



EAA 297 – KITTYHAWKERS NEWSLETTER

VOLUME 51

NOVEMBER 2019

NUMBER 11

FALL FLY-IN and ANTIQUE CAR SHOW SATURDAY NOVEMBER 9TH – 10:00 AM- 2:00 PM

PRESIDENT SENDS

Greetings fellow aviators,

Don't forget to put a reminder in your phone calendar; our EAA 297 Fall Fly-In is coming Saturday, November 9th. We are planning some "hands-on" activities for youngsters, the antique car clubs will be there, we will have an airplane ride coordinator to get you into rides, and we will be broadcasting the radio "talk" for the air traffic on the field. Our Jordan's Chapel BBQ experts will be back with us this year! Come join us on Nov 9th.

Here is a fun video of the construction of a drill powered airplane. About 2 minutes into the video, they make the wings using foam core poster board and hot glue. Our young Fly-In guests could make wing sections by this method with a little help from you guys. I'll bring poster board, Larry can print some airfoil templates, let's do it!

<https://www.youtube.com/watch?v=5EiZ0NuDpoQ>

Congratulations are in order for Hunter Hughes, who recently completed, successfully, his Private Pilot Check Ride. Hunter was a Young Eagles Scholarship recipient many years ago, when he was a younger Eagle, and he has been a Chapter 297 member since. Great work, Hunter!

Please bring the "Adventures of Aviore" insert from your August issue of Sport Aviation Magazine to our meeting next Saturday (November 2nd) so we can have some of the pamphlets on hand to give to deserving youngsters who participate in our Fly-In workshops.

See ya Saturday,
Aubrey

OCTOBER MEETING MINUTES

President Aubrey Thompson gaveled our Saturday October 4th meeting to order at 10:08 AM and the Pledge of Allegiance was recited by those in attendance.

Desk Top Computer. Aubrey noted that several expensive pieces of computer flight simulator components have been given to the chapter. All that we need to make an operational flight simulator is an older desk top computer that is able to run either of the XPlane or MS Flight Sim programs. It is our desire to have the simulator operational before the fly-in so that youngsters could enjoy the digital adventure. If you have an old desk top computer that you would like to donate, please let us know.

In the News. There is an article in the most recent EAA Sport Aviation magazine that discussed applications for exemptions being filed by drone operators. The EAA continues to be active in this process and is working to ensure that all general aviation is included in any consideration of drone operation. The current rules place the burden of safe operation on the drone operators. Exemptions should not restrict the operation of general aviation aircraft of any type.

Guest Introductions. We enjoyed the company of Easton Duff at our meeting. Easton is a hard-working young pilot who spent the summer towing banners in a Citabria at Virginia Beach and is currently flying a Waverly crop duster. We hope that he enjoyed the day and that he will return often.

Newly Minted Pilot. Tom Goodwin was excited to announce that Hunter Hughes passed his private pilot check ride and is our newest chapter pilot.

Treasurers Report. Bob McGowan reported the following data concerning our chapter financial affairs. For the month of September:

Beginning Balance - \$ 3917.81

Income - \$ 337.00

Expenses - \$ 587.78

EAA CHAPTER 297

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Ending Balance - \$ 3667.03

Young Eagle Fund - \$ 2115.00

Bob noted that the chapter paid this month's rent for the flying club's hangar. This was a loan from the chapter to the club until the club can get its administrative processes completed.

Fly-In Coordinator's Report. Allan Bobbe could not attend the meeting, but he sent an email detailing the current status. He has done a great job of starting the administrative processes and inviting local organizations including; the automobile clubs, Pender County Sherriff's Dept, Pender County and Fire and Rescue, And the Burgaw News.

Aubrey noted that Gary Henderson has been our "ride coordinator" during the last several fly-in's. Gary recently endured quadruple bypass surgery. He is doing well but it is unlikely that he will be running around at the fly-in. Tom Goodwin volunteered to take his place at the fly-in. We all hope that Gary can at least join us.

Raffle. Mark Thoman brought a copy of Ernie Gann's Fate is the Hunter to the meeting for the raffle prize. He also brought a 2017 Rand McNally Road Atlas to supplement the library of publications required for "IFR" flight operations. He did note that it was a bit out of date.... Jim Finger won Fate is the Hunter, but as he had already read the book, he graciously awarded it to Easton Duff. Tom Goodwin, one of our few instrument rated pilots won the Road Atlas. I am sure he will put it to good use.

Project Reports.

Billy Johnson needs a prop governor for his Seafire. The first one that was shipped to him will not work because the push-pull control cable would have to pass through the engine oil cooler. The second one that was shipped, that was supposed to fit properly, turned out to be exactly the same as the first one. He noted that the prop governor that he needs is exactly the same as the one installed on Mike Corn's Cessna 195. He took pictures of it to send to the folks that he is ordering the component from. Let's hope that the third one will work.

Aubrey is in the middle of upgrading the radios in his Cessna 150 project. He is in search of newer radios than

the ones currently installed. He also showed us the electrical connector that he acquired that will fit the plug on the back of his "new" altimeter. This plug connects the altimeter output for the transponder.

Mark Thoman reported that he is well into the fabric installation on his Citabria's fuselage. He had some anxious moments while he was heat tightening the fabric. Many large wrinkles in the Dacron fabric were not coming out at the initial setting of 250 degrees. He was momentarily convinced that he had done something terribly wrong in the gluing of the fabric envelope. When he set the iron at 350 degrees for the final heat tightening all of the wrinkles disappeared and the fabric looked great. Whew... He is now in the middle of adding all the patches, inspection holes, gussets, and the reinforcing tapes to the fabric. The worst problem has been the outside air temperature. When the afternoon temperature in the workshop gets above 85 degrees, and he is dripping sweat on the airplane, it's time to quit. He is looking forward to finishing the installation of the tapes and the weather to cool so that he can start the spraying process.

Phil Ellison successfully added a turn and slip indicator to the Legend Cub. The tough part was cutting a hole in the instrument panel without removing it from the airplane. Billy Johnson came through with his skill and his hole cutter. The hole that he cut was perfect and the new gage was easily installed. Phil would like to put some professional labels in the cockpit. He also discussed that the aircraft needs an airframe and engine log books, a POH, and a checklist.

Wade's Hanchey told us about his new Just Aircraft Highlander. He agreed to show us the airplane after the meeting.

Lunch Menu. Ken McGee excitedly described the delicious lunch of Italian sausage with onions, peppers, mushrooms that he was preparing. The sausage would be served with boiled potatoes and green beans. The meal would be topped with a spice cake for a special desert. He also promised that there would be no "stove top malfunctions" this month and that nothing he served would be burned.

Aviation Merit Badge Day. Ken McGee discussed the details of the Boy Scout Aviation Merit Badge Day that we would hold next Saturday. The schedule involves a small working party on Friday at 4:00 pm that would mark off the safety areas. Ken sought volunteers for the event and asked that they arrive at 0830 to brief and set up.

Hangar Visit. The meeting was adjourned and we trooped down to Wade's hangar to inspect his "new" airplane.

Happy Birthday. Before lunch was served, our Master Chef Ken McGee said grace and then we recognized Ella Rhode's birthday with a rendition of "Happy Birthday". A delicious lunch was enjoyed.

AVIATION MERIT BADGE

STAG AIR PARK – Saturday, October 12th was a fun day for the Scouts of Troop 26 of Wilmington. The Weather was clear, cool, and perfect for the Aviation Merit Badge Day. The day started early with our chapter volunteers getting ready for the Scouts. Phil Ellison's Starduster, the Legend Cub, and Ken McGee's Rotorway Exec were all pulled out of their hangars. The Cub and the helicopter were both used for static display. The ramp was marked for safe areas during flight operations, and the clubhouse was reconfigured as a classroom. All was in readiness when the Scouts and their leaders began to arrive.



With about thirty boys in attendance Mark Thoman and Robin Jones began the proceedings with an introductory ground school. The intent of the merit badge is to introduce the Scouts to the field of aviation and to give them an introductory knowledge of aerodynamics. The Scouts learned the very basics of the forces involved in flight and how the airplane's flight controls function. They also learned of the many careers that are involved in the field of aviation and the education and experience that are required for many. Careers from aviator to weatherman, were mentioned.

From there the Scouts were split into groups and proceeded to the flight line. There they were introduced to an airplane and a helicopter by Martin Hamm and Hensen Benn. Martin and Hensen demonstrated a typical preflight and also showed them the operation of the flight controls. The hands-on look at an airplane, especially the

flight controls, made the flying portion of the day more meaningful.



And then the Scouts experienced the highlight of the day, a flight in an aircraft. Garry Brown thrilled many Scouts, one at a time, in his Blue Angle RV-4. Tom Goodwin introduced the Scouts to the luxury of flying in "Bo". And Ken McGee was the topic of a lot of post-flight conversation after he exposed them to the unique experience of vertical flight.



Finally, to complete the requirements to earn the merit badge, the Scouts returned to the classroom and completed a multi-page worksheet. Their knowledge was tested as they answered questions concerning the topics that were taught. They were also required to capture their experiences, interests, and impressions in writing on the worksheet.

The Scout Leaders provided all a delicious lunch and then the task of cleaning up and restoring order was completed. At the end of the day it appeared that our mission was completed and that the day was a success. A hearty thanks to Ken McGee for taking a leadership roll in this event, and to Garry Brown, Tom Goodwin, Martin Hamm, Hensen Benn, Robin Jones, Phil Ellison, Wade Hanchey, Bob McGowan, Mike Barri and Mark Thoman for their individual contributions. Who knows, maybe we sparked an interest that will have a life changing effect on a young Boy Scout.

WADE'S NEW TOY

STAG AIR PARK – Most of us began our aviation careers with hours of flight training and then earning our pilot's licenses. Many years later, after hours of renting airplanes at the local airport, we finally made the fateful decision to purchase an aircraft. Not Wade Hanchey. Wade is marching to a very different beat. At our last chapter meeting he informed us that he was only one flight away from his solo, but that he was also the proud owner of an EXPERIMENTAL, Just Aircraft Highlander. As Goose would say, "Gutsy move Wade!" Wade purchased his aircraft from the original owner who helped build it at the Just Aircraft factory in Walhalla, SC.



Following our meeting Wade graciously open up his hangar and showed off his aircraft. At first look many chapter members thought it was a KITFOX model airplane. In fact, his Highlander can trace its design heritage back to the AVID Flyer built in the early 1980's by Dean Wilson. A few years later Dan Denny designed and began producing a direct competitor to the Avid Flyer which was the

KITFOX. As the KITFOX grew in popularity Flying K Enterprises created and began producing the Sky Raider. Again, the design was similar to the KITFOX. But the new design was intended to corner the ultralight market with a machine that looked more like a real airplane rather than a collection of pipes hanging underneath a wing. Troy Woodland left Flying K Enterprises to design his own aircraft. With financing he established Just Aircraft. There he created a design similar to its predecessors but with a different mission. His goal was to create an inexpensive STOL aircraft. The result has been the Escapade, the Highlander, and the Superstol model aircraft.



Wade's Highlander has a pair of 29-inch diameter rough terrain tires mounted on a landing gear structure that looks indestructible. The company engineer claims that you can drag the airplane, at near stall speeds, to the runway, and at an altitude of five feet, just chop the throttle and drop to the ground. With the brakes ON! That's quite a landing technique!



Wade's aircraft also is equipped with an ingeniously simple wing fold mechanism. There is a hinge mounted on the rear spar, and a vertical pin in the main spar, both located just outside of the fuselage section. To fold the aircraft a small panel on the top of the aircraft, just aft of

the wings, is removed. This panel opens a space that will accommodate the trailing edge of the flaps. Then the pin on the main spar is pulled and the wing folds aft until the leading edges are parallel with the fuselage. This makes Wade's aircraft easily tailorable, which is how he got it to Stag Air Park.

Wade's aircraft is equipped with a "lift reserve indicator". A probe extends down from the underside of his port wing near the junction of the lift strut and the wing spar. It has two holes that provide dynamic pressure through tubes to the cockpit indicator. These dynamic pressures are compared by the indicator and provide a "poor mans" angle of attack indicator. Once calibrated, the needle on the gage clearly indicates the reserve above stall in areas of red, yellow, and green. This indicator allows for landing operations much closer to an actual stall. And combined with a landing gear that can take the stresses, you have an aircraft that can land in places that only Ken McGee would consider safe. Powered by a Rotax 912, turning a composite three bladed propeller, the aerodynamic problem will be whether the aircraft can fly out from the same location.

Once Wade earns his private pilot rating, I am sure that he will have many exciting adventures in his well-designed and crafted airplane.

FLY-IN FLYER

Attached with this newsletter is the flyer advertising our November 9th Fly-In. I have published it in both Word and Adobe Acrobat formats just in case there is a format that you cannot view. Please, forward this email, or the flyer, to any and all of your friends. Feel free to print out multiple copies and post them in conspicuous places. Or, mail them to those who might be digitally challenged. The point is, we are trying to spread the news of our fly-in as far as possible. Please help in that effort.

AERODYNAMIC FUNDAMENTALS

Any educator, or flight instructor, understands the fundamental principle of "primacy" in the learning process. The principle explains that, "What you learn first is what you will retain the longest." To add to that thought, I certainly am frustrated when I discover that a basic principle of flight: that I was taught five *decades* ago; and that I have believed ever since; and that I have taught to others; has been proven to be wrong. But that is currently the case. And, because I am sure that there are others in our chapter that were taught the same misinformation, I thought it would be worthwhile to explain the new knowledge so that we can all be more accurately informed.

The fundamental principle that I am referring to is simply our understanding of how a wing creates lift. I was taught by a senior, highly decorated Naval Aviator, during ground school in Pensacola, that the molecules of air that

were split by the wing would rejoin at the trailing edge of the wing. It was referred to as the "equal transit theory." In the 4th Edition of The Pilot's Handbook of Aeronautical Knowledge, by Paul E. Illman it erroneously states, "When air flows along the upper wing surface, it travels a greater distance in the same period of time as the airflow along the lower wing surface." The curved, upper surface of the wing causes the molecule traveling over the top surface to travel a farther distance. This means that it also has to travel "faster" over the upper surface of the wing. And Bernoulli's law explained that the faster any fluid travels over a surface the less pressure it creates on the surface. Thus, a low-pressure area is created above the wing, and gravity defeating lift is generated. This was simple to explain and to understand. Hot dog, I'm ready for the test...

I am sure that most of us have been taught the same theory. However simple this explanation might be, it is *fundamentally wrong*. The molecules do NOT rejoin at the trailing edge of the wing. In fact, the airflow over the upper surface of the wing is substantially accelerated, and the faster molecules of air arrive at the trailing edge much sooner than the ones that travel over the lower surface. This means that the pressure created above the upper surface of the wing is even lower than predicted, and that the same wing will generate more lift than it would based solely on the equal transit theory.

But, you ask, why is the air accelerated? The answer is found by simply returning to Bernoulli's original studies. He noted that when a specific mass of fluid (air) was traveling through a tube, arrived at a constriction in the tube, that the speed of the flow was forced to increase, in the area of the constriction, to allow for the equal specific mass of fluid to pass through. A garden hose with a nozzle is a great example of this principle. The curved upper surface of a wing creates a similar constriction of the airflow. While not quite as effective as a tube with an opposing surface, the air flow above the wing still constricts the flow that is closer to the wings surface, and the speed of the molecules is forced to accelerate so that the mass of the airflow, through the "constriction" remains equal.

This phenomenon was the topic of a well written article in the recent AOPA Pilot magazine. In the article, the author, Catherine Cavagnaro, references a series of films that were created by aerodynamicist Dr. Alexander Lippisch. In 1955. Twenty years ago, the films were digitized by the University of Iowa and available for a fee. Today all thirteen of the films are available on YouTube, at no cost. Here is the link:

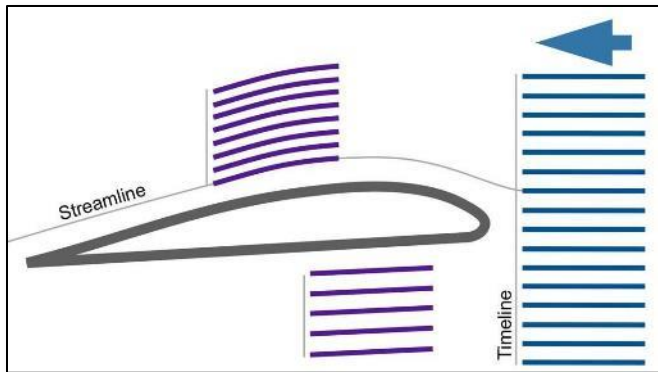
<https://www.youtube.com/watch?v=6Rlvt2sbEaY>

Or you can go to the AOPA website and see the same videos from there:

<https://aopa.org/news-and-media/all-news/2019/november/pilot/proficiency-no-equations-required>

I am surprised, and disappointed, that this information was available in 1955 but that I was still taught a theory that was not accurate. Makes me wonder what else I was taught that will prove to be wrong...

Here is a diagram, that was included in the AOPA article, that illustrates the acceleration of the air flow over the upper surface of the wing.



FUTURE EVENTS

November 2019

Saturday 2nd EAA 297 - Chapter Meeting, 10:00 AM in the clubhouse. Lunch in the No Whining Saloon 12:00 PM

Sunday 3rd South Carolina Breakfast Club, Orangeburg Municipal Airport (KOGB)

Saturday 9th EAA 297 Fall Fly-In and Car Show, Stag Air Park

Friday 7th -thru- Sunday 11th EAA 939 hosts the EAA Ford Tri-Motor Tour Visit, Cape Fear Regional (KSUT)

Sunday 11th Veterans Day

Sunday 17th South Carolina Breakfast Club, Mid-Carolina Regional Airport (KRUQ)

Thursday 28th Thanksgiving Day

December 2019

Sunday 1st South Carolina Breakfast Club, Fairfield County Airport, (KFDW)

Saturday 7th EAA 297 - Chapter Christmas Party, 6:00 PM in the Chapter Clubhouse.

Sunday 15th South Carolina Breakfast Club, Georgetown County Airport, (KGGE)

Tuesday 25th Christmas Day

AGING

In the first twenty years of a man's life, his mother is always wondering where he's going. In the next twenty years, his wife wonders where he's been. Finally, when he dies his friends wonder where he's at.

- Lewis Grizzard

HUNGRY? – Come join us at the **NO WHINING SALOON**

Enjoy a home cooked meal prepared by our master chef.

Lunch is served promptly (not really) at 12:00 following EAA Chapter 297's business meeting the first Saturday of the month.

- Recommended Contribution -

\$5.99 for fixed wing pilots.

\$4.99 for rotary wing pilots.

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AGING

The good thing about going to your twenty-five-year high school reunion is that you get to see all your old classmates. The bad thing is that they get to see you.

- Anita Milner