



EAA 297 – KITTYHAWKERS NEWSLETTER

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PRESIDENT SENDS

Happy Independence Day week to all our fellow aviators! With the 4th of July falling on Thursday, I think it is appropriate that we continue the celebration through our monthly meeting on Saturday, July 6th. Bring flags, wear patriotic stuff, bring fireworks. We'll enjoy a traditional Independence Day meal of "dogs and burgers" for lunch and we'll have lots of fun too.

Here is an interesting article on a new electric airplane project that is designed to carry commercial passengers on short, but popular, routes.

<https://www.investing.com/news/stock-market-news/aviation-targets-commuters-with-electric-plane-alice-1900790>

Here is a fun article from AVweb that is reporting on electric flight projects.

<https://www.avweb.com/insider/uber-elevate-pick-a-fantasy/>.

That's all for this month.....

See you Saturday,
Aubrey

JUNE MEETING MINUTES

EAA Chapter 297 Meeting Notes 6/1/2019

10:15 am – The meeting was called to order. And visitors Richard Mehl, Patrick Doyle, and Don Fennell were introduced. Our new member Henson Benn joined us.

10:20 am - New Business

Aubrey shared a brochure from Level Aviation on "The Bom." It is a self-contained flight instrument module about the size of a fat cigar. Thus, the name. It has a lithium battery that runs for up to two hours. It has a vibration sensor so it knows when to turn on and off. It transmits wirelessly to a smart phone or a tablet. It includes all of the standard attitude, airspeed, altitude, and heading indications along with an angle of attack indicator. The retail price for the device is \$1,995.

10:25 am – Richard Mehl, a retired USAF pilot who flew both the U-2 and the KC-135, gave a short report on

the Ethiopian Boeing 737 Max-8 mishap. Based on his personal flight experience and the preliminary Ethiopian mishap report, he believes that the crash was caused by a failure of the angle of attack indication system that was then compounded by pilot inexperience, lack of training, and pilot error. The typical Ethiopian pilot does not have as much "manual" flight training as an American trained pilot. They rely on the automated systems to fly the aircraft and are not confident in taking manual control when the automated systems fail. During this flight, at liftoff, a faulty angle of attack sensor resulted in an erroneous stall warning, and the pilot's "stick shaker" was activated. Contrary to proper procedure, the pilot engaged the autopilot before passing 100 feet AGL. During the next eleven minutes, the entire duration of the flight, while the pilot and copilot were wrestling with the elevator trim and the autopilot, the power setting on both engines was never reduced from the takeoff power setting. The aircraft continued to accelerate, and the excess airspeed compounded the nose down pitch created by the malfunctioning pitch trim system. Ultimately neither the autopilot, nor the pilot himself, could maintain a nose level attitude and the aircraft plunged nose down into the ground.

Aubrey noted several articles in the current Sport Aviation Magazine. He pointed out the article on the "Rat Rod" carbon airplane. He particularly liked the unusual paint job that gave him ideas on how he might paint his Cessna.

Aubrey noted that we need to finish the cabinetry in the club house kitchen. Once the cabinets are ordered and delivered, we will need a working group of two to three people to help with this project. No one present admitted to having any experience in installing kitchen cabinets.

During one visit to the clubhouse and hangar Aubrey witnessed a downpour that included heavy rains and hail. He noted that the basic design of the roof causes a great deal of water to be concentrated in one area just in front of the building. Because of the length of the building the

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water cannot drain away. It appears that this is the cause of the flooding problem that we have been enduring. Aubrey suggested that gutters might help, but the volume of water may still be too much for a gutter system. A drain system around the base of the building may be required to finally solve the problem.

10:40 am – If we are going to proceed with the creation of a flying club, we will need to set up an LLC. An LLC requires only three people to complete the legal process. Mark volunteered to keep a list of names of those who would be interested in creating a flying club. Aubrey noted that there is a 93-page guide published by EAA, and available on their website, that details how to institute a flying club. Gabe Glinsky began looking into this some time ago, but he has not had the time to devote to the project. 10:48 am - Bob McGowan injured his back so he was not at the meeting to give his treasurers report. Aubrey filled us in on the details.

Beginning balance- \$5,359

Income- \$1,568

Expenses- \$325

End Balance- \$6,602

Main Club Acct- \$4,737

Young Eagles Account- \$1,865

10:52- Oliver backed out on a deal to purchase a lightsport aircraft for \$145K. His primary reason for the decision was the cost for insurance. The rate for that particular aircraft would have been over \$5K per year.

10:53 am – Project Reports.

Billy Johnson - Stripped his horizontal stabilizer. It took him two weeks to complete because the primer did not want to come off.

Aubrey Thompson - Finished the trim system components this week. He did not get the system reassembled because the new bolts have not come in yet. His next project is to rebuild the nose strut.

Chris and Kristen Montefusco – The rudder and vertical stabilizer are complete. The elevator internal components have been painted and they are working on the horizontal stabilizer.

Mark Thoman – Showed us the master brake cylinder extensions that Billy Johnson machined for him. They connect the new master brake cylinders to the bottom of the heel brake pedals. Billy did a beautiful job of the

extensions. They are far better than the original components that were removed from the aircraft. Mark also showed us his new wound. While installing a cotter key in the rudder pedal mechanism he sliced the back of his hand open on the edge of the stainless-steel firewall. A trip to the emergency room netted him 10 new stitches to close the cut! Healing slowed down the progress on PATROL for a couple of days.

Larry Goff - No update on CGS Hawk

11:10 am – Larry Goff gave a presentation on the carbon fiber wings that he is designing and building for his CGS Hawk.

11:48 am – Ken McGee announced that the lunch menu would include grilled burgers with all of the fixings.

11:50 am – An announcement was made that Jerry Tremblay, a fellow aviator, passed away last Wednesday.

11:51 am – Phil Ellison won the book raffle.

11:53 am – Aubrey unveiled the mystery photos.

11:55 am – The meeting was adjourned.

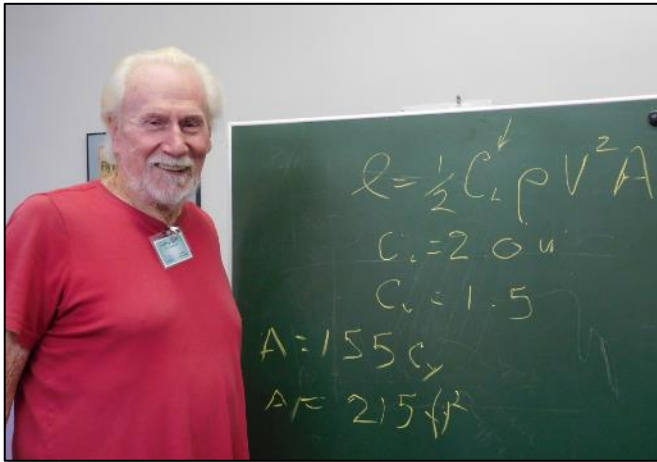
Respectfully submitted,
Kristen Montefusco
Chapter Secretary

LARRY'S EXPERIMENT

Most members of our chapter, who have completed an experimental aircraft, built their airplane from a kit or plans. These aircraft were already carefully designed, constructed, and then flight tested before the plans were published, or the kits produced. We all recognize that completing an aircraft in this manner is a significant achievement and that it requires a lot of determination and patience. But, Larry Goff is going one giant leap farther. He purchased and is constructing an ultralight kit,



but he is departing from the original plans and has decided to design and build a completely new set of wings for his airplane. Based on his knowledge as an engineer, and his experience building large scale, remote control gliders he has designed and is fabricating an original wing that will be constructed entirely of carbon fiber composite.



In his presentation he explained that his ultimate goal is to create an airplane that will fly at minimal forward airspeeds. He has no interest in maximum power, airspeed, or range. Quite the opposite, Larry is interested in building an airplane designed to achieve a maximum endurance flight. His goal is to hang in the air, on the edge of stall, while expending the least energy to remain in flight. To that end he selected a very efficient wing profile that generates a maximum coefficient of lift at very slow airspeeds. Estimating the total weight of the airplane he calculated the square area required to sustain flight. The wing he has designed will be constructed in three sections. The center section, with a constant chord, will include the fittings to attach the wing to the airframe. The outboard, and tapered, sections will provide the span to generate the required lift. (Both the Cessna 172, and the Lockheed C-130 wings have a similar, three section construction.)

With the wing profile chosen and the wing size determined, Larry's ingenuity is really on display in the construction of the wing. He has designed a wing with a carbon fiber spar that he has constructed himself using the vacuum bag method. The spar looks like a standard "I" beam that has a height of about eight inches. The example that he showed us is very rigid and seems to weigh almost nothing. He has fashioned leading edge ribs that are a sandwich of carbon fiber ribs with a foam core. (They look like large Oreo cookies.) These ribs will be bonded to the spar and then a thin, leading edge skin will be bonded over that. The examples of the spar, ribs, and skin that Larry has constructed are meticulously designed and appear to be professionally manufactured. The components fit together exactly as he designed. Ultimately his wing

structure will be extraordinarily strong, light, and the surface will be aerodynamically smooth.



The audience displayed a lot of interest, and asked Larry many probing questions. We were all fascinated by the goal that Larry has set, and by the components that he has already constructed. He is the only presenter that I have witnessed that could write mathematical formulas on the black board and not cause a complete loss of interest in the audience. Well done Larry! Thank you for your presentation and we wish you the best of luck on your project.

DREW ACHIEVES HIS GOAL

BURLINGTON NC – DREW HOLBROOK After several months of studying the Fundamentals of Instruction and Flight Instructor Airplane reference books as well as flying with three different CFIs, I was able to pass the ASEL Flight Instructor Practical test at Burlington last Saturday in a creampuff 172N. Special shout out to EAA chapter member ATP, CFI etc... Chris Montefusco who gave me a few key pointers along the way. There is an extremely large amount of material that you have to understand AND be able to teach. I liken it to trying to take off in a C-150 trainer with a 250-pound passenger, full fuel, and a density altitude of 9000 feet. It can be done, but it costs you a lot of runway.....I've attached a photo of my

temporary certificate, a selfie after I passed the practical, and an aerial photo of Dunn NC. Why Dunn, NC? While flying home I looked down and saw a town and then checked my Garmin to see which one it was. That's Dunn, I uttered over the intercom to myself. And so is the CFI practical!

I. UNITED STATES OF AMERICA DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION		II. CERTIFICATE NO. PENDING	
TEMPORARY AIRMAN CERTIFICATE			
THIS CERTIFIES THAT IV. ANDREW LAMBERT HOLBROOK V. 107 AVIATOR LN BURGAW NC 28425			
DATE OF BIRTH	HEIGHT	WEIGHT	HAIR
5/17/1966	73 IN.	210	BLOND
SEX	EYES	NATIONALITY	
M	BLUE	USA	
VI. has been found to be properly qualified and is hereby authorized in accordance with the conditions of issuance on the reverse of this certificate to exercise the privileges of FLIGHT INSTRUCTOR			
VII. RATINGS AND LIMITATIONS VIII. AIRPLANE SINGLE ENGINE (LIMITATIONS) VALID ONLY WHEN ACCOMPANIED BY PILOT CERTIFICATE NO 3459935. EXPIRES 06/30/2021			
IX. THIS IS <input checked="" type="checkbox"/> ORIGINAL ISSUANCE <input type="checkbox"/> REISSUANCE OF THIS GRADE OF CERTIFICATE		DATE OF SUPERSEDED AIRMAN CERTIFICATE	
BY DIRECTION OF THE ADMINISTRATOR		EXAMINER'S DESIGNATION NO. OR INSPECTOR'S REG. NO.	
DATE OF ISSUANCE	IX. SIGNATURE OF EXAMINER OR INSPECTOR	002784547	
06/22/2019 06:14:57 AM	CHRISTOPHER MARSHALL WHITLEY	DATE DESIGNATION EXPIRES	
	WCA 6-SIGNED APPLICATION: EA38	2/29/2020	
FAA Form 8860-2 (3-78) USE REVERSE EDITION		Application Number: 2136167	



FLYING CLUB

STAG AIR PARK - During our last chapter meeting, our President once again discussed the topic of a flying club. In an effort to gauge the chapter's interest he asked all who are interested, and ready to commit themselves

financially, to identify themselves. If you are so inclined, please contact either Aubrey Thompson or Mark Thoman to be included on the list.

COMMERCIAL PILOTS WRITTEN EXAM QUESTION

Can you answer this question correctly?

You have landed at an airport with a current pressure altitude of 5,000 feet. As you are tying down your airplane you note that the altimeter reads exactly 5,000 feet. During the night the temperature drops and it is colder the next morning than it was when you arrived. While you are conducting your preflight you note the altimeter reading. Is the altimeter reading:

- A. Exactly 5,000 feet.
- B. Higher than 5,000 feet.
- C. Lower than 5,000 feet.

Ken McGee was taking a practice written examination for his Commercial Pilots License. This question was on the test, and he answered it incorrectly. He read the question to me over the phone and I also answered it incorrectly. We were both thoroughly confused. Ken asked me to do some research see if I could explain the correct answer. Here is the result of my research.

First, because pilots are almost all visual learners, it is more effective to draw while you are trying to explain a topic. To that end, please grab a piece of blank paper and hold it in the "landscape" orientation. Imagine that the paper represents a cross section of the atmosphere. The lower horizontal edge of the paper is the earth and the top horizontal edge of the paper is space. The left vertical edge represents Memphis and the right vertical edge represents Wilmington.

We already understand that because of gravity, the pressure created by the atmosphere is greatest near the surface of the earth and decreases with altitude until it is nonexistent approaching space. Our sensitive altimeter simply measures the atmospheric pressure and the needle reads out in a number that we pilots can relate to, and that is in feet. As we keep the altimeter reading the desired number we are really following along the same plane of atmospheric pressure.

So, if we were flying at a height that caused the altimeter to read 5,000 feet, and the atmosphere were completely uniform all the way from Memphis to Wilmington, then if we flew to keep the altimeter needle pointing at the same number, 5,000 feet, then our flight would be horizontal. Draw a dotted line from the left edge to the right edge that is parallel to the bottom of the paper. This would represent our level flight at the same atmospheric pressure.

Of course, we also know that the atmosphere is never “uniform” for even short distances. It is continuously changing in both pressure and temperature.

Suppose that there is a high-pressure area in Memphis and a low pressure in Wilmington and, again, during the flight we did NOT adjust the altimeter setting. If we flew to keep the altimeter reading the same number, we would follow the 5,000-foot pressure line and in fact our flight would get continually lower because the 5,000-foot pressure line curved downward with the change in the atmospheric pressure. Draw a dotted line, starting at the left edge, that begins at the original 5,000-foot mark. Now as this line travels across the paper it will curve down toward the lower edge because the constant pressure curve descends into the low-pressure area.

We also know that the atmospheric pressure, read by the altimeter, is also affected by temperature. If we were flying from a warm Memphis to a cold Wilmington and again, we did not adjust the altimeter we would also fly a descending curve. We would simply be following the constant pressure curve that would look very similar to the one that you drew following from high to low pressure.

Now, that brings us back to the question on the test. The aircraft was left on the deck at a fixed height above sea level. The altimeter was set at the pressure altitude of 5,000 feet. During the night the temperature went from hot to cold. That means that the dotted line of the pressure curve went from high to low. BUT, in this case the aircraft was held at a fixed height. It was not flying, so it could not descend to the original pressure altitude. So now the pressure gradient of 5,000 feet is actually below the aircraft. In this case below the ground level. And as a result, the altimeter now reads a higher altitude because it is ABOVE the 5,000-foot pressure gradient. So that is why the altimeter reads higher than it did when the aircraft was parked.

* The correct answer to the question is B.

Reference: THE PILOT’S HANDBOOK OF AERONAUTICAL KNOWLEDGE Fourth Edition, Paul E Illman, McGraw-Hill. Effects of nonstandard pressure and temperature, Page 126.

FUTURE EVENTS

July 2019

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|--------------|---|
| Thursday 4th | Independence Day |
| Saturday 6th | EAA 297 - Chapter Meeting , 10:00 AM in the clubhouse. Lunch in the No Whining Saloon 12:00 PM |
| Sunday 7th | South Carolina Breakfast Club, Holly Hill Airport (5J5) |
| Sunday 21st | South Carolina Breakfast Club, Triple Tree Airport (SC00) |

Monday 22nd –
Sunday 28th AirVenture, Oshkosh, WI (KOSH)

August 2019

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|--------------|---|
| Saturday 3rd | EAA 297 - Chapter Meeting , 10:00 AM in the clubhouse. Lunch in the No Whining Saloon 12:00 PM |
| Sunday 4th | South Carolina Breakfast Club, Spartanburg Downtown Memorial Airport (KSPA) |
| Sunday 18th | South Carolina Breakfast Club, Berkeley County Airport (KMKS) |

September 2019

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|----------------------------|---|
| Monday 2nd | Labor Day |
| Monday 2nd –
Monday 9th | Triple Tree Fly-In, Triple Tree Airport (SC00) |
| Saturday 7th | EAA 297 - Chapter Meeting , 10:00 AM in the clubhouse. Lunch in the No Whining Saloon 12:00 PM |
| Sunday 8th | South Carolina Breakfast Club, Jim Hamilton - L B Owens Airport (KCUB) |
| Sunday 15th | South Carolina Breakfast Club, Laurens County Airport (KLUX) |
| Sunday 29th | South Carolina Breakfast Club, Anderson Regional Airport (KAND) |

CLASSIFIED

FOR SALE – HOUSES – 97 Aviator Lane, Burgaw, NC – 1300 heated square feet, 3 bedroom, 2 full baths with airplane hangar. Located on the runway at Stag Air Park (7NC1). Listing Price \$250,000. Contact Kristen Montefusco, Century 21 Sweyer & Associates (516) 668-1309.

FOR RENT - HANGAR SPACE

Stag Air Park – Hangar Space Number 4 is available for rent. \$225/mo. Contact Vernon Pitts (910) 619-2554



PIKES PEAK – June 2019. Note the rime ice that has formed on the sign at the top of Pikes Peak. The temperature was 28 degrees Fahrenheit and we were IMC at 14,115 feet MSL. Quite a vacation!