



# THE WINDSOCK

SEPTEMBER 2020

Editor: Frank Huber | Layout Editor: Deb Huber

## The President's Flight Deck

I hope this finds all of you and your family members safe and socially distancing as we continue this Covid existence! This is the time of year we begin transitioning into shorter days and likely find ourselves indoors in the evenings. What better way to spend an evening, other than working on your airplane, is reading a good aviation book, and especially if it has been recommended by friends! To help us share those next great reads, send your book titles and author to our newsletter editor, Frank Huber, at [eaap51@comcast.net](mailto:eaap51@comcast.net), and he will compile them into a list for our October newsletter.

We have had two virtual chapter meetings so far and have noticed only 25 - 30 members are attending. This is about one-third of the members that would attend our chapter meetings in person. Some of the attendance drop may be attributed to not having the personal social interaction, which is understandable. But if you have not attended a virtual meeting because you are having a problem with technology, please let me know and I will find someone to assist you with that. For the foreseeable future this is how we will be meeting. This September our guest speaker is a TV star, author and international ferry pilot. You may have seen Kerry McCauley on the Discovery Channel's series, Dangerous Flights, in which he stars as an international ferry pilot. Be sure

to watch your email for the link to our virtual chapter meeting to be held at 7:00 PM on September 28th. This is sure to be an entertaining presentation! See the flier on page 8.

As mentioned in previous communications, the chapter had planned to have a memorial get together for beloved member Al Eke. This event was planned for September 20th. However, Martha Eke informed me that Al's family would like to cancel the event because they don't want members risking Covid illness by getting together in person. However, in the future when we can be together again, they would like to present a financial donation to the chapter. Martha thanks the chapter members for all they have done for Al and wanting to honor his memory. Finally, EAA 237 members have annually donated toys and money to the Tree of Hope. This organization donates toys to hospitalized kids throughout the state of Minnesota. Due to Covid, the organization will not be having a public donation day at the St. Cloud airport this year. However, they are still trying to raise \$65,000.00 by December 1st to continue the tradition of donating toys to hospitalized kids. You can make a donation to their organization at this link <http://holidaytreeofhope.org/2020-Campaign>. Until October, happy aviating!



### YOUR CHAPTER BOARD OFFICIERS

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Lyle Peterson, Secretary  
Charles Jasicki, Director

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

Contact the Board at: [board@eaa237.org](mailto:board@eaa237.org)



# Young Eagles Update

Michael Grzincich, Young Eagles Coordinator



We attempted to have a Young Eagle event on Saturday, September 12. The weather did not cooperate, so we were forced to cancel.

We are planning to have an event on Saturday, October 3 at the Mora airport and one on Saturday, October 10 at the Anoka County airport. If you have any questions or comments, contact me at [Young.Eagles@EAA237.org](mailto:Young.Eagles@EAA237.org).

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Because of Covid-19, we will not be holding IMC Club 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.

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**The question:** On the RNAV (GPS) Approach Chart below, what is the meaning of the black box with the letter: "W"? *\*Answer on page 10*

MARATHON, FLORIDA AL-6394 (FAA) 17061

WAAS CH 99605 W07A	APP CRS 071°	Rwy Idg 5008 TDZE 5 Apt Elev 5	RNAV (GPS) RWY 7 THE FLORIDA KEYS MARATHON INTL (MTH)
<p>Baro-VNAV NA when using Key West Intl altimeter setting. For uncompensated Baro-VNAV system, LNAV/VNAV NA below -15°C (5°F) or above 49°C (120°F). DME/DME RNP-0.3 NA. Helicopter visibility reduction below ¼ SM NA. When local altimeter setting not received, use Key West Intl altimeter setting and increase all DAs 93 feet, increase all MDAs 100 feet, increase LPV and LNAV/VNAV all Cats visibility ½ mile, LNAV Cats C and D visibility ½ mile, and Circling Cat C visibility ½ mile, Circling Cat D visibility ¼ mile.</p>			MISSED APPROACH: Climb to 2000 direct LOGEY and hold.
ASOS 135.525	MIAMI CENTER 133.5 306.9	UNICOM 122.8 (CTAF) 0	



## Six Mistakes That Could Result In A Pilot Deviation Under An IFR Flight

[www.boldmethod.com](http://www.boldmethod.com)



Traffic Spotting Quiz by Student Pilot News  
[studentpilotnews.com](http://studentpilotnews.com)

Weather Wise: VFR Flight Planning by AOPA Air Safety Institute  
[www.youtube.com](http://www.youtube.com)

How To Deal With Ballooning On Landing by The Finer Point  
[www.youtube.com](http://www.youtube.com)



## HOMEBUILDERS

What our members are  
building, restoring and flying

### DAVID WATERS | ONEX AIRCRAFT

The Onex was my third build. I first built a Lohela 5151, a wood and fabric P51 replica. My second build was a Titan T51, an aluminum P51 replica. I chose the Onex just to have something to build as it was a CNC build kit, unlike the other two planes, plus it was the unique folding wing design. I received the kit in December 2011 and obtained my airworthiness certificate in September, 2017. I don't have a heated garage or hanger, so I tend to be a warm weather builder and a slow one at that. It wasn't a difficult build, just tedious. A CNC made kit isn't error free, as humans still have to input data. I ran into a few holes and measurements that didn't match, but nothing

that I couldn't overcome. The most time consuming and difficult part of the build was the canopy. My replicas both had blown canopies, but the Onex canopy was a relatively flat piece of material that had to be fit and cut several times to match builder bent hoops.

The engine is a Revmaster 2300, an 85 hp Volkswagen conversion that drives a 54x44 wood prop made by Prop's Inc. I am satisfied with the performance of both. I'm still in phase one flight testing and that indicates that I'm also a slow flyer. The Onex is very light and quick on the controls. The empty weight is 622 lbs. and gross is 950 lbs.



The wingspan is 19 ft. and with full fuel of 15 gallons, I'd have to gain 63 lbs. to get to gross weight. The aircraft was down for several weeks to change from aluminum to steel pushrods, as I was sent the wrong size the first time. I didn't discover the problem until I was setting the valve lash on installation.

The Onex has a small instrument panel, so I added a sub panel for switches and a center pedestal to mount the Sandia transponder and more switches, so I could go with steam gauges. I used an MGL V10 com and a Grand Rapids 6000 EIS. I also installed a lift reserve indicator and a uAvionix ADSB In/out. I navigate using the IFly program on an iPad.

I initially installed differential foot braking for the band brakes, but find them marginal. I have ordered a hydraulic package, but the discs are on back order. I probably won't get those installed until next spring.

Since I'm still in phase one, I haven't finalized this planes performance figures. I am planning a conservative cruise of 115 knots, although I have been to 120 knots at 2000 ft. Sonex lists a cruise of 135 knots at 8000 ft. I expect a 400 mile range with 1/2 hour reserve but my bum limit is 2 hours. The cockpit is a roomy 27 inches and I installed a 20 pound baggage compartment aft of the seat. My clean stall speed is 50 mph. The plane is aerobatic and tested to +6/-3Gs by Sonex, but I'm not there yet. My flying plans are simply airport hopping on good weather days, with no long cross country flights to states beyond the midwest.

Experimental aircraft building is a satisfying experience, makes you think and check before you act, drives you to learn patience, challenges you to learn new skills, offers you the opportunity to buy lot's of tools and when finished, you get to fly.



## BELA SCHELLENBERG | SONEX AIRCRAFT

Chapter member, Bela Schellenberg decided to build a Sonex aircraft, because it fit his budget and because of the speed and range capabilities. He purchased a partially built and somewhat damaged scratch build kit, with no engine and instruments. Bela converted the project from a tail dragger to a trig-cycle gear aircraft during its construction. He found lining up the rivet holes with the wing skins and ribs, getting the engine tuned and running properly and getting in and out from underneath the instrument panel the most difficult parts of his project. It took him four years to finish the project. He received the Airworthiness Certificate for his project on May 19, 2015.

Bela enjoyed the test flying of his Sonex aircraft. He found the aircraft handled nicely. The one problem he had was that the steam gauge altimeter and airspeed indicators did not agree with his MGL EFIS. He received help and guidance from Jim Coult and Frank Huber during his test flight program.

Bela's Sonex is powered by an Sonex Aerovee engine, that has a Great Plains crankshaft, driving a Sonex propeller. His instrument panel is equipped with a MGL Mini-EFIS, MGL radio, MGL altimeter, a transponder with ADSB and a regular steam gauge airspeed and altimeter for back-up. He flies with an iPad, loaded with ForeFlight, MyRadar, Aero Weather, Direct To and Horizon Pro. Bela went with a polished aluminum finish and a military insignia design on his Sonex.

Bela has done most of his flying in the local area, going to Cambridge, Mora, Princeton, Little Falls and Perham. He is hoping to fly out to Salt Lake City if his body and brain permit it after Covid. The plane cruises at 120-125 mph with an endurance of up to four hours and it stalls at 60 mph. He has flown his Sonex seventy-six hours so far. Bela suggested, for those contemplating building an aircraft, try to start it before you retire in order to give yourself more time to enjoy flying it. Also he suggested getting the tools you will need ahead of time.





## Post 237

Michael Miller

The Chapter 237 Aviation Explorer Group met on Friday, August 21, at the chapter building. They continue work on the RC plane, finishing up the wings. They are now starting construction of the fuselage. The group flew the RC simulator and the small RC plane, that comes with the EAA kit, outside in the parking lot.

They skipped the September 4<sup>th</sup> meeting, since it was Labor Day weekend, but instead went out to visit the Anoka County Radio Control Club at their field in East Bethel on Wednesday, September 9. They all got to spend some time with an instructor and get a sampling of what it's like to fly RC planes. A couple of our Explorers are members of the club already, so they helped with the flying. It was a beautiful night to fly. The rain stopped and the clouds started to lift right around the time they started to fly. For those, who were not able to make it and would still like to visit the club, Mike will set up another visit.

*The next meeting is scheduled for Friday, September 18<sup>th</sup> at 7:00p at the chapter building. The group will be continuing to build the RC aircraft. Also, plans for visiting the Wings of the North Air Museum at the Flying Cloud Airport are currently in the works.*



# Chapter Flight Simulator

Dave Peterson

The new 24" touchscreen monitor has been installed on the chapter flight simulator. This will be used to display a digital representation of the instrument panel for various types of airplanes. The first version currently being configured is for a Cessna 172SP as shown in the photo of the instrument panel. We plan on starting with the default X-Plane 11 version of the Garmin 430 and 530 and see how that works out. For those of you interested in some pattern work another photo shows us on the left downwind for runway 36 at KANE. The last photo shows the ground track in Foreflight on an iPad while doing ILS 27 approaches at KANE. It does demonstrate how the X-Plane 11 simulator software can send your GPS location to your iPad as if you were in the real airplane so provides a good orientation, training and post-flight analysis experience. You can also do post-flight analysis by using replay mode in X-Plane 11 but we'll save that for another time.



For those of you who are interested in technical issues, we have learned that some of the Honeycomb Alpha control yokes were shipped from the factory with less than optimum calibrations resulting in possible undesirable 'dead zones' in the roll and pitch axis. We have yet to verify if the Alpha yoke that we have has this problem but, if so, there is a solution with all of the gory details in a YouTube presentation from Mark at Almost Aviation at this URL: [youtube/QSDJ-v66CfQ](https://www.youtube.com/watch?v=QSDJ-v66CfQ) If you watch this, it is quite obvious that he must come from an engineering background based on his detailed analysis.

In the near future, it would be great to have an initial orientation and feed-back session on the new flight simulator with the chapter members who are flight instructors. We will be contacting them shortly via email about their interest in participating as their input would contribute greatly to the success of this chapter flight sim project.

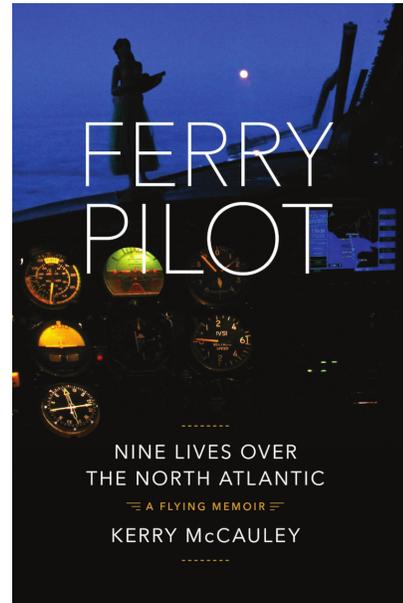


# EAA 237 Coming Events

- This SEPTEMBER's meeting will be a virtual meeting held on Monday, September 28, beginning at 7:00 PM. Our guest speaker will be Kerry McCauley, international ferry pilot, corporate pilot, professional skydiver instructor and author.
- Young Eagles event on Saturday, October 3 at the Mora Airport. More information to follow.
- Young Eagles event on Saturday, October 10 at the Anoka County airport. More information to follow.

## Kerry McCauley Author and Speaker

- International ferry pilot with over 100 ocean crossings
- Professional skydiver with over 20,000 jumps
- Engaging speaker and storyteller-
- Author of #1 Bestseller "Ferry Pilot"



Kerry McCauley's life of adventure started out in the Minnesota National Guard as a UH-1H "Huey" crew chief and winter survival instructor. His taste for aviation led him to be an international ferry pilot, professional skydiver and corporate jet pilot. As a ferry pilot he delivered planes to 60 countries. He's flown about 50 different types of aircraft and has 9000 hours of flight time. Kerry's crossed three oceans and six continents ferrying airplanes. As a skydiver, he has over 20,000 skydives and is a skydiving instructor and examiner.

Kerry is an engaging and entertaining speaker, whose retelling of his adventures as a ferry pilot and his starring role in two seasons of the Discovery Channel's series Dangerous Flights puts people on the edge of their seats. Kerry lives in Wisconsin with his wife Cathy where they own and operate a skydiving school along with their children, Claire and Connor.

Contact Kerry  
715-505-9745 or [kerry@kerrymccauley.com](mailto:kerry@kerrymccauley.com)

# 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](mailto:treasurer@EAA237.org).



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# QUICK LINKS

Excellent Short Video On Soft Field Takeoffs and Landings *by Sporty's*  
[www.youtube.com](http://www.youtube.com)

Scud Running In Viet Nam ... Don't Try This At Home *by Airfacts Journal*  
[airfactsjournal.com](http://airfactsjournal.com)

COLORADO Weather Cams Activated First Installations in Lower 48 *AOPA August 6, 2020*  
[www.aopa.org](http://www.aopa.org)  
<http://coloradoweathercam.com>

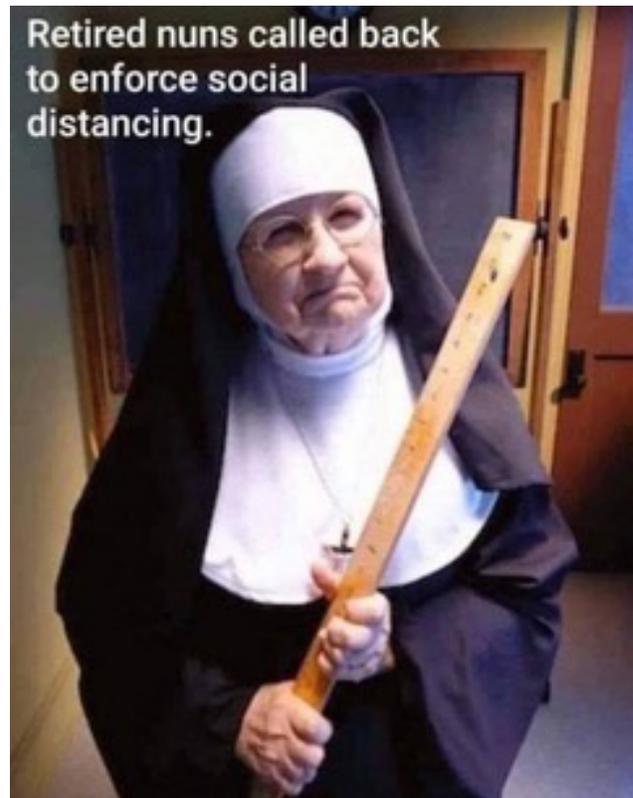
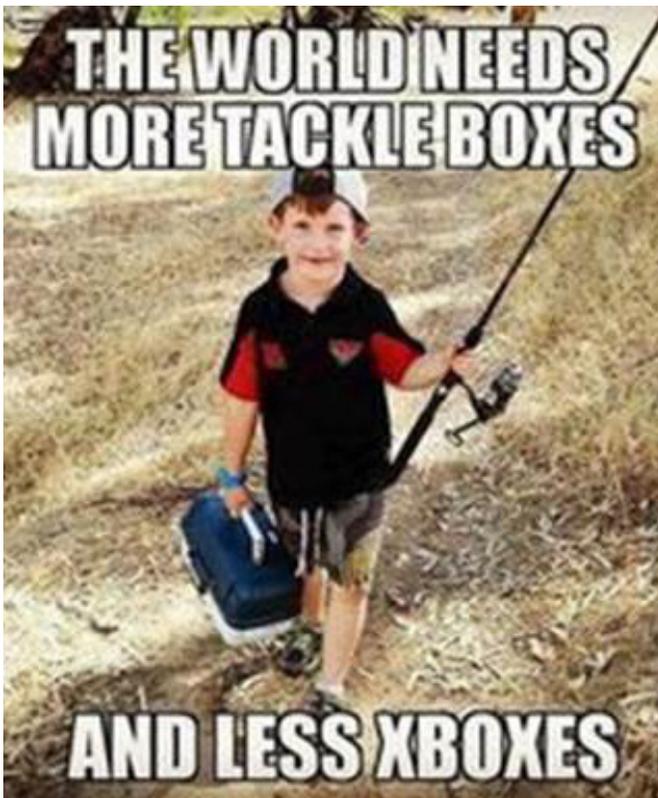
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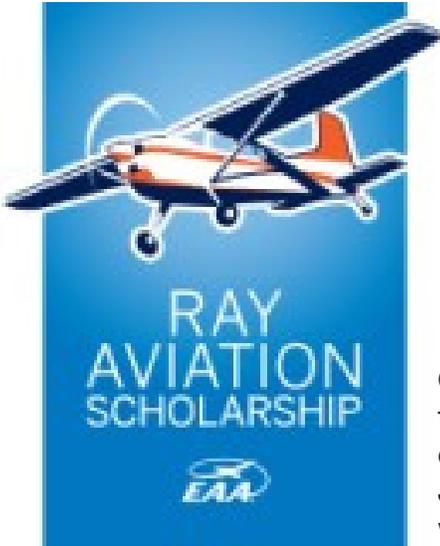
*The answer from page 2:* The negative “W” within a black square box symbol shown in the Notes section below any “A” or “T” Symbol indicates that outages of the WAAS (Wide Area Augmentation System) vertical guidance may occur daily at this location due to initial system limitations. WAAS NOTAMs for vertical outages are not provided for this approach. Use LNAV minima for flight planning at these locations, whether as a destination or alternate. For flight operations at these locations, when the WAAS avionics indicate that LNAV/VNAV or LPV service is available, then vertical guidance may be used to complete the approach using the displayed level of service. Should an outage occur during the procedure, reversion to LNAV minima may be required.

Also, according to AIM 1-1-32 p.7 - NOTE- Area-wide WAAS NOT AVBL NOTAMs apply to all airports in the WAAS NOT AVBL area designated in the NOTAM, including approaches at airports where an approach chart is annotated with the symbol “W.”

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## THE LIGHTER SIDE





Owen Larson, our 2020 Ray Scholar, is continuing to make progress towards his Private Pilot license. He has recently started working on his cross-country flying and night time flying with his instructor, John Johnson. Owen will be completing his training in December when he turns seventeen.



# 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 through the end of September, so please stop by in the next couple of weeks. Items not sold to members will be offered on Craig's List.



# ELECTRIC PROPULSION *by Ronald Boree*

**NASA X57 Electric motors** NASA, EP Systems, ESAero and others teamed on battery development, motor design/build and electrical systems integration for the X57 electric airplane. Internet links for various NASA and ESAero technical or detailed summary documents for this topic are at the end of this article. I have included a summary of the “Cruise” and “High Lift” AC high voltage X57 electric motors, which are a collaborative effort of NASA and Joby Aviation. The design of the two types of nacelles is also illustrated, where heat sink dissipation occurs and power inverters/electronics are located. Note these motors, DC/AC inverters, electronics and batteries are all air cooled.

Here is a quick summary of the overall X57 airplane as a reference point.

X57 total weight – Approximately 3,000 pounds

Cruise Altitude – 9,000 feet

Cruise Speed – Approximately 172 mph

Critical Takeoff Speed – 58 knots (67 mph)

There are two cruising motors when at altitude and twelve lifting motors primarily used for lift augmentation for take-off to altitude and landing. The lift motors fold away when at altitude.

## Batteries

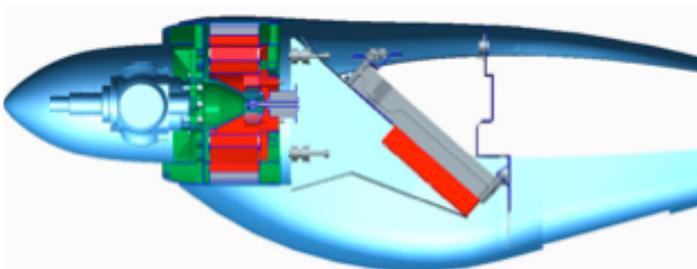
- Lithium Ion. (Nickel Cobalt Aluminum NCA chemistry using Samsung INR18650-30Q cells)
- 790pounds. (total of two redundant battery assemblies)
- 140 kilowatts continuous, 300kilowatts max. • 461volts nominal. (to be inverted to AC)
- 69.1 kilowatt hours (47 kilowatt hours usable)

## Cruise Motors and Propellers (2)

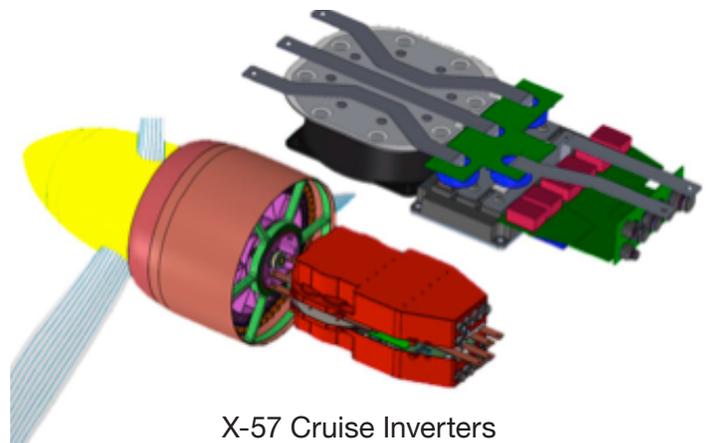
- 60 kilowatt Joby. (JM-X57) (High Voltage AC synchronous)
- Air-cooled, direct drive, permanent magnet 6-phase out-runner
- 5-feet in diameter (propeller)
- 14-inch outer diameter
- 117 pounds, combined weight

## High-Lift Motors and Propellers (12)

- 10.5 kilowatts Joby (High Voltage AC synchronous)
- Air-cooled
- 1.9 feet diameter propeller; 5 blade folding
- 15 pounds each combined weight



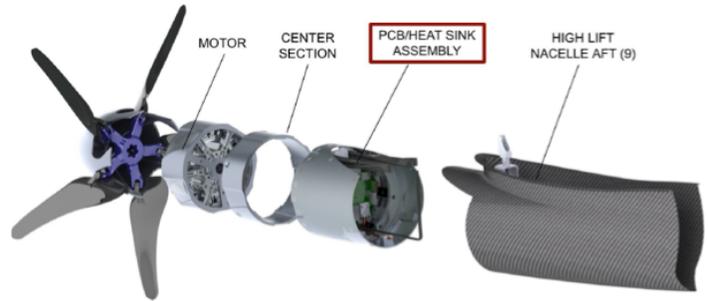
Mod2 cruise motor nacelle.  
Motor in green, heat sinks in red.



X-57 Cruise Inverters



Prototype for the high lift motor folding propellers.



Complete motor/electronics with nacelle.

NASA makes the electric propulsion studies available to the general public. The following internet links to the NASA X57 technical papers and ESAero will give extensive technical papers and detail to the above summaries:

<https://nasa.gov/x57/technical> (for NASA technical papers you can download)

[www.esaero.com](http://www.esaero.com) (ESAero website main contractor. Click on the links to the X57 project)

## Zenith 701 Chapter Project Update

The crew is continuing to make good progress on the Zenith 701 chapter project. We have been working on all the wiring for the engine. Work has been done on cutting 1/2 inch thick sound proofing/insulation foam pieces for all the various bays in the cockpit. We have also purchased a cockpit heating system from Viking Engines, that is designed to work with water cooled auto engine conversions. The unit has a reasonably sized heat exchanger with two fans

to blow the warm air into the cockpit for our cold winter flying. Most of the electrical wiring has been completed and work has begun on painting and installing switch placards on the instrument panel. We are still planning to move the aircraft into Mark's hangar sometime in October, so we can mount the wings and run the engine. There still is a lot of work to be done, but a next summer completion looks very likely.

## The 237th Aero Squadron Light Sport Flying Club

The Zenith 701 falls into the Light Sport category, so the flying club that will be formed, after we complete the project, will be a Light Sport flying club. What that will mean for anyone wishing to join will be some fun, economical flying in a plane with great short field capabilities and a normal cruising speed of 85 mph. It will also offer the opportunity for chapter members, who are currently not licensed pilots, to get a Light Sport pilot rating.

The Light Sport pilot/light sport aircraft rules were adopted in 2004. Obtaining a Light Sport pilot rating only requires 20 hour of training and passing a Light Sport pilot written and flight test. You only required to hold a driver's license as evidence of

medical eligibility. You can fly a Light Sport aircraft only during the daytime in visual flight conditions (VFR). You can fly solo or with one passenger. If you already possess any other pilot rating, you qualify to fly Light Sport aircraft. It is hopeful that this aircraft and flying club will open up the opportunity for many members to either get back into flying or realize a dream to learn how to fly. Below are some links to EAA publications that cover in more detail what Light Sport flying is all about, as well as a link to a video of one of the nicest Zenith 701s flying.

EAA Sport Pilot Sourcebook [www.eaa.org](http://www.eaa.org)

Jon Humberd's Super 701 [www.youtube.com](http://www.youtube.com)

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 questionnaire 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: eap51@comcast.net | 763-245-0170

To view past issues of The Windsock, visit [www.eaa237.org](http://www.eaa237.org) and select newsletters.

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

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Anoka County Airport/Blaine (KANE)

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 1st AirVenture Chapter Grand Champion



**Gary Laurich**  
 EAA Tech Counselor/Flight Advisor

**Chapter Hangar**  
 8891 Airport Road NE, Box C-12  
 Blaine, MN 55449

763-242-3564  
 gary.laurich16@gmail.com  
 www.eaa237.org

**Chapter Meetings:**  
 4th Monday of the month  
 Dinner Social: 6:00 pm  
 Meeting Starts: 7:00 pm



**DAVID A. AUTIO**  
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