Volume 37 Issue 5 May, 2020

# Winds Aloft

EAA Chapter 790 Lake in the Hills, IL 790.eaachapter.org

## IN THE NEWS:

Illinois nor Wisconsin have restricted flying.

The FAA has issued a Special extension until June 30th on Medicals, flight reviews, IFR recency and instructors certificates.

2020 AirVenture has been cancelled

## MEMBERS NEWS:

Ole Sindberg is recovering very nicely from a brief bout of breathlessness. Joe Sener is at home from the hospital and doing well.

Eddie Ranieri, our 2019 Ray Scholarship winner, is tuning up his flying skills with uncle Paul while awaiting Blue Skies to reopen.

Mark Luchsinger has completed his application for the Ray Aviation 2020 scholarship. Mark was able to obtain his medical and student pilot certificate and currently is studying his Sporty's ground school.

Even though many chapter events have been cancelled, 46 members have sent in their chapter dues.

Thanks folks

## *In this Issue*



## May Board Meeting News

The pancake breakfast is a tentative item pending opening up the area to the level 5 category (over 50 personnel unlimited) the governors guidance criteria. Possibly August or September.

Young eagles would kick in at level 4 (up to 50 people).

In order to maintain connectivity with chapter members, Paul is setting up a virtual meeting via Zoom for May 26th.

Stay tuned for further email notifications and website communications

Stay Healthy

## INNOVATIONS IN AVIATION

It is most helpful subscribing to multiple aviation magazines i.e. EAA, AOPA and Flying. With the quarantine in place, I am catching up on my reading. Some items of particular note to this writer are upcoming innovations in airplane design. On the battery scene, **Bye** aviation has contracted with Oxis for a lithium Sulfur designed battery for their *four* place aircraft. They will be using the lithium Ion for their two seat aircraft since it already is in the FAA certification process.


**OXIS Energy and Bye Aerospace have begun a 12-month collaborative program announced in late July that seeks to achieve a 50% to 100% increase in flight time from a single charge on future Bye Aerospace eAircraft.**
**OXIS has developed an innovative Lithium Sulfur (Li-S) battery technology that offers significant benefits to aviation markets. Compared to existing Li-ion battery systems technology, the high gravimetric energy density of the OXIS technology – in excess of 500 Wh/kg at 20Ah capacity – offers a two-fold reduction in battery system weight resulting in a significant increase in flight duration.**

OXIS CEO, Huw Hampson-Jones said, "We believe this collaboration will offer Bye Aerospace the confidence that OXIS Li-S systems will deliver the battery technology that meets the demanding performance and quality required to increase the efficiencies of their future electric aircraft. OXIS is focusing its research and development on the transformation of piston and turbo prop aircraft that is required for regional flight transportation. We believe this to be the first phase in the electrification of commercial aircraft and will ultimately form the basis for the electrification of Air Taxis, with the additional requirement for regional aircraft.
The United States has an impressive tradition of aviators who understand the need to experiment and embark on the deployment of new innovative technology, thus effecting a seismic paradigm shift in the powering of aircraft from using lead based fossil fuels to Li-S battery systems that are free of any toxic pollutants. As a consequence of the significant extension of aircraft flight duration, both companies believe this will allow for the widespread adoption of electric aircraft across the skies of the United States." OXIS has been granted 186 patents with 87 pending.

by Alexis Lincoln | Nov 6, 2019 from Bye Aerospace

(*Innovations continued on next page)*

Innovations (continued)

Articles by Beth Stanton in EAA have highlighted two interesting developments. 1) Hydrogen powered flying wing from a German designer **Horten** Aircraft, which is in the prototype testing phase. This utilizes winglets to dampen averse yaw in turns.

The Horten name and flying wing concept was on show last week at the Aero Friedrichshafen show in Germany.

Seventy-five years after the Horten brothers designed a flying wing in response to Herman Goering's demand for a bomber that could carry a 1,000 kg bomb load for 1,000 kilometres at 1,000 kph, a new startup aircraft manufacturer bearing their name, Horten Aircraft, has developed a flying wing light aircraft.

A Horten H.IX V2 being prepared for flight at Oranienburg in Feb 1945
(Photo: US Army Public Domain)

The Horten HX-2 is a 2-seater aircraft with a 10 metre wingspan and a 100 hp Rotax engine powering a pusher propeller. It has been developed over three years and now has just 15 flights (6 hours) on its logbook.

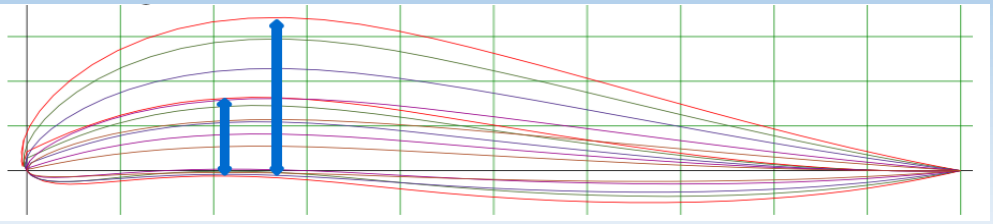

The point about blended wing designs is efficiency – all surfaces generate lift – resulting in less drag and greater fuel efficiency. So far, they have been used primarily by the military for stealth bomber (U.S. B-2 Spirit) and UAV roles

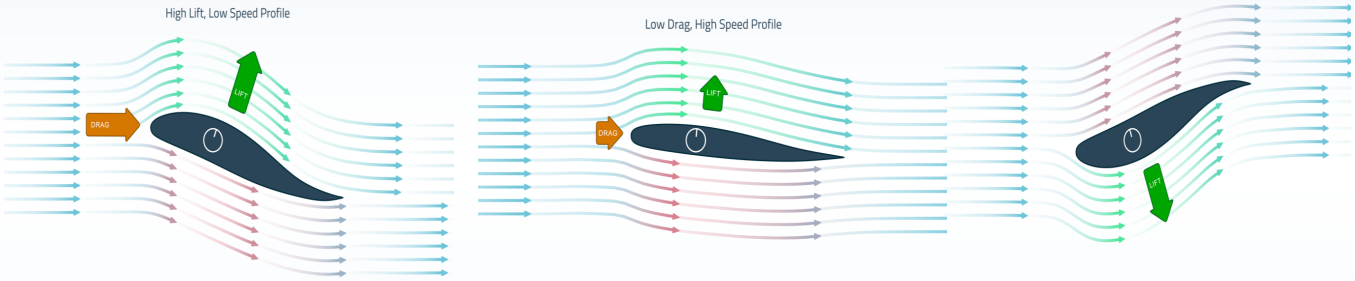
The HX-2 is expected to have a range of up to about 3,500 km (2,175 miles), a cruise speed of 270 km/h (167 mph). It has been designed to accommodate alternative propulsion technologies. *(Innovations continued on next page)*

## Innovations *(continued)*

2) The **Brayfoil** wing design eliminates the horizontal stabilizer and allows for increasing or decreasing the thickness of the planes wings utilizing carbon fiber technology. This allows for slower speed and shorter takeoff and landings with the thicker wing, and less drag, greater speed and less fuel burn with the thinner wing.

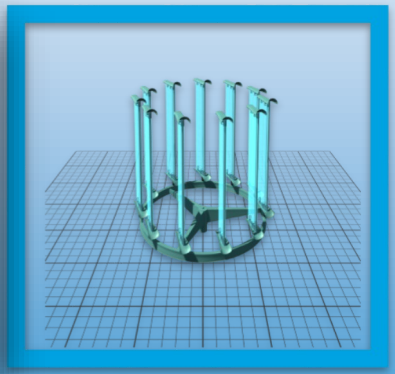
Morphing wings, blades and airfoils have been under investigation for decades. *(Note the trailing edge)*






To date, we've proven the technology in wind tunnel testing and applications such as renewable energy and sailing, but now we are fitting a test wing to a vehicle, to see how it performs in the real world, on a real vehicle. Our theoretical research has indicated that you can increase the speed of a car around a corner between 3-5 times. Dynamic fluid-soft material interactions for both lift and drag on 3D-printed airfoils with embedded inflatable actuators. Elastomeric Actuators

(Mazzeo research Group from the dept. of mechanical and aerospace Engineering at Rutgers, the state university of New Jersey.)

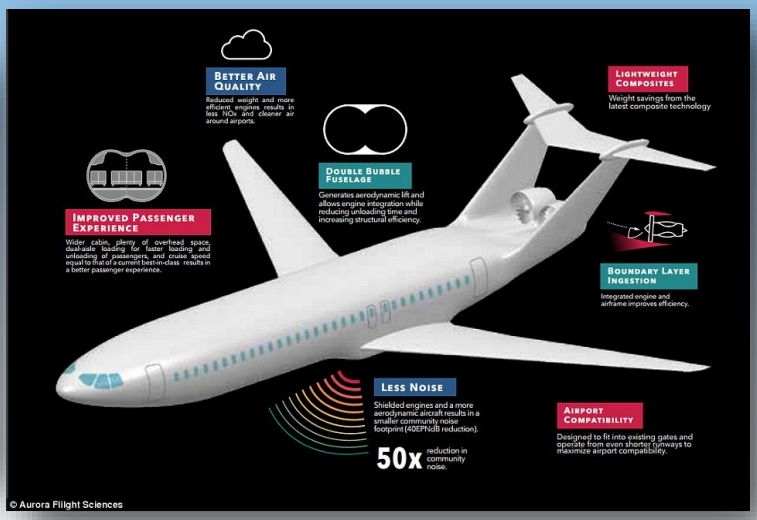



*(Innovations continued on next page)*

**INNOVATIONS** *(continued)*

## THE DOUBLE BUBBLE

by Aurora Flight Sciences


Nasa is bringing back the era of 'X-planes' - a series of experimental aircraft first tested by the space agency in the 1940s.

Among its plans is the 'double bubble' D8, which is a twin-hull plane that is designed to make the experience of flying more fuel efficient, with faster loading and unloading and a quieter, more comfortable takeoff.

The design was initially developed by Aurora Flight Sciences and MIT in 2008, and now Nasa has awarded the company a $2.9 million (£2.19 million) contract to make a scale model of the aircraft.

The 'double bubble' D8 Series future aircraft design concept came from a research team led by the Massachusetts Institute of Technology.

It is designed to be over 50 per cent more fuel efficient than current best-in-class aircraft.

On a flight from LAX airport in LA to JFK in New York - a distance of 2,475 miles (3,983 km) - the D8 would save 2,095 gallons

The D8 is designed to fly at 582 mph (936 km/h) with 180 passengers over a range of 3,500 miles (5,500 km).

The design has the potential to cut fuel burn by 71 per cent, reduce noise and cut LTO NOx emissions by 87 per cent compared to a Boeing 737-800 narrow-body aircraft.

As part of the Nasa contract, Aurora will build test components as the company develops a 1:2 scale demonstrator X-plane over the next three years. (9,524 litres) of fuel compared to the most efficient commercial aircraft available today.

*(Innovations continued on next page)*

**Innovations** *(continued)*

***VerdeGo Aero™*** *is a leader in propulsion technologies for the next generation of aircraft. We enable our customers to create more competitive aircraft by leveraging VerdeGo Aero's expertise in hybrid-electric propulsion and battery-electric aircraft systems. As the only powertrain company with experience in hybrids, batteries, and fuel cells, VerdeGo Aero is best suited to quickly and efficiently understand and communicate complex design tradeoffs. Our specialty is powertrains up to to 1MW and aircraft up to 7,000 pounds. (US, Daytona Beach, Fla. For short haul taxi service.* ***Erik Lindbergh*** *is executive chairman)*

## Calendar of Events

- April 7th Tues Board Meeting On line
- May 5th , Board Meeting On line
- May 10th Mothers Day (not cancelled)
- May 16th, cancelled
- May 26th Chapter Meeting via video conferencing
- June 23rd, Chapter Meeting via video conference
- July TBD, Sat Young Eagles, LITH 8:30-noon
- July 20th-26th Air Venture Oshkosh cancelled
- July 28th Tues Chapter Meeting
- August 1st TBD Sat Young Eagles, LITH 8:30-noon
- August 26th Chapter Meeting w/BBQ (hopefully)
- Sept 5th, Sat Young Eagles, LITH 8:30-noon
- Oct 3rd, Sat Young Eagles, LITH 8:30-noon
- Check the Chapter Website "http://www.790.eaachapter.org/"

  for any additional details and a list of local chapter events in the area

***"I fly because it releases my mind from the tyranny of petty things". Antoine de Saint-Exupery***

## BITS AND PIECES


So that's where my luggage went

Who closed the windows?

**A DC-10 had come in a little fast and thus had an exceedingly long roll out after touching down. San Jose Tower Noted: "American 751, make a hard right turn at the end of the runway, if you are able. If you are not able, take the Guadalupe exit off Highway 101, make a right at the lights and return to the airport."**

Photo's and tower comment provided by Jim Bertoglio

**His Parachute Got Stuck on the Plane's Wheel and He Was Suspended in Midair with Little Chance of Survival—Then Another Plane Came to His Rescue**

Lowrey slipped his upper left wing under Osipoff's shroud lines, and McCants, standing upright in the rear cockpit—with the plane still going 100 miles an hour 3,000 feet above the sea—lunged for Osipoff. He grabbed him at the waist, and Osipoff flung his arms around McCants's shoulders in a death grip.

***Lt. Col. John J. Capolino, a Philadelphia artist, painted this scene of Osipoff's rescue in the 1940s. It belongs to the National Museum of the Marine Corps in Quantico, Virginia.***

Article in part by Virginia Kelly, provided by Bud Herod


# EAA Chapter 790 2020 Membership Form - Please Print

First Name: _____

Last Name: _____

Spouse: _____

EAA Membership Number: _____ (Must be an EAA member)

Street Address: _____

City: _____ State: _____ Zip: _____

Home Phone: _____/_____-_____ Cell Phone: _____/_____-_____

Email Address: _____

Own Aircraft: yes or no Model or Type: _____

Aircraft Project: yes or no Model or Type: _____

For Young Eagles

If you have completed Youth Protection training, what was the date _____
If you have completed the background check, what was the date _____

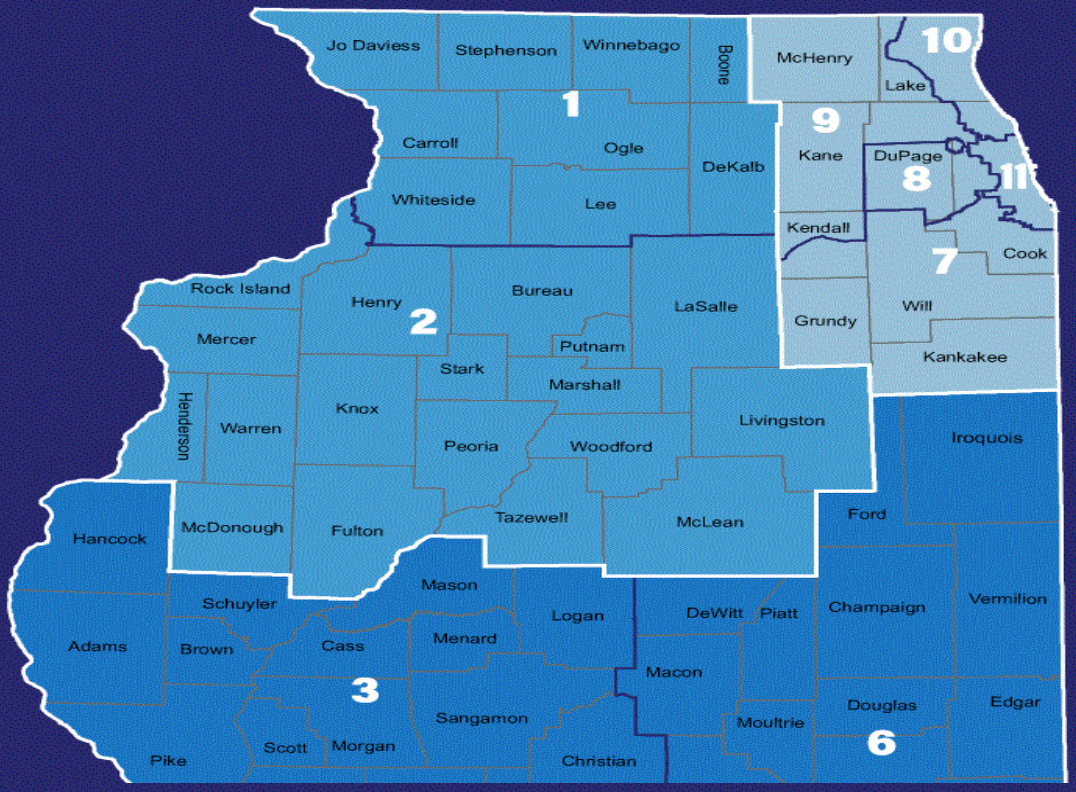
Dues

$25.00 Family/Individual Renewing Membership _____
$10.00 Family/Individual First-Time Membership _____
$10.00 Out of State Membership _____
$10.00 Student Membership _____

Please make checks payable to "EAA Chapter 790" and bring with this form to a member meeting or mail to: EAA Chapter 790, PO Box 685, Crystal Lake, IL 60039-0685

As of May 5th, here are the areas in Illinois which will in the future be allocated a phased in approach. 3CK falls within the area 9. Chapter activities below i.e. Chapter Meetings, Young Eagles Events, Pancake Breakfast, Shop visits and fly outs. will be scheduled based upon the parameters listed below. Currently we are in Phase 2.

# RESTORE ILLINOIS HEALTH REGIONS




| Phase 1 Rapid Spread | Phase 2 Flattening | Phase 3 Recovery | Phase 4 Revitalization | Phase 5 Illinois Restored |
|---|---|---|---|---|
| Strict stay at home and social distancing guidelines are put in place, and only essential businesses remain open.<br><br>Every region has experienced this phase once already and could return to it if mitigation efforts are unsuccessful. | Non-essential retail stores reopen for curb-side pickup and delivery.<br><br>Illinoisans are directed to wear a face covering when outside the home and can begin enjoying additional outdoor activities like golf, boating & fishing while practicing social distancing. | Manufacturing, offices, retail, barbershops and salons can reopen to the public with capacity and other limits and safety precautions.<br><br>Gatherings of 10 people or fewer are allowed.<br><br>Face coverings and social distancing are the norm. | Gatherings of 50 people or fewer are allowed, restaurants and bars reopen, travel resumes, child care and schools reopen under guidance from the Illinois Department of Public Health.<br><br>Face coverings and social distancing are the norm. | The economy fully reopens with safety precautions continuing.<br><br>Conventions, festivals and large events are permitted, and all businesses, schools and places of recreation can open with new safety guidance and procedures. |

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