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### SAE INTERNATIONAL TEAM MEETS WITH ICAO, IATA LEADERS

SAE International Chief Executive Officer David L. Schutt, along with David Alexander, Director, Aerospace Standards, and Laura Feix, Aerospace Standards Engineer, met with leaders from the International Civil Aviation Organization (ICAO) and International Air Transport Association (IATA) on October 3 in Montreal.

During the ICAO 39th Triennial Assembly, the SAE team met with Dr. Olumuyiwa Benard Aliu, President, ICAO Council, and Steve Creamer, Director, Air Navigation Bureau. Discussion items included the development of global aviation safety standards, the exchange of technical information, and the ICAO tasking of SAE to develop performance standards for the carriage of lithium batteries.

Earlier in 2016, ICAO, a UN specialized agency, recognized SAE for inclusion on the list of international organizations that may be invited to attend suitable ICAO meetings. The ICAO Secretariat participates in SAE standards committees, and ICAO publications contain numerous references to SAE documents.

Schutt, Alexander, and Feix also met with Gilberto Lopez Meyer, IATA’s Senior Vice President for Safety and Flight Operations. IATA provides a vital airline stakeholder voice in several SAE technical committees in diverse areas such as materials, aircraft prognostics, deicing, cargo, and ground support equipment.

On October 4, SAE participated in the ICAO Standards Roundtable with other Standards Development Organizations (SDO) and regulatory authorities to discuss ICAO’s use of industry standards which complement ICAOs performance-based SARPs (Standards and Recommended Practices). ICAO Assembly Resolution A38-11 instructs ICAO, to the maximum extent appropriate, to make use of material developed by SDOs when adopting ICAO provisions. SAE is one of the key SDO partners providing guidance material and acceptable means of compliance to ICAO provisions.
REVISIONS OF AEROSPACE QUALITY MANAGEMENT SYSTEMS STANDARDS PUBLISHED

“AS9100D, Quality Management Systems - Requirements for Aviation, Space, and Defense Organizations,” a standard for quality management systems requirements for aviation, space and defense organizations, was published in September.

“AS9100 Revision D integrates an organization’s strategic objectives and business processes by directly linking them to the quality management system, which, when combined with risk-based thinking and the identification of opportunities, enables this revision to provide more value to the organization,” said Alan Daniels, chair of the SAE G-14 Americas Aerospace Quality Standards Committee (AAQSC).

The standard has been revised to incorporate the requirements of ISO 9001:2015. The revision takes into consideration aviation, space and defense stakeholders’ needs, and it incorporates clarifications to 9100 series requested by IAQG users since the last revision.

Revisions of these aerospace quality standards were also issued in October and November:

• AS9101F, Quality Management Systems Audit Requirements for Aviation, Space, and Defense Organizations
• AS9110C, Quality Management Systems - Requirements for Aviation Maintenance Organizations
• AS9120B, Quality Management Systems - Requirements for Aviation, Space and Defense Distributors

The G-14 committee also issued these three new standards in September:

• AS9145, Aerospace Series – Requirements for Advanced Product Quality Planning and Production Part Approval Process
• AS9162, Aerospace Operator Self-Verification Programs
• ARP9136, Aerospace Series - Root Cause Analysis and Problem Solving (9S Methodology)

2017 IS 100TH ANNIVERSARY OF FIRST AEROSPACE STANDARD

In 2017, SAE International will celebrate the 100 year legacy of SAE aerospace standards. Next year will mark the 100th anniversary of the first aerospace standard – for an interchangeable aircraft engine spark plug – which was published in early 1917.

Throughout its history, SAE has worked with industry, government and regulatory agencies to create an extensive family of standards that form the technical basis of regulations and government requirements that are essential for aircraft certification, airworthiness, and interoperability.

In addition to globally-adopted Aerospace Standards (AS), Aerospace Material Specifications (AMS), Aerospace Industry Reports (AIR) and Aerospace Recommended Practices (ARP), SAE offers numerous supporting programs to serve industry’s growing need for future harmonized solutions, and knowledge programs such as events and lifelong engineering education that work to serve current practitioners and the engineers of the future.

CONSENSUS BASED STANDARDS AND MORE FROM SAE INTERNATIONAL

While consensus-based standards are the cornerstone of the program responsible for developing more vehicle technical standards than any other organization, SAE International also offers a full range of development capabilities for global standardization including:

• Standards Consortium Administration • Cooperative Research • Database Creation and Management
• Accreditation and Certification • Committee Management
NEW COUNTERFEIT ELECTRONIC PARTS AVOIDANCE STANDARDS ISSUED

Three new or revised standards related to counterfeit electronic parts have recently been published.

A revised edition of AS5553B, “Counterfeit Electrical, Electronic, and Electromechanical (EEE) Parts: Avoidance, Detection, Mitigation, and Disposition,” was issued in September. Last revised in 2013, this standard was originally created in response to concerns about an increasing number EEE parts entering the supply chains of the aerospace and other high-reliability and critical sectors, posing significant performance, reliability, and safety risks.

The newly updated document has been expanded to address counterfeit risk mitigation across multi-sector electronic supply chain industries and to provide uniform requirements, practices, and methods to mitigate the risks of receiving and installing counterfeit EEE parts.

AS5553B’s counterpart document, ARP6328 (“Guideline for Development of Counterfeit Electronic Parts: Avoidance, Detection, Mitigation, and Disposition Systems”) was also published in September. The document provides definitions and guidelines for developing and implementing a counterfeit mitigation program in accordance with AS5553B.

Both standards were issued by the SAE G-19CI Continuous Improvement Committee.

In October, the G-19A Test Laboratory Standards Development Committee issued AS6171 (“Test Methods Standard – General Requirements, Suspect/Counterfeit, Electrical, Electronic, and Electromechanical Parts”). This document standardizes inspection and test procedures, and minimum training and certification requirements to detect suspect/counterfeit electrical, electronic, and electromechanical parts. The standard ensures consistency across the supply chain for test techniques, and mitigates the technical risk of performing insufficient inspections and tests to determine suspected counterfeit EEE parts.

SAE 2016 AEROSPACE STANDARDS SUMMIT ADDRESSES TRANSFORMATIONAL TECHNOLOGIES

The SAE 2016 Aerospace Standards Summit was held September 20-21 in Arlington, Virginia. With the theme of “Emerging Technologies and the Enabling Role of Standards,” the Summit addressed critical technology breakthroughs, and the standards and certification needed to bring new product development to market in a timely manner. The event detailed the standardization needs for which SAE can support the global aerospace community.

The event’s keynotes were delivered by:

• John Hickey, Deputy Associate Administrator for Aviation Safety, FAA (Keynote)
• Rob Gold, Director, Engineering Enterprise, U.S. Department of Defense (Keynote)
• Miguel Marin, Technical Officer, Structures, ICAO – Lithium Ion Battery Packaging
• David Abbott, Principal Engineer – Additive Manufacturing, GE Aviation

Six panel sessions were held:

• Cybersecurity: Topics included: information sharing and analysis; enterprise and product security, common terms and definitions for aerospace cybersecurity; management of network logs; data corruption issues; and vulnerability of GPS for position and time data.
• Unmanned Aircraft Systems Propulsion: Topics included: types of propulsion systems; reliability of internal combustion engines; standards for nitromethane fuels; UAV turbines; and performance rating of UAV engines.
• Electric Aircraft: Topics included: electric aircraft steering; wide band gap technology; and the NASA approach regarding energy storage.
• Certification of UAS Operating Personnel: Topics covered included: education of drone operators; EASA and FAA approaches to regulation; practical test standards for ground trainers, flight trainers and observers; and mission-based standards.
• Sensor Technologies: Issues covered included: the large amounts of data per flight; the increasing number of sensors, ground-based data analysis; linear polarization resistance standards; multi-function sensors; and lack of standardization of data retrieval methods.
• Optical Fibers and Photonics: Topics included: replacing coax cable with fiber optics on aircraft; in-flight entertainment systems; noise and vibration; fiber optic connection contamination; fusion splicing; and small form factor terminations.

The next SAE Aerospace Standards Summit will be held April 25-26, 2017 in Cologne, Germany.
A series of global aircraft deicing standards whose development was facilitated by the SAE ICAO IATA Council for Globalized Aircraft Deicing Standards were recently issued by the SAE G-12M Methods Committee and G-12T Training and Quality Programs Committee.

AS6285 ("Aircraft Ground Deicing/Anti-Icing Processes"), establishes the minimum requirements for ground based aircraft deicing/anti-icing methods and procedures to ensure the safe operation of aircraft during icing conditions on the ground and was published in August.

ARP6257 ("Aircraft Ground Deicing/Anti-Icing Communication Phraseology for Flight and Ground Crews"), establishes standard phraseology for communication procedures during aircraft ground deicing operations, and was issued in October. Standardized aircraft deicing communication protocols and phraseology are needed to ensure that important safety, quality, and efficiency information exchange occurs between the participating flight and ground crews.

AS6286 ("Training and Qualification Program for Deicing/Anti-Icing of Aircraft on The Ground") and six associated slash sheets establish the minimum criteria for effective training of air carrier and contractor personnel to deice/anti-ice aircraft and to ensure the safe operation of aircraft during ground icing conditions. This series of seven documents were released in November and December. Still under development by G-12T is AS6332 ("Quality Assurance Program for Deicing/Anti-Icing of Aircraft on The Ground") which establishes the minimum requirements for ground based aircraft deicing/anti-icing quality assurance to ensure the safe operation of aircraft during icing conditions.

The SAE ICAO (International Civil Aviation Organization) IATA (International Air Transport Association) Council for Globalized Aircraft Deicing Standards was established in 2011 to coordinate the development of harmonized global deicing standards. Regulatory agencies, including the FAA (Federal Aviation Administration), EASA (European Aviation Safety Agency), Transport Canada, and ICAO plan to reference the global standards in their guidance material.

SAE-ITC Engine and Airframe Standard Published

The first standard to be developed start-to-finish under the SAE-ITC Engine and Airframe Standards program was published in October.

"AS70000 Bolt, External MORTORQ® Super Extended Washer Head, PD Shank, .164-32 UNJC to .500-20 UNJF-3A, Heat Resisting Nickel Alloy (INCONEL 718), Unplated, Classification Rm ≥ 1275 MPa (185,000 lbf/in²) @ TA / +650°C" was issued by the SAE-ITC Engine and Airframe Technical Standards Committee. The development of the standard was supported by Airbus and Rolls-Royce Plc.

SAE ITC is an affiliate of SAE International.
NEW UNMANNED AIR VEHICLE PROPULSION COMMITTEE PROPOSED

The Aerospace Council is reviewing a proposal to establish a new E-39 Unmanned Air Vehicle Propulsion System Committee. The proposed committee would develop common aerospace industry standards for the development, testing, production, and maintenance of unmanned vehicle propulsion systems.

Currently there are no global consensus standards specifically for unmanned aircraft propulsion systems. As the production of unmanned aircraft continues to proliferate, the issue of safety becomes increasingly critical. The area of propulsion is important, because of the wide variety of small UAS designs – ranging from multi-copters to fixed-wing aircraft. Thus, unmanned aerospace vehicles introduce propulsion systems that differ significantly from each other (and from those powering manned vehicles). Unmanned vehicle designers need information to make choices when integrating a propulsion system and an airframe together.

The objectives of the proposed E-39 committee are to:

- Define propulsion system types as they relate to airframes (rotary or fixed wing, for example) and develop appropriate classifications and distinctions.
- Coordinate activities with appropriate existing regulatory authorities to prioritize efforts.
- Develop SAE Technical Reports (Aerospace Standard (AS), Aerospace Recommended Practice (ARP), and/or Aerospace Information Report (AIR), which define test requirements and manufacturing criteria, for unmanned vehicle propulsion systems.

Both chemical and electrical propulsion and the supporting systems will be addressed, including engines, servo actuators, fuel, motors, electronic speed controllers, batteries, propellers, wiring, connectors, plumbing, filter, filters, pumps, propellers, propeller balancing rigs, test stands, thrust measurement rigs, and flight management controllers for energy efficient flight.

AEROSPACE ENGINE SUPPLIER QUALITY COMMITTEE, STRATEGY GROUP, MEET AT SAE WORLD HEADQUARTERS

The SAE G-22 Aerospace Engine Supplier Quality Committee held its quarterly meeting at SAE World Headquarters on October 5 to work on the development of several new standards including:

- AS13001, A Delegated Product Release Verification Training Requirements
- AS13004, Process Risk Identification, Assessment, Mitigation and Prevention
- AS13005, Internal Audit Requirements for Suppliers
- AS13006, Process Control Methods
- AS13007, Supplier Management
- AS13008, Customer Audits Frequency

The committee was formed to develop, specify, maintain, and promote quality standards specific to the aerospace engine supply chain. Their objective is to reduce customer-specific (OEM) requirements through a focused set of standards that integrate industry best practice and aerospace engine unique elements.

Additionally, the Aerospace Engine Supplier Quality (AESQ) Strategy Group, an SAE ITC Participant Group, met at SAE World Headquarters on October 6 to discuss strategic deployment and related training of the G-22 standards.

AIRCRAFT GROUND SUPPORT COMMITTEE RECONSTITUTED

SAE’s technical committee which develops standards, specifications, and reports related to aircraft ground servicing has been reconstituted as AGE-3 Aircraft Ground Support Equipment Committee.

The committee’s mission is to provide safe, efficient, and environmentally-friendly aircraft ground servicing. Areas of focus will include: airport ground service equipment (GSE); aircraft to GSE interface; GSE operation, maintenance and operator training; airport facilities and systems that have a direct relationship to and interface with GSE; and GSE environment-related issues, including noise and emissions. Currently, the committee has responsibility for more than 60 standards and specifications.

Diego Alonso Tabares, Senior Engineer, Airport Operations - EIJG of Airbus serves as the committee chair, and Scott Barninger of Piedmont Airlines is the vice chair.
NEW RELIABILITY, SUPPORTABILITY, AND HEALTH MANAGEMENT SYSTEMS GROUP CREATED

A new Reliability, Supportability, and Health Management Systems Group has been formed to expand on the synergistic relationship between Integrated Vehicle Health Management (IVHM) and condition-based maintenance (CBM) and enable a close coordination of standards related to health management, reliability and maintenance.

This new Systems Group is comprised of the following committees:

- G-11M Maintainability, Supportability and Logistics
- G-11PM Probabilistic Methods Technology
- AISC-SHM Aerospace Industry Steering Committee on Structural Health Monitoring
- E-32 Aerospace Propulsion Systems Health Management
- HM-1 Integrated Vehicle Health Management

Rhonda Walthall, Manager of Prognostics and Health Management, United Technologies Aerospace Systems agreed to serve as the inaugural Chair. Ms. Walthall is also the current chair of the SAE IVHM Steering Group.

NEW G-28 COMMITTEE TO DEVELOP AIRCRAFT ARTIFICIAL BIRD STRIKE TESTING STANDARDS

The recently-established SAE G-28 Committee, Simulants for Impact and Ingestion Testing, held its first meeting August 31 – September 1 at SAE International’s World Headquarters in Warrendale, PA.

This committee will establish global industry standards standards for the manufacture of artificial simulants (e.g. artificial birds) for the purposes of development and certification testing of structures and engines for bird strike testing. The committee will define test requirements for approval of artificial stimulants, provide means of correlation of artificial stimulant test results with real object test results, and substantiate and define manufacturing procedures for artificial simulants and the guidelines for their usage.

All aerospace companies are faced with the issue of certification for bird strikes. Traditionally, company-specific artificial birds have been used to achieve initial development of design. The differing construction and performance criteria used by various organizations often have subtle differences and are viewed as proprietary, creating confusion and a lack of clarity.

The G-28 committee’s initial project will focus on the manufacture of artificial birds of varying sizes. The committee will work in conjunction with defense agencies and regulatory authorities to ensure that the standards developed will meet regulatory requirements for certification testing. Julian Reed, Engineering Fellow – Impact, Rolls-Royce Plc, serves as the committee chair.

SAE STANDARDS DEVELOPMENT COMMITTEES SEEKING EXPERTS AND VOLUNTEERS

- E-39 Unmanned Aircraft Propulsion Committee
- G-48 System Safety
- AE-88 Protective and Control Devices
- G-25 Avionics/Electronics Corrosion
- E-33 In-Flight Propulsion Measurement
- SSTCEIDM Enterprise Information and Data Management
- SSTCG47 Systems Engineering Committees
- G-11R Reliability
- AISC-SHM Aerospace Industry Steering Committee on Structural Health Monitoring
- E-32 Aerospace Propulsion Systems Health Management
- HM-1 Integrated Vehicle Health Management

If you are interested in participating in these or other SAE standards committees, contact Kerri Rohall at KERRI.ROHALL@SAE.ORG.
NEW REVISION OF FORMER FEDERAL COLOR MATCHING STANDARD TO BE ISSUED

AMS-STD-595A ("Colors Used in Government Procurement") is expected to be published by the AMS G8 Aerospace Organic Coatings Committee early in 2017.

This standard presents the colors used in government procurement in a format suitable for color selection, color matching, and quality control inspection for paints and coatings. As Federal Standard 595, it dates back to 1956. In 2014, SAE International was recognized as the standards development organization that would develop a standard to supersede the federal standard.

The forthcoming document contains 42 new colors added at the request of the U.S. Army, U.S. Marine Corps, and Canadian Air Force. It will also include corrections to the references to the old federal standard. New color chips and other related media to support the standard will also be published by SAE.

The standard is used by the Department of Defense and other federal agencies as a source of color reference, primarily for paints and coatings. Additionally, compliance with certain military specifications requires up-to-date color matching material.

The printed color matching material associated with AMS-STD-595A that is also available from SAE is individual color chips, a complete set of color chips, and a fan deck of all color chips.

RECENT SAE AEROSPACE AWARD WINNERS

William Harkness won the Steven M. Atkins Ability and Achievement in Science, Engineering, and Technology (AASET) Award.

JJ Machon won the Franklin W. Kolk Air Transportation Progress Award.

Upcoming Nomination Deadlines for Aerospace Awards

William Littlewood Memorial Lecture—Deadline January 15, 2017. This award provides for an annual lecture dealing with a broad phase of civil air transportation considered of current interest and major importance. The objective is to advance air transport engineering and to recognize those who make personal contributions to the field. The award consists of a framed certificate and a $8,000 honorarium and is presented each year at a national meeting of one of the sponsoring societies.

For a full list of our 60+ awards across the aerospace, automotive, and commercial industries, visit AWARDS.SAE.ORG.

CORPORATE SPONSORSHIP OF SAE STANDARDS TECHNICAL COMMITTEE MEETINGS

BUILD YOUR COMPANY’S BRAND – TARGET VERY SPECIFIC TECHNOLOGY NICHEs – SUPPORT STANDARDS DEVELOPMENT

SAE is the world’s largest aerospace standards development organization. Its consensus based program is the forum through which the global industry collaborates on and sets expectations for vehicle reliability, quality, safety, efficiency, and compliance.

Thousands of engineers from companies throughout the supply chain and around the world serve on over 180 SAE technical committees developing, revising, and keeping current more than 8,500 technical standards—standards that address the full spectrum of aerospace business from design, integrate, build and operate to such critical issues ranging from fuel to weather.

Whether your organization is involved in SAE standards activities or not, you can put directly in front of those that create industry’s standards—while they are creating them—by purchasing one of many sponsorship opportunities now offered around SAE Aerospace Standards Technical Committee Meetings.

For sponsorship levels and opportunities available contact:
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On the web, go to SAE.ORG/STANDARDS and “Technical Committee Meeting Schedule”
The SAE Aerospace Standards Development Program wishes to thank its document sponsors. These individuals have served not only as active committee members but 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.

Marc Albergo
Diego Alonso-Tabares
Aldo Arena
Jon Argo
Michael Azarian
Jacque Bader
Graham Baker
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NAVARA
Cranes Co
UTC Aerospace Systems
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Oxygen Technology Advisors LLC
John Bean Technologies Corp
GE Aircraft Engines
Adel Wiggins Group
United Airlines Inc
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Magnesium Elektron
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DRI Solutions
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Copper Development Association Inc
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Universal Alloy Corp
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Lockheed Martin Aeronautics Co
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Boeing Commercial Airplanes
Driessen Air Cargo Equipment
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<td>E-36 Electronic Engine Controls Committee</td>
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<td>S-15, Gas Turbine Performance Simulation Nomenclature and Interfaces</td>
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<td>January 25-27, 2017</td>
<td>AMS AMEC Aerospace Metals and Engineering Committee</td>
<td>Carmel, CA, USA</td>
<td>April 18-20, 2017</td>
<td>Airframe Control Bearings Group Committee</td>
<td>New Orleans, LA, USA</td>
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<td>G-41 Reliability in Conjunction with Ground Vehicle Reliability Committee</td>
<td>Orlando, FL, USA</td>
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<td>G-10 Aerospace Behavioral Engineering Technology (ABET) Committee</td>
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<td>GSEE</td>
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<td>SSTC Systems Standards and Technology Committees</td>
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<td>April 18-20, 2017</td>
<td>AME-9 Heli-Veriflight Committee</td>
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<td>E-34 Propulsion Lubricants, AMS M Aerospace Greases and E38 Aviation Piston Engine Fuels and Lubricants Committees</td>
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AMS-AM Additive Manufacturing
Gloucestershire, United Kingdom
May 15-18, 2017
AS-4 Unmanned Systems Committees
Nashville, TN, USA

April 25, 2017
AMS J Aircraft Maintenance Chemicals and Materials Committee
Orlando, FL, USA
May 16-18, 2017
AE-8C1, Connectors and AE-8C2, Terminating Devices & Tooling
San Diego, CA, USA

April 25, 2017
G-15 Airport Snow & Ice Control Equipment Committee
Buffalo, NY, USA
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Hamburg, Germany

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E-33, In-Flight Propulsion Measurement
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SSTC Systems, Standards and Technology Council
Denver, CO, USA

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Dayton, OH, USA
July 10-14, 2017
S-18 Airplane Safety Assessment Committee
Traverse City, MI, USA

May 2-4, 2017
A-5 Aerospace Landing Gear Systems Committees
Alexandria, VA, USA
July 25-27, 2017
S-16 Turbine Engine Inlet Flow Distortion Committee
Snowmass Village, CO, USA

May 8-11, 2017
AE-2 Lightning Committee
Charleston, SC, USA

May 9-10, 2017
EG-1E Gas Turbine Test Facilities and Equipment Committee
Ottawa, ON, Canada

May 10-11, 2017
EG-1A Balancing Committee
Ottawa, ON, Canada

May 15-18, 2017
AS-1 Aircraft Systems and Systems Integration Committee
Nashville, TN, USA

May 15-18, 2017
AS-3 Fiber Optics and Applied Photonics Committee
Nashville, TN, USA

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**DOCUMENT PUBLICATION**

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THANK YOU.

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- SSTC G-41 – New Chair Dmitry Tananko and New Vice Chair Andy Long
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- AGE-2A New Chair Jonathan Neeld
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*The only thing more important than using standards is helping to create them.*
FROM THE COUNCIL CHAIR

2016 has been an exciting year for the Aerospace Council. In April 2016 the Council met in Beijing, China, hosted by the China Aero-Polytechnology Establishment (CAPE), which is a member of the Council. This was the first time that the Aerospace Council had met in China; the facilities provided by CAPE for the Aerospace Council meeting were excellent and helped us to hold a very productive and effective meeting.

A Standardization Workshop was held on the day following the Aerospace Council meeting. This included presentations from SAE International and from a number of Aerospace organizations from within and outside China on the importance of standards development.

In September 2016 the Aerospace Council met in Savannah, Georgia, hosted by Gulfstream Aerospace. The facilities provided for the meeting were excellent and the tour of the aircraft manufacturing and assembly facilities was very interesting.

The second SAE International Aerospace Standards Summit was held in Arlington, VA in September 2016. This included keynote presentations from John Hickey (FAA), Captain Miguel Marin (ICAO), Robert Gold (US Department of Defense) and David Abbott (GE Aviation) together with panel sessions and presentations on emerging technology areas and opportunities for standardization activities. A number of new SAE International Standards Committees have been established as a result of discussions at this summit and at the first summit in Alexandria, VA in 2015, helping assure that SAE International is in the forefront developing standards for emerging technologies in the aerospace arena.

Finally, the formation of the Systems Methods Council was agreed at the SAE International Technical Standards Board meeting in November 2016. The Systems Methods Council includes most of the Committees that had previously been part of the Tech America organization and had initially been incorporated into the Aerospace Council structure. However, many of the Standards developed by these Committees are Systems Management standards that are not specific to the Aerospace Industry. The formation of the Systems Methods Council recognizes the industry-wide application of these Standards. On behalf of the Aerospace Council I would like to congratulate the Systems Methods Council on its “birthday”!

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