

The Wright Icon News

Bringing an Icon to Dayton - The Birthplace of Aviation

April 2012

Volume 4

Issue 2

Today's Modern Aerospace Hub - Tomorrow's Aviation Leader

UD Testing Nears Completion

The University of Dayton's Department of Mechanical and Aerospace Engineering moved quickly to launch the "Innovation Project" that we discussed in the last newsletter. Focused on wind tunnel testing of the monument prototype, its aim is to validate the effects of wind on the critical connection between the flyer and its pedestal. Within two weeks of the kickoff meeting with the WIG Engineering and Design Committee on January 19th, the project proposal & approval, selection of students, and initial requirements review were all completed. On February 24th, the four-student team of Kramer Doyle, Komahan Boopathy, Emily Getter, and Venkat Madhav Kotha, presented their initial progress report.

An unexpected difficulty had already cropped up. The "rapid prototype" model of the Flyer constructed from the three-dimensional plan Steve Brown provided turned out to be unusable.

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The materials could not be assembled into an integral tunnel model, and even if they had been, the model would have been too frail to survive testing. As an alternative, Walt Hoy persuaded Tom Budde of Budde Sheet Metal Works, Inc. in Dayton to laser-cut the Flyer's parts from a sheet of 16 gage (~.06 inch) sheet metal, much like a model airplane kit. Walt intended to weld the parts together to produce the tunnel model and give it to the student team in time to support testing, but that didn't work out either. The metal was too thin and the parts too small to withstand the heat of welding – the connections just melted away. The only alternative left was to simply give the parts to the



Budde's laser-cut parts



18" solid-wing tunnel model, rudder-off, mounted to measure effects of tail-on wind (airflow left to right)



(L to R) Doyle, Getter, Boopathy, Kotha with wind tunnel in background (model just visible)

students and let them "cold weld" the Flyer using JB Weld, a slow drying but strong metal glue. The team stepped up to that challenge and within a week had completed a solid wing test model! While this model was being tested, they built a second model with perforated wings.

Eight hours of solid-wing tunnel testing began on Friday, March 23rd, and a couple more surprises jumped out of the bushes. The model "fluttered" at pitch angles outside the range of -5° to +10°, and at the higher pitch angles the rudder experienced surface flow effects from the walls of the tunnel. (The rudder also interfered with the stinger mount in some positions). Both of these

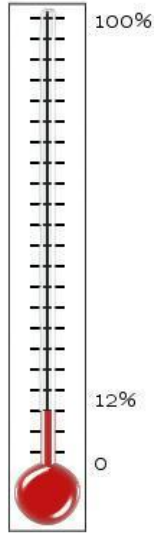
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NASA Glenn May Be Willing to Help

On March 15th, a small delegation from the Wright Image Group comprised of George Mongon (our fund-raising consultant), Chuck Stevens (key adviser to the Engineering Committee), and George Gianopulos (WIG VP) traveled to NASA Glenn in Cleveland to discuss the possibilities of NASA assistance in wind tunnel testing to support the monument design. (NASA Glenn has a 9' x 15' tunnel capable of airflow at 160 mph.) They met with Dr. Robert "Joe" Shaw and Mr. Tom Benson, one of Chuck's former associates. The topics of discussion were engineering counsel, wind tunnel testing, and model construction. Both gentlemen were enthusiastic about the monument project, but could not commit at this time to any support arrangements. Dr. Shaw, however, plans to discuss this project with

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PROGRESS
TOWARD
OUR
GOAL
FOR
COMPLETING
PRELIMINARY
DESIGN
(\$450,000)



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phenomena corrupt the test data, so testing was restricted to those pitch limits, and the rudder was removed for the higher pitch angles. As this newsletter goes to press on March 30th, the solid-wing test program (4 hours rudder-on and 4 hours rudder-off) was complete, the perforated-wing model had been installed in the tunnel, and the second half of the 16 hour test program had begun. A bit of good news was quickly revealed - initial tests up to 20° of pitch indicated that the perforated wing does not have the flutter problem. But then one more issue appeared for this tenacious team to overcome – on April 2nd they lose access to the tunnel for the remainder of the semester!

Reality TV can't top this cliff-hanger. Can our team complete the remainder of the test program over the weekend, collect all the data they need for analysis, and graduate this spring with a completed project? Stay tuned, Folks...!

(Editor's Note: Testing WAS completed over the weekend!)

New Desktop Model Policy

The Wright Image Group's unique desktop models, designed and produced by Walt Hoy and Fox Lite, Inc., were first given out as recognition for significant donations at our May 11, 2011 fund-raising event. At that event, the models were awarded at low donation levels as an incentive. Since then, however, the WIG Board has adopted a policy that will serve us better over the long run. From this time forward, it will present models signed by Amanda Wright Lane to all donors who reach a cumulative total (excluding the May 11, 2011 fund-raiser) of \$5000 since 2007. It will award unsigned models to donors who reach a cumulative \$2500 under the same stipulations. Membership dues are not considered in these cumulative donation levels. The Board can also award unsigned models for other reasons at its discretion. Each model is numbered and registered to assure authenticity.



Another Naming Contest Winner!



File Photo – Courtesy of Tim Gaffney

The balloting boxes set out in two different places at the 2011 Dayton Vectren Air Show did not yield as many ballots and monument name suggestions as the Board had hoped. We extended the effort by leaving the boxes available to the public through December, and then held a drawing to pick another winner for the honorary Aviator's License and free orientation ride at the Wright "B" Flyer. The boxes were placed in downtown Dayton at the Engineers Club and at Creative Banners, Flags, and Poles. We succeeded in eliciting many more ballots and a few more name suggestions.

We also held a drawing and picked another winner! The lucky voter was Ms. Charlotte Lynch of Miamisburg. She will receive a complimentary membership in the Wright "B" Flyer and the free orientation ride that goes with it.

Local Business "Taping" for Posterity

Mark Morgan of MainSail Production Services, Inc., 521 Byers Road, Miamisburg, OH, has undertaken a major video project for the Wright Image Group - documenting the design, development, and construction of the monument from now through its completion. He began video tapings during the initial requirements meeting between the WIG Engineering Committee and the UD Aero Department (posted on our website), and has also taped the first progress report by the student team engaged in wind tunnel testing



Mark Taping the UD Tunnel Tests

our model. The WIG expects that this documentary will serve to both educate the public about this unique project and also serve as the foundation for curriculum products that could be used throughout Ohio's school system, particularly science, technology, engineering, and math (STEM) schools.

In recent years, Mark has worked with Steve Brown and Walter Ohlmann to develop high quality marketing materials for the monument. Among other things, he produced our current marketing DVD and the overhead photo of the I-70/75 intersection with our monument superimposed – two of our most effective marketing tools. Mark contributes his valuable professional time and expertise to the WIG pro bono.

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the Director of NASA Glenn, Mr. Ray Lugo, who is already aware of it. There is potential for further discussions with the Director of NASA, Charles Bolden.

Considerable discussion centered on the "Space Act" which creates an approval process for NASA to conditionally support non-governmental organizations. Under this law, the WIG would provide the item to be tested (a scale model of the Flyer on its pedestal) and both NASA and the WIG would have unrestricted access to all the data collected. NASA will provide the application software to Chuck Stevens who will act as the WIG's spokesman and liaison to NASA. The WIG will make that official request for support in the near future, follow-up with state representatives and the Governor's office, and keep NASA informed as to the state's level of interest.

To join, make a donation, or get information explaining the different contribution and recognition levels, write to us at:

Monument
1605 N. Main St
Dayton, OH 45405

Annual Membership Dues*

1 year - \$20
2 years - \$35
3 years - \$50

** Applicable to Individuals, Families or Businesses*

Board Member Spotlight



Ellie Lewis

Ellie graduated from the University of Cincinnati with a Bachelor of Science degree in Communication, and had the honor of being selected for a Harvard MBA program. She started her career in fund-raising as the Development Director for Channel 16 and moved on to advertising, working for several different agencies. Later switching to software, she worked for the Bemis Company, Inc. where she helped generate a new bar code printer product. She then went to work for Vertex Industries in their newly opened Dayton office where she worked on industrial software for bar codes, material tracking, and product-embedded software. She has also worked for Attachmate in their Cincinnati office, and Progressive Industries here in Dayton. As either Marketing Director or VP of Marketing, she had great responsibility throughout her career for directing sales, overseeing business development, and creating and supervising marketing materials. In recent years she has done business consulting for firms both here and in Boston.

In 2000 she was elected as a Butler Township Trustee and served until 2008. During those years as a trustee, she became involved with the Wright Image Group in its infancy and has been a valued board member ever since. She has also served on several other boards, among them the Metro Library and the Council on World Affairs. She and her husband Charles have 8 children and 21 grandchildren.

**Expected Donation Pledge
Payment Schedule**

\$ Up to \$1000 - 1 month
1001 to \$2500 - 3 months
\$2501 to \$5000 - 6 months
\$5001 to \$10,000 - 12 months
\$10,001 to \$50,000 - 18 months
\$50,001 \$100,000 - 24 months
Over \$100,000 - Negotiable

Make checks payable to:

Aviation Heritage Foundation, Inc.

With the following comment
on the "For" line:

"Restricted for WIG"

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