



## *Mile High Flyer*

*The Official Newsletter of  
The Experimental Aircraft Association,  
Chapter 43  
Established May, 1958*



**Volume 47 Issue 3**

**On the web @ [www.eaa43.org](http://www.eaa43.org)**

**March, 2020**

### **Members' Corner - by Chapter President Cliff Goldstein When to Declare**

You never know how you'll react in an emergency, no matter how hard you train... or do you?

Leaving Palomar (KCRQ) on an IFR flight plan to Montrose, CO with the usual morning marine layer present, I was cleared for take-off with heading 250 and radar vectors to Julian VOR, with a climb to 4,000. After departure from KCRQ, I contacted SOCAL Departure with radar contact established. I was directed to turn left to 140 and climb to 11,000.

Now established on 140 heading in the climb, the engine stumbled once. It then stumbled a second time. I called SOCAL Departure and told them I'd had a loss of power. Their first question was: "Are you declaring an emergency?". Without hesitation above the marine layer I said "yes, this is an emergency". I was getting far enough inland that a turn to the left revealed the runway below.

I was given priority clearance with radar vectors to the runway. The engine was surging on-and-off so I tried a few things, like fuel pump. I was approaching the runway and jockeying with the throttle which seemed to be doing something. I noticed a few details like the #2 ECU light was flashing and the alternator current was going to 0, but nothing suggested to me what the issue was. I flipped on the auxiliary fuel pump even though I'd noticed that the fuel pressure was constant. All of that took a few seconds.

Turning left base, I was slow enough to hit the flap switch and get the flaps deployed somewhat.

When I was sure I had the runway, with the power at idle, I had a full slip. With a lot of braking since I came in hot, I turned off at the end of the runway. The engine had already quit. I restarted and of course, everything was just fine. I was back at the spot I just left 10 minutes ago.

Looking at the EFIS flight data, I saw that I had not put in all the flaps after I'd made the runway, and I could have pushed the rudder a little harder to get more energy out of the bird...

What's the take-away?. I didn't hesitate to declare an emergency. I focused on "*flying the aircraft*". Altitude is your friend so keep the climb going. Having ATC and the tower with me was almost calming. Having the fire truck behind me made me very self-conscious.

We train for these events and while you hope you never have to experience them, training made all the difference in the world. I never had that "oh \*\*\*\*" feeling. It was business as usual in the cockpit. See the video of the flight path here <https://drive.google.com/open?id=1KEnDanpYFQm5C9YYwmrTKdrykugHIER2>.

March is "bring in your builder tip month". Reach into your brain and find that one thing that's made the process easier for you. Also, it's "bring in a piece of your project month" too. We can call it "show and tell". See you Saturday.

For those of you wondering, a jumper wire on the fuse panel had loosened the day I installed the panel 3 years ago. Engine vibration finally allowed enough movement, with the moisture of S. Calif in the winter, for continuity to be lost between two buss bars. Lock washers have been added to every screw in the fuse panel.

### **Next Gathering - Saturday, March 14, 2020**

**6 PM @ the Mt. Evans Room in the Terminal Building @ Metro Airport (BJC)**

#### ***Presentation for the March Membership Gathering***

Steve Kerchner, an instructor at the Aeronautics Program at the Innovation Center of St. Vrain Valley Schools in Longmont, will bring several students to make a presentation on their center. Come prepared to ask and answer questions! Depending on presenter availability, the program may be held at 6 PM at the beginning of the membership gathering.

## ***Upcoming Events Calendar***

### **2020 CHAPTER EVENTS**

#### ***MARCH***

- Sat 14 EAA Chapter 43 Membership Gathering, BJC, 6 PM  
 Sat 21 EAA Chapter 43 Young Eagles Rally, EIK, 7:45 AM (First rally of 2020!)  
 Tue 31 New Chapter Website deadline; current website goes offline, see page 14 for more info.

#### ***APRIL***

- Sat 11 EAA Chapter 43 Membership Gathering, BJC, 6 PM  
 Sat 18 EAA Chapter 43 Young Eagles Rally, EIK, 7:45 AM

### **2020 AREA EVENTS**

#### ***MARCH***

- Mon 9 EAA Chapter 648 Membership Gathering, LMO, 7 PM  
 Sat 14 Colorado Ninety-Nines - The Amelia Earhart Project Presentation at Spartan College of Aeronautics and Technology, 10 - 11:30 AM <https://www.facebook.com/events/508346043364382/>  
 Sat 14 Mile High Wing of CAF - Women Airforce Service Pilots Presentation, BJC Mt. Evans Room, 11 AM - 1 PM  
 Wed 18 EAA Chapter 1627 Membership Gathering, KBDU, 6 PM  
 Fri 20 EAA Chapter 301 Membership Gathering, South Metro Fire Rescue Authority Building, 9195 East Mineral Avenue, Centennial, 7 PM  
 Sat 21 Exploration of Flight Young Eagles, 13005 Wings Way, Englewood CO, 8AM-12  
<https://explorationofflight.org/event/young-eagles-saturdays2-2-2-2019-02-16/all/>  
 Tue 31 Sun'n'Fun Aerospace Expo begins, Lakeland FL, LAL <https://www.flysnf.org/>

#### ***APRIL***

- 1-5 Sun'n'Fun Aerospace Expo, Lakeland FL, LAL <https://www.flysnf.org/>  
 Sat 4 Pancake Breakfast Fly-In/Drive-In, Centennial Airport, 13005 Wings Way, Englewood CO, 8-11AM, <https://explorationofflight.org/event/pancake-breakfast-fly-in-or-drive-in-7/>  
 EAA Chapter 1627 Young Eagles, 3335 Airport Rd. Boulder (KBDU) 7-11 AM [LINK](#)  
 Mon 13 EAA Chapter 648 Membership Gathering, LMO, 7 PM  
 Wed 15 EAA Chapter 1627 Membership Gathering, KBDU, 6 PM  
 Fri 17 EAA Chapter 301 Membership Gathering, South Metro Fire Rescue Authority Building, 9195 East Mineral Avenue, Centennial, 7 PM  
 17-18 US Aircraft Expo, BJC, 10 AM- 3 PM both days (Registration required, go to link below)  
<https://www.usaircraftexpo.com/locations/april-17-18-2020-kbjc>  
 Sat 18 Exploration of Flight Young Eagles, 13005 Wings Way, Englewood CO, 8AM-12 PM  
<https://explorationofflight.org/event/young-eagles-saturdays2-2-2-2019-02-16/all/>

# CHICKEN WINGS®

BY MICHAEL AND STEFAN STRASSER



A FEW DAYS LATER...



## In this issue:

- This month's title pic pulls together a couple of March memes - the subject is Lilian Bland, the first woman (Happy International Women's Day!) in the British Isles to design, build, and fly an airplane (named the Mayfly after others expressed doubts about her survival) in 1910. Lilian was Irish (nod to St. Paddy's Day next week!) and the Mayfly was the first powered biplane to fly on the Emerald Isle.
- Several interesting events in the Calendar for March and April. The big one is Sun'n'Fun, but there's also a pair of interesting presentations around BJC on March 14th - the Colorado 99s are hosting a presentation on The Amelia Earhart Project at Spartan College, and the Commemorative Air Force is hosting a presentation on the history of the WASPs at BJC's Mt. Evans room. In April there's a GA aircraft expo at BJC's Sheltair - including Aviat, Cirrus, Cub Crafters, Diamond, Glasair, Icon, Kodiak, Super Petrel, Tecnam, and Waco (among others). Registration is required, but if you're looking to buy a plane (new, used or kit), this sounds like an auto show for planes right in our backyard.
- Take a look at Coming Soon on page 14 - in addition to the SiteCore migration, Membership Coordinator Tim Stansbury has been busy the past couple of months getting the Chapter Roster online and setting up protected access.
- Since I currently don't have a second set of eyes to review the newsletter, I'd like to ask all of you to help find my boo-boos for cookies! Let me know at [newsletter@eaa43.org](mailto:newsletter@eaa43.org). Then come to the next chapter membership gathering for your cookies!

If you'd like to contribute calendar event, a newsletter article on a trip, a tool, component, or aircraft review, a how-to for build or test, historical or ANYTHING airplane or chapter related, don't be shy. You can email [newsletter@eaa43.org](mailto:newsletter@eaa43.org) with anything ya got in electronic format, or hand me a hardcopy. Be aware that Gmail limits attachments to 25MB, so if it's bigger than that, try multiple emails.

Social Butterflies Committee - Stan Specht, Chair

The Social Butterflies Committee was commissioned by President Cliff for the purpose of making available social activities for our members on and beyond the social time during our regular meetings. Also, the committee is to oversee certain chapter annual events.

I was asked by Cliff to organize the committee, and since its inception, Steve Beach and John Reuterskiold have offered to be committee members. Much thanks to you both! If someone else would like to join us, please don't be bashful!

Steve has already organized small group tours during the week to tour the Pilatus facility, the first of which occurred last week. Pilatus is a prime example of a company that is beyond one's imagination in displaying the newest and greatest technology and futuristic applications, as well as providing career opportunities in its apprentice program. Come join us on a tour!

So, the rest is up to you, the members. This committee can only be successful if you give us suggestions as to what activities you would like to see made available in the way of activities outside our regular meetings. Please contact any one of us with your input!

President Cliff has also asked us to come up with volunteers to head up our three major annual special social events: the May picnic, the after-Oshkosh pizza party, and our annual banquet. We will be asking for volunteers at our next meeting on the 14th. Don't be bashful in volunteering, as we will encourage other members to assist you. It's really kinda fun to get involved and get to know more of our members! After all, we have a really special chapter and members!

So, with that, what would you like to see- a pancake breakfast, a tour of the BJC tower, a joint meeting with sister aviation organizations, fly-outs, etc, etc???

### **Young Eagles - Cliff Hasenbalg**

Young Eagles events are starting March 21<sup>st</sup>. Yes another season is upon us. I've been asked by several people where do I find all the kids that come out for our events. A good example is last February 19<sup>th</sup> at Aspen Creek K-8. A cold and snowy night. There STEM Expo was well attended. Thanks to volunteers Scott Serani, John Reading, Stan Specht and myself (Clifford Hasenbalg). We had videos playing on a monitor while we talked to parents and students. I noticed most of the students glanced at the monitor and if it didn't capture their interest they went off to another booth. But you never know how many will sign up for a Young Eagles Rally. I still get registrations that state they found out about us at the Erie Air Fair which hasn't been held in two years. Other sources are Teachers, Scout Leaders, Bloggers and Facebook to name a few.

Our Young Eagles Rallies are posted on the National website. Insurance is in place for our events at KEIK, plus there was talk about a pancake breakfast. So I included that in our event insurance. Next I still want to do the Rural Outreach Young Eagles Rallies in Ft Morgan & Limon, and would like to include other small town airports close to Broomfield / Erie. Would there be any interest in helping other EAA Chapters? Like Granby, at their yearly fly-in breakfast? My question is how far is too far away. Last year the Rural outreach were back to back. I don't want to do that this year. I ask my volunteers what Saturday would work best. The first Saturday is a Young Aviator meeting. The second Saturday is our meeting night. The third Saturday is our Young Eagles Rallies. The fourth Saturday is 301's Young Eagles. I favor the second Saturday, but would like some input from the volunteers.

We also have the Summer Camp Kids. This year the South Denver group would like to do a Wednesday in July. The 1<sup>st</sup>, 8<sup>th</sup> or 15<sup>th</sup>. The 15<sup>th</sup> is too close to AirVenture. So volunteers which date would you like? Haven't

heard anything from the Longmont group.

We have the need for lady Pilots! Over 60% of the kids that come out for our rallies are female and it would be wonderful to have some Lady Pilots as a role models for them. Showing them Flying is not just for men.

If you would like to be added or deleted from my volunteer E-mail list. Contact me at

[Cliff\\_5280@hotmail.com](mailto:Cliff_5280@hotmail.com)

***Want Ads & articles for publication may be sent  
to the editor - [newsletter@ea43.org](mailto:newsletter@ea43.org)***

### ***Want Ads***

I'm a senior who recently completed ground school. I want to include a chapter member who is a CFI with their own aircraft among my options for private pilot lessons. I'm more advanced than a newbie on both age and experience, with some antiquated taildragger time and extensive recent experience "instructing" in the Wings Over the Rockies' Redbird sim C-172. If this describes you and you'd like to take on a student, please contact me at [dreamwoodck@yahoo.com](mailto:dreamwoodck@yahoo.com) or call 303-908-8753. Leave a message if you call so I don't think you are a robocaller.

Chuck Kubin



**Custom Embroidery**  
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Longmont, CO 80501  
email: [valandjimw@yahoo.com](mailto:valandjimw@yahoo.com)

Bill Mitchell reports that Valerie can embroider a couple of different sizes of our chapter logo on jackets, shirts, etc. Bill showed some examples at one of our gatherings, and they were beautifully done! The Gregorys had her embroider their tail art and N-number on their plane's seat cushion covers!

## 1946 Aeronca Champ 7AC – Like New Condition – Must See to Appreciate - \$35,000

2008 complete restoration – Cont. O-200 (118 SMOH), no-bounce landing gear, Cleveland hydraulic toe brakes, metal spars, twin 13 gal. wing tanks, new Sensenich wood prop, Poly Fiber covering, Icon IC-A200 radio and Flightcom 403MC intercom (both run off battery). Entire restoration done with relevant STC's and 337's.

Registration: NC83365 S/N: 7AC-2032 Based/Hangered at KEIK (Erie, CO)

### Remarks:

Needs Annual, but Seller is perfectly willing to conduct/pay for annual in conjunction with a pre-buy.

Sale includes IFly 700 and battery pack.

Honest and straight flying Champ! Sad to see it go but it just doesn't get flown as much as it deserves.

If interested, contact: [sserani@instakey.com](mailto:sserani@instakey.com)



# FOR SALE

## LIGHT SPORT

**2011 Experimental Zodiac 601XLB**, N601WL, TTA/E 340 hr., Jabiru 3300, Dynon 180 EMS/EFIS, Garmin AERA500 GPS, ICOM A-200, ELT, Garmin GTX 320A Xpdr, AOA, Sensenich GA prop, elevator & aileron trim, dual brakes and throttle, always hangared, fresh annual, builder and maintenance logs. Laramie, WY. **MEDICAL ISSUE**, Price reduced, \$35,000 Wes (307) 721-8804

[bressler@wyoming.com](mailto:bressler@wyoming.com)



**ALSO INCLUDED: MISC. PARTS, LIGHTSPEED HEADSETS, NEW UPHOLSTERY AND NECESSARY TOOLS**

## DATA SHEET

ZENITH 601XL-B - \$35K

By owner/builder

- 2011 Zodiac 601XL-B; always hangared (KLAR); TT340 hrs.
- Fresh condition inspection
- Sensenich ground adjustable composite propeller
- 15 gallon fuel tanks
- Navigation and strobe lights
- Electric elevator and aileron trim; electric flaps
- Center yoke with dual brake and throttle controls
- Jabiru 3300 with oil cooler
- High Altitude Control-manual (HAC man)
- Dynon 180 EFIS/EMS
- Dual VSI, AS, & Alt.
- Removable GPS – Garmin AERA 500
- Communication-ICOM A-200; Intercom-Flight Com 403mc
- Transponder- Garmin GTX 320A
- ELT – Ameri King AK450
- Tannis engine heater; baggage wing lockers; Koger sunshade
- Necessary maintenance tools, Lightspeed Zulu headsets (2), canopy cover, new upholstery set, extra tires, manuals

# FOR SALE

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## AVID MARK IV HEAVY HAULER (STOL)

ACFT is almost finished – only needs instrument panel completed and engine control hookup. Stratus 2000 Subaru engine - EA 81 (100 HP). Excellent craftsmanship by factory employees. Wide, gun drilled, spring landing gear. All factory options including seat storage compartments and additional fuselage storage and plex bubble doors. Three blade, Warp Drive, adjustable prop. Cleveland brakes. Ready for paint.

**\$19,900**

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LOCATED IN FORT COLLINS, CO.



## Minutes for EAA Chapter 43 Membership Gathering Saturday, February 8, 2020

Meeting opened at 6:01 PM by President Cliff Goldstein

Cliff repeated his intro from January's banquet, noting that Young Eagles, Young Aviators, and Scholarship have expanded over the past 2 years and are doing well. Cliff was essentially appointed president and believes in a passion for aviation. His goal is to have 4-5 people who want to be president in 2 more years. He has a passion for aviation and anything that leaves the ground. He is setting up 4 groups including Young Eagles led by Cliff Hasenbalg and Young Aviators led by Scott Serani and Lyn Miller. Not all chapter members are involved with those groups and since Cliff became president, he's had lots of folks telling him what they want to see, leading to creation of 2 more groups. Jim Sutton will lead Builders' Corner. The chapter has a lot of builders at all stages whose knowledge should be shared. Jim introduced Will Heltzel as a new Tech Counselor and wants to recruit more. The final group covers the chapter's social aspect - Stan Specht and Steve Beach will lead "Social Butterflies", which will include chapter involvement at BJC's Wednesday lunches. Cliff wants to hold a weekly chapter breakfast at Erie (once his house is done). Cliff's passion for aviation started at age 7, and he read all the encyclopedia entries on space as a kid. He was privileged to see AirVenture through Oscar Hill's eyes, including the NASA building and an electric de Havilland Beaver. There are lots of kids coming up from Young Eagles and Young Aviators; one day they'll be running this meeting! Consider EAA AirVenture volunteers, doing mundane tasks to support aviation. Need to set up a Social Calendar and get committee volunteers for the chapter picnic, pizza party, and banquet - Val has volunteered to populate the calendar. Kirk Brennan suggested flying to Oshkosh in May/June to volunteer for a week setting up AirVenture. Cliff appreciates the chapter's support and is having fun (will quit when not!) Next meeting will include recruiting for committees!

### **ANECDOTE** - Scott Serani

To all the kids who survived the 1930's, 40's, 50's, 60's and 70's!!

First, we survived being born to mothers who smoked and/or drank while they were pregnant.

They took aspirin, ate blue cheese dressing, tuna from a can and didn't get tested for diabetes.

Then after that trauma, we were put to sleep on our tummies in baby cribs covered with bright colored lead-base paints.

We had no childproof lids on medicine bottles, locks on doors or cabinets and when we rode our bikes, we had baseball caps not helmets on our heads.

As infants & children, we would ride in cars with no car seats, no booster seats, no seat belts, no air bags, bald tires and sometimes no brakes.

Riding in the back of a pick-up truck on a warm day was always a special treat.

We drank water from the garden hose and not from a bottle.

We shared one soft drink with four friends, from one bottle and no one actually died from this.

We ate cupcakes, white bread, real butter and bacon. We drank Kool-Aid made with real white sugar. And, we weren't overweight.

WHY?

Because we were always outside playing...that's why!

We would leave home in the morning and play all day, as long as we were back when the streetlights came on.

No one was able to reach us all day. And, we were O.K.

We would spend hours building our go-carts out of scraps and then ride them down the hill, only to find out we forgot the brakes. After running into the bushes a few times, we learned to solve the problem.

We did not have Playstations, Nintendo's and X-boxes. There were no video games, no 150 channels on cable, no video movies or DVD's, no surround-sound or CD's, no cell phones, no personal computers, no Internet and no chat rooms.

WE HAD FRIENDS and we went outside and found them!

We fell out of trees, got cut, broke bones and teeth and there were no lawsuits from these accidents.

We ate worms and mud pies made from dirt, and the worms did not live in us forever.

We were given BB guns for our 10th birthdays, made up games with sticks and tennis balls and, although we were

told it would happen, we did not put out very many eyes.

We rode bikes or walked to a friend's house and knocked on the door or rang the bell, or just walked in and talked to them.

Little League had tryouts and not everyone made the team. Those who didn't had to learn to deal with disappointment.

Imagine that!!

The idea of a parent bailing us out if we broke the law was unheard of.

They actually sided with the law!

These generations have produced some of the best risk-takers, problem solvers and inventors ever.

The past 50 years have been an explosion of innovation and new ideas.

We had freedom, failure, success and responsibility, and we learned how to deal with it all.

If YOU are one of them? CONGRATULATIONS!

You might want to share this with others who have had the luck to grow up as kids, before the lawyers and the government regulated so much of our lives for our own good.

While you are at it, forward it to your kids so they will know how brave and lucky their parents were.

Kind of makes you want to run through the house with scissors, doesn't it?

### **VISITORS, NEW MEMBERS** - Please tell us about yourself

Location

Flying, What? Many Months/Years?

Building anything?

Flying HOPES?

Sign in and get 6-month trial membership in Chapter 43

Sean Olson has a daughter in Young Aviators and is attending tonight with his son Anthony, who's working as an aircraft cargo loader. Don Hensley, also a Young Aviator dad, is here on a second visit.

### **MEETING DEDICATION – JIM BARBER**

Jim donated \$1000's worth of aircraft tools. Jim Sutton and Will Heltzel to catalog.

### **TRIP REPORTS**

Pete Watkins noted that Stan Specht was getting back today.

### **PROJECT REPORTS**

Ken Moss bought a partial build Europa motorglider. It's composite, and the fuselage is done. It has a Rotax 914 engine.

Wayne Gibson is 18 months in on a Zenith 650 build, but now it's too cold to do much work. The empennage is done and he's working on the wings, holding rivet parties with pizza and beer!

Bruce Lee is helping his dad in Arizona with an RV-14 build.

Mike Savino's RV-14 wings are underway and he's starting the skins (in a walkout basement so it's warm enough to keep working).

Tom Schibli's Kitfox is structurally complete and he's starting the avionics.

Zach Malone is working on his Pitts S-1 wings, they're almost ready to cover.

Gary Gregory is looking for a DAR to do his Kitfox's final inspection.

Kirk Brennan is working on his Dragonfly with help from Scott Serani.

Cliff Hasenbalg is helping with a Comp Air 7 Turbine - the wings are now attached.

Steve Paschke is working a comm issue with his Adventure 333 Amphibian. The wire harness for the flight data computer is done. Still working other avionics, but the engine cowl is installed.

Stephanie Wells remembered spending 10 years building an amphibian - she came to her first chapter meeting asking about a transponder she'd bought on eBay.

**SAFETY REPORT** – Stephanie Wells or Bill Mitchell or

Cliff Goldstein mentioned a complaint against special VFRs - pilots should know the terrain!

Roxie Juul said that a \$40-60K terrain monitor on Kobe Bryant's helicopter might have saved the passengers and crew. Possibly a military system?

Stephanie Wells asked the chapter's builders - Who's gonna pilot your first flight or fly with you? How much experience do you have, are you current in that type? Get a flight with a CFI in a similar type. Many kit companies offer transition training. Jeff Jones said that chapter members are very helpful with test flights and issues. Stephanie will give any chapter member one free check ride. Bill Mitchell, the chapter's flight advisor, said his position is similar to a tech counselor, he'll walk you through your test program and make suggestions. Bill urges builders not to bring a crowd to the first flight.

**YOUNG EAGLES** – Cliff Hasenbalg

Cliff has 2019 certificates for folks who weren't at the banquet. The first Young Eagle event on March 21st is full with 35 kids and more are signing up for the April and May events.

**YOUNG AVIATORS** – Scott Serani

No report.

**SCHOLARSHIP** – Roxy Juul or Zach Malone

No report.

**NEW/OLD BUSINESS**

**Builder's Tips** - deferred to March.

**March is Bring in Your Project. Bring a piece of what's in the Garage. Please bring in the good the bad and the really UGLY**

**Where the heck are we headed?**

Cliff Goldstein asked for a show of hands - Interest in an IMC - 3, interest in a VMC - 5 (included the three from IMC), and how many would prefer another meeting night - 2.

**TONIGHT'S PROGRAM**

Reg and Cathy Nicoson, EarthX Lithium Batteries Founder & Chief Technology Officer

The presentation is designed to help educate users on the pros and cons of using a lithium battery in aircraft and to present facts vs. fiction on the topic.

**Bio:** Reg Nicoson is the founder and chief technology officer at EarthX Lithium Batteries. He received an EE degree and worked for many years in corporate America in product development. Reg is very excited about advancements in technology and the benefits this achieves. EarthX is the first company in history to achieve an FAA approved 12V certified lithium battery, which also qualifies him as a top expert in the field of Lithium Iron Phosphate battery technology.

Reg will take questions at the end of sections and at the end of the talk

- 1) Lithium batteries provide high energy and less weight. Li-Ion is a generic term, and Reg showed a list of common types and where they're used. EarthX makes LiFePo<sub>4</sub> (Lithium Iron Phosphate). He compared that to LiCoO<sub>2</sub> (Lithium Cobalt Dioxide) and LiMn<sub>2</sub>O<sub>4</sub> (Lithium Manganese Oxide). Iron can take the most abuse, and is light compared to AGM (Absorbed Glass Mat lead acid) 12V batteries with more power and high voltage at start. They are maintenance-free, environmentally friendly, and low discharge. Jeff Jones asked if the voltage drops off on a cold morning and Reg said it does, referred us to a curve on their web-

site, and noted that the drop off is quicker below 0°F. Clues to battery low condition? EarthX batteries are designed to go deep and can be hooked up to the EFIS for voltage level warning. The batteries have a flat discharge curve; good voltage until discharged. Lead acid batteries start with a lower voltage that drops off quicker as load increases. EarthX batteries are 4 cells, each at 3.3V for a total of 13.2V. Cell damage can occur below 8V and generally the battery cuts off at 11.2V. Full charge is 14.6V with a high voltage cut off at 15.5V (controlled by battery electronics). Question - is a fuse-like component involved? No, there's a series-pass element.

- 2) Battery charging - DC charging is preferred, most vehicles since the 1980's have rectified/regulated 3-phase AC which Li-Ion likes. Some vehicles (vintage motorcycles) are not compatible. Chargers are readily available. A lead acid charger may work, if it's designed to shut off at the end of charge. Is there a need to leave the battery on a charger? Probably not on aircraft, though motorcycle batteries will require charging after 3-4 months. Scott McEwen asked if the battery should be completely discharged on an annual basis - No, although if it's near discharge, it should be charged before storing.
- 3) Safety - Boeing 787s had an issue but are now safe, with millions of hours on Li-Ion batteries. If Lithium Iron Phosphate batteries fail there's no visible flame but a lot of smoke, though they only fail if defective. Battery management systems protect for over and under charge, cell balancing, excessive cranking, and short circuiting as well as detection of bad cells. Also need an EFIS or digital voltage meter, utilizing a battery remote pigtail, automatic over voltage protection and over voltage indication. Does EarthX have an in-house battery management system? Yes. EarthX uses cells from China, but manufactures other components and assembles in Windsor.
- 4) Battery life is about 8 years and ~2000 charge cycles vs. lead acid at 400 charge cycles. Depth of discharge affects life (20% is better than 80%). Moderate temperatures are better and aviation is higher but not bad. Charging systems - higher voltage shortens battery life. End of life battery failure - cranking power drops, capacity decreases. End of life occurs when the battery cannot charge above 70-80% capacity. The fault system will indicate dying cells. How's the charge rate? Better than lead acid, but check the maximum charge rate and don't go faster. Jeff Jones - any issues mixing and matching Li-Ion and lead acid batteries? Yes, they're different, DON'T put in series! MAY be able to use in parallel, but must match and it's preferable to separate after a short initial period. Scott McEwen - are the Li-Ion batteries in use by kit builders? Yes, working with all OEMs as of 2017. Also have FAA certified, the first in 2018. Still working on STC's for Cessna, Piper, and Mooney with one expected in about a month. Jeff Jones - weight improvement? Li-Ion is ~25% of lead acid, and ~3x cost. Cliff Hasenbalg - are the batteries recyclable? Yes, and can be sent back to EarthX. Metals are easily recyclable and the LiFePO<sub>4</sub> thin films can go into your garden.
- 5) Wrap up questions - Stephanie asked how the batteries perform relative to Interstate - Interstate seems clueless. What was involved with FAA approval? A LOT, especially under new rules! 300 page test document! Certified batteries have to vent smoke to external. STCs will allow for field approval of similar installations. Where does the EarthX name come from? Batteries are Earth-friendly, X for formerly from earth, i.e. flying. Scott McEwen asked about company size and production level - EarthX employs 10 (because automation) and produces more than 10,000 batteries per year.

Respectfully Submitted,  
 Val Gregory  
 EAA Chapter 43 Secretary

## Coming Soon!

EAA National is changing their website provider from Webs to SiteCore, which means chapters who currently have their website with Webs as part of the EAA also need to migrate to SiteCore. Chapter 43's effort is already underway, with the Home Page, Newsletter, and Join/Renew pages at least partially set up. We'll be maintaining both websites until March 31, at which time the EAA National contract with Webs will end and presumably the old webpage will no longer be accessible. If you'd like to check things out, the Newsletter Editor will offer cookies if someone finds a busted link or other issue with the Newsletter and its sub-pages - that section is pretty much done.

In parallel, Membership Coordinator Tim Stansbury has been working hard to import our roster data base into EAA National's new roster tool and set up protected access for chapter members. Watch your inboxes for an email from [EAA43 DBEditor](#) with access instructions!

## Parting Shot!



(Actually, that's Tom Cruise doin' his own stunts for Mission Impossible: Rogue Nation.)



## Membership Enrollment Information

(Needed for Current Roster & Chapter Correspondence)



**MANDATORY INFORMATION:** *If nothing has changed from last year, this is all the information required. We need EAA Membership # and EAA Renewal date to comply with EAA Charter and Chapter 43 by-laws.*

Date: _____	Annual Dues or	\$25.00
Name: _____	Save! 5 years for	100.00
National EAA Membership #: _____	Scholarship Donation (Optional)	<u>    .00</u>
EAA Membership Renewal Date: _____	Total	.00

Are you a:

Technical Counselor	Yes ___ No ___
Flight Advisor	Yes ___ No ___
CFI	Yes ___ No ___

*Scholarship donations are tax deductible.*

*Please make check(s) payable to:  
EAA Chapter 43  
P.O. Box 1725  
Broomfield, Co. 80038-1725*

**NEW MEMBERS PLEASE COMPLETE - RETURNING MEMBERS OPTIONAL INFORMATION:** *Supply any information that may have changed from previous year (if you want a field deleted from your record, please tag it).*

E-Mail Address: _____	Home Phone: _____ - _____ - _____
Spouse: _____	Cell Phone: _____ - _____ - _____
Street: _____	
City, State, and Zip: _____	

### **HOW WOULD YOU LIKE TO BE INVOLVED IN THE CHAPTER?**

Participate in Young Eagles functions, either as pilot or volunteer?	Pilot	Yes ___ No ___
	Ground Crew	Yes ___ No ___
Arrange, Or Be, The Program For One Of Our Meetings? -----		Yes ___ No ___
Host A Chapter Meeting At Your Project? -----		Yes ___ No ___
Run for a Chapter Officer Post? -----		Yes ___ No ___
Interested in attending hands-on workshops (under consideration)		Yes ___ No ___

### **AIRCRAFT INFORMATION:**

Note: Status: ---Built, Building, Restoring, Considering, etc.

<u>Make, Model</u>	<u>Status</u>	<u>Based At</u>
_____	_____	_____
_____	_____	_____

*To keep costs down the monthly newsletter is delivered via E-Mail (unless otherwise requested). We also send out periodic news items by e-mail.*

## **2020 Chapter Officers**

<b>President</b>	Cliff Goldstein	720-280-2916
<b>Vice President</b>	Zach Malone	443-610-3469
<b>Vice President</b>	Scott McEwen	303-895-5058
<b>Secretary</b>	Val Gregory	303-908-1252
<b>Treasurer</b>	Myles Lee	720-295-8778

### **Board of Directors**

Cliff Goldstein (Chairman)  
 Pete Watkins\*  
 Stephanie Wells\*  
 John Evens\*\*  
 Stan Specht\*\*

(Note: \*- 2 year terms expire end of 2020, \*\*- 2 year terms expire end of 2021)

### **Volunteer Officers**

<b>Technical Counselor</b>	Jim Sutton	303-598-4205
<b>Technical Counselor</b>	John Reuterskiold	303-881-3517
<b>Technical Counselor</b>	Phil Brown (fabric, wood & tube)	303-506-3886
<b>Technical Counselor</b>	Stewart Bergner	303-229-7799
<b>Technical Counselor</b>	Will Heltzel	303-345-5784
<b>Flight Advisor</b>	Bill Mitchell	303-427-4025
<b>Newsletter Editor</b>	Val Gregory	303-908-1252
<b>Young Eagles Coordinator</b>	Cliff Hasenbalg	303-744-8180
<b>Young Aviators Advisor</b>	Pat Miller	303-666-8233
<b>Young Aviators Advisor</b>	Scott Serani	303-358-2858
<b>Data Base Editor</b>	Tim Stansbury	719-494-7398
<b>Web Master</b>	Steve Paschke	303-451-8490
<b>Safety Officer</b>	Stephanie Wells	303-503-0147
<b>Refreshments</b>	John & Roxie Juul	303-466-2600
<b>Audio/Visual</b>	Herrill Davenport	303-460-7789
<b>Scholarship Co-Chairs</b>	Roxie Juul	303-466-2600
	Zach Malone	443-610-3469
<b>Scholarship Fundraising</b>	<b>(Volunteer Needed)</b>	

### **CFI's in Chapter 43**

Phil Brown	303-506-3886
Richard Brown	303-558-0793
Mark Davis	303-425-4080
Joe Gilmore	720-318-5100
Jeff Hinkle	303-550-2291
Bill Mitchell	303-427-4025
Tom Shaw	303-275-0904
Mike Sutton	720-515-5269
Stephanie Wells	303-503-0147

## Mile High EAA Chapter 43

### **Disclaimer**

Be aware that as always, in past, present, and future, any communications issued by Experimental Aircraft Association Chapter 43, regardless of format, and/or media used, which includes, but is not limited to, this newsletter and audio/visual recordings, is presented only in the context of a clearing house of ideas, opinion, and personal experience accounts. Anyone using ideas, opinions, information, etc., does so at their own risk. Therefore, no liability is expressed or implied by the Experimental Aircraft Association, Chapter 43, or any of its members. Any event announced and/or listed herein, except as noted, is done as a matter of information and does not constitute approval, sponsorship, control, or endorsement of said event.

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*Mile High Flyer*  
*EAA Chapter 43*  
*P.O. Box 1725*  
*Broomfield, CO 80038-1725*

**First Class**



**Gatherings are normally held on the second Saturday of each month at 6:00 P.M.—Location determined monthly. See Page 1 for details of the upcoming gathering.**