



FT	3000	9000	12000	18000	24000	30000	34000
BRL	1937	2215+12	2617+07	9900-09	20734	223343	283444
DBQ	1922	2215+12	2617+07	9900-09	20734	223343	283444
DSM	1919	2215+12	2617+07	9900-09	20734	223343	283444
MCW	1709	2215+12	2617+07	9900-09	20734	223343	283444
JOT	2229	2215+18	2106+13	2706+06	3205-09	9900-19	191034
SPI	2028	1921+18	1911+12	9900+06	3611-10	3405-20	191034
							161745

Winds Aloft



EAA Chapter 790

Lake in the Hills, IL

790.eeachapter.org



- ◆ In This Issue
- ◆ Brodhead Museum
- ◆ Battery revolution (lots of moolah here)
- ◆ New Airplane News
- ◆ Members Notes
- ◆ Fly Out's
- ◆ Calendar of Events



Patrick Weeden The Executive Director of the Kelch Aviation Museum at Brodhead Airport (C37) in Brodhead, Wisconsin gave a marvelous talk on the history of Brodhead Airport and their establishment of the Kelch museum.

Established in 1946, Brodhead Airport is known around the country as one of the best grass airports in the Midwest. It hosts a number of public events throughout the year, including a three-day gathering of the Midwest Antique Airplane Club each September. Also, the national Pietenpol, Hatz and Bleriot clubs hold a joint three-day fly-in each July.

The Kelch Aviation Museum is located at the Brodhead, Wis. Airport. Currently housed in six hangars, the museum contains a unique collection of aircraft from the "Golden Age of Aviation"

Upon Al's and Lois' death, their entire collection of vintage aircraft was placed into the Alfred & Lois Kelch Charitable Trust, along with funds to, "...keep the hangars open". In 2012, trustees created the Alfred & Lois Kelch Aviation Museum as an IRS 501(c)(3) non-profit corporation.

Contact Pat at "pweeden@kelchmuseum" for further information or their website at "kelchmuseum.org."



BATTERY REVOLUTION

Well Batteries have progressed faster than expected. The subject of note is the solid state Lithium Battery. The advance on this type is that the electrolyte is not in a liquid suspension. This reduces the battery weight, is not subject to catching fire if the battery is penetrated and eliminates the dendrites which develop over time and can short out the battery

For those unfamiliar with the current battery evolution. It has progressed from the Nickel Metal Hydride (on the Prius) to the Lithium Ion with a liquid electrolyte to the solid state Lithium Ion. Currently most auto's and plane batteries have been using the Lithium Ion Battery in a liquid electrolyte state.

Tesla has been the mover and shaker in the electric transportation field despite the many er most past critics. The change is now seen in most current traditional auto makers jumping on the electric E revolution bandwagon i.e. Toyota, the first mass produced hybrid, to Ford, Nissan, Mercedes Benz, Volvo and on and on. Many of these auto manufacturers are now releasing or soon to be released all electric automobiles.

Lithium battery production is the current bottle neck. Though China is building factories as others in Europe. The US Tesla giga factory has not yet reached peak production.

This paradigm shift has not gone unnoticed in the aviation field. Numerous Plane manufacturers and some very new ones are shifting to electric propulsion. The idea is to use electric aircraft, which had short legs, for training i.e. pattern work. This was brought forward by Pipistrel. The analysis shows the cost of building, maintaining and operating an electric aircraft is significantly cheaper as well as the benefits of a low noise floor. NASA, Boeing and Airbus are just a few who are developing Commercial Electric Aircraft.

Current US FAA regulations do not permit use

of electric powered aircraft, even in the light sport category from operating as a commercial vehicle for training purposes. This is being worked by several manufacturer's. However, the FAA is proceeding very very slowly. Write your congressman if interested. Experimental electric aircraft as well as flying clubs can provide lessons in electric aircraft provided certain rules are adhered to.

Current Lithium Battery Manufacturers are:

Tesla as previously mentioned (also working on developing Graphene Batteries)

SEEO-Hayward California has developed a solid state Battery called "DryLyte". It uses technology developed from the Lawrence Berkeley National Laboratory with Shanghai Sourcing. They use a Block Copolymer Solid electrolyte.

AESC-Automotive Energy Supply from Zama, Japan the provider of the Nissan Leaf Batteries.

NGK-from Nagoya, Japan, the largest Spark Plug Manufacturer is moving away from building spark plugs to concentrating on Solid State Batteries. They have developed a Ceramic Electrolyte.

Toyota-uses a Sulfide based, sodium anode and electrolyte for their batteries as well as production of Fuel Cells.

LG Chem is building a plant in Poland, provides batteries for The Chevy Volt and Renault ZOE.

Samsung SDI-a Seoul, S.Korean company is building a plant in Hungary. They have a Prismatic Lithium Ion battery and are developing the Graphene based battery which has a 5X faster charging rate.

Future Hybrid Batteries combines both Supercapacitors, for quick drag reducing power i.e. role out and climb, with Lithium Ion for continuous energy i.e. cruise.

Write up provided by Tom Solar



NEW AIRPLANE NEWS



Siemens brought its prototype electric aircraft to the U.S. this week for the first time, showcasing the airplane at the company's Innovation Day in Chicago. "Electric propulsion is one of the transformative technologies that will help the industry meet the goals of reduced fuel, emissions and noise," said Teri Hamlin, vice president of electric propulsion for Siemens. "By accomplishing testing on our systems on select flying testbeds in the lower power classes, we are gaining valuable experience and knowledge that accelerates and validates our other developments in hybrid-electric propulsion systems in the high power classes." Further testing of the technology will take place in Waco, Texas, at the Texas State Technical College Airfield.

The Texas facility will become home to the eFusion aircraft, a flying test bed featuring the Siemens 55-kw electric propulsion unit, the company said. The Texas facility also will be key in data collection on new electric propulsion systems, enabling safety standards and certification efforts for the aerospace market.

Per AVWeb Flash March 30, 2018

The video in the Web Flash showed the 260KW power plant in the Extra airplane

which was demonstrated last year with 350 HP. So this recent Siemens development appears to be testing a lower power 55 KW design.

Other notes on upcoming airplanes.

Dynon founder Dr. John Torode has been testing a \$99,000 2 seat aircraft utilizing the tried and true Continental O200D, 100 HP engine. The name is Vashon Aircraft Ranger 7 and will have ADS B and Autopilot included in this price. Hurray! Looking forward to its release, You can view further information in the March issue of EAA magazine.

Shipping Electric Trainer

A press Release is due on April 17 in the Fresno, CA. newspaper per city manager Nicole Zieba, in Reedley, Ca. They have contracted with Pipistrel Aircraft to provide electric aircraft under a special FAA authorization. Will keep you posted.

Ole's Electronics:

Just upgraded to comply with the mandated ADS-B requirements (you can Google it) and to replace some of my instrumentation with electronic instruments rather than the older technology electromechanical instruments.

OLE'S CHALLENGE #6

The subject airplane is a fictitious high-wing tube and fabric two seat airplane powered by a 75 HP Continental engine. The owner is a private pilot with limited experience and new to the airplane. He studies the POH and comes across an oddity – at least it is odd in his mind. He notices that at his home field in Illinois, which has a 1400' runway, he **has** to use ½ flaps for take off if when at gross, but at his vacation home in Colorado – where the air-field is at 7000' with a 4000' runway - he **has** to take-off with **no** flaps. Using ½ flaps is not an option. Given that there are no significant obstructions in the take-off path, the Challenge question is why. Why are flaps required in one case and zero flaps called for in the other?

This is the situation at high altitude over Michigan: The traffic from the East coast to Chicago is running at close to capacity of both the Chicago airports and the ability of ATC to handle the traffic. The traffic has been slowed to 250 knots IAS and the following exchange was overheard on the ATC frequency: "Chicago Center – Continental 123 – we are running into significant headwinds here at FL 360 (36,000') -- do you have any wind reports at lower altitudes?" "Negative - Continental 123 – no reports, but I notice that the traffic at 300 is about 50 kts slower than the traffic at 360 even with the same speed assignment, so the head winds at 300 must be even higher."

Did the controller draw the right conclusion? Explain your reasoning, please.

What is a DF Steer?

A Bonanza is on a VFR flight from Lake in the Hills airport to St. Louis Lambert airport. There are scattered thunderstorms in the St. Louis area, and as he is approaching the airport the controller on the approach control frequency vectors him and a bunch of other airplanes for sequencing to the final approach course. In the process his assigned heading will take him directly towards a really big thunderstorm cell. He complains to the controller, but the controller responds that "I have other traffic on both sides of you – I cannot give you another heading, so stay on the assigned heading".

What should the Bonanza pilot do? Is he obligated to stay on the assigned heading?

Give me your best answers and win a ride for two in my airplane or free beer next opportunity we have.

Ole

Keep the blue side up.

847 639-5408



CHAPTER NOTE: Ole has been mentoring an Eagle Flight individual interested in pursuing an aviation career. He showed up at our Chapter Meeting last year.

Ole,

We haven't talked in a while and I wanted to send you an email and say hi. I hope you're doing well. The family finally moved down here to New Orleans (well north about 45 mins in Madisonville) a couple months ago and we are getting the house put together. Work is very busy and I'm in the process of a possible large expansion that will be very good for me. I haven't flown since getting down here however I was able to get my 1st class medical completed and mailed to me. That was more difficult than I thought it would be due to being on 1 medication when I was younger.

I think of flying often and am looking to complete flights this year. I think I underestimated the costs and how I would support the family when I looked at doing ATP flight school. But, I am interested in continuing flights ever since you took me up in the air. Thank you for the time you spent with me and for the introductory flight. I'll keep you posted on things down here.

Brian Block

Brian came to the Chapter in June last year wanting to know more about a career in aviation. He is married with a couple of kids, had a good job, but he was never really off. Always on call, and he had read about the shortage of pilots, and wanted to find out if that was something he could aim for. After a YE event June 1, I took him up in the P.P., and he was sufficiently motivated that he called me back, and I and someone else, could have been Brad, went to see him at his house. We filled him in as best we could, and I remember recommending he get First Class Physical before spending any more money. He took advantage of a transfer opening with his present employer, and moved to New Orleans where he is now located and starting to plan the next phase in his pursuit of an aviation career.

FIRST 2018 OFFICIAL FLY OUT-APRIL 21



Gentlemen

With a little bit of luck weather-wise we will start the season of fly-outs every third Saturday morning by flying to Mount Hawley Aux field NNE of Peoria on April 21st.

Mount Hawley identifier is 3MY, it has a runway 18-36 with 4000' of good asphalt, and it is situated just inside the Class C ring of Peoria. Distance from Lake in the Hills is 103 NM. The attraction there is Firehouse Pizza just 0.3

miles from the airport, they open at 11 AM on Saturdays, so let us plan to arrive at 3MY at about 10:30 AM, that should give us enough time to get the airplanes squared away and walk to the place. For the last 1/3 of the route you could follow the Illinois River and do a bit of sightseeing.

The FBO is Mt. Hawley Airport; 100LL price is presently \$ 4.50 – do plan to buy some fuel there.

Please call or email me if you are planning to come, or need a ride, or have extra seats. This is of some importance if we want to sit together.

847 639-5408 or cell 847 826-1935 or oleeva@sbcglobal.net. If weather is a problem, we will meet at the Colonial Restaurant in Crystal Lake at 9:30 AM; If you have indicated that you a coming, I will call you in event of cancellation. (or you can call my cell)

Keep the blue side up..

Ole

Calendar of Events



2018 Young Eagles

Contact your Young Eagles Chairman:

Matt Van Bergen

At 847/561-0520 or "mvanbergen@gmail.com"

for pilot, marshaling or front desk volunteering

The First Saturday of the month beginning:

May 5th, 8:30-12 noon

June 2nd, 8:30-12 noon

July 7th, 8:30-12 noon

August 4th, 8:30-12 noon

Sept. 1, 8:30-12 noon

Oct. 6, 8:30-12 noon

April 3 Board Meeting at LITH Airport 6:30 PM

April 14th-AOPA Real Weather Free Seminar, Muks Hanger on North End of Dupage Airport 8:30 AM

April 21, Fly Out to Hawley Field, Peoria

April 24 Chapter Meeting Chili Cook off bring your favorite at LITH Airport 6:30 PM

May 19th Fly Out Tri County Airport, LNR, Breakfast at Piccadilly Lilly on airport.

May 22 Chapter Meeting Pete Lind presents the GP-4 plane at LITH Airport 6:30 PM

June 5, Board Meeting at LITH Airport 6:30 PM

June 16 Fly Out, TBD

June 24th, Annual Chapter Pancake Breakfast

June 26 Chapter Meeting at LITH Airport 6:30 PM

Check for additional information on our Chapter's Website

"790.eaachapter.org"

EAA Chapter 790 Membership Form - 2018

or sign up on the Website under Chapter Membership

First Name: _____

Last Name: _____

Spouse: _____

EAA Membership Number: _____ (Must be an EAA member)

Street Address: _____

City: _____ State: _____ Zip: _____

Home Phone: ____ / ____ - ____ Cell Phone: ____ / ____ - ____

Email Address: _____

Own Aircraft: yes or no Model or Type: _____

Aircraft Project: yes or no Model or Type: _____



For Young Eagles

If you have completed Youth Protection training, what was the date _____

If you have completed the background check, what was the date _____

Dues

\$25.00 Family/Individual Renewing Membership _____ \$10.00 Family/Individual First-Time Membership _____

\$10.00 Out of State Membership _____ \$10.00 Student Membership _____

Please make checks payable to "EAA Chapter 790" Bring this form and payment to a members meeting, or mail to:

EAA Chapter 790, PO Box 1206, Barrington, IL 60011

EAA Chapter 790 Staff

OFFICERS

President

Paul Ranieri

847/997-0135

P.ranieri@comcast.net

Vice President

Brad DeLisle

847/276-5026

delisle.nx@gmail.com

Treasurer

Tom LeGates

847/462-1791

trlegates@comcast.net

Secretary

Tom Solar

847/902-8347 cell

tomsolar@sbcglobal.net

Flight Advisor

Glen Brisson

847/438-7786

Young Eagles

Matt Van Bergen

847/561-0520

mvanbergen@gmail.com

Newsletter Editor

Tom Solar

847/468-9437

tomsolar@sbcglobal.net

Website

Tom LeGates

847/462-1791

trlegates@comcast.net

Flight Advisor/Tech Counselor

Ron Liebmann

847/352-8282

Mike Perkins

217/725-0628

Ole Sindberg

847/826-1935

DIRECTORS

Paul Ranieri

847/997-0135

P.ranieri@comcast.net

Brad DeLisle

847/276-5026

delisle.nx@gmail.com

Tom LeGates

847/462-1791

trlegates@comcast.net

Tom Solar

847/468-9437

tomsolar@sbcglobal.net

Lon Danek

847/381-4286

LDanek417@aol.com

George Roby

847/658-3655

groby51@gmail.com

Ole Sindberg

847/826-1935

oleeva@sbcglobal.net

WINDS ALOFT, the six time EAA international Newsletter award winner, is published Periodically by EAA Chapter 790 for the use and enjoyment of its membership and others to whom it is provided. No claim is made to the accuracy or validity of the content presented in this publication. Editorial content is the opinion of the contributor and does not necessarily reflect the position of Chapter 790 or of the Experimental Aircraft Association (EAA). Permission is granted to others to use any non-copyrighted material appearing in this publication so long as credit is acknowledged.