



The FLYING WIRE

The Newsletter of EAA Chapter 64

Serving Aviation in the Metro-East
Founded November 30, 1964 - Incorporated January 28, 1966

February Meeting: The next chapter meeting will be held on "ZOOM" on Tuesday, February 2, 2021 at 7:00 p.m. See message below from President Dennis Engelkeniohn for details on how to participate.

Message from Chapter President Dennis Engelkenjohn

We are not going to be able to have an in-person chapter meeting again this month, but we would like to have a zoom meeting to keep in touch with our members and keep everybody up to date on chapter goings on. Meeting will be held on February 2, 2021 at 7:00 p.m.

Here is the zoom link: <https://maryvilleu.zoom.us/j/6560737363>

Please try to connect a couple days before the meeting just to make sure everything is set up and ready to go, that way if you need to download an app or there are any problems my I.T. person/wife can help.

For those who would like to use their phones to connect rather than a computer. Dial this number: 312 626-6799. When prompted, enter this meeting ID number: 656 073 7363. You will not have a participant ID number; just press the pound sign one more time. This will only work once the meeting has begun, you can't try it ahead of time.

We are really hoping to go back to in person meetings soon, maybe March or April possibly depending on weather. I know that's being hopefully optimistic, but we have room to social distance in the hangar if it is a bit warmer.

VP Isaac Montague has gotten us an intercom system to help communicate with Young Eagles, and another iPad.

Paul Visk has gotten PayPal set up so our members can pay their dues and other transactions online and he has also gotten a cordless link to the security system, so we don't have to worry about that under-driveway line problem anymore.

Bill Aanstad has been making a lot of progress on the Young Eagle R/C project too this winter, getting work done on the trainer, teaching some YE kids, buying planes and supplies and getting donations.

Scott Reed contacted us through Travis Roberts of Chapter 331. Scott is building an Azalea Aviation SabreWing, a low wing composite kit powered by a turbo Corvair engine. Scott is highly skilled in composite construction and is also building carbon fiber parts for his 1967 Corvette, including doors, hood, bumpers, and hinges and is adept in vacuum bagging of parts. Scott is easy to talk to and willing to advise on any composite projects we might have. He would like help on his project too if anyone would like to learn some hands-on composite construction.

Chapter Dues

A note from the treasurer: As of January 28, the Chapter has 91 members. I have received dues from 35 and we have 10 that are lifetime members.

The 2021 Chapter dues are \$24.00 and now due. A PayPal account has been created to pay dues and accept donations. All that is necessary is a valid credit or debit card. A PayPal account is not required. Please use the link below if you would like to pay online.

https://www.paypal.com/donate?hosted_button_id=CXR6QXRTQXLE4

If you would prefer to pay by check please mail to:

**EAA Chapter 64
5 Frederick Ln.
Belleville, IL 62223**



"We Need the Dues!"

How the Young Eagles Changed Our Lives

By Brian and Kelly McClure

As children, our parents introduced us to the world of aviation. We visited science centers, air and space museums, and air shows. Our dad, a huge aviation buff, built and launched model rockets with us. While we enjoyed these activities, nothing compared to our experience flying with the Young Eagles! At 13 and 10 years of age, our scout leaders organized a Young Eagles event with EAA Chapter 64, and we flew out of St. Louis Downtown Airport. For both of us, it was this experience that spurred our passion for flight and led us both to pursue aviation as a career.

Brian McClure - The Young Eagles event ignited my passion for flight. After this flight, my Boy Scout Leader, Captain Dave Andre invited me to fly with him in his Cessna a couple times when he realized my excitement about flying. The Young Eagles experience along with Mr. Andre's support truly impacted my desire to become a pilot.



While I was in high school, the aviation industry was fairly stagnant, so I began college at an engineering school where I also played college volleyball. While I enjoyed some classes, made good grades, and loved playing collegiate volleyball, I had to accept during my second year while taking a heavy load of engineering graphic and design classes, that engineering just wasn't my passion. I wanted to fly! I returned home to pursue my first dream of becoming a pilot and began the Aviation degree program at Southwestern Illinois College (SWIC) the following fall. In May 2020, I earned my private pilot license and also graduated from SWIC. I have just a few hours of cross country left and hope to complete my Instrument rating in February 2021. Next, I will pursue the Commercial and then Multi-engine ratings. I hope to initially fly for a small regional carrier to earn hours and experience.

Since May 2020, I have been enrolled at Southern Illinois University Carbondale, and I am on track to finish a Bachelor of Science degree in Aviation Management by December 2021.

My goal is to fly professionally as a cargo or commercial pilot and spend a career in the aviation industry. I have no doubt, absolutely none that this is the career for me. I love being in the air and I am so grateful to the Young Eagles who introduced me at 13 years old to the world of flight. Prior to Covid-19, I had a chance to volunteer at a Young Eagles event by escorting kids to planes and sharing my aviation passion with them. The event reminded me of my Young Eagles flight and also how that experience truly changed my life.



Kelly McClure - When I was just 10 years old, my mom, who was also my Girl Scout leader, arranged for our troop to fly with the Young Eagles. I thought the flight was the most amazing thing I had ever done. As soon as the flight was over, I thought, “I can’t wait to do that again.” And so, I did. My first Young Eagles flight spurred my interest in aviation and by the second, I was hooked. I spent the next several years investigating facets of aviation. While in high school, I explored other career options, but kept returning to the feeling and exhilaration I felt sitting next to the captain in the little Cessna during my Young Eagles flight. Every other career paled in comparison to this experience. Discovery flights and visits to college aviation programs further helped me define my desire to pursue a college major in aviation.



In August 2019, I began the Bachelor of Science program in Aviation at Quincy University (QU). I also began flight lessons with QU’s flight partner. Although on course to complete my private pilot in May 2020, when COVID-19 hit, I had to leave campus and returned home to finish the semester remotely. Determined to keep my skills fresh, I resumed lessons through St. Louis Downtown Airport and in August 2020, became a Private Pilot. I am currently working on my Instrument rating at Quincy Regional Airport and continuing my education at QU. I’ve added a minor in general business. I plan to continue working on certifications, including a CFI rating; and plan to work as a CFI while finishing an MBA at Quincy by Spring 2024. In addition to school and flight at QU, I am also the starting goalkeeper for the Quincy U. Women’s Lacrosse team. After college, I hope to fly as a corporate or commercial pilot although I may consider something on the business side of aviation.



I am very appreciative of the Young Eagle pilots who so generously gave of their time to introduce me to the world of flight. It was truly this experience that first opened my eyes to the possibility of becoming a pilot.

The aviation industry has almost endless possibilities and we can't wait to see where the profession takes us. We truly believe "The skies are the limit for both of us" thanks to the generous spirit of the Young

Eagles pilots and EAA Chapter 64 who introduced us to the world of flight.

Here are some additional pictures:



Brian is in the blue warm up suit - Young Eagles flight at 13 years of age. Other passenger is another boy scout.

Kelly is in the pink shirt - Young Eagles flight 10 years of age. With fellow girl scouts.



Rotax 582 Conversion to Rotax 670

By Bob McDaniel

Rotax recommends overhauling their 582 aircraft engine every 5 years or every 300 operating hours, at an estimated cost of about \$2,200. Some say the overhaul is absolutely essential at those intervals to ensure continued safe operation. Others say that's quite excessive and is recommended only to limit the company's liability. A few owners attest to over 1,000 hours of operation without a problem.

My powered parachute is now approaching 17 years old and the engine has about 450 hours on it. It's been running fine and I'm confident it has a lot more life left in it. However, my granddaughter flies in it quite frequently. For that very reason, I decided it was time for an overhaul.

Since there are no Rotax engine specialists nearby and my total mechanical ability consists of being able to put a square peg into a round hole if given a large enough hammer, I decided the best course of action was to ship it off to a professional.

After exploring a variety of options, I made the decision to ship my 582 to Ron Davis in Naples, Florida and have it converted to what is commonly known as a "Rotax Rick 670."

The 670 conversion boosts the rated horsepower of a 582 by 42 percent—from 65 hp to 92 hp and increases the 582's recommended time between overhaul (TBO) to 450 hours. The total cost of the 670 conversion with a new tuned exhaust system runs less than \$4,500. After selling my old exhaust system on E-Bay, the total cost of the upgrade is less than the cost of two 300-hour overhauls.

Although the more powerful 670 burns more fuel during full throttle takeoffs, it runs much slower than the 582 when throttled back to cruise speed, reducing the fuel flow from 5.5 to only 4.0 gph.

The switch to the 670 was a no-brainer!

A pilot for 44 years, Ron has built his own experimental aircraft, maintained his own agricultural fleet, and worked as an airline mechanic. He started rebuilding Rotax engines in 2008 and quickly became an expert, making significant improvements along the way.

A couple of people urged caution. Ron's modifications and improvements have not come without a little controversy. Reliability was an issue in some of his early modifications, partly because pilots were not following his recommendations and partly because the experimental modifications were a work in progress the first few of years. Having successfully rebuilt and modified well over 700 engines so far, reliability is no longer an issue and his 670's come with an extraordinary two-year warranty.

Before making my decision, I thoroughly reviewed his website, studied the many on-line engine and aviation forums, talked to a couple of his customers, and gave him a telephone call. He

took plenty of time talking to me and answered all my questions. He promptly answered several additional questions I asked via e-mail and he's sent me regular e-mail updates detailing the progress on my conversion. So far, his customer service has been excellent.

His services are in high demand. When I shipped my engine to him November 2nd, he had 24 engines ahead of mine and he estimated a 2-1/2 month delay. His estimate was right on target. He sent me an e-mail on January 14th to tell me he had started working on my engine.

Here's how he converts a 582 to a 670.

- The cylinders are inspected, sonic cleaned, painted, and honed to ensure they're perfect.
- New ceramic-coated pistons are installed. They run cooler and expand at a much slower rate to prevent cold seizure.
- The ports are inspected to make sure they're correct.
- Addition of Rotax Adjustable Variable Exhaust (RAVE) valves are part of the secret to adding more power and efficiency to the engine. They are installed above the exhaust manifold to open and close the exhaust port and time the exhaust wave for maximum power and fuel efficiency throughout the entire operating range.
- The crankshaft is trued to less than .001 at all locations and is better than new with 2 oil slots, instead of the original single oil slot.
- The rods are replaced with new double-slotted rods. The two oiling slots completely cure the number one reason these engines fail—lower connecting rod bearing failure.
- The bearings are replaced with new OEM FAG German nylon ball space bearings.
- The crank pin (the wrist pin on the bottom), thrust washers, and center seals are all replaced.
- The intake is inspected, the oil injection is removed, and a cover plate is installed. (The 670 requires a constant 40:1 oil mixture the oil injection system can't manage.)
- The Ducati ignition is completely inspected and tested, and the timing is set.
- The coils are inspected and new spark plug wires, coil protection boots, spark plugs, and caps are installed.
- The Bing 54 carbs are completely disassembled and sonic cleaned. Worn parts are replaced, the carbs are painted and coated with two-part clear coating to shield them from the fuel, and new carb boots are installed.
- The gearbox is disassembled, inspected, sonic cleaned and painted. A new gasket and seal are installed.
- The electric starter is detached, cleaned, and then painted to match the engine and gearbox.
- Once everything is assembled, the engine is installed in a test stand, hooked up to a propeller, and test run for two hours. All the systems are tested, and the carburetors are adjusted.



- Because of all these improvements, TBO is increased from 300 to 450 hours and fuel consumption at cruise RPM is reduced from 5.5 gph to 4 gph.
- A new zero-time engine logbook is prepared, and the engine is carefully packed for shipment.

(To learn more about the 670 conversion, visit <https://rotaxrick.wordpress.com>.)

Mike Hair of CPI Racing and Custom Pipes, Inc. fabricates new tuned exhaust systems specifically designed for the 670. Like Ron, Mike answered the phone and spent plenty of time talking to me about my specific needs and answered all my questions. He promised a 3-week delivery and my new exhaust system arrived exactly 3-weeks to the day of my order. It fit perfectly in place of my old exhaust system with only a minor adjustment to the hanger assembly.

While the engine was away, I sent the three-blade Ivoprop propeller to the factory for an overhaul. It came back a week later looking like new.

The new 670 will go back on the airframe exactly as the 582 came off. Only one minor modification is needed. A new, electric fuel pump needs to be installed ahead of the Mikuni pulse pump to ensure adequate fuel flow at high RPMs during takeoff and climb.

January temperatures are not very conducive to open cockpit test flights even if top speed is only about 30 mph, so there's plenty of time for the final touches before first flight.

I'll provide a follow-up report on the new engine performance after the Phase One flight test period is completed later in the spring.



Pilot's Tip of the Week

<http://www.pilotworkshop.com/tips.htm>

Priming for a Cold Start

Featuring Wally Moran

"I know I need more prime to start in cold weather, but how do I know how much more?" — Cassie C.

Wally:

"As winter has arrived here at my home airport, I'm hearing lots of airplane starters grinding over and over, with no results.

In the colder denser air, airplanes need more fuel and less air to start. That means if your carbureted airplane engine usually needs two or three strokes of prime in the summer, it needs more: maybe three, four, or even five strokes before starting when the air and engine are really cold.

If your engine is fuel injected and normally primes by using the fuel boost pump and full rich on the mixture control, try leaving the mixture control in and pump on for one, two, or three seconds longer than you would in the summer.



If the engine fires but only runs a second or two, it's telling you it needs more fuel. So, give it more on the next try by using the primer, or fuel boost pump, as appropriate.

Avoid slowly advancing the throttle while cranking as well. Doing this only adds more air to the mixture, which makes it more difficult to start. Most pilot operating handbooks advise opening the throttle only $\frac{1}{4}$ - to $\frac{1}{2}$ -inch for starting. That's not much. Now don't confuse $\frac{1}{4}$ - to $\frac{1}{2}$ -inch with $\frac{1}{4}$ - to $\frac{1}{2}$ throttle opening.

Of course, too much prime can flood the engine. If you smell fuel or see it dripping from the lower cowlings, let the airplane sit until those symptoms disappear, and then try the POH recommended flooded start procedure.

Here's one more tip and maybe the most useful of all: If possible, simply avoid starting a cold-soaked engine by getting a pre-heat or installing an engine preheater.

Starting an airplane during cold conditions is often more of an art than procedure. Know your POH recommendations, pre-heat if possible, and don't be bashful. Ask local CFIs or an aviation mechanic if they have any good techniques for your specific airplane and climate."

Another Pilot's Tip of the Week

<http://www.pilotworkshop.com/tips.htm>

Alternator Failure at Night Featuring Ryan Koch

"How should I respond to an alternator failure at night?" — Geoff V.

Ryan:

"When your only alternator fails at night, it's an emergency. Declaring buys you extra ATC attention and priority handling. That's exactly what you need, so don't hesitate. Then, land as soon as practical.

How much battery time you have depends on the health and size of your battery, as well as how quickly you notice and respond to the failure. Get the most out of what juice you have left by turning off as much as you reasonably can. Your checklist will tell you that, but probably doesn't offer specific guidance for which items to turn off. It might be more items than you think.

Newer LED lights don't draw much power but turn off nonessential ones anyway. Older lights, especially strobes, draw much more. Consider turning them all off. Pitot heat uses a lot of power, but don't turn it off if you need it. You have enough problems without losing your airspeed indication.

You can likely turn off one radio, and possibly your transponder if you're not being vectored by ATC. If you have an iPad you can navigate with, turn off the GPS too. Keep radio



transmissions to a minimum—they're a significant power draw—and consider using a handheld radio proactively.

Autopilots use electricity for both the computers and servos. Even when disengaged, many autopilots consume some power to monitor the situation. So, turn it off, pull the breaker, and hand fly.

Dim the backlighting on glass displays as low as possible. If you have instruments with internal battery backups, like Garmin G5s or Aspen displays, understand how to make them switch to their internal batteries. Some sense the voltage drop caused by an alternator failure and automatically switch. Others don't, which means you must pull a breaker to force them to use their internal batteries. Consider figuring all this out on the ramp someday and making a custom checklist you can pull out in flight if this ever happens to you for real.

If you need more range than the battery alone will provide, you still have an option: Turn off the master switch and fly by iPad or dead reckoning until you're in range of an airport. Then turn the master back on and you'll have power to spare when you need it most. This is even an option in IMC on an IFR flight plan. This is an emergency, and you won't be able to fly an approach if the battery runs dry. Let ATC know when and where you plan to turn your radios back on, and they'll provide a frequency to call, and the controllers there will be expecting you.

Remember that you need electrical power to activate pilot-controlled lighting, as well as for electric flaps and landing gear. Play your cards wrong, and you might be making a manual gear extension, followed by a no-flap landing to an unlit runway in a NORDO, unlit plane. Stack the odds in your favor by diverting to an airport with a tower. Tell ATC your plan and ETA before the battery dies. Even if the Tower controllers can't see you to send light gun signals, they can keep other traffic away until you arrive.

So, know your aircraft, and do what it takes to get on the ground while you still have some juice left. “



EAA Chapter 64 Treasurers Report for January 2021

By Paul Visk, Treasurer

EAA Chapter 64 Balance Sheet As of January 28, 2021

	<u>Jan 28, 21</u>
ASSETS	
Current Assets	
Checking/Savings	
Checking	377.03
Hangar Checking	1,498.02
Total Checking/Savings	<u>1,875.05</u>
Accounts Receivable	
Accounts Receivable	-610.00
Total Accounts Receiva...	<u>-610.00</u>
Other Current Assets	
Inventory Asset	-2,000.00
Undeposited Funds	1,015.00
Total Other Current Ass...	<u>-985.00</u>
Total Current Assets	<u>280.05</u>
TOTAL ASSETS	<u>280.05</u>
LIABILITIES & EQUITY	
Liabilities	
Current Liabilities	
Accounts Payable	
Accounts Payable	833.32
Total Accounts Payable	<u>833.32</u>
Total Current Liabilities	<u>833.32</u>
Total Liabilities	833.32
Equity	
Opening Balance Equity	3,307.58
Unrestricted Net Assets	-4,121.05
Net Income	260.20
Total Equity	<u>-553.27</u>
TOTAL LIABILITIES & EQUI...	<u>280.05</u>

Fly Market

Listings are free for EAA64 members-- Sell, Trade, Wanted.

For Sale:

Single seat CGS Hawk taildragger homebuilt plane registered as Experimental Light Sport. Plane has a 52HP Dual carb oil injected Rotax 503 equipped with a Powerfin 3 blade adjustable prop.

Due to health situation, I have not flown it since August 2017. Engine ran good and plane flew well when I ceased flying. Plane has approximately 300 hrs. flight time. The 503 has approximately 160 hours time on it. This plane previously had a Rotax 447 on it (also for sale separately).



Selling as is, asking \$11,500. All reasonable offers will be considered. Call Ron Peek 618-610-4722.

FOR SALE

\$300 or best offer

Rotax 582 Ceramic-Coated Exhaust system. Used, but in excellent condition. Removed from powered parachute due to a change to a different engine. (This will go on E-Bay next month for \$350.)

Contact Bob McDaniel at 618-530-0805 or
E-mail dusterpilot@charter.net



EAA Chapter 64

(CPS) Cahokia, IL

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Web: www.eaa64.org

Group: <http://groups.yahoo.com/group/eaachapter64/>

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Visit us on the Internet at: www.eaa64.org. Send your photos, tips, stories, and files for sharing to Tom Murrell to post on the web page and to Al Bane for the newsletter. You can also post information on the Chapter's Yahoo Group. Contact info is shown above.



Directions to EAA Chapter 64 Hangar/Clubhouse

The Flight Park is located 4 miles SW of Millstadt at 5949 Bohleysville Road, Millstadt, IL.

FROM BELLEVILLE: Take 158 west past Millstadt to Roenicke Rd. (approximately 8 miles.) Turn left on Roenicke for 1.8 miles. Turn Right onto Bohleysville Rd. and go 0.2 mile. Look for the big tree on the left and turn left into the gravel drive.

FROM COLUMBIA: Take Rt 3 through Columbia and take Rt 158 toward Millstadt. Drive 2.9 miles to the intersection where Triple Lakes Rd crosses 158 and becomes Bohleysville Rd—the Farmers Inn will be on your left. Turn right onto Bohleysville Rd. Go 1 mile and turn left at the T-intersection. Continue another 0.9 mile. After you go around an S-curve, you'll see the grass runway on your right. Turn right into the gravel driveway by the big tree and continue to the hangar.

FROM CAHOKIA: Take Triple Lakes road (by the old Cahokia bowling alley.) When you get to highway 158 with the Farmers Inn on your left, continue straight onto Bohleysville Rd. Go 1 mile and turn left at the T-intersection. Continue another 0.9 mile. After you go around an S-curve, you'll see the grass runway on your right. Turn right into the gravel driveway by the big tree and continue to the hangar.

PARKING: There is limited paved parking area in front of the hangar. It's ok to park on the grass or on the gravel parking area in front of the other hangars. Do not block the gravel driveway. It is used by big and wide farm equipment.

AIRPORT DATA

Field Elevation: 631' MSL - - - Traffic Pattern Altitude: 1,630' MSL - - - CTAF: 122.9
(Call "*Flight Park Traffic*")

N38°25.12' / W90°07.87'

RUNWAY 24: Left Traffic. 2,300' available for takeoff; 2,042' available for landing beyond 258' displaced threshold.

RUNWAY 06: Left Traffic. 2,300' available.

NOISE SENSITIVE AREA: AVOID OVERFLIGHT OF ALL HOMES, BUILDINGS, AND LIVESTOCK. A modified straight-in approach is recommended. Do not fly multiple patterns.