



GROUND VEHICLE STANDARDS NEWSLETTER

Creating global, harmonized consensus-based solutions.
Moving the on- and off-road vehicle industry forward.

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FINAL REPORT OF SAE RESS PROJECT SUBMITTED

In November, SAE International submitted the Final Report for the “Safety Performance of Rechargeable Energy Storage Systems” (RESS) research project. This culminated a three year effort by SAE and its partners on the \$3.8 M National Highway Safety Traffic Administration (NHTSA) funded project.

The objective of this contract was to develop and document repeatable vehicle level safety performance test procedures to evaluate Li-ion battery performance with accurate boundary and/or test limit conditions when the battery is subjected to specific fault conditions or abuse mechanisms.

The following unique eight test procedures were developed as part of this project:

- 1) BMS Failure Mode Test: DC Charging Interface
- 2) RESS Isolation Stress Test
- 3) Single Cell Thermal Runaway Initiation (SCTRI) Test
- 4) Vehicle External Fire Test
- 5) Vehicle Pack Internal Fire Test
- 6) Vehicle Sequential Testing after 5000 Mile Preconditioning
- 7) Vehicle Water Immersion Test
- 8) Vibration with Thermal Cycling Test

The results of this Cooperative Research Project are expected to assist OEMs and suppliers assess their battery systems, and portions may be considered for the development of industry standards. Addressing rechargeable vehicle safety concerns through the development of advanced standards will aid in promoting the adoption of electric vehicles, hybrid electric vehicles, and plug-in hybrid electric vehicles, and improve vehicle safety, mobility and environmental performance.

All together, the final report consisted of 1,280 pages of detailed technical information. During the project, 25 indicant vehicle level tests were conducted and over 1 terabyte of test data was collected and analyzed.

In addition to SAE, project participants included vehicle OEMs, battery system suppliers, testing laboratories, a US national lab, a university, and industry consultants. The public release of the Final Report is anticipated in the second quarter of 2015.

NEW ENERGY VEHICLE FORUM INCLUDES PRESENTATIONS ON EV STANDARDS

The SAE 2014 New Energy Vehicle Forum was held September 24-26 in Shanghai, China. International experts discussed both technology and business development issues related to electric vehicles, plug-in hybrid vehicles, and fuel cell vehicles.

The event featured a presentation of SAE International's standards development activities and SAE's Rechargeable Energy Storage System (RESS) and EV/EVSE Interoperability Cooperative Research Projects. **SAE's Keith Wilson, Project Manager, Technical Programs, Global Ground Vehicle Standards**, gave an overview of the industry/government collaborative effort to develop Lithium-Ion based RESS safety performance testing methodologies, and the electrification challenges that SAE standards committees are working to resolve. Wilson also moderated a panel discussion on E-mobility opportunities and challenges.

A presentation on stranded energy by **Richard Byczek**, Global Technical Lead, Electric Vehicle & Energy Storage, Intertek, and an **SAE standards committee member**, provided an overview of the gaps identified in current electric vehicle standards and the ongoing efforts by industry and regulators to address these gaps related to stranded energy.

The event was unique in featuring both a technology track and a business track. The technology track covered topics including vehicle and powertrain technology trends, energy management, energy storage, fuel cells, and connectivity. The business development track, aimed at attracting investors and entrepreneurs, focused on topics such as finance, equity, investment capital and the risks and opportunities that investors and enterprises need to look at.

DSRC COMMITTEE WORKING ON STANDARD PROPOSED BY FEDERAL HIGHWAY ADMINISTRATION

In August, the **SAE DSRC (Dedicated Short Range Communication) Committee** issued "J3067, Candidate Improvements to Dedicated Short Range Communications (DSRC) Message Set Dictionary [SAE J2735] Using Systems Engineering Methods."

This candidate for a standard was submitted to SAE in 2013 by the U.S. Department of Transportation (USDOT) Federal Highway Administration as a recommendation for a comprehensive revision of J2735 ("Dedicated Short Range Communications (DSRC) Message Set Dictionary"), including documentation of the Systems Engineering (SE) process. The committee published this recommendation as a non-normative Information Report (IR) in the interest of exposing the recommendation to a large number of stakeholders. Although

the scope of this information report is focused on DSRC, these dialogs, messages, data frames and data elements have been designed, to the extent possible, to be of use for applications that may be deployed in conjunction with other wireless communications technologies. The IR does not replace J2735.

SAE's standards development program is supporting the USDOT's Intelligent Transportation Systems Joint Program Office's initiative regarding the development of connected vehicle technology standards. The DSRC committee is also working on the next version of J2735 (originally published in 2006 and revised in 2009). The committee is also developing "J2945, Dedicated Short Range Communication (DSRC) Minimum Performance Requirements," which will be a series of documents, each describing a specific message set's requirements.

SAE INTERNATIONAL

FOR ON- AND OFF-ROAD GLOBAL, 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. We are uniquely positioned to provide innovative, first-to-market 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, consensus-based standards in such critical areas as emissions and safety to meet the most stringent regulations around the world. As the recognized global center of expertise on Commercial Vehicle Construction, Agricultural, and Off-Road equipment/machinery, our standards are readily adopted by ANSI and ISO for implementation on an international level.

Recognized as an international Standards Development organization as defined by the World Trade Organization, SAE offers a full suite of standards development capabilities—committee or consortium administration, cooperative research, and database development—providing industry, companies, and individuals with extensive opportunities to participate, influence, grow, and prosper.

www.sae.org



USDOT CONNECTED VEHICLE PROJECTS PRESENTED AT SAE CONVERGENCE CONFERENCE

The United States Department of Transportation (USDOT) Intelligent Transportation Systems Joint Program Office (JPO) participated in the SAE 2014 Convergence Conference and Exhibition, held October 21-22 in Detroit, Michigan, with a special session and an exhibit showcasing the office's Connected Vehicle Reference Implementation Architecture (CVRIA) and Connected Vehicle Test Bed.

The JPO's Connected Vehicle Test Bed (known as the Southeast Michigan Test Bed) in Oakland County, Michigan is a federally-funded resource available to developers to test how connected vehicle technologies will perform under real-world operating conditions. The USDOT's Convergence exhibit booth featured a live demonstration (on a large screen monitor) of the facility's 5.9 GHz Dedicated Short Range Communications (DSRC) Vehicle-to-Infrastructure communications, as well as other information about the test bed.

The test bed provides cutting-edge technology for users to test a variety of connected vehicle applications, concepts, and equipment, including: connected vehicle infrastructure and components; safety, mobility, and environmental applications;

and security system operation. In recent years, the test bed has undergone numerous enhancements – including geographical expansion and technical and architectural updates – designed to support the connected vehicle industry's evolving needs for a testing and development environment.

Immediately prior to the conference, on October 20th, a half-day session led by Walton Fehr, Systems Engineering and Test Bed Manager at the Joint Program Office provided an overview of the CVRIA. This architecture identifies the key interfaces of a connected vehicle environment that will enable the identification and prioritization of standards needed to support connected vehicle implementation.

The CVRIA project is developing a set of system architecture viewpoints that describe the functions, physical and logical interfaces, enterprise relationships, and application dependencies within the connected vehicle environment. This effort will produce a prioritized list of interfaces to be considered for standardization, and a connected vehicle standardization plan for the development, modification or harmonization of the defined interfaces.

SAE INTERNATIONAL DIRECTOR ANDREW SMART PARTICIPATES IN PANEL AT ITS WORLD CONGRESS

Andrew Smart, Director of Society Programs and Industry Relations for SAE International, participated in the "Government and Policy" Chief Technology Officer Summit during the Intelligent Transport Systems (ITS) World Congress in Detroit on September 10th.

Smart was among five panel members who discussed policies surrounding new transportation technologies, including: guidelines and mandates needed for industry success; issues related to liability and driver responsibility; how harmonization between OEMs and suppliers can be achieved; and how cybersecurity is best addressed to protect safety critical systems.

"The commonality among the technologies and guidelines that affect all areas of mobility are technical standards," Smart said. "Standards are fundamental because without them, interoperability would come to a halt."

Smart discussed the "Connectivity: The Big Picture" study being created by SAE International. This study will explore many facets of connectivity, including inter-linked technologies across all industries and autonomy across all mobility.

MOBILITY CONNECTIVITY - THE BIG PICTURE

Presented at SAE 2014 Convergence by Andrew Smart, Director of Society Programs & Industry Relations, SAE International.

This briefing, based on current research, takes a broad view of connectivity and allows for identifying similarities and differentiating factors within key sectors of mobility – aerospace, automotive, and commercial. Addressing possibilities for transferring technologies, best practices, and learnings across sectors to solve future challenges, it serves as a foundation for mobility industry roadmaps as well as a guide for SAE activities in the area of connectivity.

Watch complete presentation now >>>



SAE INTERNATIONAL, CONSUMER ELECTRONICS ASSOCIATION, FORM COOPERATIVE PARTNERSHIP

In June, SAE International and the Consumer Electronics Association (CEA) signed a two-year memorandum of understanding to build a cooperative partnership in the standardization of vehicle electronics and consumer electronics to improve the driving experience. Both organizations will share information on existing and future standards development in the overlapping areas between consumer electronics and ground vehicles.

“This is an important step in SAE International’s continual efforts to reach out to and work with leading standards organizations around the world,” **Jack Pokrzywa, Manager of Global Ground Vehicle Standards, SAE International**, said. “We’ve received many requests for collaboration at our respective events, the International CES® and SAE Convergence. We are excited and look forward to our partnership with CEA.”

“The integration of consumer electronics products into the vehicle continues to advance,” said Dave Wilson, Vice President, Technology and Standards at CEA. “From navigation devices to rear-seat entertainment systems to aftermarket products that let consumers equip older vehicles with the latest technology, consumer electronics continue to play a very big role in the driving experience. CEA looks forward to working with SAE International to advance our mutual goal of making the driving experience exceptional.”

The Consumer Electronics Association (CEA) is the technology trade association representing the \$208 billion U.S. consumer electronics industry.

SAE STANDARDS ACTIVITIES DISCUSSED AT TAIWAN CONFERENCE

Jack Pokrzywa, Business Unit Leader, Global Ground Vehicle Standards, SAE International, gave a presentation on SAE’s current standardization activities at the Annual Conference of Taiwan’s Automotive Research and Testing Center (ARTC) on October 7th.

ARTC provides a range of testing, research, certification and consulting services to support the development of Taiwan’s automotive industry. In 2010, SAE International and ARTC agreed to conduct harmonized technical efforts in electric vehicle and plug-in hybrid electric vehicle standards development.

Pokrzywa provided an overview of SAE standards development related to connected vehicles, advanced safety, automated vehicles, cyber security, and other areas. He also discussed SAE’s Cooperative Research Program projects.

HEAR FROM DOCUMENT SPONSOR OF NEW STANDARD THAT DESCRIBES ALL LEVELS OF AUTOMATION.

Barbara Wendling SAE J3016 Task Force Chair



UPCOMING STANDARDS TECHNICAL COMMITTEE MEETINGS

A current schedule can be found on the SAE website.

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



RECOMMENDED GREEN RACING PROTOCOLS STANDARD REVISED

A revision of J2880 (“Recommended Green Racing Protocol”) was issued by the **SAE Green Racing Committee** in June. This standard establishes guidelines to be used by automotive racing series who seek recognition as a Green Racing Series.

J2880 aligns motorsports with evolving transportation demands, to promote and improve energy efficiency and diversity, and demonstrate environmental responsibility while supporting motorsport that is entertaining, exciting, cost effective and safe.

Technology development occurs under the demanding conditions of racing several times faster than in standard manufacturer vehicle development. Innovations in safety, durability and performance made by race cars are often transferred to production vehicles. As a result, motorsport is in a unique position to promote rapid technical innovation and testing and provide market exposure and acceptance of sustainable transportation technologies and alternative fuels.

SAE J2880:

- Provides sanctioning bodies with recommendations to help them align competition rules with the objectives of sustainable transportation
- Supports environmentally responsible and sustainable technology that is transferable to production vehicles



The Spark-Renault sRT_01E is the racecar used by all teams in the new all-electric Formula E series.

- Promotes environmentally friendly operations of motorsports venues, competition events, and racing team facilities
- Assists sanctioning bodies in the establishing a roadmap to increase green initiatives

Updated for the first time since 2008, J2880 identifies a range of technologies, fuels and operational procedures that support development of a sustainable future for both motorsports and personal mobility, and organizes them into a matrix of five Green Racing elements: Propulsion systems; Fuel/Energy Carriers; Energy Recovery; Improved Efficiency; and Emission Reduction. Within each element there are four possible levels of commitment: Core, Enhanced, Elevated, and Pinnacle.

TRUCK AND BUS WARNING SYSTEM TEST PROCEDURES IN DEVELOPMENT

SAE’s Truck and Bus Active Safety Systems Committee is working on the development of standard test procedures for lane departure warning systems, forward collision warning systems, adaptive cruise control systems, and autonomous braking systems.

Currently in development, J3029 (“Forward Collision Warning and Mitigation Vehicle Test Procedure”) will evaluate active vehicle systems that take control from the driver and decelerate the vehicle. These systems include (but are not limited to) adaptive cruise control systems, forward collision warning and mitigation systems, and fully autonomous braking systems for air braked tractors and air braked highway motor coaches over 10,000 lbs GVWR. The goal of this project is to develop a test procedure that can be considered in future regulation activity as an industry consensus procedure.

The committee is also working on J3045 (“Lane Departure Warning Systems Test Procedure”), which will establish a uniform, powered vehicle test procedure for lane departure warning systems used in highway commercial vehicles greater than 10,000 lbs (4,546 kg) GVW. Lane departure

systems utilize various methodologies to identify, track and communicate unintended lane departure warning information to the operator so that unintended lane departures can be prevented. This standard will outline a basic test procedure to be performed under ideal operating and environmental conditions, but will not define tests for all possible operating and environmental conditions.

“J3045 is a test procedure to evaluate lanekeeping performance of cutting edge driver assistance systems,” said **Dan Williams**, Chief Engineer, TRW, and **Chair of the Truck and Bus Active Safety Systems Committee**. “This standard was generated by a team of committed professionals and technology experts from vehicle manufacturers, suppliers, and test facilities.” This standard is expected to be published within a few months.

The Truck and Bus Active Safety Systems Committee is responsible for developing, reviewing, and approving SAE standards related to all types of active safety systems and their interfacing with operators and other vehicle systems.

FOUR AMBULANCE SAFETY STANDARDS PUBLISHED

Earlier in 2014, **SAE International's Truck Crashworthiness Committee** issued four recommended practices designed to enhance overall ambulance safety.

The four standards are:

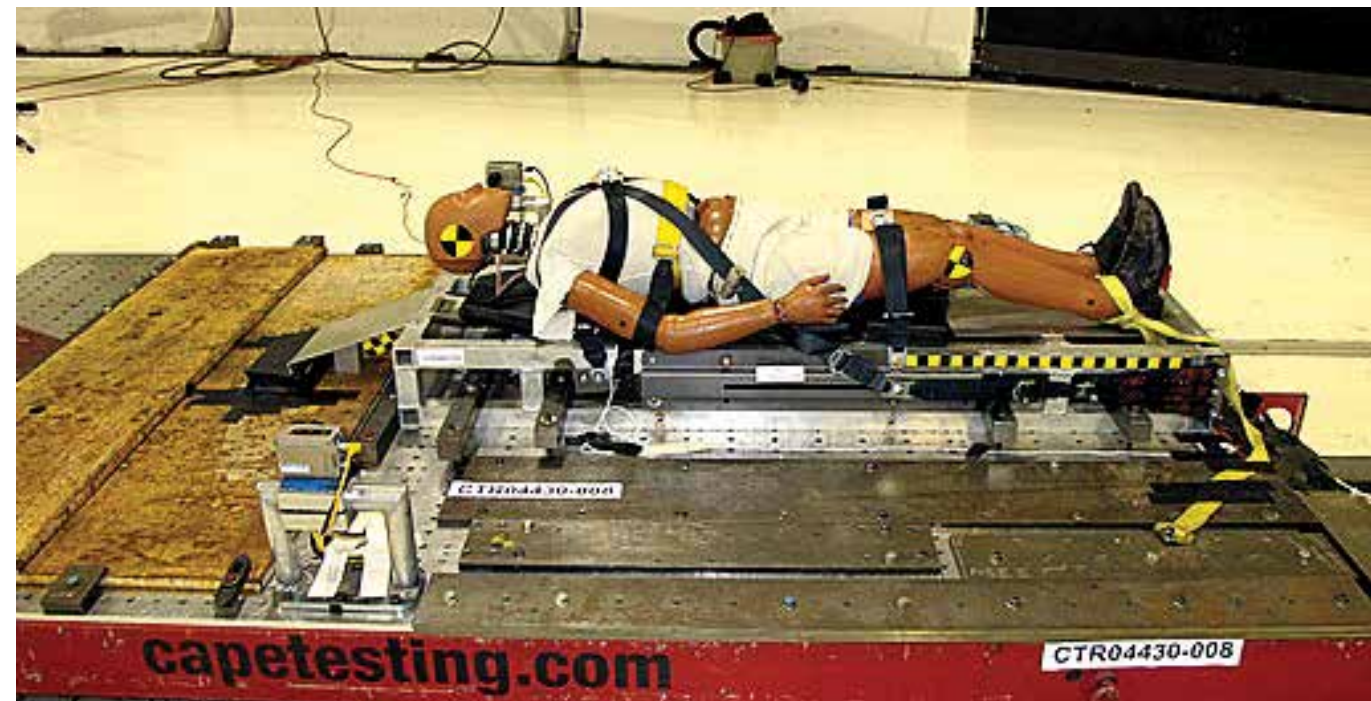
- J3026 ("Ambulance Patient Compartment Seating Integrity and Occupant Restraint"): Issued in August, this recommended practice describes the testing procedures that may be used to evaluate the integrity of ground ambulance-based occupant seating and occupant restraint systems for workers and civilians transported in the patient compartment of an ambulance when exposed to frontal or side impact.
- J3027 ("Ambulance Litter Integrity, Retention, and Patient Restraint"): This recommended practice, published in July, describes the testing procedures required to evaluate the integrity of a ground ambulance-based patient litter, litter retention system, and patient restraint when exposed to a frontal or side impact.
- J3043 ("Ambulance Equipment Mount Device or Systems"): Issued in July, this recommended practice describes the dynamic and static testing procedures required to evaluate the integrity of an equipment mount device or system when exposed to a frontal or side impact.
- J3044 ("Occupant Restraint and Equipment Mounting Integrity – Rear Impact System-Level Ambulance Patient Compartment"): This recommended practice, published in June, describes the test procedures for conducting rear impact occupant restraint and equipment mounting integrity tests for ambulance patient compartment applications.

These recommended practices were developed and issued by the **Truck Crashworthiness Committee** in conjunction with the National Institute for Occupational Safety and Health (NIOSH) and the Ambulance Manufacturers Division (AMD) of the NTEA, the Association for the Work Truck Industry.

"We are extremely pleased to be able to work with SAE International to create a home for this family of test methods," said Steve Spata, Technical Services Manager with NTEA, who contributed to the new documents. "These cutting-edge product validations represent the work of a multi-year government-industry partnership to improve the safety of ambulances and save the lives of our nation's EMS workers and their patients."

Jim Green, of the Division of Safety Research at NIOSH also contributed to the documents, and echoed the importance of safety. "The development of this family of SAE Recommended Practices exemplifies the value of industry and government combining resources and talent with a singular goal in mind – to improve worker and patient safety in a cost efficient and timely manner," he said.

These recommended practices were validated collaboratively by industry and government partners through extensive testing funded by the NIOSH, the Department of Homeland Security, and the Ambulance Manufacturers Division of the NTEA. Input loading was generated using the vehicle specific crash pulses described in SAE J2917 and SAE J2956. An independent analysis of the testing methodology and resulting data was performed by government and private members of the automotive testing community.



This is the sled test setup used to measure the patient (ATD's) excursion and biomechanical properties using a prototype restraint system. This test showed that it was possible to safely reduce occupant excursion from 30 in as seen on current production patient litters to less than 14 in as is required in the newly published SAE J3027. (National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention)

SAE PARTNERS WITH HISTORIC VEHICLE ASSOCIATION TO DEVELOP BEST PRACTICE GUIDELINES

SAE International's Motor Vehicle Council (MVC) has announced plans to work with the Historic Vehicle Association (HVA) to develop and document best-practice guidelines for the preservation, restoration, and responsible use of historic vehicles.

At the National Automotive Heritage Summit in Middleburg, Virginia in October, an SAE presentation about the establishment of a new SAE standards committee for this purpose was well-received. A diverse cross-section of HVA members, including top level restoration experts, historic vehicle museum/collection curators, automotive preservation consultants, and technical judges from leading Concours events, agreed to participate on this committee.

"For many people, automobiles are much more than just a way to get from one place to another; they are part of their history," **Gary Pollak, Program Manager, Ground Vehicle Standards for SAE International**, said. "This new agreement will enable us to provide the guidance and standards to help ensure those vehicles stand the test of time."

Mark Gessler, President of the HVA and Vice President of the Fédération Internationale des Véhicules Anciens, formally proposed the idea of creating guidelines to SAE International's Motor Vehicle Council this past spring.



"Saving America's automotive treasures requires thoughtful development of best practice principles," Gessler said. "We are pleased to be working with SAE International on this pilot effort to involve restorers, conservators and engineers in this important endeavor to preserve automotive heritage."

SAE International is looking for qualified people with the expertise and interest to serve on the committee and help develop guidelines. Those interested should contact Gary Pollak at gary@sae.org or 1-724-772-7196.

CHRYSLER HELLCAT ENGINE CERTIFIED AT 707 HORSEPOWER BY SAE CERTIFIED POWER PROGRAM

Chrysler's new 6.2-liter V8 Hellcat engine has been certified at 707 horsepower by SAE's Certified Power Program. The Hellcat engine is now the highest horsepower engine to be certified by SAE. The engine will debut in the 2015 Dodge Challenger SRT and the 2015 Dodge Charger SRT.

The SAE Certified Power Program provides engine manufacturers a process to certify their horsepower and torque claims via SAE-approved witnesses and in accordance to the SAE J1349 and J1995 standards.

Prior to the certification of the Hellcat engine, the highest horsepower engines certified had been the GM engine to be used in the 2015 Corvette Z06, Chrysler's engines used in the

recent Viper vehicles, and Ford's engines used in their Shelby Mustangs.



To date the Certified Power Program database contains over 285 different engines that have gone through the certification process. Manufacturers with engines listed include GM, Ford, Chrysler, Hyundai, FIAT and Kawasaki.

For more information on the Certified Power Program, visit www.sae.org/certifiedpower, or contact Gary Pollak, SAE Program Manager, at gary@sae.org.

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:

- A legal framework
- Fiscal oversight
- Policy and procedure development
- Publishing and distribution services
- Marketing and public relations activities

CALL FOR EXPERTS: LEND YOUR EXPERTISE TO THE DEVELOPMENT OF TOMORROW'S STANDARDS

SAE Advanced Safety Systems Committee

Working to develop appropriate industry standards to lay the foundation for advanced safety technology in passenger vehicles, this committee is seeking industry participation to develop related recommended practices. The committee work includes active safety sensor functionality and performance, CIB AEB uniform vehicle level test procedures, and establishing industry terms/definitions.

It is in need of persons who have backgrounds in electronic system development for active safety systems; testing and evaluation for these systems; research related to characterization of sensors for active safety; and crash data analysis.

Contact Nikki Ameredes ameredes@sae.org to express your interest.

Hybrid-EV Power Transfer System Task Force

The existing SAE conductive charging standards do not allow for vehicles to utilize three-phase AC power. Three-phase power transfer is targeted at commercial and industrial locations or other areas where such power is available. Grid stability is enhanced by presenting a symmetric three phase load, especially at high power levels.

A new SAE Hybrid Task Force, under the SAE Hybrid-EV Committee, will address this through document J3068, "Electric Vehicle Power Transfer System Using a Polyphase-capable Coupler. This standard will cover the general physical, electrical, functional, testing, and performance requirements for conductive power transfer to an electric vehicle using a coupler capable of, but not limited to, transferring three-phase AC power. It will define a conductive power transfer method including the digital communication system and, it will also cover the functional and dimensional requirements for the vehicle inlet, supply equipment outlet, and mating housings and contacts.

Contact Pat Ebejer at patriciaebejer@sae.org to express your interest.

Battery Systems Connectors Committee

An important challenge of the SAE Battery Systems Connectors

Committee is the development of guidelines and standards for battery system connectors and connecting systems that when followed will produce safe, reliable, durable, cost-effective, and recyclable battery system designs.

The committee is responsible for identifying good designs and design practices ranging from how cells are connected together to make a battery to how the batteries and the battery control and monitoring systems are connected together to form a battery system. The committee is to address the connectors and connector systems inside the battery system that would finally interface with the connector that interfaces with vehicle system outside of the battery system.

Relative to the EV connector system standards like SAE J1772 and IEC 62196, parts 1 and 2, the focus of the committee is on developing guidelines and standards for producing battery systems that would use connectors like these to interface with the vehicle or charging system external to the battery pack.

Contact Pat Ebejer at patriciaebejer@sae.org to express your interest.

Embedded Software Standards Committee

The SAE Embedded Software Standards Committee reports to the Electrical Systems Group of the Motor Vehicle Council. The Committee is responsible for developing and maintaining SAE Standards, Recommended Practices, and Information Reports related to in-vehicle software technical and business issues, based on input from automotive software experts of automotive OEMs, the automotive electronic module supplier base, embedded software providers, software tool providers, and consultants to the industry. SAE Embedded Software's industry-level goal is "to reduce automotive electronic system cost and development time through efficiency in software". The committee reduces automotive electronic complexity, raises industry awareness of embedded software development issues, and increases the knowledge level across the entire automotive software engineering community.

Contact Lorie Featherstone at lfeather@sae.org to express your interest.

NEW COMMITTEES, NEW COMMITTEE CHAIRS

Newly-formed committees

- Data Collection and Archiving Standards Committee
- Data Analysis Standards Committee
- Cross-cutting issues Standards Committee
- CISPR D USAG
- J1939 Functional Safety Task Force
- CXPI - Clock Extension Peripheral Interface (replaces former PICO Task Force)
- J3069 Adaptive Driving Beam Task Force

- J2442 Harmonized provisions for installation of lamps
- Command and Control Priority - Accel Decel Task Force
- J3068 EV Power Transfer System Task Force
- J1339 - Test Method for Measuring Perfor Eng Cooling Fans
- Battery Cooling Committee
- J3066 - TF - On-Brd Fuel Cons Measurement and Report Std
- J1542 Task Force - Lab Test Veh Ind Heat Ex Therm Cyc Dur
- ORAV Verification and Validation Task Force Meeting

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- Constant Speed Test Task Force
- Lumbar Flexion HIII 50th Task Force
- Automated Vehicle Task Force
- J1598 TF - Lab Tst Veh Ind Heat Ex for Dur Vib Ind Loading
- J1674 Early Acquisition_Preservation of info in a MV crash
- J1939 Baud Rate Detection Task Force
- Rollover Task Force
- J1739 Task Force
- 2 Pin Trailer Receptacle Task Force
- On Road Autonomous Vehicle Architecture and Interfaces
- J1939 CAN FD Task Force
- J817 Diagnosability Index Task Force
- Improved Headlamp Lens Durability Task Force
- Active Safety Pedestrian Test Mannequin Task Force

New chairs

Phil Cushman, Curt Manufacturing, Conventional Towing System Up to 20,000 lbs. Task Force

Adam Link, Link Engineering Co., China Brake Test Procedure Committee

Daniel Williams, TRW Commercial Steering Systems, Truck and Bus Active Safety Systems Committee

Michael Galyen, Eclipse Energy, Small Task Oriented Vehicle Battery Committee

Paul Dicke, GE Transportation, Cooling Systems Standards Committee

David Absher, Toyota NA, Secondary Battery Use Committee

Robert Vit, Daimler Trucks North America LLC, 2 Pin Trailer Receptacle Task Force

Anthony Giove, Rollover Task Force

John Halliwell, EPRI, Hybrid J1772 Connector Task Force

Ronald Tatlock, BKT Tires Inc., MTC8, Tire and Rim

Mark Rogus, Link Testing Laboratories Inc., Brake Rotor Thickness Variation and Lateral Runout Task Force

John McCarrick, Defense Supply Center Philadelphia, Ship Systems - Fasteners Committee

William Bortles, Kineticorp LLC, J1674 Early Acquisition, Preservation of Info in a MV Crash

Leslie Baynes, AKG, J1598 TF - Lab Tst Veh Ind Heat Ex for Dur Vib Ind Loading

Michael Lindstrom, ECCO Group, Complex Emergency Warning Devices Task Force

Bo Feng, Getman Corp, OPTC1, Personnel Protection (General)

Kevin Golsch, Exa Corporation, Constant Speed Test Task Force

David Wright, US EPA, J3066 Task Force - On-Board Fuel Cons Measurement and Report

Gary Pallach, Fiat Chrysler Automobiles, J1542 Task Force - Lab Test Veh Ind Heat Ex Therm Cyc Dur

Kathleen Allanson, Ford Motor Co., Controls and Displays Standards Committee

Eero Laansoo, General Motors Co., Controls and Displays Standards Committee

John Warner, XALT Energy LLC, Battery Size Standardization Committee

Dhawal Dharaiya, Hendrickson Trailer Suspension Systems, Truck and Bus Rotor Cracking Task Force

Thomas Forest, General Motors Co., Vehicle Electrical System Security Committee

Peter Abowd, Altia Inc., Embedded Software Standards Committee

Lars-Berno Fredriksson, Kvaser AB, J1939 Next Generation Task Force

Dennis Novack, Fiat Chrysler Automobiles, J575 Thermal Test (Underhood) Task Force

Daniel McGee, Accuride Corp., Truck and Bus J267 and Biaxial Testing Task Force

Peter Kilcline, PACCAR Technical Center, Truck and Bus Aerodynamics and Fuel Economy Committee

Rodney Mcgee, University Of Delaware, J3068 EV Power Transfer System Task Force

Craig Fanning, Elite Electronic Engineering Inc, CISPR D USAG

Scott Ziolek, Hyundai-Kia America Technical Center Inc., Human Accom and Design Devices Stds Committee

Mark Chmelar, John Deere Construction, MTC1, Loaders, Crawlers, Scrapers and Mounted Attachments

David Agnew, Continental Automotive Systems US Inc., Active Safety CIB_AEB Task Force

Paul Menig, Tech-I-M LLC, Truck and Bus Electrical Systems Committee

Robert Brocx, Red DOT Corp., HFTC6, Operator Accommodation

Joseph Kaltenbach, Pioneer Solutions LLC, OPTC2, Braking

Tim Meckstroth, Dexter Axle Co., Trailer Braking Standard Task Force

Tyler Kress, Best Engineering LLC, Data Collection and Archiving Standards Committee

David Plant, D P Plant & Associates, Data Collection and Archiving Standards Committee

Carol Flannagan, UMTRI, Data Analysis Standards Committee

Feng Guo, Virginia Tech, Data Analysis Standards Committee

Joerg Bakker, Daimler AG, Cross-cutting issues Standards Committee

Darrel Christian, Titanx Engine Cooling Inc., J1726-TF - Crg Air Cooler Internal Clean, Leak, Nomenclature

Kin Fung, Honda R & D Americas Inc., Brakes, Trailer Brake and Park Brake Task Force

James Misener, Qualcomm Technologies Inc., DSRC (Dedicated Short Range Communication) Tech Committee

Wayne Wilcox, Ship Fluid Systems Committee

VOLUNTEER RECOGNITION: DOCUMENT SPONSORS (MAY – SEPTEMBER 2014)

The 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.

Albert Fisher	Haldex Brake Products	Mark Coward	Triton Signal USA
Angelo Patti	Ford Motor Co.	Mark Harbold	Manitowoc Cranes Group
Carlos Agudelo	Link Engineering Co.	Mark Smith	Veyance Technologies Inc.
Charlels Moritz	Blachford Inc.	Mark Theobald	GM Powertrain
Charles Crowell	Caterpillar, Inc.	Michael Haldenwanger	General Motors Co.
Charles Groeller		Michael Meyer	Forza Silicon
Dan Richardson	Cummins Inc.	Michael Piscitelli	Sapphire Technical Solutions LLC
Daniel Fritz	JCI	Michael Traver	Aramco Services Co.
Daniel Moss	AEM	Nico Bouwkamp	California Fuel Cell Partnership
Daniel Selke	Mercedes-Benz USA LLC	Noelle Baker	Ford Motor Co.
Danny Minikey	Gentex Corp.	Patrick Merfeld	Terex Corp.
Donald Floyd	General Motors Co.	Paul Baltusis	Ford Motor Co.
Donavon Hetteen	Polaris Industries Inc.	Paul Johnston	
Edward Jacques	ETCO Inc.	Pete Chisholm	Mercury Marine
Frank Wassilak		Randy Dickerman	Chrysler Group LLC
Frederick Kelley		Rebecca Briese	Polaris Industries Inc.
Glen Scheffler		Richard Batzer	
Glenn Hermann	Third Coast Terminals	Robert Kado	Chrysler Group LLC
Gregory Gilham		Robert Larsen	OboTech LLC
James Fait	U-Haul Intl	Robert Puccia	ArcelorMittal
James Lackore	Oshkosh Corporation	Ron Haase	Dutton-Lanison Company
James Misener		Roy Link	Link Engineering Co.
Jeffrey Bauer	John Deere Dubuque Works	Scott Hatfield	Medtronic Inc.
Jesse Schneider	BMW	Steven Monthey	Rhein Chemie Corporation
Joe Greenslade	Industrial Fasteners Inst	Thomas Haley	Vermeer Corporation
John Lenkeit	Dynamic Research Inc.	Thomas Lockwood	Isuze Commercial Truck of America
Larry Bennett		Tim Chelli	Yamaha Motor Canada Ltd.
Luis Moreiras		Wayn Winch	PACCAR Inc.
Mark Brasch	Consolidated Metco Inc.	William Cornish	Navistar Defense

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... 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



GAIN A COMPETITIVE ADVANTAGE. IMPACT YOUR BOTTOM LINE. INVEST IN STANDARDS.

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

To learn more about SAE Technical Standards Development—and for a schedule of Technical Committee meetings—visit us on the web at <http://www.sae.org/standards/>

**Become a better you.
Volunteer for an SAE Standards Development Committee.**

COMMITTEE SHARES OVERVIEW OF SAE STANDARDS WORK AT AUTOMATED VEHICLES SYMPOSIUM

The 2014 Automated Vehicles Symposium was held in San Francisco, California this past July. Hosted by AUVSI and TRB, it focused on challenges and opportunities related to the increasing automation of motor vehicles as well as the environments in which they operate.

On Monday of the event, the **SAE On-road Automated Vehicle (ORAV) Committee** participated via a panel and audience discussion titled, "Automated Vehicle Standards & Best Practices," addressing standards and best practices for automated vehicles on public roads.

Focusing on the work being undertaken by the committee, panelists discussed the various activities being addressed including definitions and taxonomy, safety testing, verification and validation, human factors, interoperability, and legal

ramifications of on-road automated vehicles. The panel discussion was followed by an open forum for audience participation to discuss issues, standards, and best practices for automated vehicles.

Committee panelists included: **Paul Perrone**, Chairman, SAE On-road Automated Vehicle Standards Committee, Perrone Robot; and members **Barbara Wending**, Volkswagen Group of America; **Steve Underwood**, Connected Vehicle Proving Center at University of Michigan – Dearborn; **Amy Klinkenberger**, Hyundai-Kia America Technical Center; and **Dan Bartz**, Associate, Booz Allen Hamilton.

Over 75 participants joined the SAE committee-sponsored event. Copies of the session's presentations can be obtained by contacting Nikki Ameredes at nameredes@sae.org.

NEW AND REVISED GROUND VEHICLE STANDARDS (MAY-NOVEMBER 2014)

Document	Title	Status
J1336_201409	Hydraulic Cylinder Leakage Test	Revised
J1374_201409	Hydraulic Cylinder Rod Seal Endurance Test Procedure	Revised
J176_201409	Fast Fill Fueling Installation for Off-Road Self-Propelled Work Machines	Revised
J1702_201405	Self-Propelled Sweepers Sweep-Ability Performance	Revised
J2754_201405	Volumetric Rating of Excavator Mounted, Bucket Linkage Operated Grapples	Revised
J2399_201409	Adaptive Cruise Control (ACC) Operating Characteristics and User Interface	Revised
J2884_201406	Thermoset Elastomer Specification System	Revised
J3020_201405	Medical Device Shot Peening	Issued
J429_201405	Mechanical and Material Requirements for Externally Threaded Fasteners	Revised
J403_201406	Chemical Compositions of SAE Carbon Steels	Revised
J1828_201406	Uniform Reference and Dimensional Guidelines for Collision Repair	Revised
J213_201409	Motorcycle Classifications	Revised
J917_201409	Marine Push-Pull Control Cables	Revised
J1222_201408	Speed Control Assurance for Snowmobiles	Revised
J277_201407	Maintenance of Design Voltage - Snowmobile Electrical Systems	Revised
J3024_201408	Product Safety Signs for Ready Mixed Concrete Trucks	Issued
J2932_201409	Air Disc Brake Actuator Test Requirements	Issued
J2475_201407	Wheel End Assembly and Axle Spindle Interface Dimensions--Truck and Bus	Revised
J3026_201408	Ambulance Patient Compartment Seating Integrity and Occupant Restraint	Issued
J3027_201407	Ambulance Litter Integrity, Retention, and Patient Restraint	Issued
J3043_201407	Ambulance Equipment Mount Device or Systems	Issued
J3044_201406	Occupant Restraint and Equipment Mounting Integrity - Rear Impact System-Level Ambulance Patient Compartment	Issued
J2673_201406	Straight-Line Braking Test for Truck and Bus Tires	Revised
J2221_201408	Standardized Symbols for Electrical Circuit Diagrams	Revised
J1939/15_201405	Physical Layer, 250 Kbps, Un-Shielded Twisted Pair (UTP)	Revised
J1939DA_201408	J1939 Digital Annex	Revised
J1628_201407	Technician Procedures for Refrigerant Leak Detection in Service of Mobile Air Conditioning Systems	Revised
J1979_201408	E/E Diagnostic Test Modes	Revised

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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/>



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Document	Title	Status
J1979DA_201406	J1979-DA, Digital Annex of E/E Diagnostic Test Modes	Revised
J3067_201408	Candidate Improvements to Dedicated Short Range Communications (DSRC) Message Set Dictionary [SAE J2735] Using Systems Engineering Methods	Issued
J139_201407	Ignition System Nomenclature and Terminology	Revised
J2867_201408	Laboratory Testing of Light Duty Vehicle Electric Cooling Fan Assemblies for Airflow Performance	Issued
J2795_201408	Power Cylinder Oil Consumption: Problem Solving	Revised
J2797_201408	Power Cylinder Blow-By: Blow-By Mechanisms	Revised
J2798_201408	Power Cylinder Blow-by: Problem Solving	Revised
J2578_201408	Recommended Practice for General Fuel Cell Vehicle Safety	Revised
J2601_201407	Fueling Protocols for Light Duty Gaseous Hydrogen Surface Vehicles	Revised
J2601/2_201409	Fueling Protocol for Gaseous Hydrogen Powered Heavy Duty Vehicles	Issued
J2880_201406	Recommended Green Racing Protocols	Revised
J1703_201408	Motor Vehicle Brake Fluid	Revised
J1704_201408	Motor Vehicle Brake Fluid Based Upon Glycols, Glycol Ethers and the Corresponding Borates	Revised
J585_201406	Tail Lamps (Rear Position Lamps) for Use on Motor Vehicles Less than 2032 mm in Overall Width	Revised
J914_201408	Side Turn Signal Lamps for Vehicles Less than 12 m in Length	Revised
J1698_201405	Event Data Recorder	Revised
J1336_201409	Hydraulic Cylinder Leakage Test	Revised
J1374_201409	Hydraulic Cylinder Rod Seal Endurance Test Procedure	Revised
J176_201409	Fast Fill Fueling Installation for Off-Road Self-Propelled Work Machines	Revised
J213_201409	Motorcycle Classifications	Revised
J2399_201409	Adaptive Cruise Control (ACC) Operating Characteristics and User Interface	Revised
J2601/2_201409	Fueling Protocol for Gaseous Hydrogen Powered Heavy Duty Vehicles	Issued
J2932_201409	Air Disc Brake Actuator Test Requirements	Issued
J917_201409	Marine Push-Pull Control Cables	Revised
J1535_201410	Performance Test for Windshield Defrosting Systems for Off-Road, Self-Propelled Work Machines	Revised
J1715_201410	Hybrid Electric Vehicle (HEV) and Electric Vehicle (EV) Terminology	Revised
J2417_201410	Lift Capacity Calculation Method Knuckle-Boom Log Loaders and Certain Forestry Equipment	Revised
J2572_201410	Recommended Practice for Measuring Fuel Consumption and Range of Fuel Cell and Hybrid Fuel Cell Vehicles Fuelled by Compressed Gaseous Hydrogen	Revised
J2902_201410	Air Disc Brake Actuator Test Procedure, Truck-Tractor, Bus and Trailer	Issued
J2931/4_201410	Broadband PLC Communication for Plug-in Electric Vehicles	Revised
J3006_201410	Low-duty Inertia Dynamometer Hydraulic Brake Wear Test Procedures for Vehicles Above 4536 kg (10 000 lb) of GVWR	Issued
J3021_201410	Recommended Practice for Determining Material Properties of Li-Battery Cathode Active Materials	Issued
J383_201410	Motor Vehicle Seat Belt Anchorages - Design Recommendations	Revised
J384_201410	Motor Vehicle Seat Belt Anchorages - Test Procedure	Revised
J748_201410	Hydraulic Directional Control Valves, 3000 PSI Maximum	Revised

OUTSTANDING ACHIEVEMENT AWARD

SAE International honored this November 15 mobility engineering professionals with the 2014 James M. Crawford Technical Standards Board Outstanding Achievement Award. The award recognizes individuals for outstanding service in the technical committee activities of the Society. This includes valuable contributions to the work of SAE International technical committees, 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 of government agencies, and outstanding contributions to SAE International technical committee work in the form of research, test methods and procedures, and/or development of standards. Established in 1953, the award honors James Crawford, who was SAE International President in 1945 and donated money to establish the James M. Crawford Fund. In 2013, the award name was changed to the James M. Crawford Technical Standards Board Outstanding Achievement Award.

2014 SAE Ground Vehicle award winners included:

Construction, Agriculture & Off-Road Council

L. John Koutsky, Vice President - Product Development, Sears Manufacturing Co.

Materials, Processes and Parts Council

James C. Miller, Senior Standards Engineer, Deer & Company

Motor Vehicle Council
Ernest J. DeVincent Jr., Vice President and Global Platform Director, Gertag Corporate Group

Lisa M. Fodale, Senior Specialist, Product Analysis and Regulatory Processes, Chrysler Group, LLC

Annette L. Irwin, PhD, Technical Fellow, General Motors Company

Paramsothy Jayakumar, PhD, Senior Research Scientist, Analytics, U.S. Army TARDEC

Todd Macintosh, Technical Specialist, Global Vehicle Electrification, General Motors Company

Ian J. Sutherland, Hydrogen Infrastructure Group, General Motors Company

Truck & Bus Council

Gary L. Orey, Principal Engineer, Consolidated Metco, Inc.

Mark Stepper, Director, OBD SIR, Cummins Inc.

Stanley L. Stokes, Consultant, BrakeTEC LLC
Richard Wood, Owner and President, SOLUS-Solutions and Technologies LLC



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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
- The European Telecommunications Standards Institute (ETSI)

