THE WINDSOCK

Editor: Frank Huber | Layout Editor: Deb Huber

The President's Flight Deck

As I reflect on AirVenture 2020 that never was, it occurs to me that even though our lives are slowed by this pandemic, there is plenty of aviation happening in our chapter. The 701 continues to march towards completion, our scholarship recipients achieve milestones, we attempt a Young Eagles event, our Explorer Post gets together, and we begin to host chapter meetings again, if even virtually. We find a way to keep aviation in our lives, and I think that is because our chapter members are doers. We want to see accomplishments by ourselves and by those around us. Why do most of us belong to this chapter? Because we want a hands on approach to aviation and we want to share that love of aviation with others. The next time you talk to someone about your aviation passion, invite them to a chapter meeting, or show them the 701 chapter project. Use this opportunity to bring new members into our chapter, to pass along your love of aviation to others.

To assist us in finding new members, Bob Henkes has stepped up to take the roll of Membership Coordinator. Bob has some great ideas on encouraging membership as well as ideas on following up on potential member inquiries. As in any roll, there is always plenty to do, so if you want to assist Bob in this role, please reach out to him. Membership growth is an important part of any organization, but especially in this type of organization since we offer so many opportunites. We need individuals to help with everything from Young Eagle events to aircraft construction. Reach out to your neighbors and co-workers and invite them into the world of aviation. Let them enjoy aviation as you do, and help this chapter grow!

A few months ago, I mentioned the chapter was hoping to host a fly in event in conjunction with Lynx FBO. However, as we have watched the Covid-19 restrictions, the board decided it would not be prudent to host such an event since our chapter would need to supply all the labor. This would require members to potentially be exposed to many people and subsequent virus risk. For the foreseeable future, we will not be hosting an event.

As always, feel free to contact me or the board with any question or concerns you may have, and I look forward to seeing you at the August chapter meeting. Kevin Sislo | EAA 237 President

CHAPTER 237 BLAINE, MN EAA

YOUR CHAPTER BOARD OFFICIERS

Kevin Sislo, President
Robert Henkes, Vice President
Lyle Peterson, Secretary
Mark Heule, Treasurer
Charles Jasicki, Director
Michael Grzincich, Director

Contact the Board at: board@eaa237.org

EAA CHAPTERS GOLD EAA 2019

Young Eagles Update

Michael Grzincich, Young Eagles Coordinator

Chapter 237's Young Eagles Return-to-Flight was Saturday, August 15, at LynxFBO, KANE. We had a limited number of kids and did not accept walk-ups due to COVID. Each plane had it's own dedicated "tender" and our flights were shorter, with more time between each flight for cleaning. As of the time of this writing, we had nine kids scheduled. www.YEDay.org shows 11 kids, however, two postponed.

We ran this event with a low number as a proof-of-concept for new safety procedures. Mask were required of all volunteers and members of the public (unless exempt). We're evolving our process to ensure the wellbeing of all, while providing valuable public outreach and giving the amazing experience of flight to the next generation of flyers. What better way to social distance than by putting 1500' between you and "normal folks". We're looking forward to flying again in September! Questions or comments? Contact me at Young.Eagles@EAA237.org

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The EAA IMC and VMC Clubs are designed to give pilots an opportunity to discuss real events that have taken place by other pilots who have shared their stories. In all of these cases, there can be multiple correct answers to the question "What would you do in this situation"? It is through these discussions that participants can gather knowledge and foresite into how to deal with similar situations in your flying. Because of Covid-19, we are currently unable to hold these meetings, so I plan to offer links to information about things I hope you will find interesting and helpful in your flying until we can resume our normal meetings. Don't forget to ask yourself," "What would I do in this situation"?

These links discuss:

How To Fly An IFR Departure Procedure With A 'Climb Via'

https://www.boldmethod.com

Air Facts Journal / Can't Believe I Did That / Approach To Oblivion

https://airfactsjournal.com

Should You Fly Runway Heading OR Runway Centerline On Takeoff? It Depends… *by Swayne Martin*

https://www.boldmethod.com

EDUCATION RECREATION

EAA

HOMEBUILDERS

What our members are building, restoring and flying

CHARLES JASICKI'S VANS RV-7 N33MJ PROJECT

I developed a love for aviation after flying with my uncle when I was 14 years old. That passion took hold in high school when I took an aviation science class. Shortly after, I started working the line at MIC and took flight lessons. I soloed at 16 and obtained my private at 17. I obtained my BS from the University of MN, while attaining ratings and building flight time flying sky divers in Baldwin, WI. I started at a small commuter, Great Lakes Airlines in 1992 flying a Beech 1900 and an Embraer, Brasilia. In 1999 I started flying a B-727 with Champion Airlines and remained there until they closed their doors in 2008. I had been growing a tax and financial planning business while flying at Champion. When the doors closed, I decided to end my professional flying career and focus on my business.

My first trip to Oshkosh was in 1984. I made the pilgrimage every year except one, until the year after my son was born in 1999, when family and career derailed any Oshkosh plans. Oshkosh 1993 sparked my interest in the Van's RV series of aircraft. I took an intro flight with Jerry VanGrunsven in a RV-4 and was sold. I purchased a RV-6 tail kit that year and mostly completed it over the next 2 years.

Then came the family and no time or money so the RV-6 tail sat in the attic. I took my son to Oshkosh for the first time in 2014. We made the annual pilgrimage the next 2 years and he started becoming very interested in working on the RV-6. Spending a little time at the Van's booth, it was suggested that it may be better to start over on a RV-7 as the pre-punched skins would save many hours of build time.

2017 was a tragic year as we lost Matthew in the spring. Life will never be the same without him. I decided to build the plane as therapy and a dedication to Matthew. The tail was delivered on June 13th, 2017 and finished in October. We were on the West coast and picked up the wing kit from Vans in October of 2017. I spend most of my free time outside of the tax season building. I finished the fuel tanks by January 2018. I finished the top skins in June 2018 and the control surfaces by late summer. The bottom skins weren't finished until the Covid shutdown. I delayed skinning the bottom of the wing to run wiring for wingtip lights, autopilot servo and heated pitot tube. I put the last rivet in the wings and mounted the control surfaces on April 20, 2020. The normal routine was build during the afternoon and early evening, then spend time before bed researching on the VansAirForce.net forum and reviewing the next steps. The internet, builder's logs and the VansAirforce.net forum are time savers when you have a question or something isn't crystal clear.

The fuselage kit was delivered in August 2018, which I began construcing. I purchased a hangar at ANE in the fall of 2018 and moved the plane parts over on April 19, 2019. I spend most of the 2019 summer fixing up the hangar and didn't work on the plane as much as I would have liked to. I redid the epoxy floor, added lighting and heat and installed water/sewer.

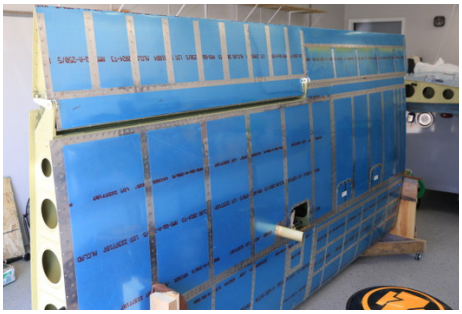
We were on the West coast again in May of 2019 and picked up the finish kit after a Van's factory tour. The Lycoming Thunderbolt IO-360 (200HP) was delivered in August, just after Oshkosh. With the fuselage mostly done in 2019, I started on the canopy in May 2020. I also started modifying the engine to install dual alternators and a SDS electronic fuel injection/electronic ignition system. With an

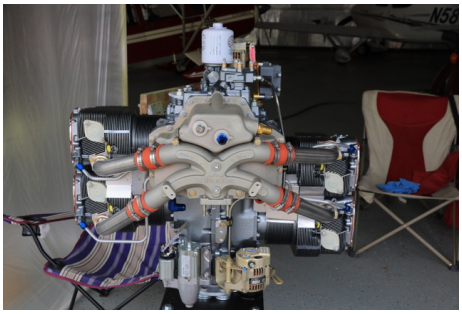
(continued on next page)

electrically dependent engine I am planning a dual alternator, dual battery electrical system. I am also planning an inverted oil system. It is going to be a puzzle trying to mount everything on the firewall. Currently the tip-up canopy is fit, but I have to finish mounting the fixed rear window. I should be able to mount the engine as soon as the bolts and vibration mounts arrive.

I have taken advantage of the EAA Solid Works arrangement and have used the software to design my dual EFIS IFR panel. I hope to have the panel finalized in the next 2 weeks. My goal is to fly by the end of the year.

The tail number is a tribute to my son. Matthew was a very talented baseball player. His number the last 3 years was 33. 33MJ had been assigned to a Decathlon that was taken out of the country in 2014. The FAA holds N-numbers for 5 years after decommissioning, hence it became available October 1, 2019. There are companies that are reserving the shorter N-numbers, then offering them for resale. I feel I was very lucky to get the number reserved at midnight on the 1st.





UPDATE ON EAA B-17

The following email from John Hopkins, EAA Aircraft Maintenance Department, pays tribute to Chapter 237 member Dick Pugh: “Hey, just a little update on the B-17. Thanks to Dick Pugh's hard work last fall making molds for the upper turret glass. Now we have the time to put this glass work to good use. I had the guys in the shop pull the upper turret off this morning and we are going to start fitting the new glass that Dick made for us last winter.

This will look fantastic when we get it put back on I’m hoping by the end of the week. Waste guns and tail guns will be reinstalled by the end of the week as well.”

Flying the T-33 and MIG-15

Bela Schellenberg, EAA Chapter 237

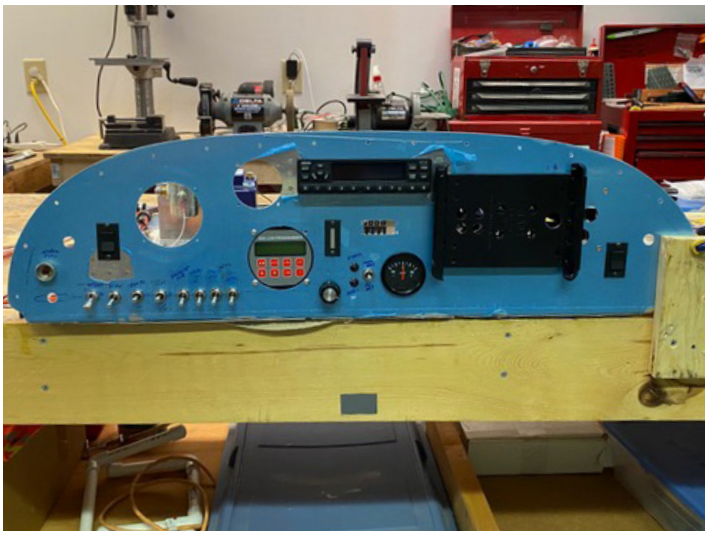
As a young kid I built many Balsa and plastic airplanes, but it was after joining EAA and attending the air shows that I was really hooked on the War Birds. About 10 years ago I had completed an aerobatic flight in a Stearman and an AT-6, but I also wanted to fly a Warbird jet aircraft. I thought quite often of taking a flight, but finances were never in place for the flight. Last spring, however, I decided to make the plunge. I had been planning a road trip to visit my son In Salt Lake City and sister in Las Vegas, so a short side trip to the Jet War Bird Center in Santa Fe, N.M. would be very convenient.

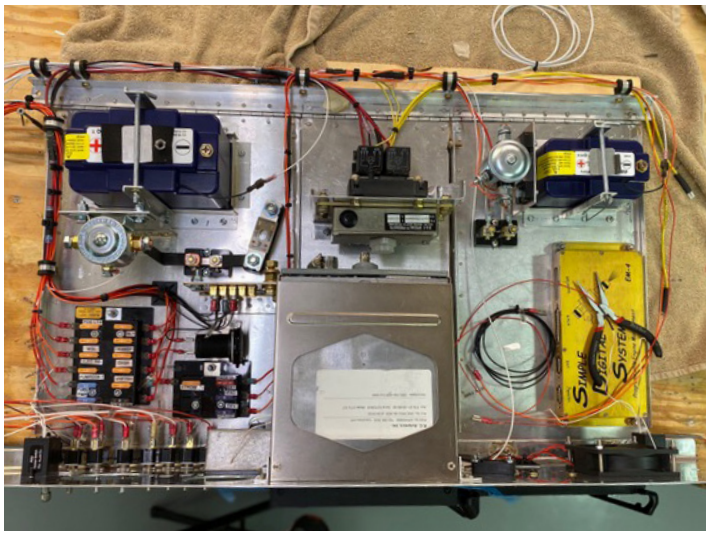
When I arrived at the airport Larry, the owner and instructor, gave me a briefing about his operation and the aircraft. We then proceeded to the hanger where I saw his stable of about 10-12 jets. I was very excited. I had asked for the MIG-15, but after viewing the gorgeous T-33, I made the switch. The aircraft was then pulled on to the ramp. We did a preflight and then I climbed into the cockpit. The instruments and controls were pretty basic, so I felt pretty comfortable. I was then buckled in, the canopy was closed and he began to taxi. I was surprised at how quiet the start and taxi was. The take off was smooth and odd without the sound of a prop and engine in front. When we got up to about 1000 feet, he told me to take control. He gave me a heading, altitude and power setting. I turned to the heading, added power and climbed like a home sick angel. Galland was right in his description of his ME- 262 flight, pure bliss. Larry said that I could do steep turns, but needed to remain at about 15,000 feet. It was surprising how smoothly the aircraft responded. It was so smooth that while I held the stick, I proceeded to take videos with my cell phone in my left hand. I found it to be almost exactly like the AT-6. He then asked if I wanted to do a roll, and he demonstrated one and I followed with a repeat. Again very smooth.

The MIG-15 flight was identical to the T-33, except for the instrument panel. The sticks in both aircraft were the same length and moved effortlessly. The artificial horizon, however, was upside down and it drove me crazy. Pull up and the horizon line moved up into a brown colored zone and push the stick down and the horizon moves into a sky blue color. My little brain could not comprehend that logic. I always had to remind myself that it was the correct visual cue. Again, they were fantastic flights and every time I look at my photos and videos the excitement returns. Give Larry a call! Yes, he has profit motive, but his enterprise also keeps the jet war birds alive.

Zenith 701 Chapter Project Update

We continue to make good progress on the chapter project. Mark Heule, Jack Smith, George Wollenburg, John Flink, Keith King and myself have been working on the project every Monday and Wednesday morning. The guys have been working on all the electrical and instrument hookups for the engine's SDS electronic ignition/fuel injection system. They have also been working on some firewall projects and getting the workshop better organized. I have been working on the instrument panel and the wiring of the electrical system. When the wiring job is completed, I plan to work on painting the instrument panel, lettering all the switches and finishing up with a clear coat to protect the finished instrument panel. After that is completed, the equipment trays will be remounted in the aircraft and we will finish running the wires to all the equipment. The EFIS system and Com radio still have to be purchased and harnesses made for those items. Work on installing some insulation in the cockpit, for the cold winter flying in Minnesota, will start in the coming week. The current plan is to move the project to Mark Heule's hangar in October, where we will be able to mount the wings and start finishing up the project. If you are interested in helping or joining the Lightsport flying club after the project is completed, please stop by any Monday or Wednesday morning. *by Frank Huber*





POST 237

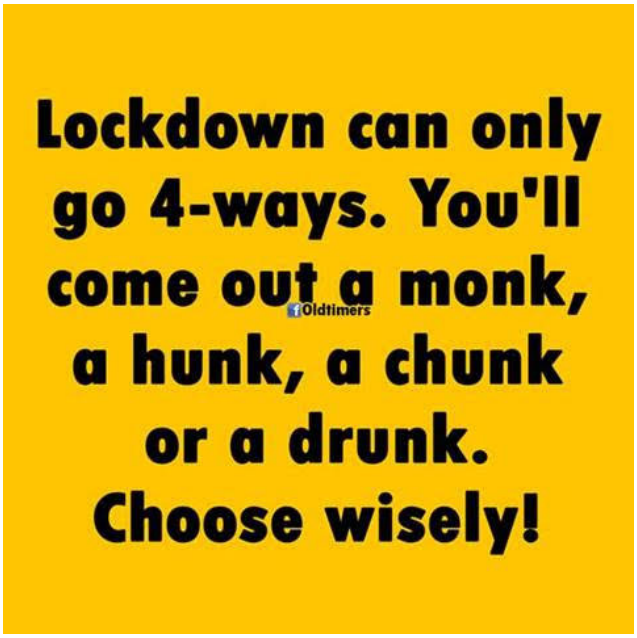
Michael Miller

The Aviation Explorer Post 237 held a meeting on Friday, August 7. Many of the members attended the meeting and a new recruit joined the post. The young men learned some of the basic aircraft marshaling signals and practiced the in the parking lot, minus the aircraft. There is a plan to have several aircraft available at a future meeting to give the young men a chance to practice what they have learned in preparation for their participation at next years EAA Air Venture and at future chapter Young Eagle events. The group also did some drone racing inside the chapter building. Each scout was given a model rocket, procured from Boy Scouts of America, to build at home. Plans are in the works to pick a location and date to launch the rockets. The next scheduled group meeting is Friday, August 21 at the chapter building.

QUICK LINKS

FBO and Airport Courtesy Cars offers a list of over 1.950 free courtesy cars nationwide and growing. The site also list 50 additional free shuttle listings. It's been used by over 15,000 pilots. It was "built for pilots, by a pilot." https://www.airportcourtesycars.com

Common Landing Errors and How to Fix Them *by Bold Methods*
This is an excellent discussion of the three common landing errors with ideas of how to fix them. https://www.boldmethod.com



Electric Propulsion *Ronald Borree, EAA Chapter 237*

Refer to last month's article on the X57 battery development and/or the following link to the NASA site for extensive details of the X57 battery development. http://hdl.handle.net/2060/20180005737

"Electric Power Systems" in Industry, California worked with NASA to build the X57 battery packs. The NASA X57 battery development engineering is publicly available and not proprietary per the NASA website.

The link to the NASA battery manufacturing article is: https://spinoff.nasa.gov/Spinoff2019/t_1.html

After many hours of excellent people doing excellent work the battery issues were figured out and the resulting 460 volt battery pack looks like this per the NASA website:

Highlights from the NASA development article are extracted below.

A major challenge has been safely delivering enough power to the engines. During takeoff, all of these motors (on the plane) combined can use more than 200 kilowatts, for a total energy draw that would momentarily power more than 100 average American homes, says Brent Cobleigh, project manager for Flight Demonstrations and Capabilities at Armstrong. "It's a lot of power, and one battery system has to deliver it, and it's got to fit in the plane."

With NASA's help, Electric Power Systems (EP Systems) created this battery pack to power the Space Agency's all-electric X-57 Maxwell airplane. The package houses thousands of off-the-shelf lithium-ion batteries and ensures that if one of them overheats, the problem won't spread.

The first pack was based on a NASA design from years prior and incorporated some of EP Systems' innovations, such as a method for pulling heat from a battery cell's entire surface rather than just the side wall, as well as advanced welding techniques and lightweight packaging.

(Sean) Clarke (of NASA) notes that NASA had recently developed a lithium-ion-battery casing technique that filled an aluminum block with holes to hold the batteries a millimeter or less apart, isolating them and dissipating heat from any runaway event throughout the block. It's been used for batteries on the International Space Station, the Orion space capsule, and tools astronauts need on spacewalks.

"A lot of NASA design expertise and technology has gone into this," Clarke says.

Below is a photo of the Samsung cell used in the X57 battery pack per Samsung web sites. Links below to the Samsung INR18650-30Q individual battery cell detail along with its chemistry are from the Samsung website for everything you want to know or don't need to know about the cells.

The information shown is for reference only. Additional investigation should be done for current data as needed.

Links: Data References:
https://eu.nkon.nl/sk/k/30q.pdf
https://eu.nkon.nl/sk/k/30q-specs.pdf

Brand:	Samsung
Model:	INR18650-30Q
Capacity:	3000mAh Rated
Voltage:	3.60V Nominal
Charging:	4.20V Maximum 1500mA Standard 4000mA Maximum
Discharging:	2.50V Cutoff 600mA Standard 15000mA Maximum
Description:	Purple Cell Wrapper White Insulator Ring 18650 Form Factor

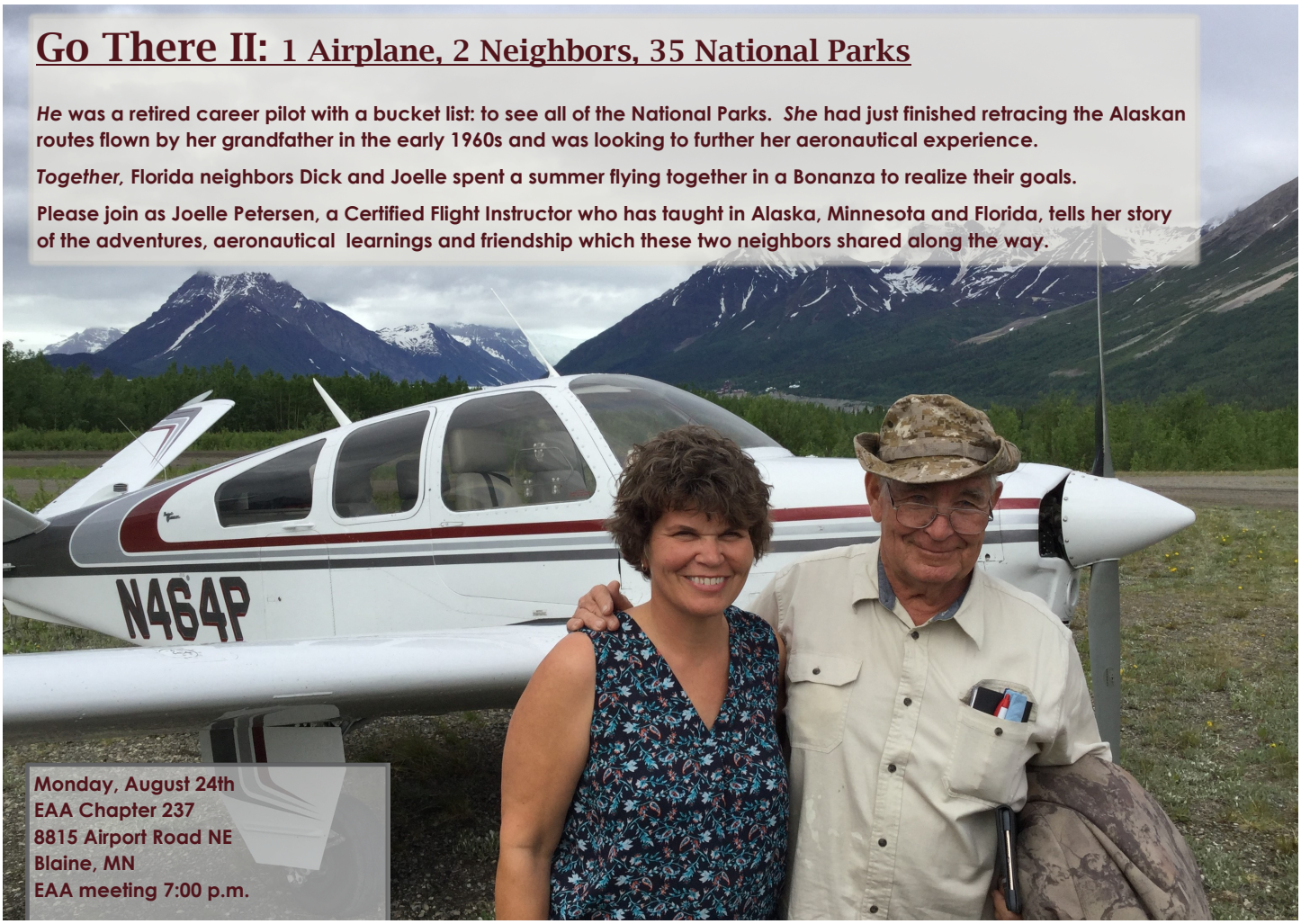
There are two battery packs wired in parallel for redundancy. Each of the two battery packs has 460 volt DC output that is converted to AC. We will take a look at the high voltage AC electric motors powering the X57 in an upcoming article.

Chapter Flight Simulator

Dave Peterson and his team are continuing work on the chapter flight simulator to prepare it for chapter members to use. They have made good progress on the system set up and operating software. They have additional work on creating a manual for use of the simulator, as well as a checkout manual that will be needed to get any chapter member wishing to use the simulator up to speed on it's operation. As you can see from the picture, we are going to have a first class flight simulator for chapter members to hone their flying skills.

EAA 237 Coming Events

This months chapter meeting will be virtual and held on Monday, August 24. We have a guest presenter. Joelle Peterson will be speaking about her aviation adventure with her neighbor in which they visited many National parks on the west coast and Alaska. You will be emailed a link to join the meeting.



Chapter Board Meeting Minutes

Minutes of Meeting | August 8, 2020 | Online with ZOOM
Attending: Kevin Sislo, Robert Henkes,
Lyle Peterson, Mark Heule, Charles Jasicki

Business: Discussed chapter bylaws and quorum, Emeraude project acquisition. Thirty-seven members responded to poll concerning the chapters accepting the project. The majority of those responding to the poll voted no, so board decided no to the project. Kevin will notify members and Clem.

Discussed future flying club: The name, 237th Aero Squadron, is already registered with the state of Minnesota. The application for 501c(3) status has not been filed yet. Dave Peterson to email members to ascertain interest in future flying club.

Discussed need to update electrical system/panel in chapter building. Kevin will look into replacement.

Discussed funding for completion of chapter Zenith 701 project. No decision was made at this time.

Meeting adjourned when ZOOM session ended.

amazon Smile Donations

Do you purchase items on Amazon? If so, please consider using Amazon Smile for your purchases as our chapter is a supported non-profit organization. You pay exactly the same price for your purchase, and our chapter receives a .5% donation from Amazon. To use this service, simply choose https://smile.amazon.com while searching for your next purchase. When asked for the charitable group, enter *Chapter 237 Experimental Aircraft Association* and it should appear. You can use this service with your existing Amazon account. Here is a link for additional information on how to use this service on all devices: https://smile.amazon.com

Financial and Property Donations

As an educational entity, Chapter 237 reminds you that we are a 501 (c)(3) corporation and gladly accept donations to promote aviation education to our members. For additional information please contact EAA 237 treasurer Mark Heule at treasurer@EAA237.org.

2019 Chapter 237 Ray Aviation Scholar

Charlie Ellingson, 2019 Ray Aviation Scholar, successfully completed his Private Pilot check ride on Tuesday, July 14. Charlie will be starting his senior year at the Princeton High School in September. He plans to continue his flight training for higher ratings and participate in the Build a Plane program at the Princeton Airport. Charlie has aspirations of becoming an Air Force fighter pilot in the future. He is now working on the application for an Air Force ROTC scholarship at the University of Minnesota. Charlie is pictured with his instructor, John Johnson, after completing his check ride

CHAPTER GARAGE SALE

We are cleaning house at the chapter building. Keith King, John Flink and Mark Heule have organized the workshop, gone through the upstairs and have come up with a bunch of donated shop equipment that is not needed in the chapter shop. This equipment is displayed on tables in the meeting area and is available to any member for a good faith price. There are bench grinders, band saws, an air compressor, a table mounted combination band saw, table saw and planner, a mitre saw and lots of other things you probably really need. Members can come in anytime to look and buy anything you like. You are required to sign in on the log sheet in the meeting area. The equipment will be available for about a month, so please stop by in the next couple of weeks. Items not sold to members will be offered on Craig's List.

FAASTeam
Safer Skies Through Education

FAA Aviation Safety

Pattern Precision

The FAA, General Aviation Joint Steering Committee (GAJSC), and industry agree that regular, structured, proficiency training is perhaps the most effective means of reducing GA accidents. Because the traffic pattern involves nearly all piloting tasks, it is a logical choice for a proficiency training environment. Commitment to precision and consistency in pattern operations will yield operational safety benefits throughout the flight task spectrum.

Predictable Patterns

How many times have you been on approach where you get behind the aircraft a little or are not set up properly, and wind up landing a little long? Does it matter? Yes, it does. Airport traffic pattern operations are an essential part of every flight. But sometimes we take those routine movements for granted, and we can get a little sloppy.

In addition to helping you execute a safe and stable approach, precise pattern flying makes you sharper in other flight procedures. It can also improve your confidence and reassure your passengers. Let's go back to our example. You may think it doesn't matter if you land long, but what if your runway is compromised and your landing distance is much shorter? What if your aircraft has a problem and you need to carry out a forced landing?

Preparing for Pattern Precision

It all starts with knowing your aircraft, its performance parameters, and the required research to determine what sort of takeoff and landing performance you will get.

By documenting these numbers and then comparing them with your actual performance, you will be able to create predictable expectations. Don't forget to calculate performance based off of your predicted flying weight.

Here's some rules of thumb to consider when computing your takeoff calculations:

- If you have a fixed pitch prop, add 15% to your calculated takeoff distance for each 1,000 foot increase in density altitude, up to 8,000 feet.
- For constant speed props, add 12% per 1,000 feet of density altitude, up to 6,000 feet.
- *(50/70 Rule)* When planning takeoff from short unobstructed runways, establish a landmark at 50% of your calculated takeoff distance. When reaching that landmark, you should be at 70% of your rotation speed. If not, abort the takeoff and reduce weight or wait for more favorable wind and temperature conditions.
- *(30/70 Rule)* If you must clear obstructions on takeoff, you'll need to have 70% of your rotation speed by the time you've traveled 30% of your available takeoff distance.

Continued on Next Page

It's All Part of the Pattern

Now that we've covered some takeoff tips, let's shift to some pattern practices.

Pattern Entry:

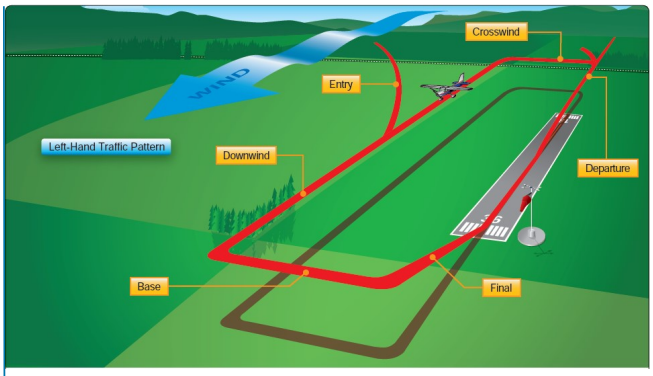
- If you enter on the downwind side, join the downwind leg at a 45-degree angle at pattern altitude (PA).
- If you enter on the upwind side, you generally have two options, both of which require you to yield to established traffic:
  - ⇒ Cross midfield at 500 feet above PA, fly clear of the pattern and descend to PA, then turn to join midfield downwind at a 45-degree angle.
  - ⇒ You can also cross midfield at PA and then turn to join to the downwind leg.

Straight In Approach:

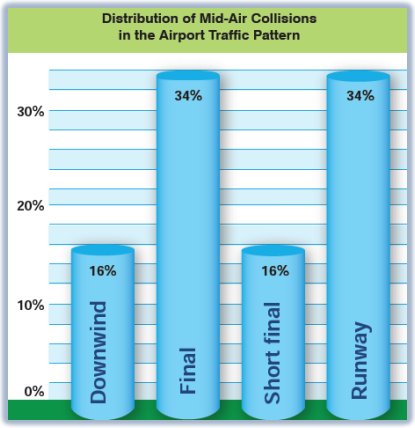
- Be conspicuous – use landing lights and strobes.
- Announce your positions and intentions on the Common Traffic Advisory Frequency (CTAF).
- Be aware of possible no-radio aircraft.
- Don't assert right-of-way if it will result in a collision hazard.
- If there's an unresolved conflict, break off the approach and go around to the non-pattern side of the runway.

Establish Key Positions:

- During descent, maintain pattern altitude on downwind until abeam the approach end of the landing runway. From this key position you'll be in a constant descent to the runway.
- Adjust power to maintain target approach airspeed, flaps to control approach angle, and flight path to compensate for wind.
- Once established on final approach, it's essential that you maintain speed and glide path. You should maintain a glide path that will result in touching down in the first third of any runway. It's helpful to pick a runway stripe and try to land on it every time without adding power. VASI and PAPI approach path indicator lights can help keep you at the right glide path, but practice with and without them since not all runways have them.
- Once you master hitting your landing target, practicing power-off landings can be excellent preparation for off-airport forced landings.
- Also aim to expand your horizons with more difficult landing strips. Just be sure to ask your flight instructor before operating at any unfamiliar or challenging destinations!



Collision Avoidance



Did you know the majority of mid-air collisions occur at or near non-towered airports in daylight with good visibility? Collisions usually occur below 1,000 feet AGL and with aircraft traveling the same direction. Although many GA aircraft are now equipped with ADS-B systems that provide additional situational awareness for surrounding traffic, pilots must still look and listen for traffic. Pilots should always strive to be:

- *Predictable* – fly published patterns and use standard entry/exit procedures
- *Aware* – look and listen for traffic in the pattern
- *Proactive* – announce your position and intentions in the pattern

Resources

FAA Airplane Flying Handbook, Chapter 7
https://bit.ly/2DJ3MLG

In future Windsock editions, I plan to showcase aircraft that our members are building, restoring and flying. Please email me with the aircraft you are building, have completed building, are restoring or have purchased and are flying. I will follow up with you to provide a questionaire and will come out to take pictures to include with your article.

If you have a story or photo you would like to see in our newsletter, contact Frank Huber: eaap51@comcast.net | 763-245-0170

To view past issues of The Windsock, visit www.eaa237.org and select newsletters.

Articles and photos for consideration in our September issue are due on or before September 10.

Bob Henkes has taken on the roll of Chapter Membership Coordinator. If you would like to assist him in this endeavor, please call or email Bob at: Fishinib@gmail.com or 651-206-3818.