

Editor: Frank Huber | Layout Editor: Deb Huber

The President's Flight Deck Greetings fellow chapter members! With a feeling of optimism in the air, I am looking forward to upcoming events within our chapter and at our airport, but I am mostly looking forward to seeing chapter members in person! The chapter board has been discussing when we can return to in person chapter meetings. I have been hearing of some chapter members receiving Covid vaccinations, so it is just a matter of time until we are getting together again. I am hoping for a June time frame, but we will continue to follow state guidelines and, of course, members comfort factor of being together. Perhaps we will host our chapter meetings in person as well as virtually for a while. Stay tuned for updates on this.

With the pending get-togethers on the horizon, there are plenty of opportunities for everyone to get involved with our chapter. There will be several sign-up genius emails hitting your inbox this week. If you don't receive email, let me know and we'll get you plugged in manually.

The first opportunity for members is to help return the chapter building to a condition of cleanliness. With most members not stepping foot in the building for over a year, the place could use some sprucing up. We want to clean and polish the floor, replace the bathroom doors, organize the space, and give it an overall good cleaning. These projects can be done by small groups through several days or evenings as we continue to step around the Covid issue.

Ellen Quist and I have spent some time outlining the June 26th fly-in event at Anoka being hosted by our chapter. The sign-up genius will have the main categories listed for now, with detailed time slots listed in a future email. Please show your level of interest so we can plug in leaders and volunteers for the various activities. This will be a fun event and your participation is anticipated! Reach out to us with any questions and ideas you have to make this a great event.

The Great Minnesota Aviation Gathering is a go this year at the Buffalo airport. The event is to be held May 21st and May 22nd. The event was cancelled last year due to Covid, so this should be an exciting event. We have been asked to participate as a vendor as we have done in previous years. We'll get a sign-up genius out for that as well.
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## YOUR CHAPTER BOARD OFFICIERS

Kevin Sislo, President Lyle Peterson, Secretary Charles Jasicki, Director

Robert Henkes, Vice President Mark Heule, Treasurer Michael Grzincich, Director

Contact the Board at: board@eaa237.org


For the months of June and July, EAA is offering double the credit for flying Young Eagles. This is a great opportunity for the chapter to increase our fundraising as we introduce more kids to aviation. Expect to see us promoting this as these dates approach. More importantly, we need your help at these events. Besides the obvious need for pilots, we need help with the ground activities. All activities are easy to do, we just need volunteers to help with ground handling, YE check in, parent education,
plane pre-flight education, etc. Having helped at March's event I can tell you it is very rewarding to see the smiles on kids' faces when they return from their flight. This program is very important to our chapter as we flew the most Young Eagles in the state of Minnesota in 2020! Read Frank's article elsewhere in this issue for details on this award. The chapter will be recognized at the GMAG event in May!

Looking forward to seeing you at the chapter building, in person, soon! Kevin

Because of Covid-19, we will not be holding IMC and VMC Club meetings. In the mean time, I will be providing links to articles that will cover areas of interest for both IFR and VFR pilots. Ellen Quist, the new IMC/VMC Coordinator, has fisnished her training and will be organizing meetings in the coming months.

## boldmethod >

Pilot Misses Note 'Circle NA South Of Runway 09', Resulting In Near CFIT Event by Swayne Martin www.boldmethod.com

You Just Received A ‘Cruise Clearance’ Under IFR. Now What? www.boldmethod.com

Can You Fly A Visual Go-Around On An Instrument Approach Clearance? by Swayne Martin www.boldmethod.com


10 Minimum IFR Altitudes You Should Know www.boldmethod.com

Aviation weather video tip: When flying IFR isn't an option by Bret Koebbe www.studentpilotnews.com

Don't Make These 5 Mistakes In Crosswinds www.boldmethod.com
How Maximum Demonstrated Crosswind Is Calculated by Swayne Martin www.boldmethod.com

7 Reasons Why You Should Fly Around The Upwind Side Of A Thunderstorm
Ø LIGHTSPEED

Lightspeed Aviation Off Airport Landings - Choosing the Right Spot and Enhancing Survivability by Colin Aro www.lightspeedaviation.com

Fuel Reserves Requirements - The FARS Aren't Much Help by Mac McClellan AIRFACTSJOURNAL.COM

We recently heard from Patrick Halligan of the Minnesota Pilots Association that our chapter flew the most Young Eagles in Minnesota in 2020. The MPA honors the chapter and the pilot that flew the most Young Eagles with plaques. This year there are two pilots who tied for the most Young Eagles flown, Michael Grzincich and Mike Miller. They both flew fifty-one YEs in spite of Covid-19. The chapter and the pilots will be honored at the GMAG event on May 21-22 at the Buffalo Airport. Congratulations to Mike and Michael and all the volunteers who helped make the year a success for the chapter.

The chapter held a Young Eagles event on Saturday, March 13 at the Lynx FBO. Lynx continues to provide outstanding support for our events in their beautiful facilities. We flew twenty-four Young Eagles during the day. Because of Covid and airplane issues, we only had two pilots doing the flying. Of course, the pilots were the two Mikes, Mike Miller and Michael Grzincich. Because of the shortage of pilots, the event ran until 4 pm to accommodate all those that showed up for a ride. Like Kevin mentioned earlier, we can always use more help at the events.


Our two award winning YE pilots,
Mike Miller and Michael Grzincich after a long day of flying Young Eagles.

Elijah Durkin, Chapter 237 Aviation Explorer Post president, sanitized the aircraft between flights.


## Satisfied Young Eagles

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EXPLORING
Post 237
Michael Miller

Last month the Explorer Post had the honor of hosting a Zoom meeting with Heidi Porch. Heidi is a retired Airbus 330 Captain. After watching a YouTube video where she talks about ditching a Cessna 182 after an engine failure on a ferry flight to New Zealand, we connected with her live to ask her about her career in aviation. It was a great meeting and Heidi was fantastic.

We were disappointed the Young Eagles event for March was cancelled, but at least we were all able to stay warm that morning. The Post will be helping out at the March 13 Young Eagles event. We had a couple new young women join us for the last couple of meetings and we're starting to see a little more interest from youth in the area.

I am happy to announce that post member, Joe Van Norman, has been awarded the Chapter 2372021 Ray Aviation Scholarship. The scholarship is in the amount of $\$ 10,000$ for flight training leading to a private pilot license. Joe will be doing his flight training at the Northstar Flyers flying club. I have offered my services to be his flight instructor.


Owen Larson is being congratulated by his instructor, John Johnson, after a successful Private Pilot Checkride.

March has been an excellent month for Chapter 237's Ray Aviation Scholarship Program. On Monday, March 1, braving frigid weather on a clear, sunny day, Ray scholar Owen Larson successfully completed his Private Pilot checkride. Owen plans to continue his pursuit of a professional flying career.

Owen is a participant in chapter members Sharon Sandberg and Duane Kruse's Flight Expo Build-aPlane program, which offers the participants a Flight Expo flying club. The low cost of the flying club has allowed our chapter to split the 2019 and 2020 scholarships in half. The successful 2019 scholars from the program were Charlie Ellingson and Owen Nitz. The Flight Expo program is truly an excellent program worthy of our financial support.

To make things even better, when I got home from Owen's checkride, there was an email for me from Megan Hart, EAA's new director of the Ray Aviation Scholarship program, announcing the award of a Ray Aviation Scholarship for 2021 to Chapter 237. I have also learned that 2020 Ray Scholar Edward Christian, who's training was stopped in it's tracks by Covid-19, has now begun his flight training with the Crystal Airport CAP unit. Ed is receiving his flight instruction from volunteer instructor, Bob Levy. Bob is a retired Northwest Airlines pilot who offers his time for free to CAP cadets. Ed only has to pay a nominal fee for the aircraft and the cost of fuel per hour. Ed is flying a brand new Cessna 172 with a Garmin 1000 glass cockpit. I think it can be said that the delay was worth the wait.

We have decided to award the 2021 Ray Aviation Scholarship to Joe Van Norman. He lives with his family in Coon Rapids and is a sophomore in high school. Joe has been a participant in the chapter Aviation Explorer post since it began. Since 2015, he has taken over 20 Young Eagles rides, including one with me, and has been a regular volunteer support person at our Young Eagles events. Joe has been flying RC aircraft since 2014 at the ACRC RC Flying Club in East Bethel. He is an RC instructor and has been training students for two years. Joe has a desk top flight simulator at home, which he has flown for approximately five hundred hours. Joe has aspiration to become a professional pilot and to fly for Delta Airlines. He will be doing his training at our home airport, KANE, and will be receiving instruction from chapter member Mike Miller at the Northstar Flyers flying club.

Finally, I believe our success at receiving Ray Aviation Scholarships for the first three years of the program is a testament to all the things aviation our chapter does on an ongoing basis. Let's all keep up the good work and keep having fun!
Frank Huber EAA Chapter 237 Ray Aviation
Scholarship Coordinator


## WHAT OUR MEMBERS ARE BUILDING, RESTORING AND FLYING.

## HOMEBUILDERS

## CHARLES JASICKI'S VANS RV-7 N33MJ PROJECT

Chapter board member Chuck Jasicki started work on his RV-7 in June, 2017 as therapy and as a dedication to his son, Matthew, who he tragically lost in 2017. He has made excellent progress, which is put on hold every year during tax season as he has a thriving tax business. He has completed all the structures; wings, tail and fuselage. The tip up canopy is finished and the engine has been mounted. Chuck is running a Thunderbolt IO-360 (200hp) engine. He has installed a Superior cold air sump to help get a little more power out of his engine. He is



Flaperon pushrod cover

## The Zenith 701 Project

Work continues on the chapter Zenith 701 project. As sometimes happen with a third hand project, the crew found an issue with the left leading edge slat. The trailing edge of the inboard portion of the slat had to be straightened and re-riveted. The slat then had to be repositioned on the wing, which required doublers to be made and riveted to the wing mounting brackets. The slots for the flaperon control rods were extended to allow for full travel of the flaperons. George fabricated aluminum covers for the flaperon control rods inside the baggage area. Painting of the window/door frame structure and glare shield flat black will be taking place later this week. The top wing root fairings have arrived. They will be fitted and plate nuts installed to fasten them to the aircraft. We continue having fun working together on the project. If you would like to help with the build and are interested in joining the flying club after the project is completed, please come out on Monday and Wednesday mornings from 9am to 12:30pm at Mark's hanger at 2155 Kansas on the southwest side of the field. by Frank Huber


Press On! Further Adventures In The Good Life by General Chuck Yeager with Charles Leerhsen

Pushing The Envelope, The Career of Fighter Ace and Test Pilot Marion Carl by Major General Marion E Carl USMC (Ret) with Barrett Tillman
"Check Six" A Fighter Pilot Looks Back
by Frederick C Blesse Major General USAF (Ret)

## CHAPTER FLIGHT SIMULATOR

One of the challenges for operating our chapter flight simulator will be how to provide remote support for the system when our users (students) run into an issue or problem and need help resolving whatever problem they are having. I live in Maple Grove and it is 19 miles from my home to the chapter building. It would be nice to be able to provide support without having to drive to the airport. Since we have internet access at the chapter building, we are able to connect into the flight simulator PC at the chapter building from a remote location using a remote access software program called 'Splashtop'. There is a host copy of the software on the simulator and a remote copy of the program on my PC at home. My thanks to Michael Grzincich for getting this set up.

Once the connection is established, I am able to log in as Local Admin and use my keyboard and mouse as if I were sitting at the flight sim PC. While I am able to start up the X-Plane 11 software on the simulator, obviously, I am unable to operate the controls for the sim (yoke, rudder pedals, throttle quadrant, etc.) because they are connected to the flight sim PC and not to my home PC. The X-Plane 11 software is just not setup to accept control input from peripherals that are not connected to the same PC. However, as an experiment, I was able to map a few keys on the keyboard for rudder pedal controls,
etc. and then taxi around the airport to see what that would look like. The Splashtop software lets me simultaneously view what is being displayed on the four monitors on the sim at the chapter building. On my monitor, the top half of the screen shows what is on the three X-Plane view monitors side-by-side (i.e., left, center, and right) and the bottom shows what is displayed on the flight sim's touchscreen monitor (Air Manager instrument panel).

Of course the objective is not to actually be able to operate the flight simulator software remotely from home but rather to be able to see what the student operating the flight sim is seeing when they are having a problem. Perhaps the problem might be a configuration setting within X-Plane that needs to be changed and this could be accomplished remotely. Or perhaps the problem is something that needs to be fixed at the operating system level using file manager or other utility program.

We will also be looking into the possibility of using another PC in the chapter building to establish a Zoom connection for providing remote support for the flight sim. This would facilitate both an audio and video connection between the student at the sim and the person providing remote support. We will let you know how this works out after some testing of the concept. by Dave Peterson


With the setup the sim has, the pilot can select either a view with the frame of the Cessna 172 visible as if you are sitting in the aircraft cockpit (as seen in the first picture) or one that does not include the frame (as shown in the second picture). Each screen in the sim shows a field of view (horizontally) of 60 degrees. So with three monitors side by side, you have a full 180 degrees field of view horizontally.

# AVIATION ADVENTURES <br> Out and About in Our Neighborhood by Bob Henkes 

For this month's article I had asked what was significant about the Piper Cub in the photo and where was it at. Jim Wienand correctly identified the Cub as EAA Aircraft Raffle on display at the EAA Museum in Oshkosh. A coveted 2020 Covid edition AirVenture patch was sent to him. The EAA Raffle Aircraft Super Cub tickets are \$100 apiece and a portion of the ticket price will support our chapter as well as EAA's programs. You must purchase the ticket in Wisconsin. The Great 2021 Aircraft Raffle has been relaunched as of August 10, 2020. The new drawing will take place on August 1, 2021, at EAA AirVenture Oshkosh 2021. The prize is a one-of-akind Super Cub clone valued at $\$ 150,000$. This raffle aircraft-a PA-18 replica-is from-the-ground-up customized in a spectacular 50 Years of OSH paint scheme. The winner can also elect a cash prize of $\$ 25,000$ in lieu of the aircraft.

I started these articles as a way to get out of the house during COVID and find things near me with some aviation history. All of them so far has been things in our neighborhoods or a day trip. This month's story is a two-day trip to the EAA Air Museum.

As a young teenager, my interest in aviation was growing. From joining Johnson Wax's Aviation Explorer Post, to my first Airshow in Oshkosh in 1978. At that time, the museum and headquarters were in Hales Corner, Wisconsin. I can remember riding my bicycle the 40 or so miles to the museum. I did that several times, but really don't remember much about
the museum other than the Bee Gee that was on display.

The current museum is lights years ahead of the old one, but still beckons me back to my youth. Those early years of the fly-in with the acrobatic team of Tom Poberezny, Charlie Hillard and Gene Soucy in their Pitts Specials and later in the Christen Eagles. Those planes are in the museum. As I sat in the museum last month, I would look at those planes and close my eyes and be transported back to the days of my youth. It made me think of Tom Poberezny as the driving impetus behind the new museum and when he and I had the opportunity to Chair a fly-in together in 1980.

I then see the Carnuba aircraft display telling the history of the historic 1935 flight to Brazil by Johnson Wax CEO Herbert Johnson to explore the jungles for the wax they would use for their new Parquet flooring product and start the Johnson Wax empire. The Johnson family are family friends, and they went to school with most of my siblings. When I was a high school junior, I interned with their aviation department. In later years, Sam Johnson was a key person in getting Young Eagles off the ground and was recognized for it.

The museum looks and feels truly different then during AirVenture. It currently has featured exhibits on "Huey: The Workhorse of Vietnam", WASP: Women Flyers of WWII", and "The Borman Collection". As I walk around the museum from homebuilts to warbirds, Burt Rutan's aircraft and

much more, I had my memories jostled all over the place. Many great memories and a few inspirations, like "what will I do with that Cub when I win it"?!

The museum is open daily. When I was there last month, there was only a few dozen people there. They do have social distancing and are taking temperatures upon arrival. Definitely worth a couple days to have the place pretty much to yourselves. Pioneer Village is part of the museum, but is not open at this time.


For next months history tour, who can tell about the history about this photo of the women working on this plane and where it was at?

## EAA 237 COMING EVENTS

March chapter meeting will be held on Monday, March 22. Details to follow in an email.
April Chapter Young Eagles event will be held on Saturday, April 10, from 9am until 2 pm at the Lynx FBO at KANE.

Chapter 237 Aviation Explorer Post meetings are usually held on the first and third Fridays of the month at the chapter building, beginning at 7 pm .

# ELECTRIC PROPULSION <br> Hydrogen Fuel Cell or "Fool's Cell" for aircraft electric propulsion? <br> A look forward...by Ronald Borree EAA Chapter 237 

Is the reliable "million mile" fuel cell electric motor propulsion system attainable?.... perhaps.

To paraphrase Elon Musk of Tesla, hydrogen fuel cells may currently be "fool's cells" because the economics may not justify using that technology in a competitive market endeavor for electric propulsion. Is the fuel cell technology too complex and/or expensive? The appeal is high to use compressed hydrogen to make electricity with a H2O (water) by-product. No emissions are evident...

A future article will compare projected hardware and operating/maintenance costs for the various propulsion systems noted below.
Each propulsion component may have a different useful life, must be highly reliable, have possibly redundant backup options and include:

- Internal combustion propelled; engine and fuel system.
- Battery/electric motor propelled; battery packs, inverter, electrical systems and electric motor.
-Fuel cell/electric motor propelled; fuel cell package, inverter, electrical systems, electric motor and possibly an additional propulsion battery pack.
- Generator/electric motor propelled; gas or diesel generator (possibly a turbine system), inverter, electrical systems, electric motor and possibly additional propulsion battery packs.

Below is a diagram of a new hydrogen fuel cell "turn key" package to be released in 2021 and offered by Toyota for electric propulsion products. The Toyota market releases do not specifically say airplane manufacturers are the intended users of this product, although Toyota recently is investing about $\$ 394$ million in Joby Aviation for the air taxi market arena.

Per Toyota, the new module has a wide voltage range ( 400 to 750 V ) and can be directly connected to an existing electrical instrument provided with a motor, inverter, and battery, etc., thanks to a built-in, dedicated FC (fuel cell) boost converter that simplifies the development and manufacture of FC products. In addition, the system's modularization greatly improves convenience.

The maintenance requirements of the new (Toyota) module are simple and infrequent, helping to reduce the total cost, from procurement and usage, to disposal. To ensure safety related to the use of hydrogen and high voltage, the countermeasures cultivated during the development of electrified vehicles such as FCEVs and HEVs were implemented.


Note the component parts that make up the hydrogen fuel cell include a hydrogen supply from a tank, an air intake, a cooling system and the fuel cell stack with boost converter for required voltage.

Sizes (approximate): vertical version 35x25x27 inches, horizontal version 50x25x16 inches.
Weight: 529 to 551 lbs
Electrical output: 400-750 volts DC at 60-80 KW
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Below is a newer hydrogen fuel cell technology produced by Hypoint Inc. in Menlo Park, California that recently received a NASA award for use in aviation. The air cooled circular fuel cell can be scaled for small aircraft or EVTOL products or larger aircraft by "stacking the modules" similar to how older radial gas engines were "stacked" for added power in WW2 bombers such as the B-25 or B-17.

The diagram below shows the individual round fuel cell and the fuel cell installed with hydrogen tanks in a nacelle or the area at the front of a typical small aircraft behind the electric motor. Note also the front air intake for forced air cooling that looks eerily like a WW2 P-51 fighter!!

front air intake behind the propeller
internet references for Toyota, Hypoint, Inc., Hypoint white paper on technology:
https://docsend.com/view/t9aw2mk
https://dronedj.com/2021/03/02/hypoint-unveils-its-
hydrogen-fuel-cell-for-urban-air-mobility/
https://global.toyota/en/newsroom/ corporate/34799439.html

Here is a follow up article on the Rolls-Royce Electric Racer
Rolls-Royce Electric Racer Begins Taxi Tests
Marc Cook March 1, 20212
https://www.avweb.com/aviation-news/rolls-royce-electric-racer-begins-taxi-tests/

## QUICK LINKS

70 Years Ago: F-86s and MiGs Over Korea by Elizabeth Borja Smithsonian National Air and Space Museum https://airandspace.si.edu
"We Was On Fire; I could See The Flames!" by Steve Jordan

TECHNIQUE | MAYDAY, MAYDAY, MAYDAY by Tom Curran
This aritcle is a comprehensive look at dealing with inflight emergencies. Tom Curra's long flying career spans a start as a general aviation pilot and finishes as an air force $\mathrm{F}-15$ and $\mathrm{B}-1 \mathrm{~B}$ pilot.

Eight Air Force Historical Society of Minnesota present, THE LIBERATORS, interviews with WWII B-24 pilots Don Schmidt and Larry Bachman, navigator, Larry Taylor and gunner AI Groth. It is an excellent video with lots of WWII shots of B-24s in flight.

On The Lighter Side

## You never

 appreciate what you have till it's gone. Toilet paper is a good example.

Being a little older, I am very fortunate to have someone call and check on me everyday. He is from India and is very concerned about my car warranty.

## 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.
https://flightexpo.org/sweepstakes

"Rising Above for Education"

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 APRIL issue are due on or before APRIL 10.



