SAE ARIZONA•NEVADA SECTION

October 2007

MEETING: OCT 18

Section Web Site: www.saearizona.org - ***Sign up for your newsletter on our website.***

HIGHLIGHTS...

Dinner Presentation...

Spirit AeroSystems

by Robert M. Kay & Joe McDonald

The October 18, 2007 SAE meeting will feature two guests from Spirit AeroSystems out of Wichita, Kansas that will be discussing the innovative production techniques used in the newest generation aircraft.

Spirit AeroSystems is the world's largest independent supplier of major structural components and parts for Boeing and Airbus commercial aircraft. The company offers industry-leading manufacturing and design expertise on a broad range of products and services for aircraft OEMs and operators, including:

- Fuselages, including forward sections and doors
- Under-wing components, including nacelles, thrust reversers, struts, and pylons
- Wing components, including trailing and leading edges, and flaps
- Expertise in composite and aluminum design and manufacturing
- Spares/repairs
- Engineering and testing services

The business, which was previously a division of The Boeing Company, was purchased by Onex in 2005. Spirit has operations in Wichita, Kansas, Tulsa and McAlester, Oklahoma, Prestwick, Scotland and Samlesburg, England. Spirit is a publicly traded company with 12 million square feet under roofs, 12,000 employees of which over 1,500 are engineers, and posted $3.2B in revenue for 2006. Onex is based in Toronto, Canada and has global operations in many industries, including service, manufacturing, and technology with annual revenues of $13.2 billion, consolidated assets of about $10 billion, and 83,000 employees worldwide.

Spirit has long-term agreements to supply Boeing with fuselage sections, struts and nacelles, and wing elements on its 737, 747, 767, 777 and 787 commercial aircraft platforms. That includes over 70 percent of the airframe content for the Boeing 737. Spirit's capabilities in process design and composite materials are used to produce the forward fuselage and wing components for the Boeing 787, Boeing's next generation twin aisle aircraft. Lastly Spirit is the largest content supplier for the wing for the A320 family and they are a significant supplier for Airbus' new A380.

Boeing 787 (courtesy wingsoverkansas.com)

Spirit's advanced design capabilities enable lean, efficient production of aerospace structures and systems. They offer a full range of services, from proof of concept to design to production to product support.

COFFEE TALK - LinkWest

Major Considerations for Brake Design

As part of brake system design there are many factors for consideration. In this presentation we will examine some of major elements that should be accounted for. These include the market into which the product will be sold, government regulations related to safety, consumer demands and of course cost reduction. While looking at the design requirements we will explore the various testing methodologies that help bring us closer to the end goal. This will take us from the early stages of testing in the laboratory through final sign off on the vehicle.

DATE	TIME		LOCATION	COST	With Dinner	Presentation Only
Oct 18	Social	- 6:00 pm	**Hilton Phoenix Airport**	Members	- $22	$10
	Dinner	- 6:30 pm	2435 S. 47th St, Phoenix-85034	Guests	- $27	$10
	Presentation	- 7:30 pm	480.894.1600	Students	- $10	no charge

RSVP by 10:00am Tuesday Oct. 16 Call Sam Bethune: 602.364.7456

ROBERT M. KAY

MANAGER OF FUSELAGE TECHNOLOGY DEVELOPMENT AND CHEMICAL PROCESSES R&D TECHNOLOGY DEVELOPMENT, CHIEF TECHNOLOGY OFFICER, SPIRIT AEROSYSTEM, INC.

Robert Kay is the Manager of the Fuselage Technology Development organization, a position he assumed in October, 2005 and in January, 2007, was named Manager of Chemical Processes R&D in addition to his previous responsibilities. Mr. Kay has 22 years of experience in aerospace research and development and has previously held management positions in Automation Development and Metallic Processes R&D.

Mr. Kay graduated from Purdue University with a BS in Mechanical Engineering in 1984.

JOE MCDONALD

SALES DIRECTOR, AFTERMARKET CUSTOMER SUPPORT, SPIRIT AEROSYSTEM, INC.

Joe McDonald is a Sales Director covering North American and Asian Airline customers for the Aftermarket Customer Support Division. Joe has 15 years experience in aviation materials and aircraft maintenance sales, marketing, business development, and inventory management. This experience has been gained through employment with America West Airlines, Curtiss-Wright Flight Systems, Goodrich, and The NORDAM Group.

Joe graduated from Arizona State University with a BS in Aviation Business Management in 1992.

Message from the Chair

Bill Gest, Section Chair

The first meeting of the year was a great success with our meeting room at capacity with attendance by many ASU students as well as our members. Our program started the new year with a presentation from Jay DeWitt from the City of Phoenix sharing with us the plans for the new people mover for Sky Harbor airport. This will be an important means of improving traffic flow to the airport since Sky Harbor Boulevard is over capacity. It also has the potential of making Phoenix a more attractive destination for conventions, as it will make it easier to go from the airport to downtown, similar to cities like Atlanta and Cleveland. Our September meeting also included a coffee talk by Bryan McCoy who is participating in the X Prize for automotive. Brian shared this team's plan for a very innovative energy efficient powertrain.I would encourage our membership to contact them and offer your expertise to this project. It would be wonderful if our local Arizona team could win this competition.

For October, we have a speaker form Sprit Aero group coming to present on the Boeing 787 airplane as it nears production. Special thanks to Hal Huele for arranging this speaker. In addition, we will have Link West for our coffee talk.

In November, we will be changing our meeting date to November 8, which is the second Thursday in the month instead of the third. This is to accommodate the visit to our section by Rich Schaum, who is the current president of SAE International. Rich will be our featured speaker at our November 8 meeting.

I am very fortunate to have my son as senior in Mechanical Engineering at ASU. The school has now changed their capstone design project course for his section to focus on SAE aeronautical and Baja vehicle. Since my son is on the Baja team, I have gotten into doing a little research on this. I have found that designing and building these SAE projects is becoming the requirement for mechanical engineering students at universities around the world. Reading comments from the various student chapters, it is very evident that these SAE projects produce engineers that can apply their academic studies along with practical experience to bring a product to completion. Doing these projects also teaches skills in teamwork, planning, marketing and communications. This is an excellent illustration of how SAE is having an impact on the next generation of engineers. I would ask our members to consider contributing their time and money toward these student projects. It is our responsibility to develop the next generation of engineers to solve the world's problems.

I am looking forward to seeing you at our next meeting October 18, 2007.

Bill Gest, Section Chair

Recap of September Meeting: Automated Train System

by Joshua Rudin

This meeting began by discussing overcapacity of the outlying streets leading to the airport as a way to build up support for the Automated Train, which is said to be able to potentially reduce 20% of airport traffic.

Presentation Speaker: Jay DeWitt (left) and Bill Gest (right)

It was suggested that the revenue for airport buses is $30M annually and that the Airport Train would cost $1B fixed but that there would be less maintenance, except for tires.

Sky Harbor is acquiring SR153 and will be using that road to build infrastructure for this project. It is separated into (2) segments: Facilities, which refer to the civil engineering parts such as bridges, roads, etc. and Systems which refer to the train and tracks.

Specifications for the Automated Train are as follows:

Power	600VDC
Operating speed	30-50 mph
Powerplant	Internal Propulsion
Configuration	Twin Cars on Rubber Wheels
Maximum capacity	50 persons per car, 10-15 trains per track

Project timeline is to begin in 2007 for the Eastern portion of the airport, including a station at 44th Street and Washington and complete in 2013.

2007-2008 SAE OFFICERS

From left to right Josh Rudin: Vice Chair, Mike Kremer: Secretary, Bill Gest: Chair, Larry Wilson: Treasury.

Recap of September Meeting: Desert Fuel Project

by Joshua Rudin

The purpose of this project is to produce a cost-effective enviro-friendly vehicle to compete for the Automotive X Prize, which is a race among 100mpg vehicles.

Desert Fuel Team (picture courtesy http://www.desertfuel.org)

The specifications for the proposed car are as follows:

Weight	2100 lbs, built on a 1980 VW Rabbit chassis
Acceleration	0-60mph in 10 seconds
Vmax	110 mph and 60 mph at 7.5% grade
Battery	Series Hydroelectric Vehicle (SHEV)
Powerplant	3 phase AC axial flux/permanent magnet electric motor

This vehicle is said to have ordinary electrical and mechanical systems, and consumer accessories such as a 110VAC outlet for a laptop computer.

Sponsors are needed for this project. If interested please visit: www.desertfuel.org

SAE Aerospace Convention

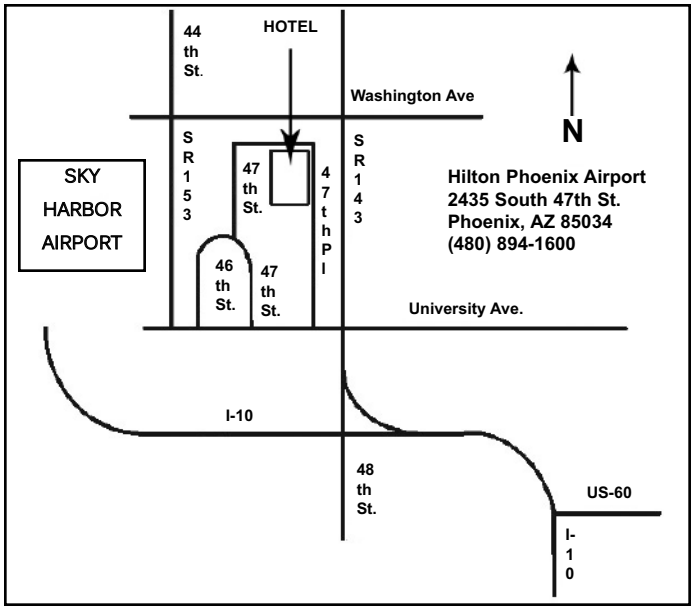
For anyone with interest in anything aerospace, this was the convention to attend. Most of us have attended the SAE Automotive Convention at COBO Center in Detroit. This one was similar—a bit smaller in terms of exhibitors and attendance, but equally as challenging with a wealth of technical seminars, OEM's, and suppliers.

One thing that was apparent was the synergy between companies-not just suppliers but also OEM's such as Boeing, Northrup-Grumman and Rolls Royce. These companies are all independent yet work together on the same projects. This was apparent in their interaction at the conference, as was the relative success of these companies due to large, long term government contracts.

There was a lot of fastener and adhesive suppliers as well as manufacturers of air tools for construction. One notable engineering consideration is positioning a hole perfectly perpendicular to the drill surface. Since many aerospace components are curved, this is not a 90 degree exercise. There are laser jigs developed for this application.

Finally, Northrup-Grumman has initiated a similar program to World in Motion designed for high school students entitled "FIRST" which is an acronym for "For Integrating Research, Science and Technology." Anyone interested in contributing to this program can contact Christina Alzona at Christina.Alzona@ngc.com.

*** Meeting Location ***



THE UNIVERSITY OF ARIZONA ANNOUNCES:

The 45th Reliability Engineering and Management Institute provides all engineers, particularly Reliability Managers and Engineers, Product Assurance Managers and Engineers in government and Industry, with a working knowledge of Reliability Engineering Theory and Practice, Mechanical Reliability Prediction, Reliability Testing and Demonstration, and more. Dr. Dimitri B. Kececioglu and 10 speakers from 15 sponsoring industries will take part in expertly covering the subject matter of this Institute. For more information, please the contact information below.

The 34th Annual Reliability Testing Institute provides coverage of how to implement and manage the Design-for-Reliability process through testing, to implement an integrated Reliability & Maintainability Engineering management strategy, learn a practical approach to attain the high Reliability goals demanded nowadays, to improve our worldwide competitive posture by creating more Reliable products through thorough testing, to determine the useful life of our products, and more. Dr. Dimitri B. Kececioglu and 10 speakers from 10 sponsoring industries will take part in expertly covering the subject matter of this Institute. For more information, please the contact information below.

THE 45th ANNUAL RELIABILITY ENGINEERING
AND MANAGEMENT INSTITUTE
November 12-15, 2007

THE 34th ANNUAL APPLIED RELIABILITY TESTING INSTITUTE
May 5-8, 2008

Clarion Hotel, Tucson Airport
6801 S. Tucson Blvd.
Tucson, Arizona 85706
520-746-3932 or 800-526-0550

Registration Fee: $1500 Proceedings Cost: $50

For Details and Technical Information, please write to:
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You can also Call: 520-621-6120, Fax: 520-621-8191,
Or Email: dimitri@u.arizona.edu
Please see his website at: http://www.u.arizona.edu/~dimitri

ARIZONA-NEVADA SECTION:
Meeting Schedule

Oct 18	- Spirit Aero Boeing 787
Nov 8	- Evolutionary Trends in Powertrain Technology
Jan 17	- GM Hybrid Truck

Bill Gest	Joshua Rudin	Mike Kremer	Larry Wilson	Robert Riley
Chair	Vice Chair	Secretary	Treasurer	Newsletter Editor
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