



The Flyer



Volume 45, Issue 5

Experimental Aircraft Association Chapter 44

May 2013

SPENCERPORT YOUNG EAGLES ADVENTURE CULMINATES WITH FLIGHTS

This month we held our first Young Eagle event of the year in conjunction with the Cosgrove Middle School and our Young Eagle Adventure program.

Several members of EAA 44 and faculty from the school taught four classroom sessions on flight dynamics, navigation, Rochester aviation history, and other topics.

11 Young Eagles got their first flights while a family crowd of about 45 watched the flights and cooked hots and hamburgers for the kids, pilots, and ground crew.

Thank you to the pilots and ground crew for all your help.



Above: Larry Greeno and his newest Young Eagle and her family. Below: Cap't Crosswind presents a safety briefing.



LAST MONTH'S GUEST SPEAKER

New member Jamie Oliver entertained us last month with his presentation on powered parachutes. (Jamie is also the designer/inspiration for our sound panels which improved our acoustics tremendously. **Thanks Jamie.**)

Jamie opened with a video of flight with a powered 'chute where eagles were flying in formation with them. Awesome. He talked too about his training and the local launching site across from Bristol Hills ski area. Members were quite enthralled with this introduction of this new kind of flight (to us.)



Above: The engineering types among us check out the engine and harness. Below: Norm Isler tries one on for size.



BOTTLE QUEEN REPORT

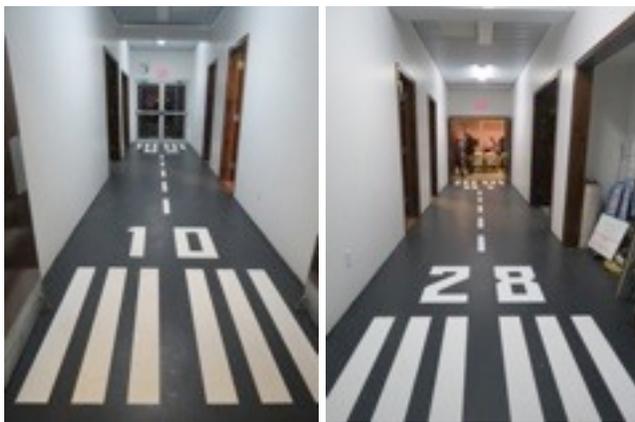
By Gail Isaac

I sent Glenn Johnson, Channel 13's Meteorologist, an email asking him if he would come to talk weather with us at the May meeting. He said yes!!!

As I was learning to fly, I sent him a couple of questions and he promptly answered me back. One was why is it smoother above the clouds. Sounds funny now but I was learning all that ground school stuff and I found weather very interesting. He is bringing a presentation on the tools they use and how they put it all together. Save up some questions for him. Of course, Mother Nature always has the upper hand. Maybe he can save up some good weather for that night and we can have a fly-in meeting. That would be cool. See you then.

The Bottle Queen is still checking the crate for goodies and, of course, my van is always ready to accept gifts at the meetings. Keep drinking and I will keep the nickels coming. I will need to have someone cover me for June and July. I will be in Alaska until June 16th and only home 2 weeks before off to our annual 3 weeks at Black Lake. Let me know if you will help.

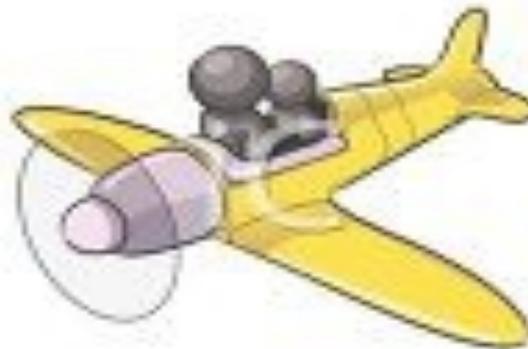
Soooo... that's all folks... for now.



On short final for Hallway10-28
Thanks to Greg Hoas for the painting.

SEEKING YOUNG EAGLE PILOTS

by Elise Isler



If you are a licensed pilot, current member of EAA National, have an insured airplane and are willing and available to fly students ages 8-17 for free ~ WE NEED YOU!!!! EAA Chapter 44 is holding a Young Eagles Rally June 8th from 9:30 AM - Noon at the Sport Aviation Center at the Ledgesdale Airport (G70).

You will need to report for briefing at 8:45 AM. Please contact Elise Isler: singholley@aol.com or 585-638-8098 to volunteer and/or get more information.

Ground crew members are also needed to help register Eagles and escort them to their planes and monitor the runway and surrounding areas. No experience – aviation or otherwise is needed!!! Please come and join the excitement. Again please contact Elise Isler: singholley@aol.com or 585-638-8098. Thank you in advance!!!

***** If anyone knows of students interested in participating in this event please contact me for pre-registration as soon as possible. Elise Isler: singholley@aol.com

Thank you.

OLD GOAT DROPPINGS

by Art Thieme

The Democrat & Chronicle, March 11, had a feature article on ladies eyelashes. They were very important to the writer and explained that it takes one to two hours to glue the eyelashes in place and can cost from \$200-\$400 for a full set. Well ladies, the Old Goat can tell you, it is not the eyelashes that we look at. But if it makes you feel better, go for it.

True or False:

A pilot may drop a bowling ball from his aircraft while in flight. TRUE! FAA Regulations 91.15 allows a pilot to drop any object as long as “reasonable precautions are taken to avoid injury or damage to people and property.” We have a pilot in our group who has done that- bounced bowling balls off frozen ice. And once he bombed a yard and the ball bounced and hit a building, inflicting some damage. His name will not be mentioned to protect the guilty. This pilot also distributed a friend's ashes out the window of his plane. Not a good idea as some of the ashes blew back into the cockpit.

Who hasn't thought about being an airline pilot? There have been a few letters to the editor in Aviation Week giving their pros and cons. The latest one suggest that if you love flying you will have to go through low paying regional airlines. After five years regional captains make about \$70,000. Average starting pay is \$50,000, increasing to \$95,000 after five years. A captain after 10 years averages \$125,000, typical captains make \$155,000. Top captain pay averages \$200,000 and peaks at \$280,000. The fringe benefits: no time clock, just show up on time, do your job, go home. Benefits are based on seniority. You go from no choices to a list of choices. You have to love your work and go through the process.

No wonder flying lessons are down. A CFI in General Aviation News, Mar.22, writes that it costs \$135/hour to rent a C-172 wet. the instructor costs \$58/hour. With pre and post flying he figures it costs a student \$262/lesson.

“Aging seems to be the only available way to live a long life.” Composer Daniel-Francois-Espirit Auber

Old Goat, out.

SELECTING AN ENGINE FOR MY HOMEBUILT AIRCRAFT

Part IV

By Mike Clayton

(Mike's very complete article included several spreadsheets tabulating his numbers. Those have been edited out for space. Please contact Mike if you would like to see them. Ed)

I apologize for taking so long to finish this series. I hope you are still interested in the progress of selecting the engine for my Kitfox. As you may remember, I am in the process of rebuilding a KitFox II after it suffered a serious accident. Further, this is my first attempt at homebuilding. I undertook this project shortly after I retired from a 43 year career as an aerospace engineer. I felt that my years of experience working on designing and building a variety of airborne and spaceborne systems would stand me in good stead, and that the project would keep me occupied with things I love to do. It has turned out to be more rewarding than I could have imagined, and I am already thinking about the next aircraft I want to build!

Here were the initial constraints that I had to live with:

- Aircraft gross weight:* 950 lbs.
- Aircraft empty weight:* Originally 461 lbs
- New aircraft empty weight:* TBD lbs
- Fuel Capacity:* 12 gal

Since three of these were pretty much fixed, that left only the new aircraft empty weight as a variable. Other factors such as useful payload, range, top speed, rate of climb, and fuel consumption would be whatever they were for the engine being used, and would figure into the final selection, based on their impact on the overall requirements that must be met. In examining these factors, I verified that increased engine power primarily affected rate of climb and fuel consumption, as well as aircraft empty weight, with only a small effect on top speed. Speed during cruise, and top speed will be affected mostly by parasitic drag. Reduction of this drag is a separate issue.

With a fixed amount of fuel capacity, I needed to set some minimum acceptable value for the payload I needed to carry with full fuel. In effect, I decided to base the comparison on the weight and balance data, coupled with some issues around how the useful payload of the aircraft was to be allocated. At a minimum, I wanted to be able to fly solo for at least several hours with appropriate reserves at the end of that time. More preferable would be the ability to fly for the same amount of time with a passenger, and/or cargo of reasonable size.

I began the final selection process by creating a spread sheet which incorporated basic weight data for the aircraft, as well as the necessary moment arms to compute weight and balance. The idea here was to construct an aircraft with a given engine option, the design changes I

had incorporated, the engine under evaluation, and then calculate weight and balance for a range of mission parameters such as pilot and passenger weights, the amount of fuel, and any cargo. The selection of the correct engine was then straightforward.

The first thing I did was to create an itemized list of all the weights and the balance data I had available. For example, here is the list I put together basic aircraft as it now existed, and with modifications that I planned on making.

Basic Weight and Balance Data

plan on using a Lithium-Iron Phosphate battery in place of the old battery. It weighs only 2.5 pounds, compared to the old battery weight of about 20 pounds! This gives me a bit more flexibility in adding modifications which would have increased the original weight.

I included the weight of a GSC prop in the calculation, even though I did not want to use that in the final configuration. As I included it in all calculations, it won't affect the comparisons, but inclusion will give me a more realistic idea of aircraft payload.

Using this data as appropriate, the original Weight and Balance data could be computed.

Original ECG without BRS

The original ECG is well within the limits specified by the manufacturer of 10.2" to 14.28".

In order to examine the effect of the different engine options, I estimated the weights for them. I constructed similar tables for the VW with Nikasil cylinders, and for the HKS Turbo.

Using the data from these tables, I constructed new aircraft configurations, which had the new battery located behind the seat, along with the header tank. The new landing gear weight was included, and the old weight eliminated. I also reduced the weight of the instrument panel by using modern, lightweight instruments, although this may change as the revised design develops.

I was then able to use these data to calculate the aircraft weight and balance for the following cases (ECG is empty center of gravity): (chart removed for space. Ed/)

In both cases, the ECG was well within limits, although it had moved rearward significantly.

I did the same calculation for the HKS 700T, and the AeroVee VW conversion.

Note that for the VW conversion, the CG location significantly violates the most forward location allowed for the aircraft of 10.28". This result is obtained even when the battery is moved aft of the seat. In order to move the CG further aft, either ballast or weight needs to be added aft of the aircraft datum. When I examined these, neither was particularly attractive, as adding ballast would waste useful payload, and moving the battery would put it in a location difficult to get at for service. Adding a BRS installation would move the CG to 9.81" for the VW with Nikasil Cylinders. Even that does not

place the CG where it needs to be. The VW conversion was looking less and less attractive for this application.

To explore further, I recalculated the weight and balance for the HKS 700E and a BRS parachute, along with remaining useful load by considering a pilot (me), and a full load of fuel (fuel is 13 gal, including header tank, useable fuel is 12 gal) in calculating the weight. By doing this, I could then see the useful payload under these conditions, while remaining within gross weight limitations.

In this case, the flight duration turns out to be 4 hr (no reserve), and with me on board, there is the capability to carry 126 lbs of cargo. However, the C.G. violates the aircraft aft requirement of 14.28". This could possibly be remedied by moving the battery forward to the firewall. This is just about the performance I would want for cross country solo flying. If I were going to carry a passenger, then this would not work out, unless the person were very small, such as a child. This calculation also includes the weight of the BRS system.

By eliminating the BRS system, I added 24 lbs to the remaining useful load with full fuel, which would come to 150 lbs. remaining useful payload. The C.G. would also move forward. Fuel weighs 6.1 lbs per gallon, and my full fuel load will be 12 gallons, for a full fuel weight of 73 lbs. Reducing the fuel will add some to the remaining useful load. For example, if I cut the fuel by one third, or to 8 gallons, I could add about 24 lbs to the useful load, bringing it to 174 lbs. Better, but less than optimum for cross-country, and enough to carry a reasonable size adult passenger (particularly if I lose weight!). Flight duration would be 3.2 hrs (no reserve), which is barely adequate for any serious cross country work.

So, for this option, I can fly cross-country solo, and make relatively short local flights locally, carrying passengers, and still remain within gross weight limits. I concluded that the best option was to eliminate the BRS, to get adequate range for solo cross country, and to carry passenger and cargo.

Since the other engine choices weigh more, they will reduce the ability to carry full fuel, and people or cargo even more. In evaluating the value of these, increased horsepower would be the only offsetting advantage, but again, that primarily increases fuel consumption and weight, with somewhat improved climb performance and very small improvement in speed. I concluded that none of the other options would satisfy my requirements.

The final selection seems pretty obvious at this point – the HKS 700E. The only potential issue is the power of the engine, which is rated at 60 HP. However, everyone I talked with who had made this conversion indicated either the same performance as with the original 65 HP engine, or somewhat better performance. I suspect that may be due to the flat torque curve of the 700E, compared to the Rotax.

DOORS OF THE SAC

It's not quite a poster, but we do have a variety of different doors. A special thanks to the door-framers/hangers for their hard work on these.



**EAA Chapter 44
Board of Directors' Meeting
09 Apr 2013**

Board Members Present: Hurd, Clayton, Byers, Nelligan-Barrett, North, Peters, Williams, and Hazen

Other Members Present: Northrup (Welcome back Bob!), Greeno

Reports:

- President (Rob Williams):
 - Received donation of King IFR training package from Bob Northrup
- Vice President (Norm Isler):
 - Court of Honor for Nick Gennarino's Eagle Scout ceremony on 23 Mar.
 - Need to install recognition plaques acknowledging Eagle Scout efforts and support of Triumph Aviation. Norm asked for approval to purchase plaques. Steve North moved, Dave Hurd seconded, passed unanimously.
 - Norm submitted a Sam's Club membership renewal to Dave Hurd. Mike Clayton moved, Jeff Peters seconded, passed unanimously.
- Treasurer (Dave Hurd):
 - Report read and approved.
 - Two new members: Donald Drake, Christopher Koch.
 - Paid yearly rent to airport owner, check cashed.
 - Received a check from the Hilton Rotary Club in recognition of our support of the 2012 Hendershot fly-in.
 - Audit of Chapter finances pending availability of Vice President.

Business:

- Building Committee (Darryl Byers / Mike Clayton)
 - Bob Nelligan-Barrett suggested that we consider installing a hearing aid amplifier loop as a part of an overall sound system.
 - Phil Hazen offered his old, but high quality, Bose speaker system for consideration as a Chapter donation.
 - Definite plan for spring – Cover over drain line and water supply trenches, cover over buried power line. Need

front-end loader, some manpower and some clean fill.

- Matt Rice has completed restroom upgrades as part of his Eagle Scout project. The Chapter will install vanities along with interior doors and partitions.
- New storage shed due by the end of April. Need to get site prepared (scrape off topsoil and spread base stone).
- Old Business:
 - Norm has submitted an order for Hugh Jones' memorial plaque, will write up bio.
 - Potential visit from Ford Tri-Motor this year. Waiting to get information from National.
 - The Cosgrove Middle School aviation program has begun. Associated Young Eagle flights scheduled for 4 May.
- New Business:
 - Bob Nelligan-Barrett suggested allocating wall space for recognition of deserving members who have "Gone West"
 - Phil Hazen reviewed the Chapter activity calendar for the rest of 2013. He'll post the current items on the Chapter website.
 - Bob Nelligan-Barrett presented rough copy of a new Chapter information brochure for review and feedback.
 - Young Eagle flights on June 8th, Norm looking for pilot leads.
 - Aerocamp 2013 scheduled for May 17 (Fri) – May 19 (Sun). Expect no more than 40 participants.
 - June 15th Geriatric Pilot's Association visit
 - June 22nd Tiger Paw (Rob Williams' field) biplane fly-in.
 - Hots and hamburgs at the SAC – Saturdays 8 Jun, 13 Jul, 10 Aug. – how to promote? Looking to target local flying community.



Mini-classroom seating in the Board Room.

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 1st Tuesday of the month. Send submissions to Editor 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

See Upstate NY's Aviation Calendar for a list of Fly-in breakfasts & other activities: <<http://www.upstatelist.org>>

AOPA ASI SEMINAR at the SAC

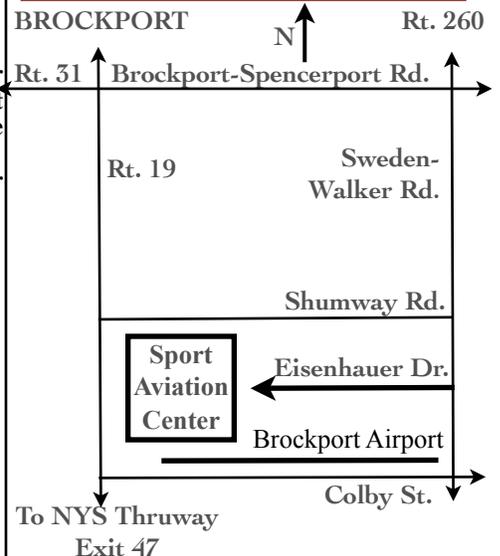
"Chart Challenge"
5/23, 7-9 PM
Program description in the February newsletter and <<http://www.aopa.org/asf/seminars/seminar.cfm>>

ROCHESTER AIRSHOW CANCELLED! SEQUESTERED!!
6/1, 2 KROC, Rochester NY

SENTIMENTAL JOURNEY TO CUB HAVEN: 6/19-22, Piper Memorial Airfield (LHV), featured plane: PA-18 SuperCub, <www.sentimentaljourneyfly-in.com>

GENESEO AIRSHOW- 7/12-14, Geneseo Airfield (D52), featured plane: the only flying DeHavilland Mosquito, <www.1941hag.org/geneseo-airshow>

AIRVENTURE 60th Anniversary
7/29 - 8/4
Oshkosh, WI
<eaa.org>



EAA 44 Calendar



NEXT GENERAL MEETING

13 WHAM Chief Meteorologist Glenn Johnson will show us his weather prediction tools.

Please bring a dish or side dish to pass to complement our dinner.

May 17-19 BSA Aerocamp
May 21 General Meeting
May 23 AOPA ASI Seminar
May 25 SAC Work Day

**Jun. 9 Int'l YE Day &
SAC Open House
(hots & hamburgers)**

Jun. 11 Board Meeting
Jun. 15 Geriatric Pilots visit
Jun. 18 General Meeting
Jun. 22 SAC Work Day
**Jun. 22 Biplane Fly-in @
Rob Williams
Tiger Paw airstrip**

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-

2nd Tuesday of the month, 7 PM

General Meetings-

3rd Tuesday of the month
Dinner 6:30, Meeting 7:30

SAC Saturday Work Days-
2nd & 4th Saturdays, 10 AM

Bob Nelligan-Barrett
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