

SAE ARIZONA • NEVADA SECTION

January 19 2012

MEETING: Jan 19

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

HIGHLIGHTS...



- **Orbital Sciences Corporation**
- **Message from the Chair**
- **Recap of November Meeting**
- **About Don Robins & AWIM**
- **Coffee Talk (AWIM SAE Foundation)**
- **New Auto Interior Concept**

Orbital Sciences Corporation by Chris Long



Chris Long, Vice President and Gilbert Site Manager, will discuss the company's satellite business to include specific activities in Gilbert, which includes development of Low Earth Orbiting (LEO) satellites. The discussion will highlight the latest trends in government buying

behaviors to include NASA and the Dept of Defense (DoD). Additionally, long term trends, opportunities and threats will be discussed.

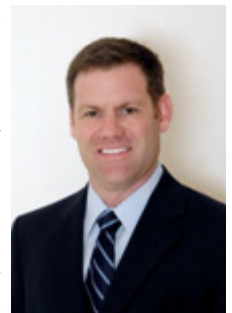
Orbital has conducted 62 space launch missions since 1990. Combined, their space launch vehicles have launched over 129 satellites into orbit in the last 21 years.

Orbital's space launch vehicles are the industry standard for boosting small payloads to orbit. Their innovative Pegasus® rocket is launched from the company's "Stargazer" L-1011 carrier aircraft and has proven to be the industry's small space launch workhorse, having conducted 62 missions from six different launch sites worldwide since 1990.



Biography by Chris Long

Mr. Long's 16 year career in space has been spent with Orbital Sciences Corp and the heritage companies (General Dynamics & Motorola Government Electronics), holding various engineering and management positions. Mr. Long has spent the last 6 months as the Vice President and General Manager of Gilbert Operations where he oversees the operations of roughly 350 employees. Prior to this assignment Mr. Long spent 3 years as the Director of Advanced Systems. In this capacity Mr. Long oversaw operations, profit and loss associated with Advanced Satellite Programs as well as a Technology Services business consisting of 100 people supporting Office of Space Launch for the NRO. Prior to his role as Director of Advanced Systems Mr. Long served as Director of Business Development for Space Systems General Dynamics to include responsibility of all orders and management of new business funds. Mr. Long has been a member of the Leadership Innovation and Entrepreneur Program (LEIP) in Palo Alto California for the last 7 years. Mr. Long has published multiple technical papers related to space communications systems. He is a member of the Eta Kappa Nu, AFCEA, NDIA, Old Crows and IEEE. Mr. Long resides in Chandler Arizona with his wife Linda and their three children, William (6), Abigail (3) and Alexander (2).



Chris Long

- MBA High Technology, W.P Carey Business School Arizona State University
- MS Electrical Engineering, New Mexico State University
- BS Electrical Engineering, New Mexico State University

DATE	TIME	LOCATION	COST With Dinner	Presentation Only
Jan. 19	Social	- 6:00 pm	Members - \$23	\$10
	Dinner	- 6:30 pm	Guests - \$27	\$10
	Presentation	- 7:30 pm	Students - \$12	no charge
		Hilton Phoenix Airport 2435 S. 47th St, Phoenix-85034 (Paste address into Google for map.) Hotel - 480.894.1600	Payable by cash or check	

RSVP by Monday Jan 16 info@saearizona.org

Message From the Chair

We had a great meeting with Brent Hendrickson presenting on GM's new 4-Cylinder Duramax Diesel. Mr. Hendrickson also toured the ASU Polytechnic campus where he saw their growing Automotive Department. Details are included in the meeting recap below.



Larry Wilson - Chairman

We were pleased to have a large turnout of students from our SAE Student Sections, including attendees from NAU. Their exceptional presentation caused the meeting to run long. But Mr. Hendrickson's presentation was so riveting that nobody noticed. In January, we will have a presentation from Chris Long, who will give an overview of the Orbital Satellite Programs, which are designed and built at the Orbital facility in Gilbert, AZ (details on page one).

Next Spring, Ron Will, formerly head of Product Development at Subaru of America where he spearheaded the development of the Subaru Outback, will give a presentation on his Turbo Phantom. This is a three-wheeled, high performance vehicle of his own design.

Ron Weary will meet with UofA Students on January 25, 2012 to continue building our network with our Tucson members. We appreciate Ron's and others' efforts.

There is still an open opportunity for a member to serve as Secretary on our Board. We are anxious to fill that remaining slot. I will buy dinner at an upcoming SAE AZ Dinner Meeting for the first person to volunteer, or recommend someone for that position. My contact information is listed in the ending banner of this newsletter. This is a great Board-Member starting position that provides a natural pathway to the Chair position.

In January, Matthew M. Miller from the SAE Foundation will attend our meeting, where John Lester will present a check from our Arizona/Nevada Section to the SAE Foundation. If you would like to make additional donations to this great foundation, please contact John Lester at johnlester@sprintmail.com.

I hope everyone had a Merry Christmas and/or a Happy Hanukkah, and I'm wishing you a Happy New Year!

Larry Wilson Chair SAE Arizona - Nevada Section

Recap of November's Meeting by Bob Holso

November's Meeting featured Brent Hendrickson from General Motors. Mr. Hendrickson is the Global Program Manager and Chief Engineer for the 2.5L/2.8L Diesel Engines, and works out of Pontiac, Michigan. He has total program oversight and global execution for this new product line, which includes a new manufacturing site in Thailand and one scheduled to be built in Brazil. Brent, by

the way, has significant roots in Arizona. He was raised in the Phoenix area, graduated from ASU and the Thunderbird School of International Management, worked for GM at the Desert Proving Ground for a number of years, and periodically comes to Arizona to visit his parents who reside in Fountain Hills.

Mr. Hendrickson's diesel program is the first four cylinder diesel developed by General Motors. It has been labeled a "Duramax", a distinction GM designates for its global diesel engines. The engine was designed in conjunction with Italian manufacturer, VM Motori, who specializes in the production of diesel engines used in pickup trucks, SUV's and commercial light duty trucks.

The engine is currently being produced in Rayong, Thailand and will be used in a new Chevrolet Colorado targeted for the Asian market. Thailand is the number two pickup market manufacturer in the world, producing over one million industry wide pickups per year. The new diesels have been engineered and tested for a wide range of global markets. They are designed to be economical and utilitarian. They have been tested around the world; with altitude testing in Europe, South America and the United States; dynamometer testing in Pontiac; hot weather testing in Yuma, AZ; city traffic testing in Bangkok; cold testing in Canada, the United States and Europe; off road testing in South America, the U.S. and Southeast Asia; and emission certified in Europe, Thailand and South America.

The engine family was designed to provide maximum work – providing reliability, large payloads and rugged durability. Some of the specifications on the engines are as follows: the 2.5L engine produces 150 horsepower with 258 foot pounds of torque. The 2.8L provides 180 hp with 346 ft. lbs. of torque. The base model 2.5L Colorado comes with a five speed manual transmission. The 2.8L comes with an available six speed automatic. Other features include a cast iron cylinder block and aluminum DOHC cylinder head, a common rail fuel system, an oil filter with integrated cooler, an electronic throttle valve that helps reduce emissions and a laminated steel oil pan with an aluminum upper section that helps balance engine rigidity.

Estimated fuel economy for the 2.8L, 2WD version is 22-25 mpg city and 26-30 mph on the highway. Coupled with the high horsepower and torque numbers, the Colorado is intended to provide the customer with greater payloads at a



L.-R.: Larry Willson and Brent Hendrickson.

relatively economical price.

Hugely popular around the world, the case for the diesel engine in the United States has been evolving over the years. As we know, diesels generally provide better fuel economy – in the range of 20 to 25 percent over gas engines. The additional fuel economy provides extended driving ranges and can enhance resale value. Diesels fuel is a staple outside of the United States, and is becoming more readily available here as well, particularly with the continued development of biodiesel. The new diesels provide additional/instant torque for towing and large payloads, and actually can be fun to drive.

Of course the downside is that diesel engines have historically been more expensive to purchase. Additionally, there are legacy issues, particularly in the U.S. that suggest diesel engines are dirty, smelly and smoky.

With regard to price, diesels historically have been more expensive in countries like the U.S., Canada and Argentina. Interestingly, they are less expensive than gasoline engines in Southeast Asia, Germany, Italy and Brazil. However, manufacturers like VW and Chrysler are planning new diesel vehicle options for some of their product lines in the U.S. in 2012 and 2013. As global diesel volumes increase, the cost gap should be reduced.

Emission standards for diesels have become more stringent around the world. The U.S. has the most robust standards. For many manufacturers, additional emission related enhancements may be required to sell diesels in North America – potentially including a diesel particulate filter and some type of NOx after treatment device or additive.

Although there are no immediate plans to bring the new diesels to North America, success of the new Duramax engines in Thailand and Brazil, coupled with the newly designed Colorado, may have some positive future ramifications for General Motors as it relates to the North American diesel market.

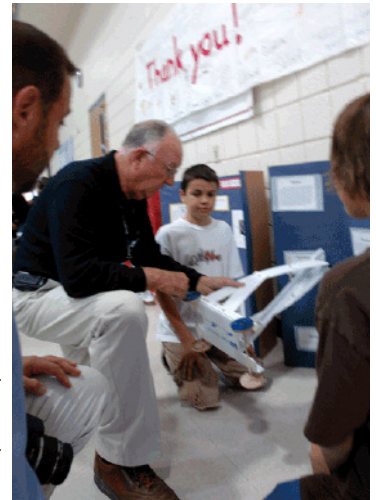
A WORLD IN MOTION. About DON ROBINS and AWIM



Don grew up in Chicago and graduated from the University of Illinois with a BS ME degree and went to work for General Motors in Warren, MI in 1960. In addition to Don's engineering career, he was always involved with kids thru the Boy Scouts, and started an Explorer Post at GM's Truck Engrg Center in Pontiac, MI to help High School stu-

dents get excited about a career in Engrg.

When Don retired in 2000, and moved to AZ in 2003, it was just natural for him to help SAE and GM start the 'A World In Motion' program for Elementary and Junior High students in the Phoenix Area with retired GM Engineers as volunteers. The nice part of the AWIM program is that Engineers go into the classroom and work with the teachers and students with 'hands on' engrg projects. We teach the kids that math and science can be lots of fun. Don was given the 2007 AWIM Rookie of the Year Award by GM and SAE in recognition for establishing and outstanding AWIM program in the Phoenix Area. In 2009 he received the Bill Agnew Award for Outstanding A World In Motion Volunteers. This award was presented by the SAE Foundation.



Don Robins with AWIM students

In addition to AWIM, Don is on the SAE AZ NV Section Board of Directors, and Past President on the GM Retirees Club of AZ. Don resides in Chandler, for most of the year, with his wife Judith. His favorite hobby is golf.

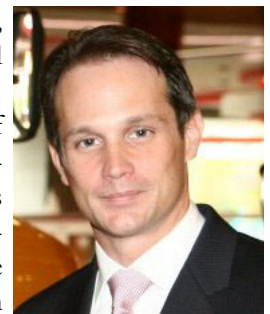
Coffee Talk

Matt Miller, the Director of the SAE Foundation, will be our January 'coffee Talk' speaker and give us a brief update about the Foundation. At the end of the coffee talk, we will present Matt with a check from our AZ NV Section in support of the SAE Foundation. If any members or guests would also like to make a contribution to the Foundation, give your check to John Lester when you sign in at the meeting, or get it to John prior to the meeting, and it will be presented along with the check from our Section.

Biography by Matt Miller

Matthew M. Miller, Director, SAE Foundation & Pre-Professional Programs, SAE International

Matt Miller is the Director of the SAE Foundation and Pre-Professional Programs at SAE. He is responsible for directing the operations and fundraising activities of the SAE Foundation and SAE Foundation Canada as well as setting the strategic direction of SAE's Pre-Professional Education Programs including the award-winning A World in Motion program and SAE's Collegiate Design Series.



Matthew M. Miller

Faurecia Designs 'Couture' Interior Concept



Showcasing a new concept for automotive interiors, Faurecia's latest demonstrator dresses interior touch points in a cocoon of luxurious accents and novel technologies.

In the Pret-a-Porter interior systems demonstrator, various materials are highlighted, including real wood, real aluminum, real leather, high-end fabrics, and various plastic trim piece. All materials meet fabric crush, staining resistance, UV stability, and other OEM performance specifications.

The Pret-a-Porter—a French phrase indicating ready-to-wear couture—features front and backside touch surfaces such as adjustable armrests wrapped in a pleated presentation and padded silk door pockets with a magnet closure.

Pull open the door pocket, and you can feel the softness of the fabric and you can see what's stowed inside the pocket because it's backlit.

The concept demonstrator's unique "infoskin" is a departure from a traditional gauge cluster. According to Dan Vandersluis, Faurecia Research and Innovation Engineer, information is projected onto the rear surface of a TPO (thermoplastic polyolefin) skin so that it is visible to the driver.

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Upcoming SAE Events, Conferences, and Symposia

SAE 2012 Government/Industry Meeting

When: January 25-27, 2012

Where: Washington, District of Columbia, USA
co-located with the Washinton Auto Show

SAE 2012 Hybrid Vehicle Technologies Symposium

When: February 21-22, 2012

Where: San Diego, California, USA

SAE 2012 Electric Vehicle Technologies Symposium

When: February 23, 2012

Where: San Diego, California, USA

SAE 2012 Aerospace and Defense Ground Support Equipment Conference

When: March 7-8, 2012

Where: Las Vegas, Nevada, USA

SAE 2012 High Efficiency IC Engines Symposium

When: April 22-23, 2012

Where: Detroit, Michigan, USA

Arizona-Nevada Meeting Schedule

- January 19, 2012	Chris Long, the Orbital VP
- February 16, 2012	Local Motors, President John B. Rogers, Jr
- March 15, 2012	TBD
- April 19, 2012	TBD
- May 17, 2012	AWIM & University Students



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