The Ramp Page - August 2023

EAA 323's Monthly Newsletter
Vol 54, Ed 08
Sherman, TX
Celebrating our 54th year of service!

Email: eaa323@hotmail.com Website: https://chapters.eaa.org/EAA323
Like us on Facebook @eaa323

We meet every Third Thursday at 7pm at the Sherman Municipal Airport (SWI)
1200 S Dewey Sherman, Tx 75090!
Please come and be our Guest!

President's Mission Brief:

By John Halterman

EAA 323,

First off, I'd like to congratulate Ed Griggs who formally accepted his newsletter editor award at the EAA in Oshkosh this past Airventure! Well deserved! I believe it's the highest award for an individual at the national level a chapter member has received. As a way of thanks to the chapter, he will summarize his visit at our next chapter meeting, scheduled for Thursday Aug 17 at 7pm at Sherman Muni Terminal.

Also, a big thanks to Rex Lawrence for his presentation in July on his career. Very well done!

On Saturday Aug 5, we held a pancake breakfast at Sherman Muni Airport. There was a point where all parking spots were taken. We also had a gyro copter and a helicopter show. Thanks to all volunteers, and a special thanks to PK Solutions and Pelican's Landing for the food supplies. Thanks to TAC for the use of some of their utensils and cooking as well!

Also, I want to announce that Tucker White has been selected as the candidate the chapter will nominate once he passes his written test in September. It was a tough process for sure! See more in the newsletter about the award.

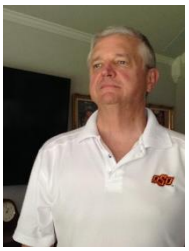
For our September Saturday event, it will be Sept 9. The original plan was to visit the Legends Cub factory in Sulphur Springs, but that won't work out due to availability of factory personnel. So, should we fly to Red Barn for breakfast? Or help the Denton EAA chapter with Young Eagles that same morning? Let's decide at our meeting this Thursday.

Cya soon!

John F Halterman
EAA 323 President

EAA 323 Monthly Gathering – July

By Ed Griggs



The Piper J-4 that Rex learned to fly in! Oddly enough, a member of the group mentioned that he had also flown that exact plane! How odd and close our tight little community is!

During the monthly gathering in July, Members were abvle to get an insight into the career and training of our very own, Rex Lawrence.

Rex's aviation career began in 1965 when his Uncle, a Lieutenant Colonel in the United States Air Force, took him to him to an Aeroclub located on Loring Air Force Base (AFB) Maine. He had his first flight in a Bonanza in the third grade and was hooked!

Later at the age of 15, He had the opportunity to join Taildragger Aero Club, flying a Piper J4 and Aeronca Chief. Rex soloed on his 16th Birthday before he had his driver's license!

Believe it or not, but his paper route paid for his aviation training, which amounted to $6 an hour wet, He went on to finish his pilot certificate at Christian Bros Aviation, located in Riverside Tulsa.

During the Veitnam era, his draft number of 5 (during the last year they had the draft numbers after Vietnam but the drafts officially over in 73) was of little significance as he had an 4 year USAF ROTC scholarship at Oklahoma State University.

Competition for a Pilot Slot was intense: the Class of 1975 was told just go away , 1976 class was told you owe us so no pilot was chosen, and 1977 class was told only Distinguished Graduates out of the class went to pilot training. My class (1978) was told only those with degrees in Electrical Engineering, Mechanical Engineering, Computer Science, and Math made it to Pilot Training Duty so Freshman year determined it. I would become a Math major – Calculus! I graduated in Dec of 78 and went active duty in Aug 79

USAF Pilot training (at Williams AFB, Chandler, Az) was even more intense, 90% of my class were Academy Graduates. 10% washout, 5 out of 56 didn't make it. T-37 and T-38's both retired now, were the backbone of the US Air Force. Not much straight and level flying for the most part in both aircraft, which was a large part of the wash out. Had the thrill of going supersonic at 30,000ft, admittedlt there was not much to see at that height

Dream sheets (Military jargon used for a sheet each military person was to fill out, outling duty preferences or aircraft based on their individual prefences. Hence, Dream!) were filled out for desired aircraft, my class was the first to have a write in CT-39. Didn't have a clue it was a test program. Best assignment ever for an old airplane. The initial corporate aircraft. and training was with the corporate.

My first duty assignment out of Flight school was at Barksdale Air Force Base (AFB), located in Shreveport LA First assignment Det. 3 1401 Military Airlift Squadron (MAS). I was the 1st 2Lt the unit had ever had, the Ops Officer called me in to find out a little about me. Turns out he flew for my Uncle in B-52s at Loring AFB, in northeastern Main, when he was my age. We kept in touch till he died.

The program was developed to put time on a young airman quickly and send him on to larger aircraft after 2.5 years. I was getting 80 hours a month compared to my counterparts of 15-40 hours a month. As I was one of the 1st in the program, I was the 1st and youngest on the T-39 to upgrade to Aircraft Commander and Instructor and had the opportunity to instruct at the central training facility at Scott AFB. Its mission was VIP airlift for the Department of Defense (DOD) and we carried everyone from the Secretary of State down to Sergeanr's! I had over 1500 hours in the Sabreliner when I left.

I was then transferred for training at Altus AFB OK, located in Altus, Ok and then to be stationed at Travis AFB CA with the 75th Military Airlift Squardon (MAS). It was very different going from a crew of 2 to as many as 18 on a crew in the beginning. The C-5A had issues! A lot of the crew was just to keep currency some times.

The C-5 is for outsized cargo for worldwide travel. Capable of 2 M1A1 tanks or 3 Chinook Helicopters, 6 Greyhound buses or 24,844,746 ping pong balls. I upgraded to Aircraft Commander in 85, and was the Squadron Safety officer filing in sometimes for the Wing Safety Presentations.

One thing that I realized about the worldwide mission of the C-5 and myself is I was not able to recover from the circadian rhythm problems (sleep). The longest flight I had was from Macdill AFB FL to Yokota AFB Japan, middle of the night 4 tankers and 16 hours. The lack of rest in crossing as many as 12 time zones at a time create a chronic fatigue problem.

Since I enjoyed the AF, I checked with manpower planning on changing aircraft. As soon as they heard I was an aircraft commander I was informed I could never get off the aircraft. To much money and training invested! I started my separation process at the time, giving the AF 7 years 11 months.

Getting out of the USAF, and having the flight resume that I did, I thought that I would be a "shoe-in" for most, if not all, Commercial carriers!

I wore glasses! That cutout the majority of the Airlines hiring. I was put on the list at Continental but would be over a year before I was called. So I flew for Airborne Express for 8 months and did reserve work. I started with Continental in June of 1987.

I was hired as a First Officer on the DC-9 out of Denver, then upgraded to the MD80 out of Newark, when the Gulf war started up Continental down sized and was bumped back to the B727 in Houston, finally back to First Officer on the B737 in Denver.

As I upgraded to Captain on the 737 it was back to Newark for a while till 911 and then it was back to First Officer on the 737 in Houston, then back to Captain in Houston.

I stayed on the 737 for the shorter flying periods, having plenty of opportunity to go to the wide body aircraft in my career.

I went on LTD for neck surgery to have discs fused and more, and when I was released to come back to work, COVID had started a cut back and I was forced to retire on LTD.

I found the world of civilian aviation again and fell in love all over again.
I found an aero club in the Texoma Aero Club and found like minded individuals in the EAA!

EAA 323 Monthly Gathering – Aug

By John Halterman

Next month, Join us as our very own Ed Griggs, EAA Newsletter Editor of the Year for 2023, will be giving an update and let us "in on" his adventures to Airventure 2023!

EAA 323 First Saturday event: EAA 323 hosts Pancake Breakfast

By John Halterman

Thanks everyone for volunteering at the breakfast. The parking area was full, but not overwhelming. It was great to see how everyone contributed and a successful event! Also, we introduced our two Ray Aviation finalists who will be selected this upcoming week!

Smitty from funplacestofly.com put together a nice video of the event. Check it out at: https://m.youtube.com/watch?v=CiL1RLsaaIA

The First U.S. Federal Pilot License

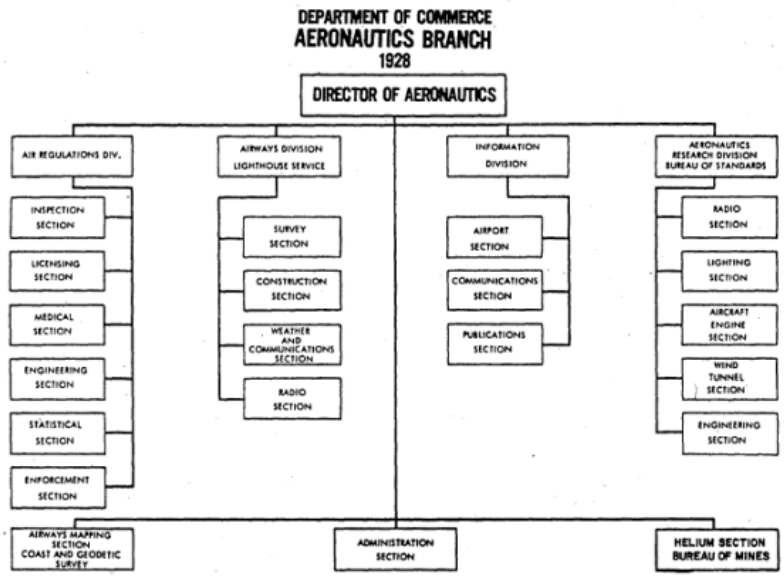
https://www.faa.gov/about/history/milestones/media/first_pilots_license.pdf?fbclid=IwAR2PfPVD0LlMAfUsKFnp976zAOsxHTVPcRxdO9CZn9wCcrnFgb2cNDffcPw_aem_Af4XtrepkmVvZHOYEah99y1D8RsNpxD_e1C8yIdv3J_7vI1_G6txYSMGImcgza9m84Q

On April 6, 1927, William P. MacCracken, Jr., Assistant Secretary of Commerce for Aeronautics, received Pilot License No. 1, a private pilot license. Before accepting the license, MacCracken had offered the honor to Orville Wright, promising to waive the fee and examination. Wright declined because he no longer flew and did not think he needed a Federal license to show that he had been the first man to fly.

The United States began licensing pilots as a result of the Air Commerce Act of 1926. The act instructed the Secretary of Commerce to foster air commerce; designate and establish airways; establish, operate, and maintain aids to air navigation (but not airports); arrange for research and development to improve such aids; license pilots; issue airworthiness certificates for aircraft and major aircraft components; and investigate accidents. Secretary of Commerce Herbert Hoover established the Aeronautics Branch to carry out the Department's aviation regulatory responsibilities.

In August 1926, MacCracken took office as the first Assistant Secretary of Commerce for Aeronautics, thus, becoming the first head of the Aeronautics Branch. MacCracken, who had assisted in drafting the Air Commerce Act, brought to the position experience as a World War I Army pilot, as chairman of the American Bar Association's committee on aviation law, and as general counsel of National Air Transport, a contract mail carrier he helped organize in 1925. With his appointment, the organization of the Aeronautics Branch proceeded rapidly. Secretary Hoover believed that the duties imposed by the Air Commerce Act should be carried out by existing Department of Commerce components.

Although five principal units made up the Aeronautics Branch, which ranked as a bureau, only two were structurally part of the new Branch – the Air Regulations Division and the Air Information Division. The other three units followed directions from the Branch concerning work to be undertaken, but received detailed guidance and administrative support from other bureau-level components of the Department. Thus, the Airways Division was organized within the Bureau of Lighthouses, the Aeronautical Research Division within the Bureau of Standards, and the Air Mapping Section within the Coast and Geodetic Survey



Three words to live by:

- **Aviate**
- **Navigate**
- **Communicate**

"Fly the Danged Plane"

EAA Chapter 323 Est. 1969 Sherman, Texas

MacCracken issued the first Air Commerce Regulations on December 31, 1926. The regulations prescribed operational and air traffic safety rules. They also required all aircraft engaged in interstate or foreign commerce to be licensed and marked with an assigned identification number. Pilots of licensed aircraft were required to hold private or commercial licenses. Commercial pilots were classed as either transport or industrial. Mechanics repairing aircraft engaged in air commerce were required to secure either engine or airplane mechanic licenses, or both. Owners, pilots, and mechanics had until March 1 (later extended to May 1), 1927, to apply for their licenses. Failure to apply was punishable by a $500 fine.

Phoebe Fairgrave Omlie received Transport License No. 199 from the Aeronautics Branch on June 30, 1927, making her the first woman to obtain a pilot's license from a civilian agency of the U.S. government. Omlie subsequently received aircraft and mechanic licenses and later became the first women to hold an aviation post in the federal government. She first worked as Special Advisor for Air Intelligence to the National Advisory Committee for Aeronautics (the predecessor to NASA), and later as Senior Flying Specialist for the Civil Aeronautics Authority. *(Note: Harriet Quimby became the first licensed female aviator in the United States. She received her license from the Fédération Aéronautique Internationale, or FAI, an international organization based in Paris, on July 31, 1911.)*

Six months after Omlie received her pilot's license, the Aeronautics Branch published a list of newly federally-licensed pilots. That list included James Herman Banning, who received a limited commercial license. Banning is the first known African American to receive a Federal pilot license. The first Federal transport pilot license issued to an African American is believed to have been received by C. Alfred "Chief" Anderson in 1932. *(Note: Black aviators had been active in the United States as early as the years preceding World War I, an era when nearly all pilots were unlicensed. The first African American to receive a pilot certificate of any type was probably Eugene Bullard, who was licensed by the French air corps in 1917 and served as a combat pilot. In 1921, Bessie Coleman became the first African American to receive a license from the FAI.)*

VMC Club

By Ed Griggs

The VMC (Visual Meteorological Conditions) club, hosted by EAA 323 and held at Texoma Aero Club facilities, held a presentation entitled "Mississippi Mix Up"
to the members and guests at the recent TAC gathering. While the scenerio is based on a "real-life" event, Our members were able to glean information and gain a knowledge that may help them -- should they find themselves in a similar predicament -- to avoid a costly accident!

The purpose of EAA VMC Clubs is to build proficiency when flying under visual flight rule conditions.

EAA VMC Clubs are extensions to local EAA chapters and offer monthly meetings in which pilots can network and share knowledge and experience. The meetings use real-world scenarios to engage members, and allow a free exchange of information that improves awareness and skills. The intent is to create a community of pilots willing to share information, provide recognition, foster communications, promote safety, and build proficiency. Through the EAA VMC club programs, visual flight rule pilots have improved their proficiency, and they love it. We cant wait to see you there!

Texoma Aero Club is located in the Executive Hangar just north of the Control Tower at North Texas Regional Airport. Use the gate just to the west of the intersection of Don Ort Rd and Airport Rd. Text Ed Griggs, VMC Coordinator, at 903-436-1405 for the gate code!

EAA323 VMC Club Question of the month: August 2023

By EAA VMC Staff, (Answer on Page 13)

EAA VMC Club
Question of the Month

Question: When planning a VFR departure, particularly at night in higher terrain or when obstacles are present, what is the standard climb gradient that an aircraft is expected to be able to meet to clear obstacles?

EAA 323 Ray Aviation Committee meets with Candidates

By Ed Griggs

Tucker White

On Monday, Auguest 07, Members of the Ray Aviation Select Committee met with two Candidates that have been selected from the applications submitted. Committee members are: Ross Richardson, Rex Lawrence, John Horn and Micheal McLendon, Coordinator. John Halterman, acting as CFI designate, Nathan Wieck, and Ed Griggs were present to observe.

While both candidates were extremely qualified, Tucker White took one step further towards obtaining the $11,000 Ray Aviation Scholarship to be awarded by the Ray Aviation Foundation and EAA Oshkosh and was chosen to be the candidate supported by EAA 323.

He has additional challenges to complete before being selected and sponsored as our EAA 323 candidate for this unique scholarship. Once completed, The committee will be submitting his application and our recommendation for further approval by EAA Headquarters.

This young man fits the age requirement for the scholarship, is an EAA member and is actively engaged in self study and ground school. He attends high school in the Texoma area and is a high achiever scholastically and in extracurricular activities.

You all probably remember the FAA Knowledge exam, The difficulty level has significantly increased since Wilbur and Orville administered your test.

Each 323 Chapter member has a vested interest for the future of aviation by encouraging our candidate each time you see him at chapter meetings, 1st Saturday events and such.

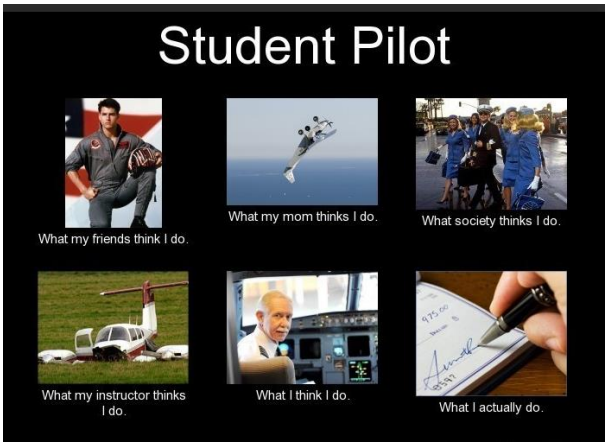
And, if called upon by the Scholarship Coordinator, asking you to volunteer your time mentoring, please say yes.

Your unique knowledge and expertise in and of aviation is a valuable asset for the future aviators in our midst.

More details will be forthcoming. Watch your email and 323 Newsletter.

Tucker in the “hot seat” with Committee members! He held his own with varying questions and answers! Great job, Tucker!

Committee members with Tucker White (L:R): Ross Richardson, Rex Lawrence, John Halterman, Tucker White, John Horn and Mike McLendon!



What is a Board Member, What do they do?

By Mary Lawrence and Rick Simmons, Chapter 323, Board of Director members

This months article is about Board Members and what they do. I contacted 2 of the 3 Board members for EAA 323 and was given this feedback. Of all of the Elected position's that we have as a group, I find the duties of the Board of Directors to be the most "behind the scenes" work and the most un-acknowledged/under appreciated! The ideas and plans that they set forth are carried out by the other functions and positions within the Group. Having a bad set of "Board of Directors" can be detrimental to a Chapter and I, for one, am thankful for the ones that we have!

From Mary Lawrence: Being a board member for EAA is a great way to be involved and get to know others in the chapter. EAA 323 currently has 3 Board members and has 2 business meetings a year, plus group emails as opportunities arise. Once in a while we also have a called meeting.

One of the purposes of the semi-annual business meetings is to plan the Thursday Gatherings and First Saturday events with various members taking responsibility for the speaker or organization of the event. Everyone is welcomed to attend the business meetings and contribute. I personally have enjoyed the board composition as it includes long-time pilots, professional pilots, and some hobby pilots like myself and Ed Griggs, even though he was in the Navy.

Other decisions made by the Board of Directors have included participation in the Ray Aviation Scholarship program, purchase of a new projector and a printer, nomination of a certain newsletter editor for a chapter award, extending an honorary chapter membership to a deserving aviator, and selecting the Rich Worstell Award recipient.

There's always a lot to do so volunteer and have fun with us! - Mary

From Rick Simmons: I have served this chapter for many years, and I enjoy it. When I was asked to share what it's like to be on the board of directors, I had to review several places for documents, pictures and planning sessions. I still don't know what year I started. But it was several years before my turn at the controls which was 2009 and 2010. I continued to serve again after that, back on the board. We used to only let a person serve as president two terms, but some people take longer to get it right. Then back its back to being a regular member, its back to doing the work, - just sayin' John.

Anyway, back to being a board member. It's mostly about the planning for first Saturday events and meeting programing. Yes, there are the occasional official board duties, reworking bylaws and dealing with our own rules, which are few, so really, it's about the plans. Generally, we meet a couple times a year for this. We have several years' worth of planning session documents all in a similar format so it's somewhat easy to reach back and pull up a program that was really good a few years ago and ask for a redo. Or it may spur a new idea or twist on an old topic.

Same with the events, a Flight Service visit in Ft Worth, Legend Cub factory visit is always popular, Red Barn breakfast or lunch and a tour makes for a fun Saturday. Just not every year, so we try and space those out. Some events have a semi-permanent place in the schedule, for instance, Pancake breakfasts in the Spring and late Summer, our Christmas party, Charts and Legends, The Seaplane fly in at 3T0 and my Brushy creek Fly In.

If you have an idea for a fun event or an interesting topic for a meeting presentation, let us know. It's also interesting to see a bit of the internal operations, getting chapter insurance from HQ for Young Eagle events, our annual report to HQ and so forth which makes for a better understanding of how we continue to operate and where our dues go.

Occasionally we get an opportunity to host an event like the Trimotor a few years back. It takes bit of time to coordinate but the board and some people on committees will get the job done. It's all in the spirt of seeing our Chapter continue to offer fun and interesting events, keeping interests of the members met, making friendships and having a good time.

See ya on the ramp!

Rick

TAC Operations

By Michael McLendon, August 2023

N4594U "Glenda", the Club's 1964 Cessna 150D

Wow. Where has this summer gone? And this heat!

Not what we had planned aviation wise. I've been taking early morning flights in Glenda starting before 7. Not bad upstairs but ya' gotta land sooner or later and right now sooner is better. This too shall pass.

Lucy arrived at her 100-hour inspection time in early July. Some routine issues were encountered and addressed but then when performing the compression check we discovered a stuck exhaust valve, really stuck, #2 cylinder. Unfortunately, the 100 hour and cylinder placed Lucy offline and in the hangar for about three weeks. Sal's Cylinders came to the rescue and had us up and going in four days. Great guys!

N1528Y "Lucy", the Club's 1962 Cessna 172C

And then, HOT Weather took over which just takes the fun out of flying. Lucy feels scorned, maybe "scorched" is a better term. The good news is Flight Circle shows reservations on the rise for the rest of August.

Our monthly meeting will be Saturday, August 19, starting at 8:30 with pancakes. To contradict a rumor, We will **NOT** be cooking pancakes on the hoods of our cars and trucks. Maybe an egg or two though! Let's hope the weather will cool down a tad.

Ed Griggs will once again conduct a VMC scenario, at the end of our montly meeting, in our hangar for all to view. This is a EAA323 function that Texoma Aero Club supports.

And, maybe, Ed will show off the award he received at Oshkosh from EAA. His (and our) EAA 323 Newsletter was voted best in all of EAA. His newsletter has been presented as an example to all EAA chapters as to what a newsletter could and should be. Congratulations Ed!

TAC is accepting new members in all categories of membership.

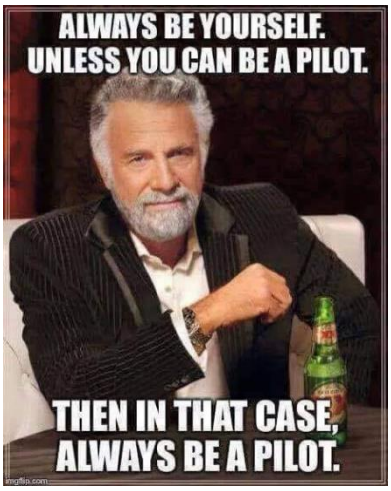
Check out our website for more information! Fly in, drive in or walk-in and join us for some hangar talk. Type in KGYI in your flight software to check out latest conditions and notices for North Texas Regional Class D airport.

N7689M, our "yet-to-be-named" 1958 175C

TAC is located in the Executive hangar area, Hangar E2, just north of the tower. For those driving, come to the gate at Don Ort Drive. Text us (404)825-4795 or (918)407-7797 or (903)821-7640 in advance to obtain entry to the ramp area.

Visit with us soon!

Mike



MOSAIC Takes Significant Step Forward

https://www.eaa.org/eaa/news-and-publications/eaa-news-and-aviation-news/news/mosic-takes-significant-step-forward?utm_source=ehotline_230720&utm_medium=email&utm_campaign=advocacy_2023&mkt_tok=OTEwLVNFVS0wNzMAAAGNFC_WFpOq0WMQIFkZx6fG-buWUes9B7nnNqwd_mtSq-mXMts0kWqeAzISi0s-zLcjxJhrrk86Sjf0wLwPE3lelcjiLB5mUj81qlth0W81k-Xo

The FAA this week publicly released a **Notice of Proposed Rulemaking** (NPRM) for the long-awaited MOSAIC package of aircraft certification. MOSAIC, or Modernization of Special Airworthiness Certificates, would expand the utility of light sport aircraft and opportunities for sport pilots. Comments on the NPRM will be open for 90 days after the official date of publication in the Federal Register, which is expected later this week or early next.

In brief, the proposed rule would increase most current regulatory parameters on Light-Sport Aircraft (LSA). This includes the replacement of today's arbitrary weight limit with a flexible approach that primarily utilizes stall speed, with the FAA's stated goal to allow for larger, easy to fly aircraft of up to approximately 3000 pounds.

For fixed-wing airplanes, the new definition specifies a "clean" stall speed (VS1) of 54 knots calibrated airspeed, a maximum level flight speed (VH) of 250 knots, and a maximum seating capacity of four occupants – all of which are increases over the current rule – are the only regulatory definitions given for LSA. All else will be governed by industry consensus standards, as is the case today.

Sport pilots will be able to fly any aircraft meeting the preceding definition, and may continue to carry one person other than the pilot regardless of seating capacity. New in this NPRM, sport pilots may fly aircraft with retractable landing gear, constant-speed propellers, and/or complex aircraft with appropriate endorsements. They may also fly at night, however they will need either a current medical certificate or BasicMed certificate to do so. EAA intends to examine this medical requirement for night flying and propose an alternative in our comments.

There is much more to digest in the NPRM, and the EAA Advocacy Team will be hard at work using the unique opportunity of AirVenture to continue the dialog about this proposal, and gain further understanding of its implications to the general aviation community. On the surface, MOSAIC promises to be every bit the game changer we had hoped it could be.

"MOSAIC had its genesis with a conversation between EAA and FAA officials nearly a decade ago, as we focused on safely creating more aviation opportunities for those who wanted to participate," said Jack J. Pelton, EAA CEO and Chairman of the Board. "Now that the NPRM has been released, we are seeing the results of the hard work and effort that EAA and FAA have put into this game-changing rule. We will continue to study it closely and supply focused comments to the FAA."

MOSAIC PROPOSED RULE PUBLISHED

By Dave Hirschman, AOPA Pilot Editor at Large, July 25, 2023, https://www.aopa.org/news-and-media/all-news/2023/july/25/mosaic-proposed-rule-published

Watch this video at https://youtu.be/ET4i_iipSAQ

Don't let the bland, nondescriptive title fool you.

The multiyear Modernization of Special Airworthiness Certification (MOSAIC) reforms are on the verge of delivering sweeping and far-reaching changes that promise huge benefits to a broad spectrum of general aviation pilots, aircraft owners, instructors, technicians, and manufacturers.

The FAA published a notice of proposed rulemaking (NPRM) on July 24 that, if adopted, promises major benefits to GA as soon as the end of this year. The notice was released July 19 for public inspection, and AOPA continues to analyze the details of the document.

AOPA Vice President of Regulatory Affairs Murray Huling said AOPA's forthcoming comments will include identifying a problem with the FAA's proposed stall speed limitation and providing recommended language to rectify it: "The clean stall speed (VS1) of 54 knots is too low. It would allow a Cessna 182 but not allow a Piper Cherokee, and also exclude many other popular four-seat aircraft," Huling said. "We will push to get it revised to incorporate all logical four-seat aircraft."

AOPA will submit detailed comments by the October 23 deadline and encourages members to do the same.

The main thrust of MOSAIC redefines the light sport aircraft category and dramatically raises the size and performance capabilities of airplanes that can be flown by sport pilots.

MOSAIC ditches the current LSA weight limit of 600 kilograms (1,320 pounds) and replaces it with "performance-based" measures such as a 54-knot maximum clean stall speed (Vs1) that will allow airplanes with gross weights up to about 3,000 pounds to be operated by sport pilots.

The AOPA Sweepstakes Cessna 170B, which arrived in Wisconsin for EAA AirVenture Oshkosh on July 22, is one of many Part 23 aircraft that could be flown by sport pilots under the FAA's proposed overhaul of aircraft certification. Photo by David Tulis.

The new regulations also do away with the current 120-knot LSA speed restriction and allow controllable-pitch propellers and retractable landing gear. Sport pilots also will be allowed to fly at night and operate the more capable aircraft with appropriate training and instructor endorsements. Under the new definition, light sport airplanes can have up to four seats, and travel at a top speed of 250 knots calibrated airspeed. In anticipation of vertical takeoff and landing aircraft, MOSAIC replaces the current requirement that LSAs have a "single, reciprocating engine" with an open-ended allowance for "any number and type" of powerplant.

The AOPA Sweepstakes Cessna 170B, which arrived in Wisconsin for EAA AirVenture Oshkosh on July 22, is one of many Part 23 aircraft that could be flown by sport pilots under the FAA's proposed overhaul of aircraft certification. Photo by David Tulis.

It's a head-spinning turnabout.

Under the current LSA rules, for example, a Cessna 152 doesn't qualify because it has a gross weight of more than 600 kilograms. The new rules will allow 150s and 152s, as well as a Cessna 172, 172RG, 170, 180, and some 182s.

Sport pilots would still be limited to taking no more than one passenger at a time even if the airplane has more seats than that. MOSAIC also imposes certain noise restrictions.

MOSAIC also allows the use of relatively inexpensive, safety-enhancing avionics to be installed in LSA aircraft regardless of whether they're FAA certified, and it allows manufacturer-approved, appropriately equipped LSA airplanes and qualified pilots to fly under IFR in instrument conditions.

Angle of attack indicators, envelope protection equipment, and moving maps are encouraged under MOSAIC to promote "safe and cost-effective flight training."

Among those likely to be enthusiastic about the proposed changes are owners of existing aircraft that could soon qualify as LSAs, and experimental avionics firms that can sell their products much more broadly.

"LSA aircraft have been shown to have a lower accident rate than experimental/amateur-built airplanes," the NPRM states. "The FAA intends for these expansions to increase safety by encouraging aircraft owners, who may be deciding between an experimental aircraft or a light-sport category aircraft, to choose aircraft higher on the safety continuum."

MOSAIC also allows some aerial work for LSAs that hasn't been permitted under existing rules.

Pipeline patrol, aerial photography, search and rescue, and advertising are all being considered under MOSAIC (although carrying passengers for hire is not).

MOSAIC points out some of the ways that new technologies such as fly-by-wire flight control systems and full authority digital engine control powerplants with single-lever power controls have increased performance and reliability while decreasing pilot workload.

Increasing aircraft safety and performance have historically been mutually exclusive. But the authors of MOSAIC say they believe they don't have to be.

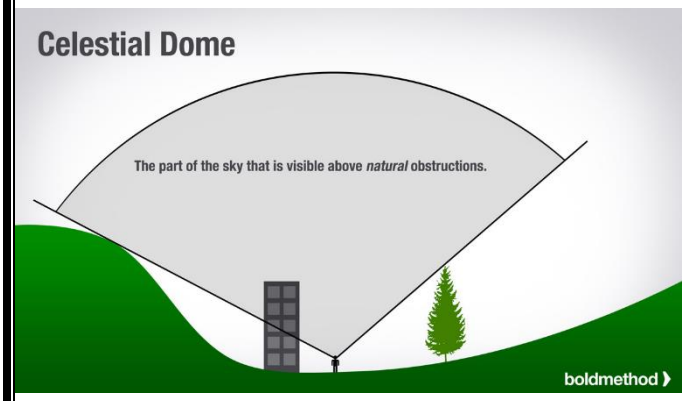
According to the NPRM, the FAA "recognizes that this is a balancing act."

EAA Chapter 323 Est. 1969 Sherman, Texas

How Cloud Ceilings Are Reported

By Boldmethod, 07/11/2023, https://www.boldmethod.com/learn-to-fly/weather/how-cloud-ceilings-are-reported-for-pilots-metar-speci/

You're approaching your destination, and you dial the ATIS, ASOS, or AWOS frequency to listen for the current weather. With broken ceilings at 5,500 feet, you're set to land under VFR. But how were those ceilings reported? And why is it important to understand how they're measured?



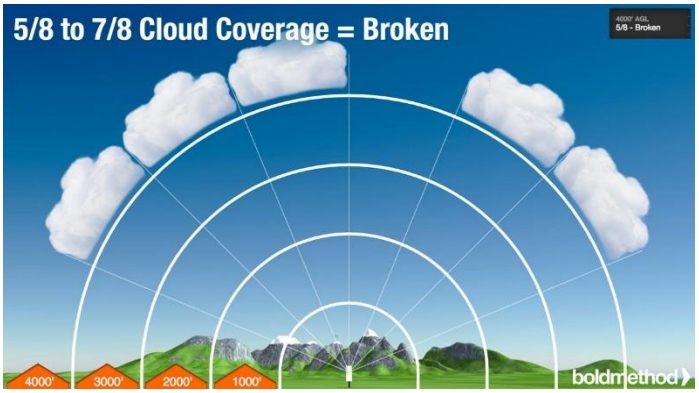
The Celestial Dome

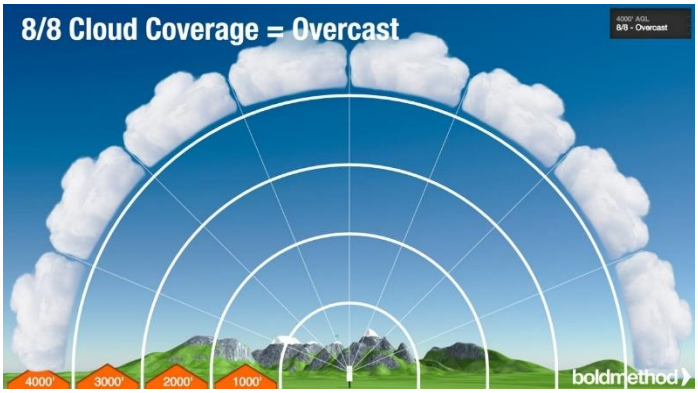
At any weather reporting station, there's only a portion of the sky used for weather reports. It's called the *celestial dome*. The celestial dome is the part of the sky that's visible to a human observer above all *natural* obstructions, including hills and trees. However, if there is a building that blocks part of an observer's view, they'll make an effort to see or estimate the sky conditions on the other side of the building. But celestial domes only apply to observation stations with human observers.

Sky Conditions

When Federal Air Regulations refer to "ceilings" for weather minimums, the FAA defines a ceiling as: "The height of the lowest layer of clouds above the surface that are either **broken or overcast, but not thin**." But since METAR and SPECI observations don't include the term "thin," anything reported as broken or overcast is treated as a ceiling.

So how is broken and overcast measured? By something called "octals", which are 8 equal segments of the sky. If the sky is covered between 5/8 and 7/8 with clouds, it's reported as broken. And if it's covered 8/8ths with clouds, it's overcast.

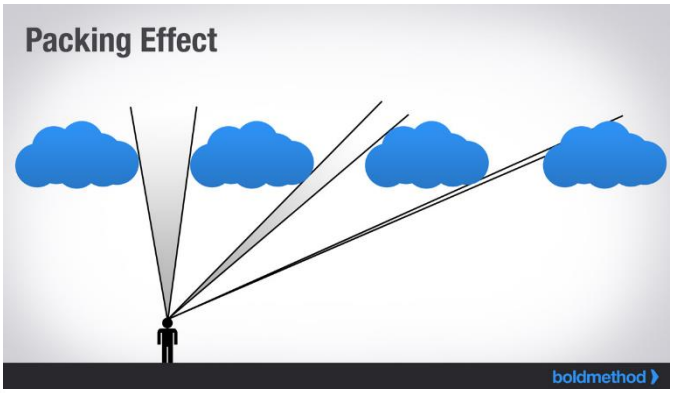




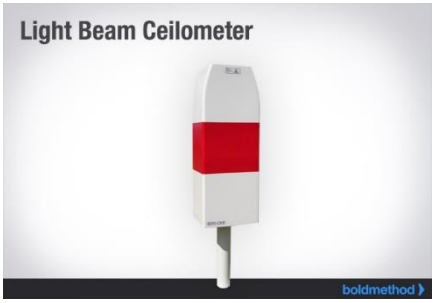
Measuring Cloud Altitudes

There are a variety of methods that reporting stations use to measure cloud altitudes. Here are the most common ones:

1) **Human Observers** are trained to accurately estimate cloud types and altitudes. While more and more uncommon with a transition to automated reporting stations, if you read a METAR that doesn't contain the phrase "AUTO," the station has a dedicated weather analyst (often a local ATC controller) that will physically walk outside and view the conditions to confirm the METAR. But there's a major flaw with human observations. Observers tend to overestimate sky conditions because of the “packing effect," where clouds further away laterally look more packed together.



2) **Light Beam Ceilometers** use trigonometry and a light beam to determine cloud heights. Essentially, a light beam is placed at a position away from the station and directed upward. A measurement device at the station senses when the light disappears into the cloud deck. Using trigonometry, cloud altitudes can be recorded.



3) **Cloud Height Indicator (CHI) Sensors** use vertically pointing lasers (LIDAR) to measure cloud heights. You can think of CHI like radar; the round trip time for the beam to return once hitting a cloud layer determines cloud height. CHI is normally limited to 12,000 feet of altitude, which is why you'll sometimes see "clear below 12,000 feet" in a weather report. CHI is the most common cloud measurement device used at airports today, and with technological advances, it will soon allow cloud measurements up to 24,000 feet.

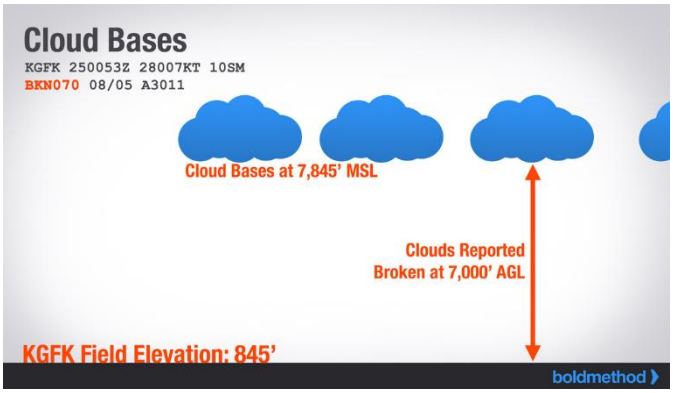
So how does the CHI determine the cloud formations for the area? Remember how the percentage of clouds overhead determines how the clouds are classified? Based on the percentage of time that "cloud hits" are reported within a 30-minute time interval, the CHI auto-generates a cloud type observation. CHI's are used as the sole cloud measurement tool at most automated observation stations. So next time you're listening to the ASOS or AWOS, a CHI probably helped generate the report.

Why It Matters For Pilots

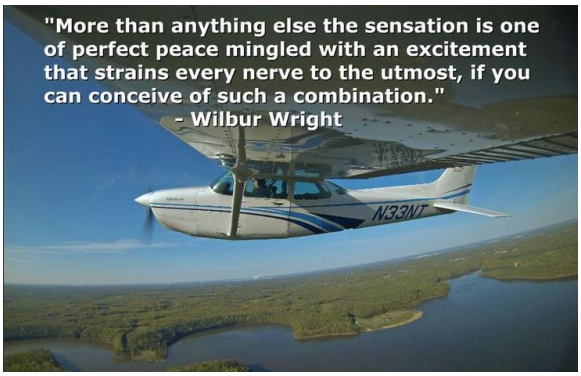
Clouds are always reported by weather stations in **feet above ground level** (AGL). As you plan your takeoff, route, and arrival, pay attention to cloud reports to calculate how high the clouds are around you. That will help you determine what altitude you need to fly at in order to maintain cloud separation requirements.

To do it, you need to find the cloud height in feet above mean sea level (MSL). That's as simple as adding the elevation of the reporting station to the reported cloud heights. Once you know the cloud heights in MSL, you can determine where you should fly, since altimeters are set in feet above MSL, not in feet AGL.

Example: At Grand Forks International Airport (KGFK), clouds are reported broken at 7,000 feet AGL. Add the reported clouds of 7,000 feet AGL to the field elevation of 845 feet MSL to get a cloud base altitude of 7,845 feet MSL.



Surface observations, no matter how advanced the system, have limitations. They're limited by location and time, so they only really apply to an airport's immediate area. But when you understand how clouds are reported by weather stations, it's easier to understand how they'll affect your flight.



Being a professional pilot is hours and hours of tedium punctuated with moments of stark terror.

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Quiz: 6 Questions To See How Much You Know About Class G Airspace

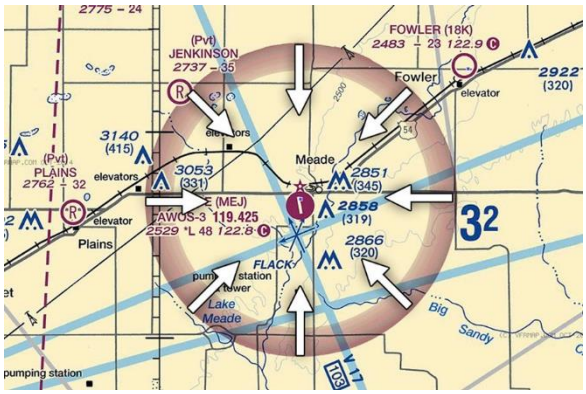
By Corey Komarec, 07/18/2023, https://www.boldmethod.com/blog/quizzes/2023/07/six-questions-how-much-do-you-know-about-class-g-airspace/

Answers on page 25, Ready to get started?

1) What kind of airspace is Class G?

- Controlled
- Uncontrolled
- Positive control

2) You're taking off from Meade airport. How high does Class G extend to inside the magenta ring?



- Up to, but not including, 700 feet AGL
- Up to, but not including, 1,200 feet AGL
- Up to, but not including, 1,200 feet AGL
- Up to, but not including, 14,500 feet MSL

3) You're in the mountains at 12,500 feet MSL, and you're 1,050 AGL in Class G airspace. What is your minimum required visibility during the day?

- 1 SM
- 3 SM
- 5 SM
- 10 SM

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4) You're flying in the same exact spot as question #3 at night. What's your minimum required visibility now?

1 SM	3 SM	5 SM	10 SM

5) You're flying in Class G at 9,000' MSL (5,100' AGL). What is the max speed you can fly?

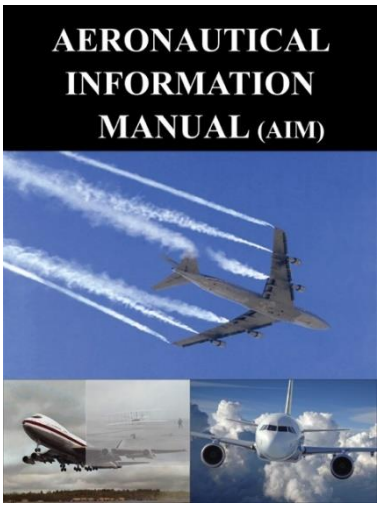
200 knots	250 knots	300 knots	Mach 1

6) You're flying in Class G at 8,000 feet MSL, and you're 7,400' AGL. How far below the clouds do you need to stay during the day?

Clear of clouds	500 feet	1,000 feet	2,000 feet

EAA323 VMC Club Question of the month August 2023: Answer

By EAA VAM Staff, (Question from Page 5)



The standard climb gradient for departure is 200 feet per nautical mile, and in many cases, is insufficient to clear obstacles. We can dip into the readily available instrument procedures to find the required climb gradient to avoid obstacles.

If the standard climb gradient is not adequate to ensure terrain clearance, a non-standard climb gradient is determined, and a “T” in an upside down triangle is depicted on approach plates for the runway in question. The required climb gradient is provided in the published Takeoff Minimums, (Obstacle) Departure Procedures (ODP) and Diverse Vectors (Section L of the U.S. Terminal Publications).

Note that the climb gradients are provided as feet per nautical mile (nm), rather than climb rates feet per minute. Pilots can use the chart provided to calculate their climb gradient for their ground speed and climb rate (feet per minute). Note that the climb rate is dependent on aircraft weight and the prevailing density altitude.
Source: AIM paragraph 5-2-9.e

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Pilot's Tip of the Month: "Practice Every Flight?"

Featuring Wally Moran, https://pilotworkshop.com/tips/practice-every-flight-2/

DPE, NAFI Flight Instructor Hall of Fame

Subscriber question:
"I would appreciate tips for working proficiency training into each flight...making the most of your time in the air, how to stay sharp, what to practice?" — Tom B.

Wally:

"Your comments are right on the money. It is simply not enough to pass the check ride and then never practice maneuvers again. Well, at least not until that flight review is about due. Every flight should be an opportunity to learn something or to get better.

My suggestion is to make a list of all the maneuvers you needed to do when you completed your flight test. Then practice one or two of them on each flight. Look to the standards for the tolerances and practice until you can achieve them, and then some. Check the maneuvers off your list as you work through them.

Here is another skill builder. First, park your airplane with the nose wheel on a taxiway line. Then get in the cockpit and get a reference on the cowling. Now practice keeping that center line on the reference during taxi, takeoff, and landing. Most pilots taxi, take off, and land to the left side of the centerline. When you feel you have that down, try landing with your left main wheel on the line. Since each flight has a takeoff and landing, this is a free skill builder. You will be glad you can stay on that centerline next time you have to land in a crosswind or on a narrow runway.

Then, of course, let's try some accuracy landings. While on downwind leg, pick a safe touchdown spot on the runway, reduce power to idle and see how close you come to landing on it. I'll bet you miss it by a bunch the first try, but keep at it and you will get better. This skill, of course, will serve you well if you ever have a forced landing. One caution here, if the approach in any way gets uncomfortable, go around. Don't do anything dangerous just to make the landing.

One of my goals as a professional pilot was to try and move my passengers from point A to point B without them realizing they had left point A. Of course, in 39 years of trying, I never made it, but I always tried to move the airplane as smoothly as possible. That means smooth taxi and stops, gentle control inputs, easy power changes, and gentle pitch control.

In my view, one of the best no-cost tools to improve your proficiency on your next flight is a thorough review of your last flight. A good pilot will think about all the things that did not go perfect and consider how to make them better next time. Some pilots I know keep a diary of these things for periodic review. This approach is exactly opposite to the attitude that claims any landing you can walk away from is a good one."

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Chad Smolik
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The Arcane Aviation Texas Fact: A Texas WWII Gasoline Story You Probably Never Heard (Part 2)

How High-Octane Gasoline Saved Untold Allied Pilots During WWII

By Sean Spoonts, Nov 5, 2021, https://sofrep.com/news/filler-up-how-high-octane-gasoline-saved-untold-allied-pilots-during-wwii/

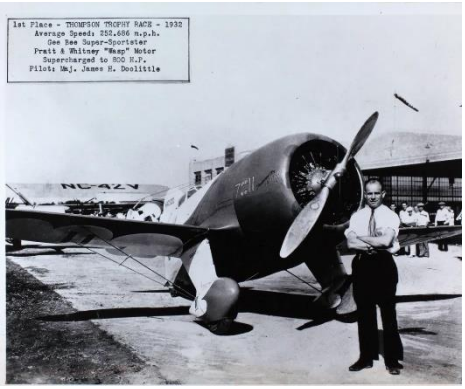
The group of Luftwaffe Bf-109 fighters passed high above the English channel at 38,000 feet. At that altitude, they were almost invisible to the naked eye and had little to fear from ground fire. Their job was to get over London, before the HE-111 bombers trailing behind them, and clear out any British fighters. At their current speed and altitude, they were faster and flying higher than any Spitfire or Hurricane could reach. And being faster and higher than your enemy made all the difference in winning a dogfight.

The Germans had fought the Spitfire and Hurricane in the skies over France the year before and were not impressed. The Bf-109 was at least 40 mph faster and could climb several thousand feet higher.

The flight leader scanned the skies below looking for RAF fighters when his wingman began to furiously wag his wings, trying to get his attention. The flight leader dipped his wing to acknowledge and saw his wingman gesture over his right shoulder with an extended thumb. “They must be behind us and below,” he thought as he craned his neck to see behind his aircraft. He then picked up the glint of metal above and behind him. A squadron of Spitfires was at least 2,000 above them and diving fast.

The flight leader hesitated for a moment. The Spitfires couldn’t fly higher or faster than them. Yet, there they were. A whole squadron, like Furies, descending on the Germans from above. The flight leader signaled to his men to break. His flight of 109s split left and right to try and spoil the RAF fighters’ diving attack.

In the dogfight that followed the German pilots would be astonished to find that the Spitfires were now just as fast and could climb just as high as them. “These can’t be the same planes we fought against in France,” the flight leader thought as he twisted and turned trying to shake off the Spitfire on his tail. “They can’t be.”



Major Lames H Doolittle piloted Gee Bee Super-Sportster, Avg speed of 252.686m.p.h., 1932

Jimmy Doolittle and Gee Bee Super-Sportster (PW Wasp Motor Collection: Charles M. Daniels Collection, National Air Races. San Diego Air and Space Museum Archive)
In 1935 aviation legend Jimmy Doolittle had left the Army and was working for the Shell Oil Company as an Aviation Fuels Manager. He was trying to solve a problem that nobody even knew existed. Doolittle may have been the first American to be both an Aeronautical Engineer and a pilot. He held a Ph.D. in Aeronautical Engineering from MIT, one of the first-ever such degrees.

Young Major Doolittle was a speed demon as well and an air racer. In 1931 he won the Bendix Trophy, set a world speed record of 296 miles per hour, and won the Thompson Air Race trophy flying the dangerously unstable but fast Gee Bee R-1. Along with Charles Lindberg, Amelia Earhart, and Eddie Rickenbacker, Doolittle was among the most famous aviators in the country. And this was why Shell Oil had lured him out of the Army. His task was to develop aviation fuels for military and civilian applications and be the public face of Shell Oil to the military.

What Doolittle grasped intuitively through his engineering training was that aircraft engine development was being limited by a “which came first, the chick or the egg?” paradox.

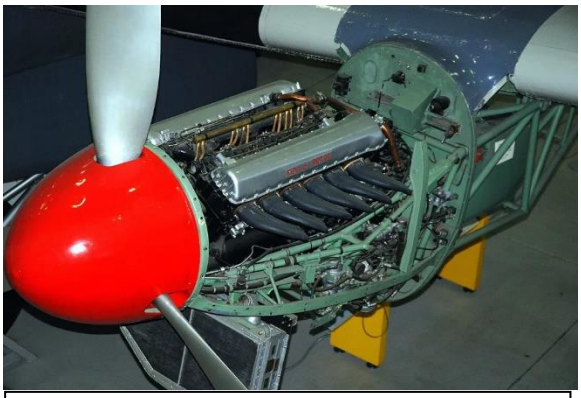
Engine makers, like Allison and Pratt and Whitney, wouldn’t spend millions designing and making higher performing engines when nobody made the fuel to make them run. Oil companies like Shell had no interest in investing millions in high-performance aviation gas refineries when there yet were no aircraft engines built that could run on that gas. So Doolittle went to work on getting the Army to adopt a new fuel standard for its aircraft. With the country in the midst of the Great Depression that would not be easy.

Up until that time, aircraft and automobile fuel were of the same grade. Fuel was already cheap to make and readily available everywhere. So engine designers made engines to run on this lower-rated fuel that had an octane rating of 87. For the military using the same grade of fuel on its aircraft and other vehicles made sense from a logistics and supply chain standpoint. But this decision, driven by a desire to keep the supply chain simple, resulted in aircraft that underperformed in speed, climb rate, max take-off weight, and service ceiling. And as war clouds gathered in Europe once again, Doolittle wanted the United States to have the fastest, highest-flying planes in the world. He had been to Germany and seen the Luftwaffe's planes fly with fuel-injected engines by Daimler and BMW. He had seen the factories the planes were being made in. And he was impressed.

So why did the octane rating of aviation gasoline matter?

An Internal Combustion engine is comprised of an empty cylinder into which a piston is inserted. At the top of the piston, there are valves that inject a mixture of air and fuel into the cylinder which the piston compresses very tightly as it moves to fill the cylinder's void space. When the volume of the air-fuel mixture in the cylinder is compressed down to a certain ratio, typically about 6:1 or 7:1, a spark is introduced thus explosively igniting the compressed air-fuel mixture. This drives the piston back down again. Horsepower is created by a crankshaft attached to the piston. So the fuel is matched to the compression ratio in the engine.

At low compression ratios, like 6:1, the fuel's volatility increases making it more explosive. If you increased that ratio to 8:1, the fuel would spontaneously detonate just from the friction between its molecules being compressed by the piston. This is called pre-detonation or "knock." It robs power from the engine and increases wear because the fuel is igniting before the piston reaches its full stroke.



Roland Turner from Birmingham, Great Britain – Rolls Royce Merlin engine, Avro York, Imperial War Museum, Duxford.

Now, if you could increase compression to 10:1 or 12:1, the explosive detonation would greatly increase the power of the engine for each cycle of the piston. But 87 octane gas would explode on its own, at about 8:1. What was needed was a fuel with lower volatility that would remain stable when compressed to 1/1oth or 1/12th of its volume in the cylinder and not go off prematurely. That was what Doolittle wanted: Aviation fuel with an octane rating of 100 so that engine designers could make higher performance engines with higher compression ratios. The aircraft that carried these advanced engines would have stunning performance, especially at higher altitudes.

So Doolittle set about getting Shell Oil to make an engine fuel no one had yet manufactured. Yet, his farsightedness was not widely shared. Within Shell Oil, the project was being mocked as Doolittle's "Million Dollar Blunder."

For years Doolittle spent untold hours lobbying Congress and the Army to adopt a 100 octane fuel standard. The Army finally relented and adopted the 100 octane standard in 1938. Now Doolittle had a new problem: how to make 100 octane gas at a cost the government could afford. Initial experimental formulations of 100 octane fuel required a very expensive refining process that resulted in a prohibitively high fuel price of $25/gallon when automotive fuels were less than 20 cents a gallon. The thermal method of "cracking" high octane gas out of crude oil was wasteful and produced byproducts like olefins that gummed up engines. There was a solution to this problem, but it came from an unlikely place.

Eugene Houdry had served as a young officer in the French Tanks Corps in the First World War. He had been wounded in action, decorated for valor, awarded the Croix de Guerre, and made a Chevalier of the French Legion of Honour. After the war, Houdry took an interest in auto racing and visited the United States. He toured a Ford auto plant and attended the Indianapolis 500 race. What he saw in the U.S. was a country on the move. And the automobile was doing the moving.

America was producing its own oil and gas. On the other hand, France had to import virtually every drop of oil that fueled its military and civilian vehicles. Houdry saw this as a dangerous situation for France. Oil was becoming the lifeblood of modern economies and he thought he could help his country produce the gas and other fuels it needed.

Eugene Houdry as a young Armored Officer in the French Army.

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Having earned a degree in mechanical engineering from the Ecole des Arts et Métiers in Chalons-sur-Marne Houdry set to work on converting brown coal (which France had in abundance) into fuel. He opened a small lab and by 1930 he had small samples of gasoline made from coal. This was considered pretty miraculous and Houdry became the pioneer of synthetic fuels. Soon Houdry was producing 60 tons of gasoline a day from coal using his revolutionary method. But the French government decided that importing oil was cheaper than making gas from coal and withdrew their funding of the Houdry process. France would pay dearly for relying on imported oil when WWII started.

But in America, Houdry's work found a welcome reception from the Vacuum Oil Company (which later became Standard Oil). Houdry relocated to the U.S. and licensed his method in a joint venture to very cheaply produce high octane gas out of oil.

The venture started with a single Houdry Process plant in Marcus Hook, Pennsylvania. Soon there were 17 other plants in operation. Standard Oil had licensed the process to other oil companies like Sun Oil (Sunoco). It also licensed it to Shell Oil. There, Jimmy Doolittle immediately saw the promise of the Houdry Catalyst method of making the 100 octane gas he believed America would need if it ever fought a war again in Europe. And by 1937 this seemed increasingly likely.

After WWII began and France fell the Vichy government added insult to injury. It stripped Houdry of his citizenship for being a founding member of France Forever which sought to eject the German invader from the country. Houdry became a U.S. citizen and continued his work.

When the war in Europe began, the U.S. was manufacturing a modest 40,000 gallons a month of 100 octane gas. But by 1944, it was making 400,000 gallons of AvGas a month from 77 Houdry Process plants. The first consumer was Great Britain which did not make 100 octane gas but nevertheless made aircraft engines, like the Rolls Merlin, that needed it. The British were ordered all that the U.S. could produce.

And the Luftwaffe found that the underpowered Hurricanes and Spitfires it had slapped aside so easily in the skies over France early in the war had been reborn by the time the Battle of Brittain had started where they met or exceeded the performance of the Focke Wulfs and Messerschmitts they met in combat over London. In contrast, Germany's planes mostly flew on 89 octane fuel and Japan never got higher than 87.

Sunoco officials pour the billionth gallon of aviation fuel produced during World War II. (Courtesy Sunoco Logistics/Sunoco, Inc)

Fighter planes like the Spitfire, Mustang, Thunderbolt, Hurricane, SeaFury, Lightening, Hellcat, and Corsair all ran on 100 octane gas. This allowed the engines that powered them to attain stunning performance. The famous Rolls Merlin began the war producing just over 1,000 horsepower. By the war's end, it was producing 1,600 horsepower. Spitfires could even approach the speed of sound in a shallow dive.

You may have read The Plane That Won the War or, The Best Aircraft Engine of WWII. Underlying it all was the contribution of 100 octane gas by a farsighted Doolittle, who understood the engineering science of airplane engines, and a maverick Frenchman who feared that disaster could befall his country if it relied solely on oil imports.

Their contributions made all the difference in making those planes and engines the legends they became and in ultimately achieving victory in WWII.

This article was originally published in December 2020.

EAA Chapter 323 Est. 1969 Sherman, Texas

The Prevalence Error - Why We Look but Do Not See

By Rod Machado, November 2018, https://rodmachado.com/blogs/learning-to-fly/the-prevalence-error

Looking Good, but Seeing Little

Recently, I was having a difficult time seeing things that were in plain view. I was even thinking about visiting the Our Lady of Fatima Optometry Center, where their motto is, "If we can't correct your vision, at least you can have one."

My problem began with placing a candy bar on the first shelf of the kitchen pantry (I hide my chocolate there because my wife, Princess Buttercup, goes cuckoo for cocoa). A few days later, I went in search of my candy bar. It had (mysteriously) migrated to a lower shelf (apparently, that's where Buttercup hides her chocolate). I never saw it. I see, but eye not see. Despite looking at all three shelves, I simply couldn't see what was clearly there to be seen on the middle shelf.

Fortunately, there's nothing lethal about a candy bar that escapes notice. Calorically, I was better off to not-see and avoid. You can't say the same if you fail to notice a crack in your propeller, nearby airborne traffic, or objects on the runway during landing. Now you understand my concern about the invisible candy bar.

It turned out that my earthly vision was just fine (reading glasses assumed, although I'm officially just two lenses away from being a fly). My inability to find sweet treats stemmed from another cause.

We occasionally fail to notice things that should be noticeable (especially if we kept searching). This happens when our expectations collide with our experience. Who wouldn't expect to see their candy bar where they last placed it? It's as if, failing to see what we expected to see, our mind stops the search prematurely. According Dr. Jeremy Wolf, a Harvard ophthalmology professor, that's precisely what happens. He calls this the prevalence error.

At Harvard's Visual Attention Lab, Wolf and other researchers discovered that when we go in search of things without finding them (because they lack prevalence), we become less likely to find them during future searches when they're actually present. There's a good reason for this error, too. It turns out that you're just plain lazy.

Don't take it personally. This applies to all of us. Our brains are pretty good at minimizing our conscious workload when we fail to find what we're looking for. If we don't see it immediately, we tend to abandon our search quickly or at least don't continue searching with the same intensity. That makes a certain kind of sense, since there's little value in looking persistently for something when it's most likely not there—as long as it isn't a potentially-fatal hazard. Besides, looking is hard work, requiring intense concentration to say nothing of eyeball strain.

This explains why airport baggage screeners can miss important items when X-raying luggage. TSA agents scan for weapons but seldom find them, which makes it less likely that they'll notice one when it's actually there. The issue is especially pertinent now, given that TSA agents are also on the lookout for exploding underwear—otherwise known as Fruit of the Boom. Hotpants are back in fashion.

Do you see how the prevalence error can work against you as a pilot, especially when taking off or landing? Let's say you glance down the runway, looking for aircraft, cars or animals. Because you've found few (if any) intruders in the past, the prevalence error suggests that you're less likely to actually see an antelope interloper when it's actually there. Sure, you might look, but you're also likely to abandon your search a little too quickly.

What's the antidote for the prevalence error? How about doing what police officers do when they're in the roughest of neighborhoods? Treat everybody as a suspect. That's right. The only thing you can do is to be sufficiently suspicious in those areas where the prevalence error might expose you to greater risk. That means treating critical things like your propeller, airborne traffic near airports or even the runway environment with suspicion.

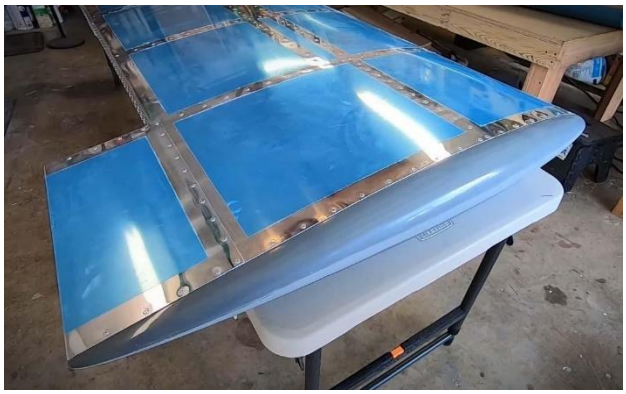
Take the runway example, for instance. Is someone near it? On it? Approaching it? What the heck are they doing there? Call it runway profiling, because as far as you're concerned all runways are assumed to be guilty until proven innocent. After all, they appear with white stripes on a black outfit, and each is identified with numbers. Treating with suspicion those items or events that require careful observation is how you force yourself to not abandon the search too quickly.

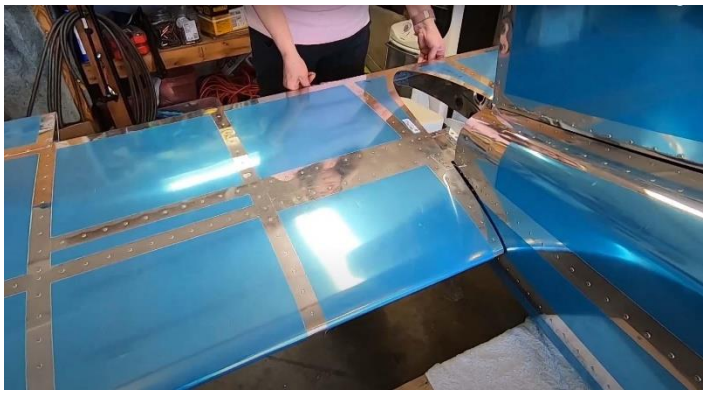
Clearly, the less often we see something, the less likely we are to see it when it's actually there. We're built to give up our searches early when experience suggests that the targets aren't likely to be present. We simply have more important things to do with our brains.

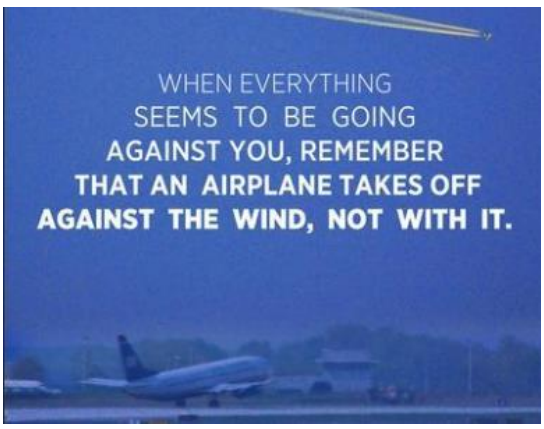
Ultimately, we must force ourselves to spend more time looking where it counts and when it counts. It's a strategy that applies to not only runways but other critical areas associated with flight, where a threat is not often present but can have serious consequences if it is there and not noticed. Now you understand why the TSA folks want to take a peek inside your shoes and shorts. That's where the bombs are. So I'm happy to let them have a look. But only when I'm at the airport, of course.

RV-12iS Parts for Sale

Our friend , Jim"Smitty" Smith, member of 323, 1246 and owner of funplacestofly.com, has an RV-12iS Empennage/Tailcone Kit that he would like sell to make room for the new Van's RV-15. There is more info and videos about this kit at http://smittysrv.com/. There is also a contact form on the website where people can reach him if interested, or they can email him at rv9builder@gmail.com The kit is in his garage in Plano, Texas. Thanks! Blue skies and Tailwinds.







How Does a Magneto Work?

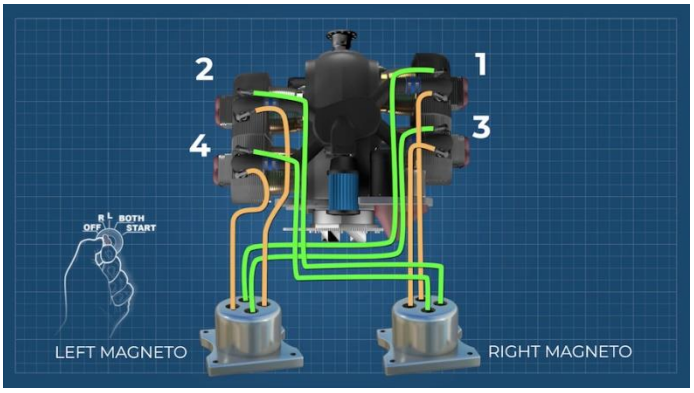
By Pilot Institute, Posted on December 6, 2021, https://pilotinstitute.com/how-do-magnetos-work/

A magneto is a reliable piece of equipment that provides electrical power independent of a battery and is used to power the spark plugs inside a piston engine. Two magnetos are found in a piston engine, with each magneto providing electricity for one of the two spark plugs in each cylinder.

How Does a Magneto Work?

A magneto consists of five primary parts:

- An armature: The armature is a "U" shaped iron bar.
- A primary coil: The primary coil refers to thick wire wrapped around one side of the "U" shaped armature approximately 200 times.
- A secondary coil: The secondary coil refers to thick wire wrapped around the other side of the "U" shaped armature approximately 20,000 times.
- A set of breaker points and a capacitor. The capacitor is used to ensure a faster, more predictable collapse of the magnetic field when the breaker points make contact.
- A pair of strong permanent magnets.



The purpose of the magneto is to generate a high voltage pulse of up to 20,000 volts, sufficient to create the spark required by the spark plugs to ignite the fuel inside a piston.

This high voltage pulse is created by using a pair of strong magnets. A magnetic field is induced in the armature when the magnets pass the U-shaped armature (iron bar). As the magnetic field in the armature reaches its maximum capacity, a switch (breaker point) breaks the flow of current through the primary coil and causes a voltage spike of about 200 volts. The secondary coil amplifies this voltage to around 20,000 volts, and this voltage is routed to the spark plug. The spark plug then creates a tiny spark that is sufficient to ignite the fuel inside the piston.

The timing of the magneto is controlled by a cam that is connected to the crankshaft. This cam opens and closes the breaker points as needed.

Advantages of a Magneto
The magneto boasts many advantages when compared to a battery-based ignition system.

The first advantage of a magneto system is its reliability. Because the system is entirely self-contained, it does not rely on any external system such as a battery to function. This makes it perfect for use in aircraft, as an electrical failure will not cause an engine failure. This feature is less critical in a car, for example, where a vehicle can simply come to a stop, but crucial in an aircraft, where an engine failure could cause serious harm.

A magneto, and the modern versions in particular, are very compact and relatively light. The modern magneto is constructed using cobalt steel and nickel aluminum magnet metals that are lighter than traditional iron and steel.

Disadvantages of a Magneto
While the magneto ignition system is undoubtedly useful, it does not come without its disadvantages.
Firstly, battery ignition systems can be used to provide a better spark to the spark plugs when starting the engine. While modern magneto systems compensate for this by using electronic starters or impulse couplings, the magneto itself cannot provide a more efficient voltage to the spark plugs when starting the engine.

Secondly, the magneto is an expensive system and is therefore only used in specific applications, such as aviation, where its reliability and independence of other systems is required.

Another disadvantage is the maintenance required by the magneto system. Because the system is so carefully designed and compact, it is difficult to maintain and often cannot be repaired when damaged.

What Causes a Magneto to Fail?
The magneto is very reliable but, like any system, it can fail.

The most common cause of a magneto failure is due to engine oil or other fluid that manages to enter the magneto. Oil seals can deteriorate with age and cause leakage, which is a common culprit.

Another common magneto issue is when arcing occurs at the breaker points and causes them to erode. This erosion leads to an unstable magnetic field collapse when the breaker points make contact and causes a smaller voltage spike.

Conclusion
Understanding how the magneto system works is crucial to understanding how an aircraft piston engine functions. While the magneto is a critical component, it is only one part of the aircraft's ignition system and the aircraft's engine itself. Use your knowledge of the magneto system to learn about the aircraft's ignition system. Common issues, particularly during start, become significantly easier to diagnose when you understand the aircraft's ignition system.

Aviation Words – "Airspeed Vs Groundspeed"

By: Patrick J. Kiger, https://science.howstuffworks.com/transport/flight/modern/airplanes.htm

What's the Difference Between Airspeed and Ground Speed? Airspeed and ground speed are completely different when it comes to determining how fast an airplane flies.

Back in February 2019, a Virgin Atlantic Boeing 787 jet flying over Pennsylvania in route from Los Angeles to London reached what might seem like an amazing speed of 801 miles per hour (1,289 kilometers per hour), according to CBS News.

But the speed record wasn't because that Virgin Atlantic aircraft itself was exceptionally fast. Like a sprinter running with the wind at his back, the aircraft benefited from an exceptionally fast jet stream, a high-speed wind moving at 231 miles per hour (371.7 kilometers per hour). It was the fastest jet stream in more than 60 years.

As CBS News explained, the result was that the 787 flew considerably faster than the aircraft's typical cruising speed of 561 miles per hour (902.8 kilometers per hour).

Therein lies the difference between airspeed and ground speed.

As this explainer on the NASA website details, ground speed is how fast an airplane is traveling, relative to a fixed point on the ground. Think of it this way: Ground speed is how fast an airplane's shadow would move across the land. If there's a strong wind pushing an aircraft, that's reflected in the ground speed.

Airspeed, in contrast, is how fast an airplane is really flying strictly under its own power, which is calculated by subtracting the wind speed from the ground speed. NASA explains:

On a perfectly still day, the airspeed is equal to the ground speed. But if the wind is blowing in the same direction that the aircraft is moving, the airspeed will be less than the ground speed.

Airspeed doesn't just affect airplanes. It also affects our vehicles on the ground. As this study published in 2013 in the International Journal of Energy and Environmental Engineering describes, a car's airspeed on the highway is what really determines its fuel efficiency, rather than ground speed or the speedometer reading.

Now That's Interesting

As NASA points out, a kite has a ground speed of 0 miles per hour, because you're holding it on the end of a string. But since it moves in the air, it has an airspeed that's equal to the speed of the wind.

Aircraft of the Month: Rutan VariEze

https://en.wikipedia.org/wiki/Rutan_VariEze#:~:text=The%20Rutan%20VariEze%20is%20a%20composite%2C%20canard%20aircraft,the%20Long-EZ%20and%20other%2C%20larger%20cabin%20canard%20aircraft.

The **Rutan VariEze** is a composite, canard aircraft designed by Burt Rutan. It is a high-performance homebuilt aircraft, hundreds of which have been constructed. The design later evolved into the Long-EZ and other, larger cabin canard aircraft. The VariEze is notable for popularizing the canard configuration and moldless glass cloth composite construction for homebuilt aircraft.

Specifications: Rutan VariEze

General characteristics
Crew: 1
Capacity: 1 passenger
Length: 14 ft 2 in (4.27 m)
Wingspan: 22 ft 2.5 in (6.77 m)
Wing area: 53.6 sq ft (4.98 m2)
Empty weight: 580 lb (263 kg)
Max takeoff weight: 1,050 lb (476 kg)
Fuel capacity: 24 US Gal (91 L)
Powerplant: 1 × Continental O-200-B air-cooled flat-four engine, 100 hp (75 kW)

Performance
Maximum speed: 195 mph (314 km/h, 169 kn) (max cruise)
Cruise speed: 165 mph (266 km/h, 143 kn) (econ cruise)
Stall speed: 55.5 mph (89.3 km/h, 48.2 kn)
Range: 850 mi (1,370 km, 740 nmi) at econ cruise
Rate of climb: 1,600 ft/min (8.1 m/s)

Work on the VariEze design, which grew out of Rutan's experience designing and building the VariViggen, began in 1974. The first prototype, designated Model 31 and registered N7EZ, first flew on May 21, 1975, after four months of construction. This aircraft used a Volkswagen engine conversion. Three months later it was shown at Oshkosh where Dick Rutan piloted it to an under 500 kg class distance record of 1,638 miles (2,636 km). Rutan believed that by engaging in a program of breaking class records he could further fine-tune the design.

The aircraft was so popular at Oshkosh that Rutan redesigned the aircraft so that it could be sold as a set of plans. A second prototype, the Model 33, N4EZ, built using a larger wing, a Continental O-200 engine, and many other detail changes, was shown at Oshkosh in July 1976 and plans were offered for sale. Approximately 2000 aircraft were under construction by 1980, with about 300 flying by late 1980. Ultimately more VariEzes and Long-EZs (a derivative, slightly larger design) were constructed than any other homebuilt type of the time. The sale of plans ceased in 1985.

Rutan's stated goals for the design included reduced susceptibility to departure/spin and efficient long range cruise; these goals were achieved. The use of a canard configuration allowed a stall-resistant design, at the price of somewhat increased takeoff and landing speeds and distances relative to a similar conventional design with effective flaps. The holder of the CAFE Challenge aircraft efficiency prize briefly was Gary Hertzler, set using a VariEze.

The prototypes flew originally with elevons on the canard for both pitch and roll control but the design was changed to pitch control with the canard elevators and roll control with mid span wing ailerons after a few aircraft were built.

While the airplane was resistant to pitch departures, a few builders discovered a potential for a novel lateral departure mode resulting from one winglet stalling at large sideslip angles. An outer wing leading edge droop (and later vortilons on some examples) was added to alleviate this problem and rudder travel was reduced.

The design's stall resistance did not appear to translate to a lower accident rate than for other homebuilts; a review of the NTSB database from 1976 to 2005 shows 130 total accidents and 46 fatal accidents out of a fleet of about 800 (691 registered in 2005). Precise comparisons are difficult, however, because of the haphazard nature of data collection and analysis for accidents involving homebuilt airplanes.

The VariEze is subject to a 2.5g positive, 1.5g negative, maximum load factor limit applied after the discovery of problems with some VariEze wings.

In lieu of a parking brake, the nosewheel retracts and the nose rests on the ground. Referred to as kneeling, this eases access to the cockpit. Resting the nose on the ground also prevents the plane from tipping onto its rear when the pilot's seat is unoccupied.

SCALED COMPOSITES

EAA Chapter 323 Est. 1969 Sherman, Texas

Cedar Mills Happenings – August 2023

By Kris Worstell

Answers to the Quiz on Page 14 and 15

1) Class G is uncontrolled airspace.

2) The magenta shaded ring means Class E airspace starts at 700 feet AGL. What's below it? Class G.

3) Regardless of your MSL altitude, as long as you're 1,200 feet AGL and lower, your daytime vis requirement is 1 SM.

4) In this case, the visibility requirement bumps up to 3 SM.

5) Since you're below 10,000' MSL, you're limited to 250 knots.

6) Since you're above 1,200' AGL, but below 10,000 feet MSL, you need to stay 500 feet below the clouds.

Builder's Corner Updates:

By Ed Griggs

If you are currently building an aircraft or doing any restoration work and want to be included in Builders Corner, we would like to hear from you. Email your updates and pics to Ed Griggs at a_model_guy@ymail.com. Thanks!

Supporting Our Community, Shop Local, Shop Texoma:

By Kim and Todd Bass

Shopping locally is crucial to our community. By supporting local businesses, in turn, you are helping your economy and community thrive. Every local retailer is one of our neighbors. Looking for ways to buy local shows our neighbors that we believe our community is worth investing in.

Small businesses are the largest employers nationally. Small, locally owned businesses account for 44% of the US economy. In 2019, small business Saturday generated $19.6 billion in revenue. When you shop locally more money is kept in the community because locally owned businesses often purchase from other local businesses. Shopping and buying locally is a win-win for you, for small businesses and for our community as a whole.

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EAA Webinars Schedule:

https://www.eaa.org/eaa/news-and-publications/eaa-webinars

These live multimedia presentations are informative and interactive, allowing the presenter to use slides and audio, while audience members can ask questions and be polled for their opinion. Pre-registration is recommended since space is limited to the first 1,000 registrants.

8/16/23 @ 7p.m. **Subject: Vintage Aircraft Parts Substitution**
Presenter: Tom Charpentier **Qualifies for FAA WINGS and AMT credit.**

The EAA government advocacy team gives a briefing on the various FAA policies used to keep vintage aircraft in the air, including the FAA's new Vintage Aircraft Replacement and Modification Article (VARMA) program.

8/23/23 @ 7p.m. **Subject: Swift Fuels Unleaded Avgas**
Presenter: Chris D'Acosta **Qualifies for FAA WINGS and AMT credit.**

Chris D'Acosta, Swift Fuels CEO, will discuss current and future Swift Fuels plans for the transition to an unleaded fuel for piston aircraft. Chris will share what's happening with their high-octane 100R unleaded avgas product and their premium UL94 unleaded avgas.

9/6/23 @ 7p.m. **Subject: Legal Interpretations**
Presenter: Mike Busch **Qualifies for FAA WINGS and AMT credit.**

We all love the FARs, right? Those regulations are written and maintained by a large team of FAA lawyers who work for the FAA Office of Chief Counsel. If you have a question about the meaning of a particular rule, you can request a "legal interpretation" and usually the responsible FAA attorney will draft one for you. More than 1,000 of these legal interpretations can be found online. Some are quite surprising and counterintuitive, and some significantly alter what most of us thought the regulations mean. In this webinar, Mike Busch, A&P/IA, reviews some of the most interesting, surprising, and significant ones that pertain to aircraft maintenance.

9/12/23 @ 7p.m. **Subject: The Sikorsky S-38**
Presenter: Chris Henry **Museum Webinars Series**

The S-38 was one of the first airplanes to show what a business can gain from using an aircraft in its inventory. One of these companies is local to Oshkosh and we will discuss that history.

9/13/23 @ 7p.m. **Subject: Dealbreakers - Lessons Learned from Prebuy Examinations**
Presenter: Prof. H. Paul Shuch **Qualifies for FAA WINGS and AMT credit.**

Over the past decade, Prof. H. Paul Shuch has performed several dozen preflight examinations of used light sport and experimental aircraft. In this FAA Safety Team WINGS and AMT award qualifying webinar, he shares flaws found, lessons learned, and new insights he has gained into when to walk away.

9/20/23 @ 7p.m. **Subject: IAC Aerobatic Center Highlights from AirVenture 2023**
Presenter: Lorrie Penner

Sport Aerobatics editor, Lorrie Penner will share photos of arriving aerobatic aircraft, and other fun experiences from around the IAC Aerobatic Center during AirVenture 2023.

Quick WINGS Log In

https://www.faasafety.gov/WINGS/pub/learn_more.aspx

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EAA Chapter 323 Est. 1969 Sherman, Texas

Upcoming Events:

Thursday, Aug 17	EAA 323 Monthly Gathering at the Sherman Municipal Airport (SWI), 1200 South Dewey, Sherman, TX @ 7:00pm Subject: Oshkosh Experiences with Ed Griggs
Saturday, Aug 19	Texoma Aero Club Monthly Gathering and Pancake Breakfast North Texas Regional Airport (KGYI) @ Executive Hangar (just north of the Control Tower) VMC Club Meet and Presentation (to follow the TAC Monthly gathering) Subject: "A Full-Throttle Approach"
Saturday, Sep 09	EAA 323 First Saturday Event: Flyout to Sulphur Springs, have Breakfast/Lunch at the Red Barn Inn EAA Chapter 661 (Denton) to host a Young Eagles Event. Pilots and Planes are needed and welcomed!
Saturday, Sep 15	Texoma Aero Club Monthly Gathering and Pancake Breakfast North Texas Regional Airport (KGYI) @ Executive Hangar (just north of the Control Tower) VMC Club Meet and Presentation (to follow the TAC Monthly gathering) Subject: "Getting Down in the UP"
Thursday, Sep 21	EAA 323 Monthly Gathering at the Sherman Municipal Airport (SWI), 1200 South Dewey, Sherman, TX @ 7:00pm Subject: GA Jeopardy with Mike Montefusco
Saturday, Oct 7	EAA 323 First Saturday Event: Brushy Creek Flyin

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High Flight

Oh, I have slipped the surly bonds of earth
And danced the skies on laughter-silvered wings;
Sunward I've climbed, and joined the tumbling mirth
Of sun-split clouds . . . and done a hundred things
You have not dreamed of . . . wheeled and soared and swung
High in the sunlit silence. Hov'ring there,
I've chased the shouting wind along, and flung
My eager craft through footless halls of air.
Up, up the long, delirious, burning blue
I've topped the windswept heights with easy grace
Where never lark, or even eagle flew.
And, while the silent, lifting mind I've trod
The high untrespassed sanctity of space
Put out my hand, and touched the face of God.

John Gillespie Magee Jr., R.C.A.F.
(killed in in WWII)

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