



The CHAPTER 221 FLYER

Proudly Serving the Experimental Aircraft Association Chapter 221 in Kalamazoo, Michigan
www.EAA221.org

July 2014

President's Message



Our September meeting at the AirZoo East Campus and we started on the ramp checking out a couple Kalamazoo based airplanes. I brought my RV-7A. Tim and Liz Popp showed off their RV-7 tail dragger

with a beautiful new paint job. Frank Zwart brought his RV-12 and Andy Lincoln showed off his "ready for FAA inspection" Rans S6S. By October meeting time, Andy hopes to have completed the inspection and first flight. The "ramp check" was followed by an Oshkosh recap in the East Campus theater. The recap consisted of a video from EAA HQ, a couple stories from Chapter members and a picture show with photos taken by our own Daniel Flanagan. Daniel has figured out how to snag flights and capture Oshkosh in pictures. Great job! A special thanks to Andy Lincoln, Tim and Liz Popp, and Frank Zwart for sharing their beautiful airplanes.

Airplanes on the Ramp
picture by Daniel Flanagan

The October meeting will be a project visit. Fred Harrison is building a Vans RV-8 and offered to show off his project. The meeting will be at Fred's shop, just east of Richland on M-89. From the traffic light in Richland go East 1.3 miles on M-89. You will see Gull Lake Marine on your left. Fred's shop is in the blue office building on the left just beyond Gull Lake Marine (Richland Plains Offices and Storage 10301 East M-89). Drive up the hill and park anywhere around the office building. Let's meet at 7:00 and talk airplanes.

Fly Safe,

Dave Hull
President, EAA Chapter 221
davhull@sbcglobal.net



Airplanes on the Ramp -- photo by Daniel Flanagan

Next Meeting

**Wednesday, October 1st,
2014**

7:00 PM

Fred Harrison's Workshop

RV-8 Project Visit

10301 East M-89

Map at www.EAA221.org



Andy Millin

EAA 221 Newsletter Editor & Webmaster
amillin@sbcglobal.net

Unless otherwise specified, our chapter meetings are the first Wednesday of the month at 7:00 p.m. at the Airzoo Flight Center Classroom on the west side of the Kalamazoo-Battle Creek International Airport.

A Lithium Battery for our Europa

Like many others, we are always looking for ways to reduce the empty weight of our Europa. For a few years we have considered a lithium battery because:

potential weight saving of about 10 lbs .

a lithium battery discharges at a nearly constant voltage and then abruptly drops off instead of the gradual decline of a lead acid battery

the self discharge rate is much lower than a lead acid battery so it doesn't



need periodic recharging when not in use

The well publicized battery problems of Boeing and Cessna have been a deterrent. Fellow Europa owner Bob Berger tried an AeroVoltz battery a year or so ago and found the capacity was very limited. But Carbon Cub has been successfully using Shorai lithium batteries and many individuals have too. And there now is a certified lithium battery available (www.truebluepowerusa.com). So we started looking at them again.

Jim monitors the Van's Air Force forum regularly and there has been a thread concerning lithium batteries there since 2011
<http://www.vansairforce.com/community/showthread.php?t=77016&highlight=earthx>.

Several of the posts are from people who are using lithium batteries with no problems. And many are looking for more information and more assurance that they are safe and reliable.

Last Spring EarthX <http://www.earthxmotorsports.com>, a US lithium battery supplier started to post on that thread (post #129). From the posts, Jim learned that there are differences in the products from the various battery suppliers especially concerning balancing circuitry and capacity (both starting and endurance). And that all other lithium batteries (cordless tools, computers, cellphones etc) have internal balancing circuits, while the batteries flooding the market for motorsports often do not.

EarthX has addressed the needs of the amateur built aircraft market by incorporating internal cell balancing circuitry, physically sizing batteries to be similar to lead acid batteries commonly used, testing other battery offerings and supplying data that permits apples to apples comparison of batteries. They have developed and made available on their website a technical manual concerning their batteries and lithium batteries in general.

Features of EarthX are:

1. Uses LiFePO4 technology that was developed in the US and is the highest performance and safest on the market.
2. The built in BMS (battery management system) causes the cell charge level to be balanced 100% of time for performance. It is the only patent pending battery technology that has over discharge, over charge and cell balancing built into the battery. A special charger is not needed and a conventional aircraft charging system will charge the battery evenly.
3. The batteries are designed for 4000 charge/discharge cycles, 3 to 8 years. Lead acid batteries are designed for 500 cycles, 3 years.
4. The cells have a low self discharge rate of 2% per month vs 30% for lead acid.
5. The battery cannot freeze or boil and has a wide operating temperature range, - 22F to +140F.
6. EarthX uses standardized industry tests such as SAE CCA (cranking amps capacity), UL and CE to rate their batteries and to allow comparison to lead acid batteries.
7. They are environmentally friendly, non toxic, non contaminating, lead free and have no hazardous materials.

The result of all this is that we purchased a EarthX ETX36C lithium battery at Oshkosh and have now had it installed for a couple of months.

Prior to installation, we load tested it like we do annually with our lead acid battery. The test is an 8 amp load and the time needed to drop to 10 volts is noted. The test is done using a circuit described in the earlier editions of AeroElectric Connection. A new lead acid battery will last 80 minutes under this test. Our EarthX lasted 110 minutes! We will test it each year to confirm its continued capacity. We have done this with our lead acid batteries and replace them when they reach half the initial test time which has proven to be about every 2 years. The EarthX should go much longer. We'll test and see.

Since maximum storage/operating temperature is to be less than 160 F and our battery is on the passenger side footwell in the engine compartment, we placed a temperature sensing decal on the case to monitor the temperature. Even in hot summer operation, the temperature has not gotten above 120 F.

So far, operation has been without problem. We routinely record operating data on each flight and use Savvy Analysis to review it. All electrical system data after installation is the same as it was when we were using lead acid batteries.

We are quite pleased with our purchase and encourage others to consider doing the same.

Jim & Heather
N241BW
Europa XS, Rotax 914

Classified Ads



For Sale: 2012 Vans RV12. 100.0 hrs. with all service bulletins completed with a latest VANS aircraft Fabricated fuel tank installed. Also Vans lighting package, wheel Fairings and AUTO PILOT installed. Based at AZO in SW Michigan. Call Frank at 269 501 8047

Chapter 221

www.eaa221.org

Supporting the recreational builder/flyer with technical, social, and political news to promote flying safety and enjoyment:

| | | | |
|--------------------------|---------------------|-----------------|--|
| President | Dave Hull | 323-2669 | davhull@sbcglobal.net |
| Vice President | Bill Shearer | 649-4957 | FirstImageBill@Chartermi.net |
| Treasurer | Bob Aardema | 372-1965 | robert.aardema@wmich.edu |
| Secretary | Conrad Kraft | 345-1926 | mo75fa@yahoo.com |
| Newsletter Editor | Andy Millin | 685-1643 | amillin@sbcglobal.net |



| | | |
|--------------------|-----------------|--|
| Jim Butcher | 375-5923 | butcher43@att.net |
|--------------------|-----------------|--|



| | | |
|--------------------|-----------------|--|
| Bob Aardema | 372-1965 | robert.aardema@wmich.edu |
|--------------------|-----------------|--|

| | | |
|---------------------|-----------------|--|
| Terry Brokaw | 279-7197 | terrybrokaw@gmail.com |
|---------------------|-----------------|--|



| | | |
|----------------------|-----------------|--|
| John Amundson | 731-5135 | jamund1009@aol.com |
|----------------------|-----------------|--|

VOLUNTEER SAFETY PILOTS:

| | | |
|--|---------------------------------------|--|
| Terry Brokaw | (h) 279-7197 | terrybrokaw@gmail.com |
| Brian Eckstein | (h) 624-6719 | eckstein@net-link.net |
| Carlos Fernandez | (h) 353-5911 | carlosf71@hotmail.com |
| Barb Goodwin | (h) 375-9399 | b19977@chartermi.net |
| (Available for Wings hours, BFRs and Flight Instruction) | | |
| Charles Martell | (h) 343-6972 | cmartell@net-link.net |
| Andy Millin | (h) 685-1643 (w) 345-2564 | amillin@sbcglobal.net |
| Eric Schlanser | (h) 637-3949 | eschlanzer@yahoo.com |

Articles are solicited from all members. Please contact Andy Millin at 345-2564 x201, or mail articles or news to amillin@sbcglobal.net



5585 Collingwood Ave.
Kalamazoo, MI 49004

«First_Name» «Last_Name»
«Address»
«City» «State» «Zip»
Paid Thru: «Paid_Thru»