actively seeking volunteers. If interested, contact Pat Ebejer (pebejer@sae.org or 1-248-273-4084) or visit <http://www.sae.org/standardsdev/participationReq.htm>.

The **Driver Vision Standards Committee** is responsible for developing and maintaining SAE standards, recommended practices and information reports related to road vehicle components and factors that affect an occupant's field of view. The committee also provides input to the International Organization for Standardization (ISO) Road Vehicle Technical Committee's (TC22) Visibility Subcommittee (SC17). Participants include OEMs, suppliers, consulting firms, government, and other interested parties.

To volunteer for this committee, contact Nikki Amerdes at namerdes@sae.org, or visit <http://www.sae.org/standardsdev/participationReq.htm>.

The **Aerodynamics and Fuel Economy Committee**, which reports to the SAE Total Vehicle Steering Committee of the Truck and Bus Council, and the **Air Brake Tubing and Tube Fittings Committee**, which reports to the SAE Brake and Stability Control Steering Committee of the Truck and Bus Council, are seeking members. For more information, or to express your interest in participating, contact Jana Wright (jwright@sae.org or 1-248-273-2456) or visit <http://www.sae.org/standardsdev/callforexperts.htm>.

The ISO TC127 USTAG **Earth Moving Machinery Technical Committee** is responsible for standards related to standardization of nomenclature, use classification, ratings, technical requirements and test methods, and safety requirements for earth-moving and related machinery. The committee is comprised of four subcommittees that create, prepare, and maintain all relevant specifications, standards and requirements for earth-moving machinery and oversee 155 published standards. The committee is currently looking for volunteers for academia and test laboratories. For more information, or to express your interest in participating, contact Jana Wright (jwright@sae.org or 1-248-273-2456) or visit <http://www.sae.org/standardsdev/callforexperts.htm>.

SAE Ground Vehicle Standards "On the Road"

Peter Byk, Ground Vehicle Standards staff member, presented the "Status of SAE EV Standards Development in the US" at the U.S.-China Electric Vehicle and Battery Technology Workshop in Boston, Massachusetts on August 23.

Joern Tinnemeyer, Chair of the SAE Battery Standards Electronic Fuel Gauge Committee, presented an overview of standards development activities by each of the 19 SAE battery committees at the EV Battery Technology Conference in Ann Arbor, Michigan on September 25-26.

Gary Pollak, Ground Vehicle Standards staff member, attended the Truck and Bus Council Meeting and participated in the Vehicle Health Management Industry Panel Discussion at the SAE Commercial Vehicle Engineering Congress on October 2-3 in Rosemont, Illinois.

Mary Doyle, Ground Vehicle Standards staff member, participated in the "Intersociety Materials Data Strategic Scoping Session" as part of the Materials, Science and Technology Conference and Exhibit in Pittsburgh, Pennsylvania on October 10. The session related to the government's "Materials Genome Initiative" launched in 2011.

Keith Wilson, Ground Vehicle Standards staff member, presented an overview of the Rechargeable Energy Storage System Cooperative Research Project at the 3rd Annual Electric Vehicle Safety Standards Summit on October 18, 2012 in Detroit, Michigan to provide information on an industry project for development of lithium ion battery safety standards.

Todd Macintosh, Chairman SAE Hybrid Vehicle First and Second Responder Committee presented an overview of the J2990 draft standard at the 3rd Annual Electric Vehicle Safety Standards Summit on October 18, 2012 in Detroit, Michigan.

Robert Galyen, Chairman of SAE Vehicle Battery Standards Steering Committee, provided an overview of standard development activities by each of the 19 SAE battery committees at the EV Update 2nd annual PHEV/EV Infrastructure and Business Japan 2012 conference, on October 30-31 in Tokyo, Japan.

The SAE MRB Cooperative Research Program partner meetings were held in conjunction with the SAE 2012 Thermal Management Systems Symposium on October 31 – November 1 in Scottsdale, Arizona. Ground Vehicle Standards staff member, **Gary Pollak**, Ground Vehicle Standards staff member, coordinated this meeting. The SAE ICCSC Standards Committee also met and Gary presented an update and details of SAE's new MAC Conformance Program.

Robert Galyen, Chairman of SAE Vehicle Battery Standards Steering Committee, will lead a panel discussion on "Second Life EV Batteries" at The Battery Show on November 13 in Novi, Michigan.



Automotive Research and Technology Center of Taiwan invited SAE to provide overview of current work in vehicle electrification standardization at their "2012 Electric Vehicles Verification Technologies Forum" on 16th October in Taipei. The Forum was attended by 200 Taiwanese engineers involved in implementation of the EV technologies in their domestic market. Following the overview, **Jack Pokrzywa**, Director of SAE Ground Vehicle Standards Business Unit, presented the audience with a prototype of a combo AC/DC charging coupler, which complies with the recently published SAE J1772™ standard.

Volunteer recognition: document sponsors (Aug 1 – Nov 1, 2012)

These following individuals have served as active committee members and have dedicated their time and talent in guiding the development of standards documents from the preparation of all drafts through balloting and publication.

Thank you.

Daniel Arens , Baldwin Filters Inc	Joseph Jaklic , Osram Sylvania Products
Joe Badger , JBI Corp	Steven Karamihas , Univ of Michigan
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Surface Enhancement Committee	J444_201209	Cast Shot and Grit Size Specifications for Peening and Cleaning	Revised	09/17/12
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MOTOR VEHICLE COUNCIL

Motorcycle Technical Steering Committee	J1306_201209	Motorcycle Auxiliary Front Lamps	Revised	09/11/12
Marine Technical Steering Committee	J960_201208	Marine Control Cable Connection - Engine Clutch Lever	Revised	08/20/12
	J961_201208	Marine Control Cable Connection - Engine Throttle Lever	Revised	08/20/12

Small Engine and Powered Equipment Committee	J1940_201210	Small Engine Power and Torque Rating Procedure	Revised	10/15/12
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Air Brake Tubing and Tube Ftg Committee	J246_201210	Spherical and Flanged Sleeve (Compression) Tube Fittings	Revised	10/23/12
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TRUCK & BUS COUNCIL

Truck and Bus Wheel Committee	J179_201209	Labeling - Disc Wheels and Demountable Rims - Trucks	Revised	09/27/12
Truck and Bus Windshield Wipers and Climate Control Comm	J198_201210	Windshield Wiper Systems - Trucks, Buses, and Multipurpose Vehicles	Revised	10/11/12

Truck and Bus Electrical Systems Committee	J1067_201208	Seven Conductor Cable - Truck and Bus	Revised	08/14/12
	J1455_201208	Recommended Environmental Practices for Electronic Equipment Design in Heavy-Duty Vehicle Applications	Revised	08/24/12
	J2222_201210	Coiled Electrical Cable - Truck and Bus	Revised	10/24/12

Truck Bus Control and Communications Network Committee	J1939/11_201209	Physical Layer, 250 Kbps, Twisted Shielded Pair	Revised	09/12/12
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Brake Dynamometer Standards Committee	J2707_201210	Wear Test Procedure on Inertia Dynamometer for Brake Friction Materials	STABILIZED	10/18/12
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Brake NVH Standards Committee	J3013_201210	Friction Material Elastic Constants Determination through FRF Measurements and Optimization	Issued	10/09/12
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Seat Belt Systems Standards Committee	J2287_201209	Recommended Design and Performance Standard for Seats with Integrated Lap and Shoulder Restraints	STABILIZED	09/12/12
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Children's Restraint Systems Committee	J1369_201208	Anchorage Provisions for Installation of Child Restraint Tether Straps in Rear Seating Positions	STABILIZED	08/06/12
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Cable Standards Committee	J1127_201210	Low Voltage Battery Cable	Revised	10/18/12
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	J1128_201210	Low Voltage Primary Cable	Revised	10/18/12
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	J156_201210	Fusible Links	Revised	10/18/12
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	J1654_201210	Unshielded High Voltage Primary Cable	Revised	10/23/12
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	J1678_201210	Low Voltage Ultra Thin Wall Primary Cable	Revised	10/08/12
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	J2183_201209	60 V and 600 V Single-Core Cables	STABILIZED	09/07/12
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	J2501_201209	Round, Screened and Unscreened, 60 V and 600 V Multi-Core Sheathed Cables	STABILIZED	09/07/12
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Spark Arrester Standards Committee	J335_201210	Multiposition Small Engine Exhaust System Fire Ignition Suppression	Revised	10/23/12
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Gasoline Fuel Injection Standards Committee	J1862_201210	Fuel Injection System Fuel Pressure Regulator and Pressure Damper	STABILIZED	10/15/12
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Cooling Systems Standards Committee	J1393_201209	Heavy Duty Vehicle Cooling Test Code	Revised	09/17/12
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Brake Fluids Standards Committee	J1703_201208	Motor Vehicle Brake Fluid	Revised	08/14/12
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	J1704_201208	Motor Vehicle Brake Fluid Based Upon Glycols, Glycol Ethers and the Corresponding Borates	Revised	08/14/12
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Highway Tire Forum Steering Committee	J1025_201208	Test Procedures for Measuring Truck Tire Revolutions Per Kilometer/Mile	STABILIZED	08/31/12
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	J1106_201208	Laboratory Testing Machines for Measuring the Steady State Force And Moment Properties of Passenger Car Tires	STABILIZED	08/31/12
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	J1107_201208	Laboratory Testing Machines and Procedures for Measuring the Steady State Force and Moment Properties of Passenger Car Tires	STABILIZED	08/31/12
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Hybrid - EV Committee	J1772_201210	SAE Electric Vehicle and Plug in Hybrid Electric Vehicle Conductive Charge Coupler	Revised	10/15/12
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	J2847/2_201208	Communication Between Plug-in Vehicles and Off-Board DC Chargers	Revised	08/20/12
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	J2931/1_201209	Digital Communications for Plug-in Electric Vehicles	Revised	09/07/12
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Road Illumination Devices Standards Committee	J3003_201209	Dimensional Specifications for General Service Sealed Lighting Units	Revised	09/11/12
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New, revised & stabilized SAE standards (Aug – Nov 1, 2012)

Committee	Doc	Title	Status	Pub Date
CONSTRUCTION , AGRICULTURAL AND OFF-ROAD MACHINERY COUNCIL				
Hydraulic Systems	J1277_201210	Method for Assessing the Cleanliness Level of New Hydraulic Fluid	Revised	10/02/12
	J931_201208	Hydraulic Fluid Power Circuit Filtration - Application & Methods	Revised	08/20/12
Electrical Components and Systems	J1614_201209	Wiring Distribution Systems for Off-Road, Self-Propelled Work Machines	Revised	09/13/12
Controls, Visibility, Anthropometrics, Accessibility	J1814_201208	Operator Controls - Off-Road Machines	Revised	08/20/12
Cranes and Lifting Devices Committee	J987_201208	Lattice Boom Cranes - Method of Test	Revised	08/20/12
MATERIALS, PROCESSES AND PARTS COUNCIL				
	J1086_201210	Numbering Metals and Alloys	STABILIZED	10/15/12
	J1120_201210	Spherical Rod Ends	STABILIZED	10/15/12
	J1259_201210	Metric Spherical Rod Ends	STABILIZED	10/15/12
	J1367_201210	Performance Test Procedure - Ball Joints and Spherical Rod Ends	STABILIZED	10/15/12
	J1610_201210	Test Method for Evaluating the Sealing Capability of Hose Connections with a PVT Test Facility	STABILIZED	10/24/12
	J1651_201210	Metric Yoke Type Rod Ends	STABILIZED	10/15/12
	J193_201210	Ball Stud and Socket Assembly - Test Procedures	STABILIZED	10/15/12
	J2213_201210	Metric Ball Joints	STABILIZED	10/15/12
	J490_201210	Ball Joints	STABILIZED	10/15/12
	J491_201210	Steering Ball Studs and Socket Assemblies	STABILIZED	10/15/12

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Signaling and Marking Devices Stds Comm	J2320_201210	Discharge Signal Lighting System	STABILIZED	10/15/12
Emergency Warning Lights and Devices Standards Committee	J1849_201210	Emergency Vehicle Sirens	STABILIZED	10/15/12
Light Duty Vehicle Performance and Economy Measure Committee	J1634_201210	Electric Vehicle Energy Consumption and Range Test Procedure	Revised	10/04/12
SAE IC Powertrain Steering Committee	J1073_201210	Spring-Loaded Clutch Spin Test Procedure	STABILIZED	10/23/12
	J1079_201210	Overcenter Clutch Spin Test Procedure	STABILIZED	10/23/12
	J1172_201210	Engine Flywheel Housings with Sealed Flanges	STABILIZED	10/23/12
	J1240_201210	Flywheel Spin Test Procedure	Revised	10/04/12
	J1456_201210	Maximum Allowable Rotational Speed for Internal Combustion Engine Flywheels	STABILIZED	10/23/12
J620_201210	J621_201210	Flywheels for Industrial Engines Used With Industrial Power Take-Offs Equipped With Driving-Ring Type Overcenter Clutches and Engine-Mounted Marine Gears and Single Bearing Engine-Mounted Power Generators	STABILIZED	10/23/12
		Industrial Power Take-Offs With Driving Ring-Type Overcenter Clutches	STABILIZED	10/23/12
Dummy Testing and Equipment Committee	J2859_201209	Hybrid III Large Male Drawing Package (EA-32)	Issued	09/26/12
	J2860_201209	User's Manual for the Hybrid III Large Male Test Dummy	Issued	09/27/12
All Wheel Drivetrain Standards Committee	J3011_201210	Measurement and Characterization of Electronically Controlled All-Wheel Drive/Driveline Coupling Systems	Issued	10/15/12
Belt Drive (Automotive) Systems Committee	J637_201208	Automotive V-Belt Drives	STABILIZED	08/14/12
Automatic Transmission Friction Standards Committee	J2490_201208	SAE No. 2 Friction Test Machine PVT Test	Revised	08/06/12
Battery Standards Starter Battery Committee	J1495_201208	Test Procedure for Battery Flame Retardant Venting Systems	Revised	08/06/12
Vehicle Dynamics Standards Committee	J1574/1_201210	Measurement of Vehicle and Suspension Parameters for Directional Control Studies	Revised	10/05/12
	J1574/2_201210	Measurement of Vehicle and Suspension Parameters for Directional Control Studies – Rationale	Revised	10/05/12
Wheel Standards Committee	J2283_201210	Mechanical and Material Requirements for One Piece Wheel Nuts	STABILIZED	10/18/12

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