



*"Aviation Advancements through  
Engineering Excellence"*

# SAE 2008 Wichita Aviation Technology

Congress & Exhibition (WATC)

**August 19–21, 2008**

Century II Convention Center  
Wichita, Kansas, USA



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\*See page 17 for complete registration details.



Official publication of the  
Wichita Aviation Technology  
Conference & Exhibition

[www.sae.org/watc](http://www.sae.org/watc)



This biennial event brings together more than 600 industry representatives and decision-makers involved in aviation design, manufacturing and implementation of aircraft—including corporate executives, engineers, researchers and production personnel. There is no better location for this technical forum than Wichita, the center of the most advanced general aviation aircraft manufacturing in the world!

This must-attend event will focus on key topics in the aircraft industry, including:

- Federal Aviation Update
- Avionics, Glass Cockpit Revolution
- Product Liability and the Engineer
- Emerging Technologies
- HIRF
- Composites

## WHO SHOULD ATTEND

This conference traditionally attracts a broad spectrum:

- Aerospace corporate executives
- Engineers
- Researchers
- Designers
- Manufacturing experts
- Supply chain analysts
- Operational and production personnel

## THANKS TO OUR SPONSORS:

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A partnership of El Camino College,  
Purdue Univ., Oregon Institute of  
Technology, and Cowley College

### Friends of the Industry Partner





## EVENT OVERVIEW

Tuesday August 19	Wednesday August 20	Thursday August 21
9:30 a.m. – 10:30 a.m. <b>Registration</b>	7:00 a.m. – 6:30 p.m. <b>Registration</b>	7:30 a.m. – 4:00 p.m. <b>Registration</b>
10:00 a.m. – 1:30 p.m. <b>Technical Tour Hawker Beechcraft</b>	8:00 a.m. - 9:30 a.m. <b>Technical Sessions</b>	8:00 a.m. - 9:30 a.m. <b>Technical Sessions</b>
	9:30 a.m. – 10:00 a.m. <b>Break</b>	9:30 a.m. – 10:00 a.m. <b>Break</b>
	10:00 a.m. – 12:00 p.m. <b>Technical Sessions</b>	10:00 a.m. – 12:00 p.m. <b>Technical Sessions</b>
	12:00 p.m. – 1:30 p.m. <b>Lunch (Exhibit Hall)</b>	12:00 p.m. – 1:30 p.m. <b>Lunch (Exhibit Hall)</b>
2:00 p.m. – 3:30 p.m.  <b>AME Consortium Committee Meeting</b>  <i>By invitation only</i>  <i>For more information, contact Marty Mechsner Industry Advisor El Camino College mjmechsner@charter.net</i>	1:30 p.m. – 3:30 p.m. <b>Technical Sessions</b>	1:30 p.m. – 3:30 p.m. <b>Technical Sessions</b>
	3:30 p.m. – 4:00 p.m. <b>Break (Exhibit Hall)</b>	3:30 p.m. – 4:00 p.m. <b>Break (Exhibit Hall)</b>
	4:00 p.m. – 5:30 p.m. <b>Top Management Panel (Exhibit Hall)</b>	4:00 p.m. – 5:30 p.m. <b>Technical Sessions</b>
	5:30 p.m. – 7:30 p.m. <b>Networking Reception / Keynote Address</b> <b>Sergei Sikorsky</b> <i>A Celebration of Pioneers – Past and Future</i> <b>(Exhibit Hall)</b>	

### EXHIBIT HOURS

Wednesday 11:00 a.m. – 7:30 p.m.

Thursday 11:00 a.m. – 4:00 p.m.

#### Career Fair Hours:

##### Exhibit Hall

Wednesday 11:00 a.m. – 7:30 p.m.

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**Propulsion**

8:00 a.m.

**Room - Conference Room 205**

New information will be presented pertaining to the primary propulsion system design and performance, the operating environment and related supporting equipment.

**Organizers:**

Joshua David Ebenkamp, Hawker Beechcraft Corporation; H. Robert (Bob) Welge, Robert's Engineering Development

**Determination of the Operational Environment of the Propeller Blades on Beech 1900D Aircraft**

Kamran Rokhsaz, Wichita State Univ.

**The PhostrEx Fire Suppression System: A Halon Replacement Fire Extinguishing Agent - Qualification and Certification on the Eclipse 500 (Oral Only)**

David Snowdon, Eclipse Aviation

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**Rotorcraft**

8:00 a.m.

**Room - Conference Room 208**

This is the first year that helicopters have been included in WATC. Papers submitted for the Rotorcraft technical session will focus on helicopter-specific issues.

**Organizers:**

Vern Van Fleet, Sikorsky Aircraft Corp.

**Blackhawk Fly-By-Wire Upgrade (Oral Only)**

Michael Skaggs, Sikorsky Aircraft Corp

**Sikorsky X2 High Speed Demonstrator Aircraft (Oral Only)**

Kevin Bredenbeck, Sikorsky Aircraft Corp.

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**Safety**

8:00 a.m.

**Room - Conference Room 206**

Papers and presentations in this session address the aspects of safety and risk assessment of vehicles beginning at the advanced design stage and continuing through the remaining service life of the product.

**Organizers:**

Douglas Sheridan, Cessna Aircraft Co.

**Software FMEA Automated and as a Design Tool**

Herbert Hecht, Rebecca Menes, Sohar Inc

**The Art of Conducting a Safety Risk Analysis on In-Service Problems**

Robert A. Mattern, Pratt & Whitney

**Performance Evaluation of Computational HIC Component Tester for Aerospace Application**

Chandrashekhar K. Thorbole, The Engineering Institute; Hamid Lankarani, Wichita State Univ

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**Structures, Loads and Vibrations**

8:00 a.m.

**Room - Conference Room 210B**

This session will focus on structural design, structural analysis, loads analysis, and the effect of vibrations on structures.

**Organizers:**

Ronald M. Barrett, Univ. of Kansas - Lawrence; Richard D. Hale, Univ. of Kansas

**Case Studies of Aircraft Curved Beam/Frame Lateral Buckling (Oral Only)**

Ying Teng, Boeing Co.

**Operational Loads Monitoring of a Fleet of Beech 1900D Aircraft**

Kamran Rokhsaz, Wichita State Univ.

**Reconstruction of In-Flight Interior Vibro-Acoustic Response of an Aircraft (Oral Only)**

Manmohan Singh Moondra, SenSound LLC

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**Unmanned Aerial Vehicles (Part 1 of 3)**

8:00 a.m.

**Room - Conference Room 210A**

Papers on Unmanned Aerial Vehicles (UAV): design, modeling, flight testing and applications will be presented.

**Organizers:**

Piergiovanni Marzocca, Clarkson Univ.

**Model-Drive Architecture for Platform and Platform Store Design**

Robert M. Boman, Lockheed Martin Missiles & Fire Control

**Design Optimization of Tactical UAV in Terms of Payload Weight, Its Location and Aircraft Centre of Gravity (Written Only -- No Oral Presentation)**

Asim Rehman, Airforce; Muhammad Asim PE, Pakistan Airforce

**Hybrid Rigid/Inflatable Wings for Low Volume Wing Storage**

Ben Loh, Oklahoma State University; Jamey D. Jacob, Oklahoma State Univ.

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**Preliminary Schedule**

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**SESSIONS** TECHNICAL, BUSINESS & EXECUTIVE**Aerodynamic Design**

10:00 a.m.

**Room - Conference Room 205**

This session will feature topics related to design from an aerodynamics point of view.

Organizers:

Willem Anemaat, DARCorporation; Jan Roskam

**Correlation of Hand Book Method Results with Wind Tunnel Data for a Subsonic UAV Design**

Stefan Von Bergen, Juerg Mueller, RUAG Aerospace

**A Method to Predict Deep Stall for Preliminary Design (Oral Only)**

Willem Anemaat, Ken Po, Balaji Kaushik, DARcorporation

**Recent Civil Supersonic Aircraft Research At Boeing (Oral Only)**

Chester P. Nelson, Boeing Commercial Airplanes

**Certification of the Cessna Citation Mustang (Oral Only)**

David W. Levy, Cessna Aircraft Co.

**CFD Analysis of the Tigerfish Retractable Float System**

Matthew R. Tetlow, Tigerfish Aviation

**High Intensity Radiated Frequencies (HIRF)/Lightning**

10:00 a.m.

**Room - Conference Room 210B**

HIRF (High Intensity Radiated Frequencies) and Lightning - This session is currently under development. Please check the website for details.

**Manufacturing (Part 1 of 2)**

10:00 a.m.

**Room - Conference Room 208**

New and emerging technologies that are impacting aerospace manufacturing today and will significantly change it in the future are covered in this session. Topics covered include application of RFID, emerging paint application technologies, and friction stir welding.

Organizers:

Ronald Weddle, Cessna Aircraft Co.

**High Performance Robotics for Aerospace Paint Finishing Operations**

Dragoslav Mllojevic, ABB Inc

**Radio Frequency IDentification (RFID): Technology Overview, Benefits, and Business Cases (Oral Only)**

Daryl Remily, Boeing Co.

**Development of an End Effector for Friction Stir Spot Welding (Oral Only)**

Dwight Burford, Bryan Tweedy, Wichita State Univ.

**Panel: FAA Update**

10:00 a.m.

**Room - Conference Room 206**

The panel discussion will center around the Federal Airworthiness Agency (FAA) Update.

Organizers:

Marvin R. Nuss, Federal Aviation Administration

**Unmanned Aerial Vehicles (Part 2 of 3)**

10:00 a.m.

**Room - Conference Room 210A**

Papers on Unmanned Aerial Vehicles (UAV): design, modeling, flight testing and applications will be presented.

Organizers:

Piergiorgio Marzocca, Clarkson Univ.

**Dynamic Modeling and Flight Testing of a UAV**

Ilhan Tuzcu, Univ. of Alabama; Piergiorgio Marzocca, Clarkson Univ.

**Civil Applications using UAV's - Aerial Photography and Mapping with Non-metric Cameras**

Fabian Alberto Moreno, Aerial Photo &amp; Survey Co.

**Importance of Unmanned Air Vehicles**

Yoav Heichal

**Design**

1:30 p.m.

**Room - Conference Room 206**

The session will feature presentations on the design of aircraft.

Organizers:

Michelle R. Kirby, Georgia Institute of Technology

**Lessons Learned in Aircraft Design (Oral Only)**

Jan Roskam, DARcorporation

**Dolphin Amphibious Seaplane**

William L. Hodges, PHE Inc. DBA GenTune LLC

**Introduction of a New Approach to Integrate Seats And Restraints as a System into the Design of Small GA Aircraft (Oral Only)****Geometric Dimensioning & Tolerancing: When Less is More**

Gary Burch, Crucial Knowledge

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**Manufacturing (Part 2 of 2)**

1:30 p.m.

**Room - Conference Room 208**

Friction Stir Processing in aerospace applications is the focus of this session. Topics covered include the impact of FSW on weld performance corrosion and fatigue, force reduction, end-effector development for FSW

Organizers:

Ronald Weddle, Cessna Aircraft Co.

**Corrosion and Fatigue Evaluation of Swept Friction Stir Spot Welding Through Sealants and Surface Treatments (Oral Only)**

Jeremy Brown, Wichita State Univ.

**Low Z-force Friction Stir Spot Welding (Oral Only)**

T.J. Lam, Wichita State Univ.

**Performance Evaluation of Discontinuous Friction Stir Welds (Oral Only)**

Josh Merry, Wichita State Univ.

**Stress Corrosion Cracking in Butt Welded Aluminum Alloy 2024-T3 (Oral Only)**

Pedro Giménez Britos, Wichita State Univ.

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**Materials and Processes**

1:30 p.m.

**Room - Conference Room 210B**

The session will address aerospace applications of materials and manufacturing processes.

Organizers:

Richard D. Hale, Univ. of Kansas; Ronald M. Barrett, Univ. of Kansas - Lawrence

**Parametric Study of Machining Effect on Residual Stress and Surface Roughness of Nickel Base Super Alloy UDIMET**

Sridhar B. R, Gas Turbine Research Establishment

**Collaboration & Composites: Designing and Manufacturing Composites Across the Supply Chain (Oral Only)**

Rani Richardson, Dassault Systemes

**New PEEK Products and Process Technology Developments for Lightweight Aerospace Components**

Timothy A. Spahr, John Walling, Victrex USA Inc

**Impulse Conduction Properties of Superconducting Nanocomposites under Simulated Lightning Strikes (Oral Only)**

Ronald M. Barrett, Univ. of Kansas - Lawrence

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**Unmanned Aerial Vehicles (Part 3 of 3)**

1:30 p.m.

**Room - Conference Room 210A**

Papers on Unmanned Aerial Vehicles (UAV): design, modeling, flight testing and applications will be presented.

Organizers:

Piergiorgio Marzocca, Clarkson Univ.

**Hybrid Propulsion System Design of a VTOL Tailsitter UAV**

Mirac Aksugur, Istanbul Technical Univ.; Randy Beard, Brigham Young Univ.; Gokhan Inalhan, Istanbul Technical Univ.

**Aerodynamic Comparison of Tilt-Rotor, -Wing and -Body Concept for Multi Task MAVs**

Chinnapat Thipyopas, Institute Supérieur de l'Aéronautique et de l'Espace

**Nimbus, a New Aerodynamic Concept for Unmanned Hybrid Airship Application**

Emilio Cafaro, Politecnico di Torino; Alfredo Capuani, Nimbus; Luca Stantero, Politecnico di Torino

**Plasma Micro-thrusters for Micro Aerial Vehicles**

Ceren Ozturk, Jamey D. Jacob, Oklahoma State Univ.

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**Very Light Jets and Light Jets (VLJ, LJ)**

1:30 p.m.

**Room - Conference Room 205**

The Very Light Jets (VLJ) and Light Jets (LJ) session deals with any topic related to this new class of personal jets weighing less than 10,000lbs. This session contains papers on design, manufacturing, flight testing, training and operating VLJ's and LJ's.

Organizers:

Willem Anemaat, DARCorporation; Robert B. Barnes, Robert B. Barnes Associates

**Ensuring VLJ Operational Safety: Learning to Ask the Right Questions**

Robert B. Barnes, Robert B. Barnes Associates

**Very Light Jets- The Need for New Training Approaches (Oral Only)**

Robert Alan Wright, Wright Aviation Solutions LLC

**Demonstrating and Implementing Next Generation Air Transportation System Technologies (Oral Only)**

Bruce J. Holmes, D.E., DayJet Corporation

**Manufacturers' Training Programs for the Very Light Jet Product Market Segment (Oral Only)**

Jens C. Hennig, GAMA

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# SESSIONS TECHNICAL, BUSINESS & EXECUTIVE

## Computational Fluid Dynamics

8:00 a.m.

### Room - Conference Room 206

This session will cover Computation Fluid Dynamics (CFD) including heat transfer, aerodynamic design optimization and airfoil analysis.

Organizers:

Chittur S. Venkatasubban, Hawker Beechcraft Corporation

### Rapid Fluid Structure Interaction Framework and Methodology

Barrett Newill, Optimal Solutions Software LLC

### CFD Method for Aircraft Skid Performance including Wear and Heat Transfer

George W. Carroll, Hawker Beechcraft Corporation

### Aerodynamic Design Optimization of NDSU Solar Car through Computational Fluid Dynamics (Written Only -- No Oral Presentation)

Alex Hoerl, Derek Larson, Matthew Stenson, Kendall Dennis, Yildirim Suzen, North Dakota State Univ.

### Numerical Investigation of Transitional Flows over a NACA0012 Airfoil

Mohammad Alam, Yildirim Suzen, North Dakota State Univ.

## Design Processes, Software (Part 1 of 3)

8:00 a.m.

### Room - Conference Room 210A

This session will feature presentations related to: software tools for design; analysis of airplanes; programming tools; languages and programming environments; commercial off-the-shelf tools for aerodynamics, stability and control; and performance and detailed design.

Organizers:

Willem Anemaat, DARCorporation; John A. Jeffery, J2 Aircraft Dynamics

### Aircraft Performance Prediction: Comparison of Classical Handbook Methods to Detailed Time Integration Computer-Aided Methods

Willem Anemaat, DARCorporation

### Cost Benefits of Aerodynamic Data Generation Techniques for Aircraft Stability and Control Analysis Using the J2 Universal Tool-Kit

John A. Jeffery, J2 Aircraft Dynamics Ltd

## Fuels & Lubes

8:00 a.m.

### Room - Conference Room 205

This session presents the latest developments in synthetic fuel research and applications. Effects of biological factors and corrosion of fuel properties are discussed.

Organizers:

Quentin Coon, Hawker Beechcraft Corporation

### Using Synthetic Kerosene in Civil Jet Aircraft

Tim Snijders, Joris Melkert, TU Delft

### Susceptibility to Biological Attack and Corrosion of Aviation Fuels (Oral Only)

Howard L. Chesneau, Fuel Quality Services Inc.; Edward English, Fuel Quality Services Inc

### Swift Renewable Aviation Fuels - A High Octane Alternative to 100LL (Oral Only)

John Rusek, Jon Ziulkowski, Swift Enterprises

## In-flight Icing

8:00 a.m.

### Room - Conference Room 208

Presentations on performance and characteristics of airfoils with ice or simulated ice and Effect of icing on aircraft will be presented.

Organizers:

Reuben M. Chandrasekharan, Bombardier Learjet

### Silicone Based Coatings to Reduce In-flight Icing

Summer L. Sivas, NuSil Technology

### FENSAP-ICE: A Unified Platform for Integrated In-flight Icing Studies of any Aircraft, Rotorcraft, UAVs and/or Engine (Oral Only)

Martin Aube, Guido Baruzzi, Newmerical Technologies Inc; Cristhian Aliaga, McGill Univ.

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**Stability and Control, Flying Qualities and Flight Control System Design**

(Part 1 of 2)

8:00 a.m.

**Room - Conference Room 210B**

This session addresses the aircraft handling qualities, stability and control. This covers aircraft control power, stability characteristics and transients, control laws, cross axis interference and coupling, pilot induced oscillations, flight envelope, and onboard store carriage and separation.

Organizers:

Kahtan Awani, US Air Force

**Three-Movement Handlebar Piloting Control**

Adam Wolff, Wolff AeroCycle

**A Brief Study of Conditionally Enabled Phase Compensated Rate Limiters**

Eric R. Kendall, Boeing Aircraft Co.

**Static Stability Analysis of a Conceptual Designed UAV (Oral Only)**

Asim Rehman, Airforce

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**Aging Aircraft, Airworthiness**

10:00 a.m.

**Room - Conference Room 206**

Organizers:

Marvin R. Nuss, Federal Aviation Administration

**Advanced NDI on Composite Material (Oral Only)**

Jörg Collrep, Dantec Dynamics.com

**Destructive Evaluation of Four Aircraft Representative of the General Aging Aircraft Fleet**

Melinda Laubach, National Institute for Aviation Research

**Fatigue Behavior of Fastener Joints under Constant Amplitude Loading**

Sureshraj Keshavanarayana, Wichita State Univ.

**Preliminary Examination of Operational Loads on Firefighting Aircraft (Oral Only)**

Kamran Rokhsaz, Wichita State Univ.

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**Avionics, Glass Cockpit Revolution**

10:00 a.m.

**Room - Conference Room 208**

Organizers:

George W. Ryan, FAA

**Reduction of Jitter within Optical Tracking Data through an Indepth Survey of Smoothing Techniques**

Schinnel Small, Kofi Nyarko, Craig Scott, Morgan State Univ.

**Testing a Multidimensional Nonveridical Aircraft Collision Avoidance System: Experiment 2**

William R. Knecht, Maneuver Space Technologies

**GA Revitalization and the Roles of New Technology & the FAA (Oral Only)**

Wes Ryan, FAA

**The Glass Cockpit Revolution in GA and the Next Jump in Aviation Safety (Oral Only)**

Wes Ryan, FAA

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**Certification**

10:00 a.m.

**Room - Conference Room 205**

Certification related issues will be presented in this session.

Organizers:

Ken Farsi, L-3 Communications Integrated Systems

**AS9100: What's the Point? (Oral Only)**

John Obrien

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**Composites**

10:00 a.m.

**Room - Conference Room 210C**

Presentations related to airplane maintenance from an engineering stand point will be presented. This session is currently under development. Please check the website for updates.

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# SESSIONS TECHNICAL, BUSINESS & EXECUTIVE

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## **Design Processes, Software (Part 2 of 3)**

10:00 a.m.

### **Room - Conference Room 210A**

This session will feature presentations related to: software tools for design; analysis of airplanes; programming tools; languages and programming environments; commercial off-the-shelf tools for aerodynamics, stability and control; and performance and detailed design.

#### **Organizers:**

William Anemaat, Willem Anemaat, DARCorporation; John A. Jeffery, J2 Aircraft Dynamics

### **Keys to Success with Knowledge-based Techniques**

Dave Cooper, Genworks International; Mazlina Wan-Mohamed, TU Delft

### **AMRaven Advancing the State of the Art of Rapid Air Vehicle Design (Oral Only)**

Jorgen Dahl, Technosoft; Narayan Ramabadran, Technosoft Inc

### **A Knowledge Based Engineering Approach Applied to the Conceptual Design of Commercial Aircraft using Pacelab Suite (Oral Only)**

Alexander Schneegans, PACE America Inc.

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## **Legal / Product Liability and the Engineer**

10:00 a.m.

### **Room - Conference Room 205**

This session will focus on product liability issues facing manufacturing and design engineers and legal issues.

#### **Organizers:**

Ronald P. Williams, Morrison & Hecker

### **Can Use of Organization Designation Authorization Result In Increased Product Liability Exposure for Manufacturers and Design Team Members?**

Mark Mattioli, Post & Schell PC

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## **Stability and Control, Flying Qualities and Flight Control System Design**

(Part 2 of 2)

10:00 a.m.

### **Room - Conference Room 210B**

This session addresses the aircraft handling qualities, stability and control. This covers aircraft control power, stability characteristics and transients, control laws, cross axis interference and coupling, pilot induced oscillations, flight envelope, and onboard store carriage and separation.

#### **Organizers:**

Kahtan Awni, US Air Force

### **Jam-Free, Fail-Safe Flight Control System with Asymmetric Load Alleviation Capability**

Mihailo P. Djuric, Konak Inc.

### **The Seven Parameters of Highly Effective Cable Control Systems**

Takashi Maeda, Cessna Aircraft Company

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## **Composites Panel**

1:30 p.m.

### **Room - Conference Room 210C**

### **Industry Panel and Discussion on the Service and Repair of Aircraft Composite and Metal Bonded Structures**

The panelists will address the challenges faced in assuring safety through ground support workforce awareness, technician training and certification, materials and processes, facilities development, regulatory compliance, inspection, and return to service of aircraft manufactured with composite and metal bonded structures. Also to be addressed are the challenges associated with working with and repairing primary and secondary structures as well as differentiating the skills required to perform maintenance within and beyond a manufacturer's Structural Repair Manual.

#### **Moderator:**

Brian Finnegan, Director, Professional Certification, SAE Institute

#### **Panelists:**

Phil Watkins, Manager, EHS, Regulatory, and Training, Cessna Citation Service Centers

Randy Martin, Principal Engineering Specialist, Customer Support, New Product Development LEARJET 85, Bombardier Aerospace

Ken Farsi, Director, Certification, and FAA DAS Administrator, Midcoast Aviation

Michael D. Borgman, Co-Chairman SAE/ATA/CACRC

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**Design Processes, Software (Part 3 of 3)**

1:30 p.m.

**Room - Conference Room 210A**

This session will feature presentations related to: software tools for design; analysis of airplanes; programming tools; languages and programming environments; commercial off-the-shelf tools for aerodynamics, stability and control; and performance and detailed design.

**Organizers:**

William Anemaat, Willem Anemaat, DARCorporation; John A. Jeffery, J2 Aircraft Dynamics

**Modern Solutions for Ground Vibration Testing of Small, Medium and Large Aircraft**

Bart Peeters, LMS International

**Multi-Disciplinary Multi-Objective Optimization (Oral Only)**

James Mullins, Engineering Software

**Dynamic Taxonomies Usage in the Context of Aeronautical Maintenance Processes to Increase Effectiveness and the Efficiency of the Operations**

Francesco Gargiulo, Italian Aerospace Research Center

**Dynamic Finite Element Analysis of Aircraft Seats**

Prasannakumar Bhonghe, Cessna Aircraft Co.

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**Emerging Technologies**

1:30 p.m.

**Room - Conference Room 205**

Presentations related to new technologies in aerodynamics and design, green aviation, national airways system will be presented in this session.

**Organizers:**

Preethika Kumar, Wichita State Univ.

**Having 5000 Destinations in the Modern U.S. Airways System**

Harry Clements, Retired

**Going Green: What's In It For Aviation?**

William H. Wentz, Wichita State University

**Active Vortex Generators Using Thrust Vectoring Plasma Actuators**

Michael Bolitho, Jamey D. Jacob, Oklahoma State Univ.

**Outsourcing Aircraft Maintenance (Written Only -- No Oral Presentation)**

Jeffrey A. Weaver, DynCorp International LLC

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**Flying Cars**

1:30 p.m.

**Room - Conference Room 208**

This session will address the development of personal transportation vehicles and components, focusing on innovative CTOL and VTOL roadable airplanes and flying automobiles. Required technologies, alternative system configurations, designs under development, prototype hardware, and in-flight performance of remote controlled models and full size prototypes will be presented.

**Organizers:**

Bruce Harman, Branko Sarh, Boeing Co.

**The Pulsed Turbine Rotor Engine VTOL Propulsion concept and applications: Capturing the Elusive Jet-Powered Flying Car and Redesigning a Radical (Safer) Variant of the V-22 Osprey (Written Only -- No Oral Presentation)**

David Haskins, Haskins Enterprises

**AUTOVOLANTOR - An Automobile That Can Occasionally Operate Above Traffic (Oral Only)**

Paul S. Moller, Moller Intl.

**History and Development of the LaBiche Aerospace FSC-1, Flying Car (Oral Only)**

Mitchell LaBiche, LaBiche Aerospace

**Technologies for Capability-based Personal Air Vehicles (Oral Only)**

Mark D. Moore, NASA Langley Research Center

**The Transition: A Driving and Flying Vehicle Created by Terrafugia (Oral Only)**

Sam Schweighart, Terrafugia

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# SESSIONS TECHNICAL, BUSINESS & EXECUTIVE

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## Human Factors

1:30 p.m.

### Room - Conference Room 210B

Decision-making styles of pilots, flying habits as function of age and heat stress events are presented, as well as human factors issues on cockpit design.

Organizers:

Cindy Miller, Cessna Aircraft Company

### Modeling Human Thermoregulation as a Means of Evaluating Heat Stress Events

Allen Curran, Peter Rynes, ThermoAnalytics Inc.

### Examining Flying Habits as Function of Age from Self-Reported Data (Oral Only)

Amber L. Culpepper, Wichita State Univ.

### Investigating the Decision Making Styles of General Aviation Pilots: An Exploratory Study

Maria Olinda Rodas, Wichita State Univ./NIAR

### Next-Generation Spacecraft Cockpits: Human Factors Issues in Fault Management Interfaces (Oral Only)

Miwa Hayashi, San Jose State Univ.

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## Light Sport Aircraft (LSA) and Single Engine Props

1:30 p.m.

### Room - Conference Room 206

This session will offer presentations on the history of the development of the LSA regulations, the current state of the industry and representative aircraft. Presenters will include industry observers, developers of the regulations and LSA producers.

Organizers:

John Hunter, Univ. of Kansas

### Light-Sport Aircraft (LSA) Program (Oral Only)

George W. Ryan, FAA

### Cessna Model 162 SkyCatcher Overview (Oral Only)

Neal Willford, Cessna Aircraft Co.

### Are the New Ones Really Better? An Inquiry About Sporty Looking Airplanes of All Ages

Harry Clements, Retired

### A Deregulation in Aircraft Certification through Consensus Standards (Oral Only)

Daniel A. Schultz, ASTM

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Papers and presentations listed are under consideration.

All information is subject to change. Visit

[www.sae.org/watc](http://www.sae.org/watc) for the most up-to-date information. Schedule to be final after July 8, 2008.

# SPECIAL EVENTS

## TUESDAY, AUGUST 19

### Tour - Hawker Beechcraft Manufacturing Plant

10:00 a.m. – 1:30 p.m.  
Registration Fee: \$25

This optional tour provides a rare glimpse into the Hawker Beechcraft Aircraft Manufacturing production lines for business jets and turboprop airplanes, including King Air C90, B200 & 350; Hawker 400XP, 750XP, 850XP & 900; and Premier 1A.

#### Rules and Restrictions:

- Pre-registration is required.
- There is a 30 person maximum.
- Photography is not permitted.
- Open to U.S. persons with identity verification
- A DoD security clearance is not required.
- Eye protection must be worn and will be provided
- Transportation will be provided by Wichita Convention and Visitor's Bureau.
- Tour will depart at 10:15 a.m. and return by 1:30 p.m.

## WEDNESDAY, AUGUST 20

### Career Fair

*Exhibit Hall*

11:00 a.m. to 7:30 p.m. (Wednesday only)

The Career Fair will feature employers looking to hire engineers and professionals. Take full advantage of the opportunity to meet face-to-face with key OEMs, suppliers, and more. Confidential resumes will be accepted at the SAE Career Center, open Wednesday and Thursday exhibit hours.

For more information, visit the SAE Career Center at [www.saecareercenter.org](http://www.saecareercenter.org).

## WEDNESDAY, AUGUST 20 & THURSDAY, AUGUST 21

### A World in Motion® Booth

*Exhibit Hall during Exhibit hours*



For the first time WATC will host SAE's A World in Motion® program. This K-12 Education program joins teachers, students, and industry volunteers in an exploration of physical science while addressing essential mathematic and scientific concepts and skills. Stop by to learn more about the AWIM program or go to [www.awim.org](http://www.awim.org) for more details.

## WEDNESDAY, AUGUST 20 & THURSDAY, AUGUST 21

### EAA Young Eagles Booth

*Exhibit Hall during Exhibit hours*



The EAA Young Eagles program was launched in 1992 to give interested young people, ages 8 - 17, an opportunity to go flying in a general aviation airplane. These flights are offered free of charge and are made possible through the generosity of EAA member volunteers. Through the experience, it is hoped that children will realize aviation can offer a career or recreational pursuit. Additionally, they learn that dreams are achievable with hard work, determination and focus. "If you dream it, you can do it," is the motto. Nearly 1.4 million Young Eagles have enjoyed a flight through the program. Young Eagles have been registered in more than 90 different countries and have been flown by more than 41,000 volunteer pilots.

## WEDNESDAY, AUGUST 20

### Award Presentation

4:00 p.m. – 5:45 p.m.

Location: Exhibit Hall

#### Forest R. McFarland Award

Thomas J. Hilpert

Hawker Beechcraft Corporation

Tom Hilpert has been a member of SAE since 1994. He joined at the 1994 General Aviation Technology Conference (GATC) and has been an active member of the executive committee for the GATC for the last 12 years. The 2008 event marks the fourth year that his company has served as the host organization.

He also has chaired technical sessions at the SAE World Congress and coordinated events for the Executive Chair of the SAE 2003 Aerospace Congress Exhibition (ACE). Hilpert is also an SAE company representative for Hawker Beechcraft (formerly Raytheon Aircraft).

#### About the Award:

The Forest R. McFarland Award recognizes individuals for their outstanding contributions toward the work of the SAE Engineering Meetings Board (EMB) in the planning, development, and dissemination of technical information through technical meetings, conferences, and professional development programs or outstanding contributions to the EMB operations in facilitating or enhancing the interchanges of technical information.

## WEDNESDAY, AUGUST 20

### Top Management Panel - Integration of Glass Cockpits into Commercial Aircraft

4:15 p.m. - 5:30 p.m.

Exhibit Hall

**Panel Host:** Randy Nelson, Senior Vice President of Product Development and Engineering, Hawker Beechcraft

The WATC 2008 Top Management Panel has been selected from a cross-section of OEMs and Tier 1 Systems Suppliers. This distinguished group will be providing insight and clarification on design features and functions of glass-cockpits in a variety of commercial aircraft.

#### Panelists:

- Dave Brant, Senior Vice President, Product Development and Engineering, Cessna
- Phil Straub, Director of Engineering, Aviation, Garmin
- Don Burtis, Vice President, Avionics and Electronics, Eclipse Aviation
- David Brandt, Senior Director of Aircraft Systems and Architectures, Rockwell Collins

## WEDNESDAY, AUGUST 20

### Networking Reception A Celebration of Pioneers - Past and Future

5:30 p.m. - 7:30 p.m.

Location: Exhibit Hall

Sponsored by:



#### Keynote Address: Sergei Sikorsky



Imagine if you could have been there the day Igor Sikorsky flew his VS-300 or watched him chatting about aviation with Charles Lindbergh and Eddie Rickenbacker in your living room. What would it have been like to fly around with Sikorsky (in his suit and tie, homburg hat plumped squarely on his head) in the first practical helicopter? Attendees of this event will get a glimpse of those pioneering days of aviation from Igor Sikorsky's son in a special presentation "Reflections of a Pioneer" preceding our Networking Reception.

#### Pioneers of the future

Who could be the next aerospace icon? SAE's *A World In Motion*® Program and EAA's Young Eagles program could be working with that person right now. Both programs are designed to introduce school age children to the exciting world of aviation and engineering. Representatives from both organizations will make a brief presentation after the keynote presentation.

# SEMINARS

## Aviation Maintenance Management

August 20-21, 2008

ID# C0807

Century II Convention Center

Wichita, Kansas

SAE Member Fee: \$655

Non-Member Fee: \$755

Fee includes lunch and refreshments

1.0 CEU

During this day-and-a-half class, participants will gain insights into the various costs associated with maintenance and, more importantly, learn methods for controlling the same. Each participant will understand and be able to apply the techniques of managing people and assets, identify areas for collecting and analyzing varying types of costs, and develop skills for estimating future costs. In addition, participants will know their role in the overall organization by becoming more familiar with the principles of financial management and accounting, as well as, the importance of management information systems.

## Aviation Maintenance Fundamentals: Certification Preparation and Technical Refresher

August 20-22, 2008

ID# C0724

Century II Convention Center

Wichita, Kansas

SAE Member Fee: \$750

Non-Member Fee: \$875

Fee includes lunch and refreshments

2.1 CEUs

This course is designed to help individuals prepare for the PAMA/SAE Institute Aviation Maintenance Specialist (AMS) and Aviation Maintenance Engineer (AME) Certification programs. It is also a great professional development course for certificated (A&P) and non-certificated aviation maintenance and production personnel as it addresses the core competencies and baseline knowledge to perform efficient and successful work in the industry.

## Maintenance Aviation Incident/Accident Investigation

August 20-21, 2008

ID# C0814

Century II Convention Center

Wichita, Kansas

SAE Member Fee: \$750

Non-Member Fee: \$850

Fee includes lunch and refreshments

This course covers the fundamentals required to participate in an aircraft mishap/accident investigation. The attendee will learn the philosophy of an investigation, their responsibility in an investigation, and why investigators investigate and what they are looking for. The attendee will also discover solutions to problems faced during aircraft mishap/accident investigations. In addition, there will be opportunity to review past maintenance related accidents in order to understand the investigation process, the probable cause determination, and the development of Safety Recommendations that are intended to mitigate or eliminate the reoccurrence of the event.

## Avionics for A&P Technicians

August 21, 2008

ID# C0808

Century II Convention Center

Wichita, Kansas

SAE Member Fee: \$445

Non-Member Fee: \$545

Fee includes lunch and refreshments

0.8 CEUs

This course is designed to provide an overview of fundamental avionics systems. The course covers analog and digital avionics, systems, radio systems, auto flight control systems, and proper wiring techniques. The course is taught using language that technicians can easily understand and is also highly interactive whereby students are frequently involved in discussions and troubleshooting exercises.

<http://www.sae.org/events/training/seminars/>

## PRELIMINARY EXHIBITOR LISTING (As of June 10, 2008)

Visit [www.sae.org/watc](http://www.sae.org/watc) for updated information.

- |   |                                      |
|---|--------------------------------------|
| Aeroflex Wichita Inc                              | Herndon Products Inc                 |
| Aerospace Manufacturing Education                 | J2 Aircraft Dynamics LTD             |
| Alcatel Vacuum Products Inc                       | Keith Products Inc                   |
| Ametek Aerospace & Defense                        | Metal Improvement Co                 |
| Ampex Data Systems                                | Monogram Aerospace Fasteners         |
| Calico Coatings                                   | NASA Tech Briefs/Defense Tech Briefs |
| Cessna Aircraft Co                                | Nova-Tech Engineering Inc            |
| Cessna Citation Service Centers                   | Nusil Technology                     |
| Click Bond Inc                                    | Omni Aerospace Inc                   |
| Concorde Battery Corp                             | Perry Johnson Registrars Inc         |
| Daniels Manufacturing Corp                        | Phoenix Integration Inc              |
| DARCorporation                                    | PM Research Inc                      |
| DCM Clean-Air Products Inc                        | Pratt & Whitney Canada               |
| Elsevier  | Ship IT AOG LLC                      |
| Fuel Quality Services Inc                         | ThermoAnalytics Inc                  |
| G R A S Sound & Vibration                         | Triumph Aerospace Systems - Wichita  |
| Gulfstream and General Dynamics Aviation Services |                                      |

# 2008 PAMA Regional Airworthiness Symposium

August 22-23, 2008  
Century II Convention Center • Wichita, Kansas, USA



Register by  
August 8, 2008  
and Save!

### Closer to Home Event

- More convenient location
- Less time away from work and home
- More features

### Includes:

- Management and Technicians Education Tracks
- Workshops
- Tradeshow

[www.pama.org](http://www.pama.org)

P80740

# MARKETING SOLUTIONS

## Exhibition Details/Rental Rates

Parts, component and avionics manufacturers as well as service, avionics, flight display and flight guidance suppliers who view the general aviation/light jet industry and emerging global aircraft finishing industry as solid potential for growth in upcoming years.

The rental rate is \$2,000 per 10' x 10' (3m x 3m) booth or \$20 per sq. ft. plus \$250 per exposed corner. Rental rate includes:

- Access to 700+ industry personnel
- Two complimentary conference registrations
- Event promotion in *Aerospace Engineering & Manufacturing* magazine (circulation 25,000+)
- Complimentary static display space up to 400 sq. ft. (upon request)
- Unlimited quantities of complimentary VIP passes to invite your prime prospects to attend the exhibition
- Your company's listings and product/service description in the official WATC Event Guide
- Online exhibitor service area
- Comprehensive Exhibitor Service Manual
- High visibility sponsorship opportunities
- 8' back wall drape and 3' side rail drapes
- 7" x 44" (18cm x 112cm) company identification sign
- Security during non-show hours

## Career Fair Exhibit Space

Wednesday, August 20,  
11:00 a.m. - 7:30 p.m.

The booth rental rate is \$1,250 and includes a 10 x 10 draped space, carpet, standard electric, skirted table and 2 chairs, wastebasket and booth identification sign. Contact Martha Schanno at 1.724.772.7155; mschanno@sae.org.

**Space Assignment Procedure:** Exhibit space is assigned based on first-come, first-serve basis. Sign up now to assure prime space location!

## NEW THIS YEAR!

The exhibit will be closer to the technical sessions and many networking events will be located on the exhibit floor, also maximizing your exposure to this desirable audience.

## Partnership Opportunities

Sponsoring an event – whether a networking event or an event giveaway – is a great way to enhance your company's presence at this event. Take advantage of opportunities to extend your organization's visibility by becoming a sponsor.

**Gold Partner** (exclusive for one company) ..... \$15,000 **SOLD**



**Silver Partners** (2 available) ..... \$10,000

**Bronze Partners** (4 available) ..... \$5,000  
{Advanced Aerospace Manufacturing Education Initiative}

**"Friends of the Industry"** (multiple opportunities) ... \$3,000

## Additional Sponsorship Opportunities

Registration Area / Event Tote Bags ..... \$8,000  
Lanyards..... \$5,000  
Week-at-a-Glance Badge Insert..... \$4,000

## WATC Event Guide – Advertising Opportunities

Back Cover ..... \$5,500 net **SOLD**  
Inside Front Cover ..... \$5,000 net **SOLD**  
Inside Back Cover ..... \$4,500 net  
Full Page Ad..... \$2,900 net  
1/2 Page Ad ..... \$2,500 net

For more information contact:

### Customer Sales

Toll-free: 1.888.875.3976 (U.S. and Canada)

Telephone: 1.724.772.4086 (outside U.S. and Canada)

Email: [CustomerSales@sae.org](mailto:CustomerSales@sae.org)

# REGISTRATION AND FEES

	By August 11	After August 11 and On-Site
SAE Member (includes Package 1)	\$99	\$199
SAE Member Plus (includes Package 2)	\$299	\$399
Non-Member Plus (includes Package 2)	\$599	\$699
Participant (includes Package 1) (includes: primary author, panelists, session organizers and session chairs )	FREE	FREE
Student member (includes Package 1)	FREE	FREE
Student Non-Member (includes Package 1)	\$25	\$25
Expo Only (includes Package 3)	\$50	\$50
Exhibitor Booth Personnel (includes Package 2) (limited 2 per booth)	FREE	FREE
Technical Tour - Hawker Beechcraft Manufacturing Plant (limit 30 people)	\$25	\$25

**Maximum Your Savings!**  
Join SAE and register by August 11.

**PROMO CODE:**  
**P80803**

## Package 1

Includes exhibits, networking breaks and reception.  
(Buffet lunches may be purchased separately for \$30/day.)

## Package 2

Includes exhibits, networking breaks, reception, buffet lunches, a ticket to the Wichita Flight Festival, and two special publications (see list below).

## Package 3

Includes receptions and exhibits.

### NEW for WATC!

Take advantage of the **MEMBER PLUS PACKAGE** value!

- Lunch on Wednesday and Thursday (Aug 20-21)
- Your choice of any two of these valuable Special Publications:
  - SP-2211 Unmanned Aerial Vehicles 2008
  - SP-2212 Aircraft Design Processes, Software
  - SP-2213 Aerospace Materials & Processes and Manufacturing
  - SP-2214 Stability & Control; Aerodynamic Design; and Structures, Loads & Vibrations
  - SP-2215 Avionics, Glass Cockpit Revolution; Human Factors; and Emerging Technologies

**Conditions of Sale** - All cancellations must be in writing and received by SAE prior to August 11, 2008. A \$50 processing fee will be assessed for each cancelled registration that results in a refund. Refunds will not be issued if cancellation occurs on or after August 11, 2008.

This policy includes special event and meal fees. For the SAE membership registration rates, member dues must be current at the start of the event. Children under 16 years of age are not permitted.



SAE will do what is feasible to make its events reasonably accessible to attendees. If you have special accommodation needs, please let us know in advance by calling 1.877.606.7323 (1.724.776.4970 outside U.S. and Canada). Accommodations requested on site will be provided only if possible for us to do so on short notice.

## On-site Registration Hours

Tuesday, August 19.....9:30 a.m. – 10:30 a.m.  
 Wednesday, August 20....7:00 a.m. – 6:30 p.m.  
 Thursday, August 21 .....7:30 a.m. – 4:00 p.m.

## TO REGISTER

### SAE Customer Service

Web: [www.sae.org/watc](http://www.sae.org/watc)  
 Phone: 1.877.606.7323 (U.S. & Canada)  
 1.724.776.4970  
 Email: [CustomerService@sae.org](mailto:CustomerService@sae.org)

# HOTEL AND TRAVEL INFORMATION

## Hyatt Regency Wichita

400 West Waterman  
Wichita, Kansas, 67202  
Telephone: 1.316.293.1234  
Fax: 1.316.293.1200

The Hyatt is directly connected to the Century II Performing Arts & Convention Center where the WATC sessions and exhibits will take place.

- All attendees are responsible for their own lodging and travel arrangements.
- A block of sleeping rooms has been reserved at the Hyatt Regency Wichita Hotel.
- For military and government personnel, a certain percentage of rooms will be available at the prevailing U.S. Federal government per diem rate.
- Reservations must be made through The Housing Connection by **Monday, August 4, 2008** by calling 1.888.221.9425, or through the on-line Hotel Reservation Form which can be found at [www.sae.org/watc](http://www.sae.org/watc), under the Hotel & Travel Information link.

Room Rate: SAE's group rate is \$143 per room per night – single or double occupancy, plus local, state and federal applicable taxes.

For additional hotel and travel information please visit [www.sae.org/watc](http://www.sae.org/watc).

## Transportation from the Airport

Complimentary van shuttle service is available from Mid Continent airport to the hotel. Shuttle hours are from 5:30 a.m. to 12:00 midnight. Guests should use the direct phone at the baggage claim area. Shuttle van typically arrives within 15 minutes. Guest may collect bags from flight while waiting.

**Exclusive for WATC Attendees -  
1/2 price tickets available at  
the SAE WATC registration area  
August 19 - 21.**



**August 22 – 24, 2008**  
**Colonel James Jabara Airport**  
**3512 N. Webb Rd.**  
**Wichita, Kansas**

Friday, August 22 ..... 6:30 p.m. – 10:00 p.m.  
Saturday, August 23..... 9:00 a.m. – 5:00 p.m.  
Sunday, August 24 ..... 11:00 a.m. – 5:00 p.m.

For three days in August, the Air Capital of the World becomes the fun capital of the world at this year's Wichita Flight Festival!

**The 2008 national air-show performers:** Red Eagle Air Sports, Patty Wagstaff, Greg Shelton with wing walker Ashley Battles, Julie Clark, John Mohr, Aeroshell Aerobatic Team, and Bill Stein.

For more information visit [www.wichitaflightfestival.com](http://www.wichitaflightfestival.com).

## RELATED RESOURCES FROM SAE INTERNATIONAL

### Automated Fastening and Assembly & Tooling in Aerospace

This SAE Special Publication presents 19 papers from the sessions Advanced Fastening Systems and Hole Generation; Advancements in Auto Fastening; Automated Machine Technologies; Portable Tooling; and Robotics and Component Assembly.  
(SP-2142; \$114.95 List/ \$91.96 SAE Member)



### Aircraft Maintenance: the Art and Science of Keeping Aircraft Safe

This report covers the processes and systems that were developed to ensure the quality, viability and safety of the people and machines committed to flight—from the earliest days of aircraft maintenance to the high level

technologies currently in place. This guide covers the history and evolution, to the future.

(R-336; \$199.00 List/\$159.20 SAE Member)

### SAE 2008 Aerospace Manufacturing and Automated Fastening Conference & Exhibition

September 16-18, 2008  
North Charleston, South Carolina, USA  
[www.sae.org/amaf](http://www.sae.org/amaf)

This specialized event focuses on the technology and process advancements of tools and materials in the aerospace industry. More than 70 presentations will be offered by a diverse group of constituents from countries around the world. Technical sessions will focus on automation, processes and materials.

### SAE 2008 Power Systems Conference

November 11-13, 2008  
Hilton Bellevue  
Bellevue, Washington, USA  
[www.sae.org/power](http://www.sae.org/power)

The biennial conference will highlight technology in transition, focusing on past successes, ongoing efforts and existing or perceived future impediments to fielding new technologies from the user perspective. One of the main focuses of this year's event will be High Temperature Electronics, which is playing a pivotal role in next generation, high performance power systems for Defense, Aerospace, Automotive, Well-logging and Space applications.

Attendees benefit from informative technical sessions, panel discussions, and keynote presentations related to ongoing aircraft power activities and future trends in power generation, distribution, and utilization technologies.

### Order today!

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Phone: 1.877.606.7323 (U.S. & Canada)  
or 1.724.776.4970

Note: prices subject to change.

Actual shipping charges will be added.



Official publication of the  
Wichita Aviation Technology  
Conference & Exhibition

**"Aviation Advancements through  
Engineering Excellence"**

# SAE 2008 Wichita Aviation Technology

Congress & Exhibition (WATC)

**August 19–21, 2008**

Century II Convention Center  
Wichita, Kansas, USA



[www.sae.org/watc](http://www.sae.org/watc)

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