



# The Flyer



Volume 45, Issue 3

Experimental Aircraft Association Chapter 44

March 2013

## LETTER TO THE EDITOR

Dear Ed.,

I wish to compliment President Rob Williams for his comments in the February Flyer. His point is that because some of us have “been there, done that” is no reason not to accept good ideas. He cites Mike Stoddard’s suggestion that the chapter have a greeter for new visitors and follow up with the visit. Rob, being a long time member remembers Ernie Guido served in this role. A good idea is still a good idea. Rob supports this idea of having a “wingman” for visitors. Way to go Rob!

On another note I have to admire Mike Clayton for his articles on batteries and propellers. His research and knowledge is way above my head. I hope he continues to write for us.

Sincerely yours,

Art Thieme

*See Pg. 4 for Part II of Mike’s propeller series. Ed.*

## OLD GOAT DROPS

by Art Thieme

The grounding of the Boeing 787 has some large problems. there are 50 planes grounded, and the plant is producing 5 a month. There are eight airlines with the planes. Which ones are going to be modified first? The 100th 787 is on the assembly line. And no battery solution yet. AVIATION WEEK, Feb. 11, 2013

Interviewer: To what to you attribute your longevity?

Chef Julia Child: Red meat and gin.

Old Goat, out.

## OPTIMISM WITH TREPIDATION

by Rob Williams

While traveling to the west coast last week, I incorporated a few days in Seattle in my travels and my attendance at both the Classic Jet Aircraft Association (CJAA) and the National Warbird Operators Conference (NWOC) conventions. CJAA decided to piggy-back their convention to the NWOC event this year, which I think turned out to be a good thing.

Presentations included topics such as FAA medical, G-lock, Virgin Galactic Spaceship One and Two, safety and accident review as well as tours of various museums, aircraft collections and facilities at Paine Field. The Flying Heritage Collection was a particularly impressive collection with several sole surviving, flyable aircraft from WWII. Although there was some duplication in presentations, they were interesting and informative.

The synergy was good among members as the goals of both groups are aligned. Although not a specific topic on the agendas, probably the most prominent underlying theme among participants that I observed seemed to be the ongoing concern for the constant pressure felt from the threat of government regulations and cost of operation on the ability to continue exercising our freedom to fly these historic aircraft.

This is a constant threat to our respective groups (particularly classic fighter jets) and we keep having the same conversations about it. It’s a slow and frustrating erosion process. Little by little the freedom is slipping away. We struggle to bring reason to regulation and are sometimes successful. Then we find ourselves with pressure from the financial side, either by some new costly requirement or the simple cost of fuel. It seems like a never ending battle, yet we march on with cautious optimism laced with trepidation. Let’s hope for the best and enjoy it while we can. CAVU!

## HAVE A PROBLEM? BUILD A TOOL!

by Dave Amsler

I came up with this to solve a problem I was having with a leaky Jabiru exhaust pipe fitting. This tool might have other applications.

A six cylinder Jabiru has three individual header pipes that merge into a 3-into-1 junction. The junction consists of three short tubes whose ID is 0.050" larger than the header pipes. It leaks like a sieve.



The three stub pipes are welded together such that there is no way to fit clamps on the individual pipes, and their alignment with header pipes is less than ideal, so clearance is needed to assemble the things. Also a builder needs to maintain some float to account for thermal expansion.

I made a tool to roll a raised bead from inside of tube so that OD of bead would be a snug fit into the sockets.



Bead Rolling Tool

By placing the bead where it would be at midpoint of the sockets, alignment capability is maintained and assembly can be wiggle-waggled (*aviation technical term- Ed.*) when pushing it into place on the tubes. The small bead also allows the out-of-round sockets to more easily conform the snug fit of the round header pipes. This tool made huge difference in reducing under cowl crud.



Beading the pipe



Bead finished

## JANUARY GUEST SPEAKER EAA 44 & SAC PHOTO REVIEW

Our first meeting of the new year brought us a look back at last year, of both the SAC construction and EAA 44 activities. Bob Nelligan-Barrett, who is never without a camera, showed us photos that he has taken over the past several years.

Bob's main presentation consisted of reminders of our first movie night in January 2012 at the viewing of "Red Tails," our propensity to eat great quantities of food while sharing flying stories with each other, excellent guest speakers (a separate slideshow broke those out for special attention), Young Eagle Adventure programs and Young Eagle flights, TWO AOPA ASI seminars, participation in the Lilac Parade and Rochester WINGS, breakfast at Hendershot's while we park planes, Major Awards at AirVenture, welding class, and a Holiday party that couldn't be beat! Phew.

Then he showed another slideshow of the SAC construction during the year. Rather than focusing on the BUILDING, Bob focused on the PEOPLE who have contributed to the progress on our building. It's easy to forget how far we've come in the last year without seeing it again. **Thank you to all the builders.**

Bob then showed two shorter slideshows of members planes, both homebuilt and factory made. We have quite a variety among all of us. We also have had quite a mixed bag of aircraft visit the SAC since its opening last year. I believe there is more aircraft traffic at the SAC than anywhere else on the airport.

Since there was more time to kill, Bob continue to show slides of past Geneseo airshows, SAC guest speakers, the Curtiss Museum and its Seaplane Reunion, Rochester aviation history, and melting iPhone props. Take a spinning-propeller pic head-on with your smartphone and see what happens. It'll make you giggle.

## FEBRUARY GUEST SPEAKERS A GLASAIR PANEL IN A KITFOX (OH MY! But not really)

Mike Clayton talked to us about his Kitfox project. Although it was already "assembled," it had been damaged. Pretty significantly it seemed, but he was undaunted by the LONG to-do list of repairs and parts he would need. He built a separate work shed on his property to work on his airplane. As mentioned in previous articles, Mike will be running a HKS 700E 60 HP engine. See the next page for more on Mike's propeller search.

Since he couldn't bring his panel, Mike passed the mike to Dave Hurd, who had his Glasair panel out of his aircraft. Dave told us of tracking down system leaks with his initial installation, but also the thrill of hearing airliners overhead the first time he fired up his radios.



## NUTS & BOLTS PROPELLERS PART II

by Mike Clayton

In our last installment, we talked about the basic idea of how a propeller works. I want to go a little deeper, and discuss what is important in turning the propeller, and what that might mean for different kinds of aircraft.

Remember the equation that we showed last time:

$$\eta = \frac{\text{propulsive power out}}{\text{shaft power in}} = \frac{\text{thrust} \cdot \text{axial speed}}{\text{resistance torque} \cdot \text{rotational speed}}$$

This shows the efficiency that a propeller has, in using the power available to it. I want to explore the right hand part of this expression. Notice that the bottom of the fraction is the product of the torque and the RPM of the engine. In other words, the horsepower produced by the engine. However, things are not quite as simple as they seem at first (isn't that always the case!).

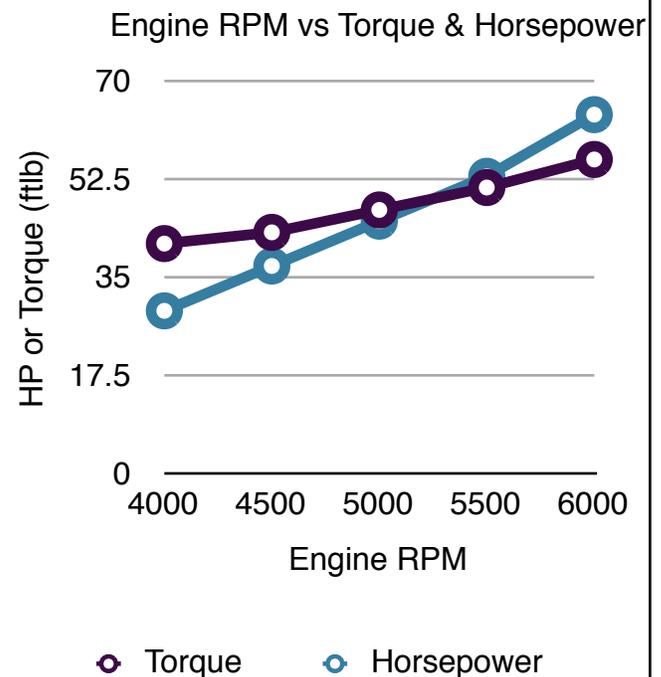
We will look at some typical performance data for two types of aircraft engines: four cycle and two cycle. First the two cycle:

The chart below represents the performance of a more or less representative two cycle engine, and the two graphs are horsepower and torque vs propeller rpm:

The steepest curve represents horsepower, and the shallower curve torque, as a function of engine speed. As you can see, both quantities increase with RPM, and so to realize the maximum horsepower and torque output of the engine a high rpm is required. At lower RPM values, the engine puts out relatively little horsepower and torque is reduced. These curves are similar to published data for an engine like the Rotax 582.

What this means is that a two cycle engine needs to operate at high RPM in order to produce maximum horsepower and torque. Therefore, a propeller needs to be designed to account for this, and operate for best efficiency near its peak RPM range. As the engine is throttled back, the ability of the engine to turn the propeller to produce thrust, and therefore propel the aircraft forward is reduced by a significant amount. This also means that the fuel efficiency will tend to be less for a two cycle engine than for a four cycle engine, as the engine generally will run at higher RPM (although this is not the only reason). We will see in the next installment, how a four cycle engine differs significantly from the two cycle in terms of performance characteristics.

For now, understand that the optimum propeller design for a two cycle must be different than for a four cycle.



Stay tuned for the four cycle engine!  
(No pun intended)

**EAA Chapter 44  
Board of Directors' Meeting  
12 Feb 2013**

**Board Members Present:** Isler, Hurd, Byers, Nelligan-Barrett, North, Clayton, Peters, and Hazen.

**Other Members Present:** None

**Reports:**

- President (Rob Williams): Absent
- Vice President (Norm Isler):
  - No Building Comm. meeting for March
  - Chapter renewal paperwork has been submitted
  - Phil Hazen has stepped down as Young Eagle Coordinator; Norm and Elise Isler have volunteered to fill this vacancy. Young Eagles events planned for 2013: Spencerport Middle School, AeroCamp (2X), Young Eagles Open.
  - Nick Gennerino's Eagle Scout Court of Honor is scheduled for March 23.
- Treasurer (Dave Hurd):
  - Report read and approved.
  - Paid yearly rent to airport owner.

**Business:**

- Capital Campaign
  - Thanks to Larry Greeno for volunteering as Capital Campaign chairman.
- Building Committee (D. Byers / Mike Clayton)
  - Building permit in hand for new shed

- Order placed for new shed, selected colors
- Mailbox – bought and ready to install
- Backflow preventer inspection, Mike Clayton to follow up.
- Definite plan for spring – cover over drain line and water supply trenches, cover over buried power line.
- Matt Rice - working on restroom upgrades as part of his Eagle Scout project.
- Phil suggested adding a doorbell to since those in the meeting room may not hear someone knocking on the shop entrance door.
- Old Business:
  - Money for Hugh Jones memorial plaque. Norm to submit order.
  - Lightspeed Foundation – Not participating this year. Thanks to Elsie Isler for helping with previous year's efforts.
- New Business:
  - Discussion regarding future programs – need ideas, volunteers, and food
    - Jeff - March (TBD)
    - Becky Hurd - April (pork barbeque)
    - Chili cook off?
  - Potential – visit from Ford Tri-motor this year. Move to investigate further: Dave Hurd moved, Bob Nelligan-Barrett seconded – passed unanimously.

**EAA Chapter 44  
General Membership Meeting  
19 Feb 2013**

**Reports:**

- President (Rob Williams):
  - Thanks to Bob Nelligan-Barrett for providing dinner
- Vice President (Norm Isler):
  - Per the Boards of Director's approval the Chapter has purchased a new storage shed that will be located just west of the SAC. The new building will house large and bulky items such as the grills, the tractor, and Dom DeLuise.
  - To encourage visitors to the airport and especially to the SAC, the Chapter will host three "Cookout Saturdays" this summer. The tentative dates are 8 Jun, 13 Jul, and 10 Aug. Hot dogs, hamburgers and beverages will be available.
- Treasurer (Dave Hurd):
  - Report read and approved.
  - Dave noted that several members still owe their dues and that prompt payment would be appreciated.
- Secretary (Stephen North): Report read and approved.

**Business:**

- Building Committee (D. Byers / M. Clayton)
  - Thanks to Rob Williams the Chapter has a new mailbox that will be installed near our driveway entrance.

• Old Business:

- The Chapter has raised enough money to pay for a commemorative plaque in memory of Hugh Jones. The dedication ceremony is the last day of AirVenture.

• New Business:

- In appreciation of his hard work in support of the Chapter as part of his Eagle Scout project, the SAC will host the Court of Honor for Nick Gennerino's Eagle Scout award on March 23<sup>rd</sup>.

**SAC PHOTO UPDATE**

These are our two newest doors. They aren't pretty yet, but like all good art, are a work-in-progress. **Thanks to Dave Amsler, Kevin Arganbright, Jack Frenz, and Bob Nelligan-Barrett for their work.**



# CONTACT EAA 44



The Flyer is published monthly. For an electronic copy, go to <eaa44.org> and enter your email address where requested. For a mailed hard copy (\$10), contact Treasurer Dave Hurd. For membership info, contact Treasurer Dave Hurd.

Stories and photos by the editor unless otherwise noted. Article deadline is 1<sup>st</sup> Tuesday of the month. Send submissions to Bob Nelligan-Barrett.

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**EAA 44 is a 501(c)3 organization.** Gifts of cash, securities or other property to the Chapter for the benefit of the Sport Aviation Center are welcome and fully tax deductible. Contact Treasurer Dave Hurd for details.



**Sport Aviation Center of Western New York**

# REGIONAL CALENDAR

**WOMEN OF AVIATION WEEK**  
Mar 4-10 Theme: Women & Space  
<<http://www.womenofaviationweek.org>>

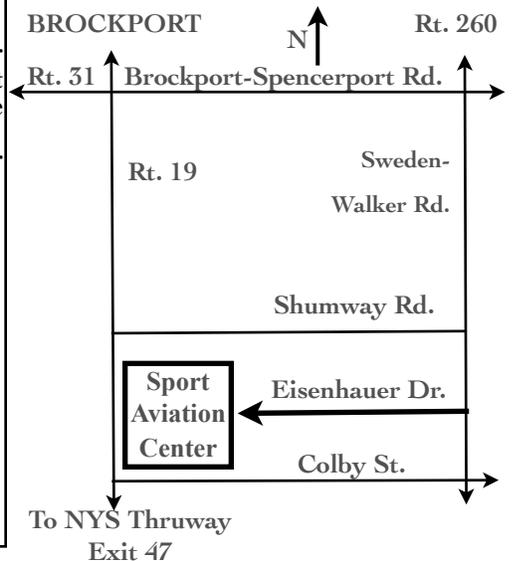
**SUN 'N FUN**  
April 9-14  
Lakeland FL  
<<http://www.sun-n-fun.org>>

**ONTARIO BEACH KITE DAY**  
May 5, Charlotte NY

**AOPA ASI SEMINAR at the SAC "Chart Challenge"**  
May 23, 7-9 PM  
Program description in the February newsletter and <<http://www.aopa.org/asf/seminars/seminar.cfm>>

**AIRVENTURE 60th Anniversary**  
July 29 - August 4  
Oshkosh, WI  
<[www.eaa.org](http://www.eaa.org)>

**NATIONAL AVIATION DAY**  
marking Orville Wright's 142nd birthday.  
August 19  
<<http://www.timeanddate.com/holidays/us/national-aviation-day>>



## EAA 44 Calendar



### NEXT GENERAL MEETING

Carl Bouwens will be talking to us about aviation projects his company is involved in.

Tom Bowdler will be providing a hot chili dinner for our pleasure.

Please bring a dessert to pass to complement chili. Is that an oxymoron?

**Mar. 19** General Meeting  
**Mar. 23** Nick Gennarino  
Eagle Scout Ceremony

**Apr. 9** Board Mtg.  
**Apr. 13** SAC Work Day  
**Apr. 16** General Meeting  
**Apr. 27** SAC Work Day

**May 11** SAC Work Day  
**May 14** Board Meeting  
**May 21** General Meeting  
**May 23** AOPA ASI Seminar

**All activities take place at the Sport Aviation Center unless otherwise noted.**

### **Sport Aviation Center**

44 Eisenhower Dr. 14420  
Brockport Airport/  
Ledgedale Airpark (7G0)  
43° 10' 56" N 77° 55' 1" W

### **Board Meetings-**

2<sup>nd</sup> Tuesday of the month, 7 PM

### **General Meetings-**

3<sup>rd</sup> Tuesday of the month

Dinner 6:30, Meeting 7:30

### **SAC Saturday Work Days-**

2<sup>nd</sup> & 4<sup>th</sup> Saturdays, 10 AM

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