



*"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



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

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Advanced Aerospace Manufacturing Education Initiative

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

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EVENT OVERVIEW

Tuesday August 19	Wednesday August 20	Thursday August 21
9:30 a.m. – 10:30 a.m. Registration	7:00 a.m. – 6:30 p.m. Registration	7:30 a.m. – 4:00 p.m. Registration
10:00 a.m. – 1:30 p.m. Technical Tour Hawker Beechcraft	8:00 a.m. - 9:30 a.m. Technical Sessions	8:00 a.m. - 9:30 a.m. Technical Sessions
	9:30 a.m. – 10:00 a.m. Break	9:30 a.m. – 10:00 a.m. Break
	10:00 a.m. – 12:00 p.m. Technical Sessions	10:00 a.m. – 12:00 p.m. Technical Sessions
	12:00 p.m. – 1:30 p.m. Lunch (Exhibit Hall)	12:00 p.m. – 1:30 p.m. Lunch (Exhibit Hall)
2:00 p.m. – 3:30 p.m. AME Consortium Committee Meeting <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. Technical Sessions	1:30 p.m. – 3:30 p.m. Technical Sessions
	3:30 p.m. – 4:00 p.m. Break (Exhibit Hall)	3:30 p.m. – 4:00 p.m. Break (Exhibit Hall)
	4:00 p.m. – 5:30 p.m. Top Management Panel (Exhibit Hall)	4:00 p.m. – 5:30 p.m. Technical Sessions
	5:30 p.m. – 7:30 p.m. Networking Reception / Keynote Address Sergei Sikorsky <i>A Celebration of Pioneers – Past and Future</i> (Exhibit Hall)	

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.

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

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.

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

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

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.

Preliminary Schedule

Papers and presentations listed are under consideration.

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www.sae.org/watc for the most up-to-date information. Schedule to be final after July 8, 2008.

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 & 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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Papers and presentations listed are under consideration.

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www.sae.org/watc for the most up-to-date

information. Schedule to be final after July 8, 2008.

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.

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

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.

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

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.

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

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

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.

Preliminary Schedule

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SESSIONS TECHNICAL, BUSINESS & EXECUTIVE

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 Ramabadrnan, 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.

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

Stability and Control, Flying Qualities and Flight Control System Design (Part 2 of 2)

(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

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 Bhonge, Cessna Aircraft Co.

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

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

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.

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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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.

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 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 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

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

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 217:30 a.m. – 4:00 p.m.

TO REGISTER

SAE Customer Service

Web: www.sae.org/watc
 Phone: 1.877.606.7323 (U.S. & Canada)
 1.724.776.4970
 Email: 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, 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.

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.

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

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

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.

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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



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