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FLYING SERVICE

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Contents

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ON THE COVER: A 1972 7GCBC Bellanca Scout gently lifts off from a frozen Minnesota lake. The aircraft is owned by Matthew Knochenmus of Corcoran, Minnesota.
Brad Thornberg Photo

HEADLINES

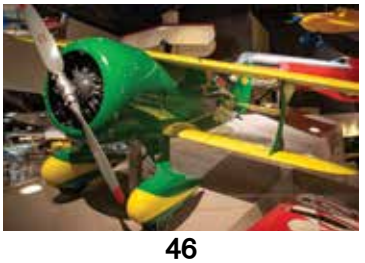
COLUMNS

FEATURES

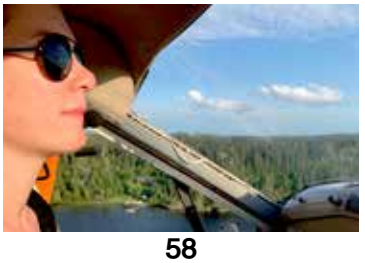
SECTIONS

31

36



46



58

MidwestFlyer.com

by Dave Weiman

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If you are involved with organizing a fly-in in 2020, please email me your fly-in dates at **dave@midwestflyer.com**, or go to the **"Calendar"** page at **www.MidwestFlyer.com** and complete and submit the online form. Here's a direct link to that form: **https://midwestflyer.com/?page_id=834**. When you submit your fly-in date, it will be published in the magazine AND posted at **MidwestFlyer.com**. Never again will you be caught at the airport without the print copy of the magazine, scrambling to find a fly-in breakfast or lunch to go to. Just pull out your smart phone and find the fly-in closest to you, before you takeoff.

Current News

For the latest in current news, go to the home page at **www.MidwestFlyer.com** and on the left-hand side is a section called *"Current News."* Click on the article that interests you. Due to space limitations in the print version of the magazine, not all current news items get published, so this is one way to get news when it is news!

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October 15	December - January
December 15	February - March
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June 15	August - September
August 15	October - November

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9th Annual MINNESOTA Aviation Day At The Capitol

The aviation community will come together at the Minnesota State Capitol to visit with their state senators and representatives to explain the importance of Minnesota aviation and local airports to their constituents and to their communities.

Everyone involved in Minnesota aviation, who understands the importance of our airports, is encouraged to attend.

7:00 a.m.	Kick-Off - St. Paul Downtown Airport - Holman Terminal
7:15 a.m.	Aviation Issues Update at Holman Terminal
9:00 a.m.	Shuttles from Holman Terminal to Capitol
9:30 a.m	Meetings with Legislators Begin at Capitol
2:00 p.m.	Conference Meeting with Legislator at Capitol
3:30 p.m.	Shuttles from Capitol back to Holman Terminal
4:30 p.m.	Social & Hors d'oeuvres at Holman Terminal

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What Happens To Your Medical Certificate Application After The Examination?

by Greg Reigel, Esq.

Greg Reigel

If you have ever applied for an FAA medical certificate, you know the first step is to complete your application online at MedExpress. Next, you schedule and submit to a physical examination with an FAA aviation medical examiner ("AME"). At that point though, the process isn't necessarily the same for all applicants. For about 96% of the applicants (in 2018), the AME issued the applicant a medical certificate. The other 4% of applicants in 2018 had their applications deferred by the AME to the FAA's Office of Aerospace Medicine in Oklahoma City.

So, what happens to airmen medical applications once the examination is completed and the AME has either issued or deferred?

The AME sends the applications to the FAA's Aerospace Medical Certification Division ("AMCD") in Oklahoma City for review/processing. And if the certificate was deferred, it is at that point that the airman may feel like his or her application has disappeared into a bureaucratic abyss.

At AMCD, the FAA's Document Imaging Workflow System ("DIWS") processes airmen medical applications it receives and then it prioritizes those applications for review. Applications where the AME denied the certificate, deferred the application or issued a special issuance certificate are considered priority applications, as are the first and second-class medical certificate applications for airmen who will presumably be using the certificate to earn a living.

Applications where the AME issued the certificate are non-priority applications. Not surprisingly, the FAA processes priority applications before non-priority applications. But it is important to keep in mind that when the FAA receives the applications, whether deferred or issued, it has the authority to change an AME's decision to defer or issue a medical certificate.

If a certificate was issued, the application is reviewed by DIWS to confirm that no errors were made in issuing the certificate. DIWS uses a long list of "critical reject codes" based upon the questions in Section 18v of the application and any disclosed medications to identify whether the certificate may have been improperly issued. If errors are detected, the application is referred to a "legal instrument examiner" (the "Examiner").

When an application is deferred or when an error in the application for an issued certificate is detected, an Examiner is notified. If hard-copy medical records are submitted to the FAA in connection with an application, whether issued or deferred, the records are scanned and forwarded to an Examiner. The Examiner then reviews the application, supporting documentation/medical records, as well as any previous medical issues in the applicant's medical to determine whether the case is decision ready.

How does the Examiner decide what happens with the application?

By following the regulations in 14 C.F.R. Part 67, referring to the FAA's internal guidance, including the FAA's Medical Certification Manual, and consulting with FAA physicians/consultants when necessary.

If the Examiner determines that the case is not decision ready, then the Examiner may send correspondence to the applicant requesting additional information. This could include a request for medical records, court or police records, or additional testing or evaluation. Alternatively, a review by the FAA's physicians/consultants may be necessary in order to decide the case.

Unfortunately, both situations delay the FAA's processing of the application. Requesting additional information takes time and may result in back and forth correspondence between the airman and AMCD, especially if the applicant does not provide a complete submission when he or she responds to the first request. Also, the FAA currently has a back-log of cases requiring physician/consultant review.

Once the case is to a point where the Examiner is authorized to decide what to do about the application, the Examiner will then send the applicant correspondence indicating the FAA's decision. If the Examiner determines that no disqualifying conditions are present, the application where a certificate was issued is filed electronically in DIWS.

Where the application was deferred, the Examiner will issue a denial of the application if the Examiner has determined that the airman does not qualify for a certificate. If the Examiner has determined that the airman is qualified to hold a certificate, the Examiner will issue either an

unrestricted or a special issuance medical certificate, as appropriate.

National Driver Register

Applicants should also be aware that the FAA checks the National Driver Register each time an airman's application for medical certificate is sent to AMCD. If the search reveals a drug or alcohol related motor vehicle action, an FAA investigator will contact the state motor vehicle agency to request the applicant's driving record. Depending upon the circumstances, an applicant's failure to properly report an offense, either on the application or per 14 C.F.R. 61.15(e), could result in certificate action against the applicant's airman or medical certificate.

Conclusion

The FAA's processing of applications for medical certificates doesn't stop when the AME's examination is complete. For airmen who are issued certificates, which are most applicants, the subsequent processing may be invisible. For airmen whose applications are deferred to AMCD or whose applications are flagged by DIWS, the process can be difficult, frustrating, time-consuming and sometimes expensive.

In those cases where AMCD requests additional documentation, it is important, to the extent that you are able, to give AMCD all the information it requests in connection with the application. Incomplete submissions will delay processing of the application.

Also, in many cases it may be more effective to engage your AME to communicate with AMCD directly to save you having to navigate the FAA's phone-system trying to find a real person with whom you can discuss your case. And the right AME can sometimes help an airman cut through some of the red-tape. In the end, if you find yourself in a situation where your application has been deferred or flagged, more than an ounce of patience will be required.

EDITOR'S NOTE: Greg Reigel is an attorney with Shackelford, Melton, McKinley & Norton, LLP, and represents clients throughout the country in aviation and business law matters. For assistance, call 214-780-1482, email greigel@shackelford.law, or Twitter @ReigelLaw. website: www.shackelford.law ❑

Back To "By The Numbers Basics" & Autopilot Interface

by Capt. Michael J. "Mick" Kaufman

Michael Kaufman

In previous issues of *Midwest Flyer Magazine,* I have been emphasizing keeping current on the gauges for the day the autopilot does crazy things or just plainly quits. The pilot now takes control of the airplane and, hopefully, he/she has a plan. There is so much we can learn from "George" the autopilot. If we know the numbers we used on the autopilot and they are good ones, we should be able to fly the airplane.

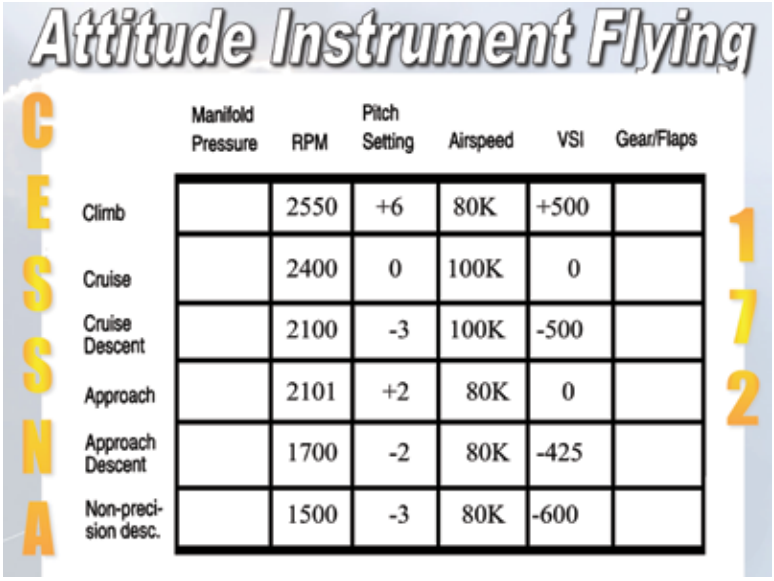
When I teach a new instrument pilot from scratch, two of the early basics are 1) getting a good scan and 2) developing a set of numbers that will work for the airplane he/she is flying. Once the "By The Numbers" concept is learned, it is easy to transition to another aircraft if someone else has documented them for you.

My transition to the Cessna 402 was a piece of cake because the instructor that was checking me out was a by-the-numbers guy and had documented what they were. If you are paving the way without any documentation, I will give you some hints to follow as part of this article, but first, let's review the six (6) configurations of flight:

1. Takeoff and Initial Climb: This is usually done with full power for most piston-powered aircraft or pre-determined power or torque setting if the aircraft is a turbine. There is also a pitch attitude and an associated airspeed we need to work with. Depending on the airplane, we may continue in this configuration or go to a cruise climb power configuration.

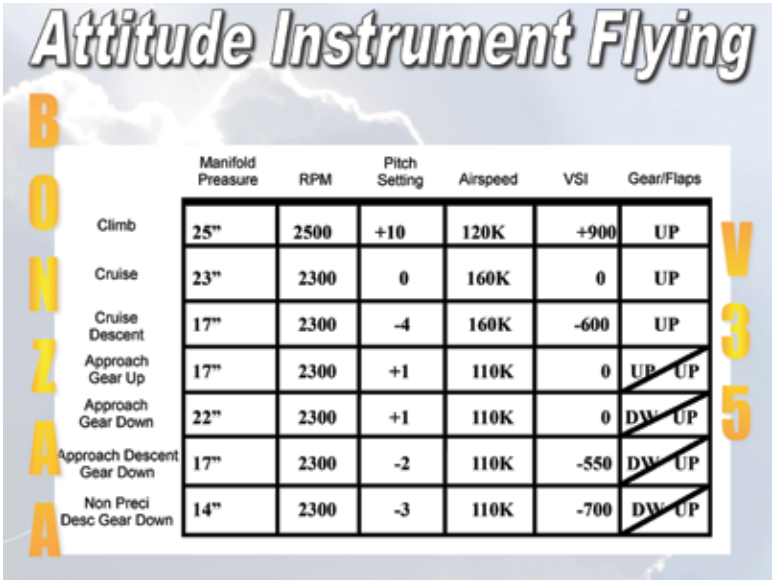
2. Cruise Climb configuration may be the same as takeoff climb or is reduced depending on the aircraft, engine and propeller. In a high-performance, piston-engine aircraft, I now climb at full power to 5,000 feet with a rich mixture, but reduce propeller RPM for noise abatement if I can do that safely. I use pitch as primary when climbing, but know this must change as altitude is gained in a normally aspirated engine or airspeed will be reduced. Engine cooling, cowl flaps (if equipped) is a factor, and don't forget to reduce drag, gear and flaps, which I see pilots forget quite often on missed approaches.

3. Cruise Configuration depends on the power setting the pilot chooses to use considering the circumstances of the flight. Most of the time we try to get best fuel economy, which will be



	Manifold Pressure	RPM	Pitch Setting	Airspeed	VSI	Gear/Flaps
Climb		2550	+6	80K	+500	
Cruise		2400	0	100K	0	
Cruise Descent		2100	-3	100K	-500	
Approach		2101	+2	80K	0	
Approach Descent		1700	-2	80K	-425	
Non-precision desc.		1500	-3	80K	-600	

A sample "By-The-Numbers Worksheet" for a Cessna 172.



	Manifold Preasure	RPM	Pitch Setting	Airspeed	VSI	Gear/Flaps
Climb	25"	2500	+10	120K	+900	UP
Cruise	23"	2300	0	160K	0	UP
Cruise Descent	17"	2300	-4	160K	-600	UP
Approach Gear Up	17"	2300	+1	110K	0	UP UP
Approach Gear Down	22"	2300	+1	110K	0	DW UP
Approach Descent Gear Down	17"	2300	-2	110K	-550	DW UP
Non Preci Desc Gear Down	14"	2300	-3	110K	-700	DW UP

A sample "By-The-Numbers Worksheet" for a Beechcraft Bonanza V35.

discussed in more detail later. The mistake most pilots make when configuring to level cruise from climb is priorities. Here we set pitch for cruise, allow the airspeed to accelerate, make power reduction if necessary, trim the airplane, get established on course if not done previously, and then last, fine tune power and fuel flows.

I have chosen to discuss trim at this time in my article, but it applies in every one of our configurations. Trim is one of the most misunderstood and misused concepts of flight. Many pilots believe they need to trim to hold altitude, and I find their hand on the trim wheel or their finger on the trim button constantly, only to find they can never hold altitude with trim.

Think of it this way, and learn from your autopilot, you TRIM FOR AIRSPEED AND CONFIGURATION. Watch your autopilot in altitude hold mode; it uses elevator pitch to hold altitude and only on rare occasion does the electric trim operate, which is mostly for when an airspeed, power or configuration change is made.

4. Cruise Descent is used when a change to a lower altitude needs to be made. This is usually when we are approaching our destination, and the altitude for maneuvering for the approach is lower. Here, I reduce the power and turn off the altitude hold on the autopilot. When we mentioned trim in cruise configuration above, we said that we trim for airspeed; so, in cruise descent, the airspeed should be close to the same as in cruise. Depending on the aircraft, only a small trim change should be needed in the cruise descent.

5. Approach Level Configuration should be used once we reach the altitude where we will begin to maneuver for the approach. In some aircraft, all that is necessary is a pitch change from the cruise descent for the aircraft to stop losing altitude. We know the airspeed is going to change, so a trim change will definitely be needed. For some aircraft, the use of approach flaps will give you a more comfortable pitch and airspeed configuration. Most aircraft will have a sweet spot where everything seems to work better. Don't ignore what the airplane is trying to tell you here, as approaches are much easier for the pilot when the airplane is happy.

6. Precision Approach Configuration is used whenever there is vertical guidance for the final approach portion of the flight. It works well if you use the same airspeed as you had in the approach level configuration with only a power or drag configuration change. If you work to find these numbers, there will be very little trim change as we trim for airspeed. If you are flying a piston aircraft, you should remember to make a small power reduction during the descent to the airport. This is because the aircraft engine produces more power at lower altitudes. I personally do not make any configuration change once the configuration for the approach is initially made and the approach is stable.

When I am flying my Bonanza, I lower the landing gear slightly before the glide-slope needle centers, which gives me an almost perfect rate of descent for a three-degree glide-slope. I make no other drag or power changes except for a power reduction as mentioned above and go full flaps once visual and the landing is assured. It is worth mentioning that it may be necessary to make a power adjustment to compensate for wind, which affects groundspeed on our three-degree descent profile

7. Non-Precision Approach Configuration is still important, though with the advent of RNAV/GPS approaches, I have found we don't do them very often. These are approaches with no vertical guidance and should be flown similar to the precision approach above as far as the numbers go speed-wise. Where we differ here is that descent begins at the final approach fix (FAF), rather than glideslope intercept. The rate of descent should be greater than with a glideslope with the idea to get to the minimum descent altitude early, level off and fly to the missed approach point. An important notation here is that you do not execute a missed approach when reaching the minimum descent altitude (MDA), but fly to the missed approach point (MAP) without going below the minimum descent altitude. Number 5 above is the approach level configuration and would be the configuration to use, but remember your drag from an extended landing gear or approach flaps may cause an airspeed drop when reaching this level-off altitude, so additional power will be required to prevent an inadvertent stall. In my Bonanza, it takes five additional inches of manifold to compensate for landing gear drag when leveling off.

In training for an instrument rating, there are six configurations to work with excluding the takeoff and initial climb, which I labeled as number one. If you have not used this concept during your training or are working on an instrument rating, I urge you to be patient and fine tune these numbers. Refer to the by-the-numbers worksheet ***(FIG 1)***. I would recommend trying to keep the worksheet simple, so it is easier to memorize.

	Manifold Preasure	RPM	Pitch Setting	Airspeed	VSI	Gear/Flaps
Climb						
Cruise						
Cruise Descent						
Approach Gear Up						
Approach Gear Down						
Approach Descent Gear Down						
Non Preci Desc Gear Down						

The speed at which you do a precision approach and configuration is extremely important. Some aircraft need approach flaps; some do not. If you have retractable landing gear, lowering it may be all you need to get the proper descent on the glideslope when transitioning from approach level configuration. In a fixed-gear airplane, a power reduction is necessary. If you have a constant speed propeller, you may want to increase propeller RPM to simplify things if a missed approach becomes necessary. If you have a multi-engine airplane, you will have to draw a different set of numbers for a single-engine approach. Many pilots draw the conclusion that a slower approach is better as minimums may be lower for slower approaches, only to find that the airplane does not fly the approach well at that airspeed.

Consider workload on the approach if there is turbulence. I like to use a speed that allows me to correct updrafts and downdrafts without having to make power adjustments, and stay within a practical airspeed for the airplane being flown.

Watch your autopilot fly the approach once on the glideslope. Pitch remains relatively constant (3 degrees), but airspeed may vary quite a bit in turbulence. In all but extreme circumstances, the electric trim will activate. If you have the correct sweet spot speed for that particular aircraft, the pilot workload is greatly reduced.

Keep in mind that not flying the numbers you have for your aircraft may create a difficult situation as when air traffic control (ATC) asks you to keep your speed up or slow down for traffic behind you or in front of you. Sometimes, there are aircraft speed restrictions, such as MAX landing gear down speed.

Many years ago, while on a low approach in bad weather in a Cessna 310 going into Richmond, Virginia, ATC asked me to keep the speed up, but the 310 had a low gear down speed. After being cleared to land on a very short final, the tower asked for a go-around. I complied, but wished I had not as it was another 45 minutes later after being vectored in bad weather that I finally landed. Remember this word, "UNABLE."

During recurrent training, I often see pilots grabbing for straws having forgotten the "BY THE NUMBERS" concept. The approaches are haphazard, and the workload is high. These hand-flown approaches are so easy. Get training and become comfortable during those low approaches.

Autopilot Misbehavior

Again, I had the opportunity to see an autopilot misbehave during a recent training flight. Please, if you see your autopilot confuse you, don't think you are

a bad pilot, but get some professional instruction. It may be an autopilot fluke or improper installation or interface by your avionics shop. Don't call your shop a bad shop, as these equipment installations can be very complicated, and interfacing different manufacturers' equipment can be a challenge.

A recent training flight with a pilot customer had both of us confused, as sometimes the autopilot would capture the glideslope, and sometimes it would not. We spent several hours trying different techniques and making changes on each consecutive approach and analyzing the results. The conclusion was we could not push the approach button on the autopilot until the glideslope needle was actively visible on the HSI. If we pushed it before we got a visible needle on an RNAV/GPS approach, the glideslope would not couple. This was a case of a shop replacing a Garmin 530 NON-WAAS box with an Avidyne IFD540. After a call to my friend, Bill, who is an avionics "Jedi," we found that an additional wire should have been added during installation to alleviate this problem. Once the pilot was aware of the buttonology to make this work, it was no longer a problem.

Thanks for being a reader of *Midwest Flyer Magazine* and have a safe year of flying in 2020.

EDITOR'S NOTE: Michael J. "Mick" Kaufman is a Certified Instrument Flight Instructor (CFII) and the program manager of flight operations with the "Bonanza/Baron Pilot Training" organization. Kaufman conducts pilot clinics and specialized instruction throughout the U.S. in a variety of aircraft, which are equipped with a variety of avionics, although he is based in Lone Rock (KLNR) and Eagle River (KEGV), Wisconsin. Kaufman was named "FAA's Safety Team Representative of the Year" for Wisconsin in 2008. Email questions to captmick@me.com or call 817-988-0174.

DISCLAIMER: The information contained in this column is the expressed opinion of the author only, and readers are advised to seek the advice of their personal flight instructor and others, and refer to the Federal Aviation Regulations, FAA Aeronautical Information Manual and instructional materials before attempting any procedures discussed herein. ❑

Response To Pilot Proficiency Article

December 2019/January 2020

READER FEEDBACK:

"The New Rules For Instrument Currency"
Article (Dec 2019/Jan 2020 MFM)

Dear Mr. Green:

Loved your article on the new wording for "instrument currency." In your fourth to last paragraph, you say:

"There is one item that is still puzzling. The portion of the regulation that states that a person may act as pilot-in-command under IFR or weather conditions less than the minimum prescribed for VFR. Why does the regulation say IFR or weather conditions?"

I believe the answer to be that a PIC (pilot-in-command) can't file IFR if he/she isn't current. That's why the differentiation between IFR and weather. Instrument Flight Rules (IFR) is different than Instrument Meteorological Conditions (IMC). So, basically, you can't fly in conditions less than VFR or fly on an IFR flight plan unless those other conditions are met.

Curious if you think that's correct?

Thanks again for the great article. I'm a CFII, but not actively instructing as I'm a full-time charter captain in the King Air 90 and was unaware of this regulation change!

Thanks again!

Jesse Kaufman
Wakefield, Nebraska

Dear Jesse:

Thanks first for taking the time to read the article, and second, thanks for your response. I see no reason to argue with your interpretation and believe it to be a correct observation.

Harold Green
CFII & Columnist
"Pilot Proficiency"
Midwest Flyer Magazine

Thoughts On Engine Failure During Takeoff

by Harold Green


Harold Green

In 2019, a Boeing B-17 Flying Fortress crashed, apparently after attempting to return to the airport following an engine failure on takeoff. That brings up the question – when and how should a pilot attempt to return to the runway after an engine failure on takeoff?

This article will in no way attempt to analyze the cause of that B-17 accident. That plane was flown by an experienced pilot, presumably had three more good engines and was lightly loaded. In other words, it would be presumptuous to even attempt to reach a tentative conclusion as to the cause of that accident. Rather, we will attempt to examine the general situation of engine loss on takeoff and the appropriate action in those circumstances.

The latest NALL report (AOPA Safety Foundation) indicates that accidents on takeoff are the second leading cause of light airplane accidents. For the report period, there were 121 total accidents of which 24 were fatal.

The NALL report delineates several factors leading to the accidents, but this discussion will consider only the planning, flight and operational aspects because if accomplished properly, all causes will be covered as well.

Loss of Control, Stalled or Settled on Takeoff, and Weight/Density Altitude factors in accidents caused the reported fatalities. One additional fatality resulted when the aircraft "Collided With (An) Object." This latter factor will not be addressed herein.

First, remember that the most important element in any emergency – and an engine loss on takeoff certainly is an emergency – is that the key to survival is "aircraft control." Loss of control when airborne, or more accurately when airborne ceases to be, is virtually guaranteed to kill you. Therefore, it is imperative to maintain control even as the plane is going down. That means in this case picking the best spot, and maybe the best spot is the least bad one, and flying to that point, rather than stalling out of control into a random location. This requires the pilot to maintain professional calm while choosing the least bad course of action. Two key elements to successfully accomplishing this

are “planning” and “acceptance.”

Consider two basic situations: Before and after liftoff. In both cases, planning involves deciding in advance what is the best course of action if power is lost at various stages of the takeoff. Obviously, before takeoff is the best time to plan. So, consider the takeoff portion first.

Before takeoff, a reasonable attitude is to assume that the takeoff will be a failure. With this in mind, step one is to figure out how far down the runway the takeoff can be aborted and still stop on the runway. Pick a marker of some kind and convince yourself that if you are not airborne by that point, you will abort the takeoff. Then, if the plane is not airborne by that point, the proper action is to stop the airplane. Just assume that is going to happen so that when it doesn't, you are pleasantly surprised. In the case of a totally failed engine, the situation is obvious. In the case of an engine(s) running with reduced power, perhaps not detectable except by the fact of low RPM or manifold pressure, the key is to accept the situation and abort. It is better to be on the ramp wondering if you should have aborted the takeoff, than to be in the wreckage with your survivors wishing you had. Because of the single-engine performance of most light twins, it becomes even more important than it is with a single-engine aircraft, simply because loss of an engine in a single-engine aircraft does not tend to flip you on your back, whereas the twin at slow airspeed often becomes uncontrollable on one engine. Even if your skills and the terrain are such that you can fly it off, the performance is marginal at best and your skills may not be up to the task. This is borne out by the fact that the NALL report indicates that while multi-engine takeoff accidents were only 7.4% of total accidents, the fatality rate was the highest of all with 44.4% resulting in fatalities. By comparison, fatalities in single-engine, fixed gear aircraft accidents, while larger in number, had a 16.5% fatality rate. We’ll talk about twins later.

Now what about after you’re airborne and the engine power is not up to the task? Common wisdom is to go straight ahead, making only slight turns, missing as many obstacles as possible. Experience and data show that this is sound practice, mostly because a high percentage of those who ignored this advice are no longer with us. Furthermore, a high percentage of those who followed that advice are still alive.

In fact, statistics show that if the pilot maintains control of the airplane no matter how the incident occurs, whether on takeoff or otherwise, those who maintain control have more than a 70% chance of survival. If you don’t retain control, the odds are much higher that you will not survive.

The question always arises: “How high must I be in order to safely return to the runway?” The answer depends on a lot of things, including wind, performance of your aircraft, the terrain, and your skill and experience level. An interesting exercise will give you some insight into how high you must be, but not a definitive answer.

WARNING! Readers should never attempt any new training exercise or maneuver without the supervision and guidance of an experienced flight instructor, and then only if it can be done safely.

Remember to start this and other exercises at an altitude that permits recovery from unusual attitudes, including a spin. The following steps will provide insight into what might happen with a total engine failure after takeoff:

1. Note your altitude and, with climb power, pitch up to normal departure climb speed, typically best rate.
2. Once established in a stable climb, note your altitude, then abruptly cut power.
3. Immediately pitch for best glide speed while executing a 180-degree turn. Remain coordinated throughout this exercise.
4. Note the altitude at which this is achieved.
5. Note where you are over the ground and compare this with where you started the exercise.

6. Repeat at higher altitude until you can get back to the starting point at an altitude equal to or higher than the starting point.

7. Then consider that in an emergency, you will probably not be as competent and will have no advance warning, so some time will be lost as you react. Therefore, give yourself at least a 10% margin, then ask yourself if that happened on takeoff, how high and how far from the runway would you have to be to make it back to the runway? Generally, the answer is quite discouraging. Then consider what might happen with different wind conditions.

This exercise makes it very clear that the best course of action is usually to land straight ahead until you are at about pattern altitude. Hence, it is wise to make a pre-emptive plan to not return to the runway until at the height you have just determined.

Also, out of this exercise, comes a good argument for keeping landing patterns close to the runway whenever possible. The sooner you reach pattern altitude and within gliding distance of the runway, the better the chance of making it to the runway after power failure.

Remember, engine failures are most likely after a power change, usually after power up, like after takeoff, but also slightly less likely is power reduction, such as after takeoff and reducing power for pattern operations or departure.

The ability to handle a power-off landing is one that rusts rapidly. All too often pilots simply don't know how to land safely without power. This, in part, is because too often, training teaches that power-off from the downwind to touch down is an emergency landing. That is not the case in your single-engine Cessna, Piper, Beech or Mooney, nor for that matter in your Cirrus or TTX. The latter two come down with more enthusiasm than the others, but hardly present an emergency from the pattern.

Light twins provide a different situation. Recognize two things about twins: 1) A twin is slightly more than twice as likely to have one engine fail than a single, and 2) The fatality rate if an engine fails on takeoff is higher for twins than it is for single-engine aircraft.

The higher engine failure rate is because there is increased complexity to handle two engines, and the higher fatality rate is because pilots attempt to continue flight in conditions which neither they nor the airplane are capable of handling. The best choice then, if an engine fails at low altitude, is to cut the power on the remaining engine and treat the plane as a single-engine aircraft. If you have a few hundred feet and are in stable climb, your training hopefully kicks in and the reliability you sought in a twin can be realized.

As a final note on light twins, you may wish to consider the fact that Part 135 operators (business aircraft that conduct operations for compensation or hire are generally certificated under Part 135 of the Federal Aviation Regulations) have an excellent safety record in the aircraft. This is most likely the result of frequent checkrides and the resulting continuous training commercial pilots are required to have.

Many insurance companies require annual check-rides, either in a simulator or in an airplane. This is definitely a positive safety factor.

In all cases, remember that simply because it may be less expensive, your insurance company would rather replace your airplane, single or twin, than deal with your survivors in court.

In short, planning, training, and correct decision-making are key to minimizing the chance of an accident, and correspondently surviving, if one does occur, and this remains true for any emergency, whether on takeoff or otherwise.

EDITOR'S NOTE: Harold Green is an Instrument and Multi-Engine Instrument Instructor (CFII, MEII) at Morey Airplane Company in Middleton, Wisconsin (C29). A flight instructor since 1976, Green was named "Flight Instructor of the Year" by the Federal Aviation Administration in 2011 and is a recipient of the "Wright Brothers Master Pilot Award." Questions, comments and suggestions for future topics are welcomed via email at harlgren@aol.com, or by telephone at 608-836-1711 (www.MoreyAirport.com).

DISCLAIMER: The information contained in this column is the expressed opinion of the author only, and readers are advised to seek the advice of their personal flight instructor and others, and refer to the Federal Aviation Regulations, FAA Aeronautical Information Manual and instructional materials before attempting any procedures discussed herein. ❑

Gassing Up, Then and Now

by Allen Penticoff

Recently, my plane partner and I undertook a fun flight on a beautiful warm Sunday afternoon across southern Wisconsin from our home base in Freeport, Illinois, to dine at the "Piccadilly Lilly Cafe," a good old airport cafe at Tri-County Regional Airport (KLNR)*, Lone Rock, Wisconsin. Because we had an intermediate stop at Brodhead, Wisconsin on the way and a headwind to KLNR, we had to contemplate a refueling before returning by the same route. Our vintage 1966 Cessna 150 has about three hours of endurance and our fuel gauges were bouncing around just above half full. We were not going to make it all the way home on that. Besides, I get anxious with fuel tanks below a half.

Planes line up at the self-serve gas pumps at Monroe, Wisconsin (KEFT).

Finishing lunch before the café closed at 2:00 p.m., and preparing for departure, we contemplated refueling at KLNR before departing or refueling somewhere else along the way. We chose elsewhere. Elsewhere, in this case, was the municipal airport at Monroe, Wisconsin (KEFT), where 100LL in late December 2019 was $3.77 per gallon - self serve. Taxiing up to the pump, we were third in line behind a Mooney and an RV. Soon the Mooney was gone, but a gorgeous, polished 1949 Cessna 140 pulled in behind us, and then along came a Bonanza. The Bonanza could only fit in line by pulling the C-150 and C-140 up tight behind the RV. That's four. Being in line for fuel at Monroe is not uncommon. In fact, by weird coincidence, this is the second time the same C-140 has been behind us at the pump.

Self-serve avgas is increasing in popularity. I've been flying 50-plus years and for most of those years, getting avgas meant taxiing up to the pump at most small airports, then trying to find someone to fuel your aircraft. On occasion, this turned into quite a search or even a fruitless one, especially after 5:00 p.m. We often wondered why we could not have self-serve fuel the same as automobiles, so we could get fuel when we needed it, and hopefully at a discount.

Since then, we got our wish fulfilled. But it is not all peaches and cream. While most small municipal airports now have self-serve avgas, we are also missing out on what was once a great aviation interaction – the line person. I was once a "line boy" myself, and I was indeed a boy at the time.

The pilot would double check to make sure the line person was actually putting the correct fuel in the tanks (there used to be more choices), filled the tank and put the cap on properly, then followed the line person into the fixed base operation to pay the bill -- chatting them up a bit the entire time.

The line person was often an aspiring pilot, and still often is when you come across one. Usually a high school kid working part-time, who is also a student pilot. We would bestow flying wisdom on them, and asked them what their career plans were. Many, including myself, worked for flight time and the privilege of being around airplanes – *and get paid for it*. I rather miss that connection today.

Now we have two realms: The self-serve, any-time-of-the-day pump, and the adult line technician who drives a fuel

Continued On Page 20

CBD & Why The Jury Is Still Out!

Dr. Bill Blank

by Dr. Bill Blank, M.D.

Is CBD (Cannabidiol) the latest fad or is it a medication with the potential to help people with certain conditions? CBD has certainly been getting a lot of publicity recently. While driving around, signs promoting it are frequently seen. Every time I open my email, I seem to have four or five ads promoting its benefits.

CBD is a chemical compound found in the marijuana (cannabis) and hemp plants. It is not psychoactive like the THC (tetrahydrocannabinol) in marijuana. CBD can be taken by mouth, under the tongue, applied to the skin, or smoked or vaped. Hemp-derived CBD products containing less than 0.3% THC are legal at the federal level. CBD derived from marijuana is not.

CBD is being promoted to relieve pain, inflammation, insomnia, anxiety, cancer, type 1 diabetes, acne and seizures. Very little scientific research has been done, so far, on the subject. The contents of CBD products are not regulated. Therefore quality, concentration, and purity may vary. Prescription medications have guidelines for minimum and maximum safe doses. So far, this has not been done for CBD. Prescription medications have a comprehensive list of side effects. So far, I have found that possible side effects of CBD include nausea, fatigue and irritability.

There is only one FDA-approved CBD-based medication,

Epidiolex, used to treat two rare, serious types of childhood epilepsy. Fortunately, it seems to be helpful with these two devastating diseases. My research seems to show that it can be helpful in the control of chronic pain and inflammation, as well as insomnia and anxiety. I don't know if it is more effective than currently available medications or where it fits in on the spectrum of treatments. As far as I can tell, not much is known about drug interactions, which may increase or decrease the effectiveness of other medications being taken concurrently. I hope that it will turn out to be helpful in treating some of the previously discussed conditions, such as chronic pain and anxiety. These conditions can be debilitating and more effective treatments would be welcomed.

How does the FAA look at CBD? I talk at several Aviation Medical Examiner (AME) seminars every year. I try to listen carefully. Not much has been said. I suspect they hope the problem will go away. My opinion is that since there is an FDA-approved CBD-based medication, the FAA regards it as a medication. The FAA does not approve drugs until they are FDA approved and have been on the market for, at least, one year without significant side effects.

Epidiolex is not on the FAA-approved medication list. I doubt that it will be. There are no FAA-approved anti-seizure medications.

Most AMEs, I think, would feel obligated to defer any applicant listing CBD as one of his medications. If an applicant were to say that he is taking CBD for pain control, the question becomes the cause of the pain. Is the underlying condition disqualifying?

AMEs do not test applicants for drugs. If you happen to use a CBD product with more than the permitted level of THC, your AME will not know it. If you are a pilot under parts 135 or 121 and test positive for THC, that is going to cause problems. At a minimum, you will have to undergo a substance abuse evaluation and may face revocation of your medical certificate.

CBD does seem to have the potential to be helpful to certain people. However, the current fanfare seems excessive. I can't believe it is the undiscovered wonder drug. The jury is still out.

Happy and healthy flying!

EDITOR'S NOTE: William A. Blank is a physician in La Crosse, Wisconsin, and has been an Aviation Medical Examiner (AME) since 1978, and a Senior AME since 1985.

Dr. Blank is a retired Ophthalmologist, but still gives some of the ophthalmology lectures at AME renewal seminars. Flying-wise, Dr. Blank holds an Airline Transport Pilot Certificate and has 5600 hours. He is a Certified Instrument Flight Instructor (CFII) and has given over 1200 hours of aerobatic instruction. In addition, Dr. Blank was an airshow performer through the 2014 season and held a Statement of Aerobatic Competency (SAC) since 1987.

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Gassing Up From Page 18

truck up to your plane for refueling. Line technician is the right term, as refueling jets is no simple matter.

The days of the line person seem to be, sadly, an anachronism of the past, except at busy metropolitan airports of course. With this change and finding many airports essentially unattended most of the time (can't blame them… there is little money to be made), you now have these situations where there is nobody to call at the airport to confirm that there will be fuel when you arrive. "ForeFlight" and online searches show us where fuel can be found and at what cost, and facility directories may say there is fuel, but they may not accurately reflect what is currently going on.

The facility may be out of fuel (airports don't get their tanks filled as often as gas stations), and there is the chance that the pumps themselves may not be working. Power out? No fuel. Internet connection out? No fuel. Pump broke? No fuel. We fell victim to the latter once and had to scramble on very low fuel to another airport 15 miles away, near sunset, then return to tie down at the first airport. Not comfortable with that.

With the Internet, we can now easily search and find lower priced fuel, providing the information is up to date. That saves us some money, but in the overall scheme of things, the cost of fuel is a small percentage of the expense of aircraft ownership for most of us. To that end, we will usually pay our local fixed base operator more for fuel than go "elsewhere," as they would not be able to stay in business without our financial support. Yet, there is that Yankee thing that says if you find a bargain, you better take it. So, a little of that now and then, is no harm done.

It won't be long before we will be shopping around for cheap electricity for our airplanes. No need for a line person to help us plug in. Heck, we won't even need to punch in all that information into a strange self-serve pump terminal; the charger will recognize the airplane and bill us directly without so much as a "howdy-do!" Progress, I suppose, but us old-timers will miss those times spent yacking with those kids who have served us diligently and may well soon take our place.

**As of late December 2019, Tri-County Regional Airport in Lone Rock/Spring Green, Wis. (KLNR), has been experiencing flooding that has intermittently affected runways and taxiways, as well as the airport restaurant. Check NOTAMS and call ahead before departing.*

EDITOR'S NOTE: Allen Penticoff lives in New Milford, Illinois, is a long-time aviator, airframe and powerplant mechanic, former aircraft insurance adjuster, and now just a plain old airplane nut. ❑

When To Pickle My Engine & Am I In A Pickle Without ADS-B?

by Pete Schoeninger


Pete Schoeninger

Q: How often and how long should I fly my Beech Sport (150 hp Lycoming engine) in the winter before considering engine preservative action?

A: Lycoming S/L L180B (easily found on the Internet) recommends at least 1 hour of operation with oil temps of at least 165F, not longer than 30 days apart.

Q: What is maximum safe oil consumption on my Beech Sport?

A: Lycoming's formula is .006 X horsepower X 4 divided by 7.4 per Lycoming publication 1427C. For your 150 hp Lycoming engine, that figures out to about half a quart an hour. What is important is oil consumption "trends." If your Sport has been burning one quart of oil per five hours of operation, and suddenly starts burning one quart every two hours, you should check with your mechanic. It is normal that as an engine accumulates time since overhaul for oil consumption to increase gradually, but a big spike in consumption should be investigated.

Q: With the ADS-B deadline now past (January 1, 2020), will airplanes that have mandated equipment be worth $3,000 to $4,000 more now than a few months ago?

A: No, but if an airplane does NOT have ADS-B and it should, it is worth a few thousand dollars less than if so equipped.

Q: You said in the previous issue of *Midwest Flyer Magazine* that your appraisals do not guarantee a sale price for your exact fair market value. So why do you get hired to do appraisals?

A: In some situations, a written appraisal with an opinion of actual fair market value is needed so financial settlements can be reached. One example, an elderly fellow passed away and directed that his assets be divided evenly between his three children. One of his assets was an older Cessna 182 which one son wanted, and the other two kids had no interest in. I was hired as a neutral appraiser to determine fair market value of the aircraft to aid in the division of assets. In another

situation, I was hired to appraise an airplane that was donated to a well-known aviation organization for tax purposes.

Q: Because I am stubborn, or cheap, and probably both, I have not yet gotten ADS-B installed in my Comanche. Now, what do you suggest foot-draggers like me, do?

A: AOPA has a video on the subject entitled "Equip 2020: What's Next for ADS-B after January 1, 2020?" Here is the link: https//www.aopa.org/training-and-safety/online-Learning/aopa-webinars.

Q: I like to climb at Vx (best angle of climb speed) for the first thousand feet from a departure runway. My airplane stalls at about 50 kts and Vx is 60 kts, with Vy (best rate of climb speed) about 80 kts. My friends think I am nuts for climbing at only 60 kts and that I should climb at 80 kts or faster. What's your opinion?

A: Your friends win for several reasons. Here are three of many: 1) While climbing at full power at a low airspeed, if you lose power, unless you immediately and vigorously push the nose down to maintain flying airspeed, you may stall, and possibly spin to the right because you are probably holding some right rudder (if in a single-engine airplane). 2) Visibility is better at Vy because your nose is lower. 3) Faster airspeed in a climb gives your engine more air for better cooling.

Q: Three Ercoupe questions: First, how could an airplane like the Ercoupe with two axis controls (no rudder control) be able to slip a little for landing in a crosswind? Second, the Ercoupe was designed and built to be incapable of stalling. Wouldn't this be a great safety feature, that should be incorporated into every airplane's design? Third, if an Ercoupe has no rudder pedal, what is the sole pedal on the floor for?

Answer to question #1: Ercoupe rudder control is mechanically linked to the control wheel which controls aileron movement. There is no available pilot input to rudders (no rudder pedals) to cause the airplane to do a forward or side slip for landing. In landing in a crosswind, you have to let the airplane touch down crabbed, just like a modern airliner! If you look at the gear closely on an Ercoupe, you will see it is very hefty.

Answer to question #2: It is possible to make the Ercoupe non-stallable by limiting up elevator authority because the center of gravity or CG varies very little, with two-seat, side-by-side seating, very limited baggage, and wing fuel tanks all close to the CG location. In other words, there is very little CG movement with various loads. It has not been practical from an engineering standpoint to design an airplane that cannot stall, but handle a wide CG range. With some airplanes having an allowable CG range of almost a foot, if you limit elevator travel to not allow a stall at most rearward CG locations, you might not have enough up-elevator authority to flare at most forward CG locations.

Answer to question #3: That lone pedal on the floor is the brake pedal.

Q: A friend took me for a ride in his Piper Tri-Pacer recently. While taxiing, the control wheel moved when he turned with the rudder pedals with no hands on the wheel. How could that happen?

A: The rudder and aileron controls are sometimes linked in Tri-Pacers with springs, but you can easily override them (unlike the Ercoupe question above.)

Q: A friend has skis on his 1960 Cessna 172 and he keeps it on a lake next to his house during the winter. He says there are times when landing on a snow-covered lake when depth perception is very difficult. What do you do then?

A: On cloudy days, it may be almost impossible to tell depth over a snow-covered lake. What some skiplane pilots do is make a landing similar to a glassy water landing with floatplanes (where depth is almost impossible to judge), which is a slow, slightly nose-up descent until surface contact is felt. A visual aid you can use is to land with caution relatively close to shore, or an island, or a snowmobile, etc.

Q: I told some friends that I am about to advertise my Bonanza for sale at $85,000. Immediately, a casual friend said he would buy it. I asked him for earnest money, but he said he would have it all in a couple of days. That was two weeks ago and I have not heard a peep from him. Now, what should I do?

A: ALWAYS insist on a written offer with consideration (money down.) If your friend has not provided funds or contacted you in two weeks, you should contact him and say you are starting to advertise the airplane, and if he wants to buy it, he needs to sign a sale contract and give you a deposit. You can find airplane sale contracts at the AOPA website if you are a member (and all pilots and aircraft owners should be). Click "Pilot Resources," then "Aircraft Ownership," then "Quick Links," then "Sample Purchase Agreement." Remember Law 101… For a contract, you need an offer, an acceptance, and a consideration, such as a deposit. (P.S. I'll bet you lunch, your friend described above is not going to buy your airplane.)

Q: My friend, a manager of a fixed base operation, complained that he has more government interference with his business than most other businesses. You ran a couple of fixed base operations… Is this true?

A: Yes! All businesses have some government interference,

such as taxes, regulations, oversight, fire inspector, and on and on. But since most fixed base operations are located on some type of government property, they have the additional oversight by local landlords. Sometimes after a change of local elected leaders, a fixed base operation may have to deal with an entirely new group of people, who can make the life of a fixed base operation manager miserable as they may or may not have any idea about running an airport.

Q: I heard you say that an airplane that is sitting out of annual loses money every day. Why?

A: Three reasons: 1) The owner is paying insurance, and probably hangar rent, neither of which contribute one cent to increased value. 2) An airplane not flying will have slow deterioration of the engine. 3) As time goes on, avionics become less valuable.

EDITOR'S NOTE: Pete Schoeninger appraises airplanes for estates, divorces, and partnership buyouts. He is a 40-year general aviation veteran, starting out as a line technician as a teenager, advancing through the ranks to become the co-owner and manager of a fixed base operation, and manager of an airport in a major metropolitan community. For aircraft appraisals, contact Pete at PeterSchoeningerLLC@gmail.com or call 262-533-3056 (peterschoeningerllc.wordpress.com).

DISCLAIMER: The information contained in this column is the expressed opinion of the author only, and readers are advised to seek the advice of others, and refer to aircraft owner manuals, manufacturer recommendations, the Federal Aviation Regulations, FAA Aeronautical Information Manual and instructional materials for guidance on aeronautical matters. ❑

EDUCATION

Local High School Girls Explore Aviation

The third annual "Girls In Aviation Day" (GIAD), held October 3, 2019 by Women in Aviation, International (WAI) Great Lakes Chapter, was a great success! Eighteen high school girls from Mid-Michigan had fun exploring different career paths in aviation. Worldwide over 20,000 girls, from age 8-17, participated in 118 events held by chapters in 17 countries.

"GIAD has increased from 4,000 students to 20,000 in just five years. It's amazing to see how quickly GIAD has grown and we're excited to see these girls be the future of aviation," said Helen Hagg, President of the Great Lakes Chapter.

The event was held at Kent Career Technical Center Aviation Center at the Grand Rapids, Michigan airport. Activities from the day included building bracelets made out of materials used in private jets, performing a preflight of an aircraft, riveting, and inspecting engines. Students also had fun learning about airspace, brainstorming aviation careers, meeting professionals and flying drones, which was by far the most exciting part.

Volunteers who helped lead were aviation professionals including pilots, mechanics, former military personnel, engineers, air traffic controllers, and aviation business owners and managers. Aviation students from Western Michigan University's Women in Aviation Chapter, also were a great inspiration to the girls.

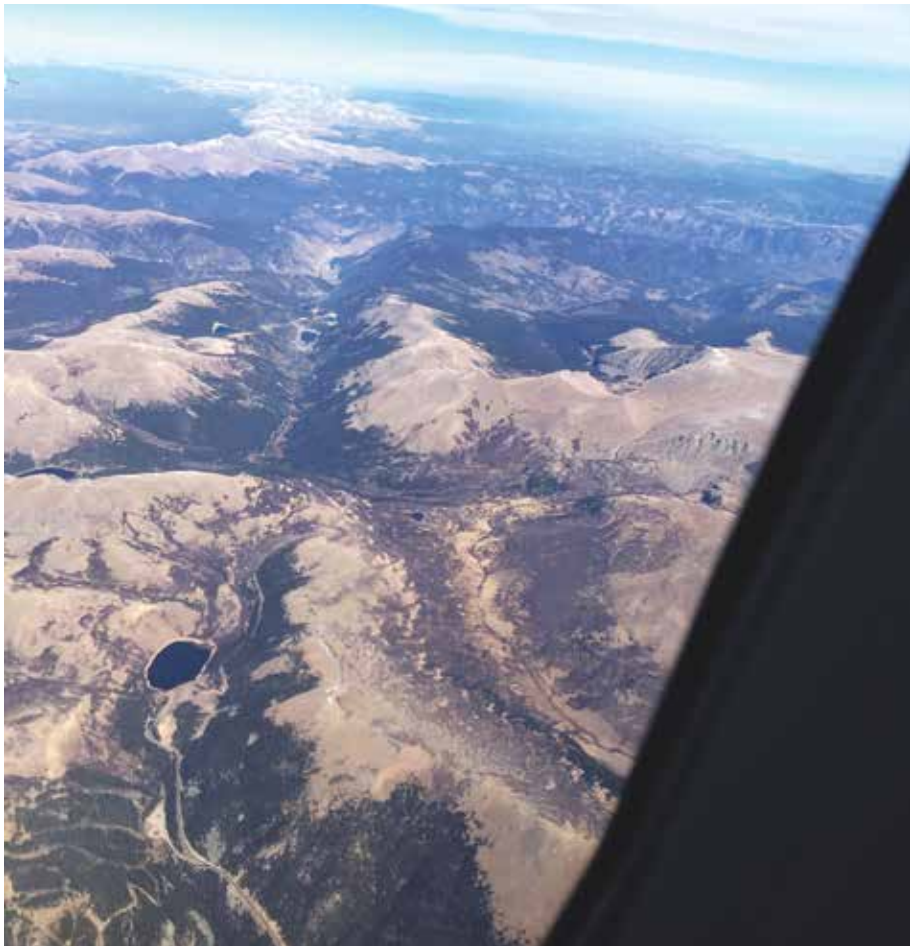
CONTINUED ON PAGE 30

Now Is The Time To Plan Summer Flying Trips & A Mountain Destination May Not Be Out of The Question

by Bob Worthington
www.BobWorthingtonWriter.com


Bob Worthington

This time of the year, my wife and I – relaxing in front of our cozy fireplace, a U.S. map on our coffee table – would plan fun places to visit in better weather beginning in a couple of months. Our map had concentric circles drawn with the center our airport, and each circle representing two hours flying time. We live at the southern end of the Rocky Mountains in Las Cruces, New Mexico.



I am inviting *Midwest Flyer Magazine* readers to consider flying into my mountains. Many of you already have mountain flying experience. On the other hand, others may not, but might hanker for an adventure flying into and landing at some high-altitude airport in the mountains just west of you.

The Midwest is mostly flat, without any real height. So, flying into the mountains can be exciting, challenging, and certainly adds to the skills of any pilot. Without the proper training, however, mountain flying can be risky.

Are you interested in learning mountain flying without being in the mountains? Is it possible to learn about mountain flying without leaving the Midwest? The answer is yes! Here's how.

When I was a new pilot, my Army assignment was San Antonio, Texas, elevation 800 feet (MSL), give or take a dozen feet; obviously, not in the mountains. Growing up in rural Connecticut, hunting, shooting, fishing and camping captured my full-time attention. My favorite fishing was for Brook Trout, but Texas is not a state with trout streams, so I had to go further west to go fishing.

New Mexico has both deserts and mountains. And the mountains are full of excellent trout streams. I became a pilot, so I would be able to travel efficiently, quickly, and without hassle. Therefore, the mountains of New Mexico contained the closest places for trout fishing. But flying into and landing in the mountains, even I realized, could be very dangerous without the appropriate training. So, I asked various flight schools where I could find a Certified Flight Instructor (CFI) with mountain flying experience. Very quickly, I located one, explained what I

wanted to do, and the instructor said he could do that.

First, my instructor provided plenty of pamphlets and articles from both the Aircraft Owners and Pilots Association (AOPA) and the Federal Aviation Administration (FAA) on mountain flying. Today, one could simply use the Internet to get tons of information on the subject.

After I studied all the reading materials, my instructor and I met where he began to teach the basics of mountain flying. Next, we flew my plane, practicing mountain flying techniques. Now is the time to ask how does one practice landing and departing 7,000-ft. high runways when the highest ground is at 800 feet? The answer is simple.

Your experienced CFI has you landing and departing on a local dirt strip using reduced power to simulate performance at higher elevations. My CFI would set up situations, such that I would have to land because a go-around would smash me right into a mountain. We would practice departures where the reduced power would hamper climb, so I would have to calculate my departure flight path to ensure that a long and slow climb wouldn't impact any terrain or trees. We did this for several days until I became very proficient handling my plane at reduced power settings.

Next, he had sectional charts with mountains where he would select an airport and provide the temperature at the airport. I would get its elevation and then use density altitude charts to calculate if I could land there and if the runway was long enough to take off.

Density altitude (DA) is a key term in safe mountain flying. Essentially, the higher the airport (elevation) and the higher the temperature, the less dense (thinner) the air is. DA is a calculated higher elevation (due to temperature and actual elevation) that an airplane will perform at.

Consider this. Today's computerized cars have digital air pressure readouts for each tire. One cool evening you notice you have a low tire, so you fill it up to 33 psi. The next morning, you have a 10-mile drive to your job. As you pull into parking, you check the tire pressure and it is now 37 psi. What happened? You put in 33 psi, but now it is 4 lbs over. Why?

Hot air expands. Driving fast for 20 minutes or so heated the tire which heated the air in the tire, and it expanded. In the tire, the space for the air remained unchanged, so the air pressure just increased. In the sky, though, there is no contained space, so when warm air expands, it gets thinner.

So how does DA impact aircraft performance? With less dense air, the horsepower of a normally aspirated engine is reduced. With less power, the climb is slower and longer (simply meaning the flight path would be much longer and the takeoff roll would require longer runway distance). And the efficiency of the propeller is less effective. So, in mountain flying, both altitude (elevation) and heat can severely diminish the performance of an aircraft.

As an example, an airport at a 7,000-ft. elevation at 90 degrees has a DA of 10,500 feet. If a normally aspirated (i.e. non-turbo) aircraft has a service ceiling of 13,000 feet, the aircraft probably couldn't climb over 200 feet and it would take a very long runway to even get airborne.

Here is a real example of how this works.

A few years ago, on a summer afternoon, two couples boarded their normally aspirated complex aircraft in east Texas, departing their 600-ft. elevation airport. Their destination was a mountain resort area in New Mexico, to escape the heat and humidity of east Texas. They arrived at the 6,814-ft. elevation airport just before dusk, in the cool of the evening, and requested the FBO to fill their tanks. For the next day and a half, they enjoyed golf and gambling, horseracing and shopping.

At noon on Sunday, they loaded their plane with their luggage, golf bags, and the goodies from shopping. The weather briefing promised clear skies and a 15-knot tailwind. A perfect flight to end a perfect weekend. Unfortunately, the pilot was not aware of density altitude and his aircraft was at gross weight with four adults, baggage, plus full fuel. The temperature at the airport was 85 degrees, placing the DA around 10,000 feet. Being in the mountains, the area surrounding the airport contained many tall trees.

The pilot rolled down the runway, barely attaining ground effect before the end of the runway. Out of ground effect, the climb gradient was virtually zero, so the plane hit some trees, crashed and caught fire. There were no survivors.

The above scenario is not described to scare anyone from flying in the mountains because it could have been easily avoided, if the pilot understood DA.

Prior to the flight, the pilot could have obtained temperature forecasts and calculated the DA and then

computed takeoff performances at different aircraft weights. The golf bags could have been left at home (golf courses rent them) and they could have taken on only enough fuel to get out of the mountains, landing at a lower elevation for more fuel. Or the pilot could have departed early in the cool of the morning. Departing at night is not recommended for flying in the mountains. The point is, understand mountain flying **BEFORE** flying in the mountains!

Training with a mountain savvy CFI with actual experience, reading books and articles on mountain flying, and of course the Internet offers hours of courses, videos, and tutorials on mountain flying. Even without leaving the Midwest, a pilot can become educated and safe for mountain flying and avoid the accident of the east Texas pilot.

The New Mexico Pilots Association (nmpilots.org) hosts a weekend mountain flying clinic each fall with 8 hours of ground school and mountain flying.

Here are some simple tips for flying in the mountains and using high-altitude airports in the summer:

1. Fly only in the morning when the weather is cooler and more stable. Afternoons often see rain showers and more wind.

2. Do not fly in mountains, either on instruments (IFR) or at night. Excellent visibility greatly reduces risks.

3. Understand DA. Have access to DA charts so you can calculate your aircraft's performance to ensure safe landings and departures before flying.

4. Carry supplemental oxygen to avoid becoming hypoxic.

5. Understand how winds act in the mountains and how they can affect flying, landing and departing.

6. Avoid flying if there are rain showers, fog, or low clouds around the mountains and valleys.

7. Understand terrain navigation. GPS is excellent, but good mountain pilots also depend on terrain-type charts or maps to know exactly where they are, especially relative to where they want to go.

8. Understand that in many mountain areas, there are natural saddles, passes, or valleys that afford easy means to cross mountains.

9. It is handy to talk to a pilot familiar with where you want to go to get his/her personal advice on things to do or avoid. Calling a local FBO or flight school where you want to go should put you in touch with a local expert.

10. Lastly, for your first trip into a high-altitude airport, select a location around 5,000 to 6,000 feet elevation with long, hard surface runways, and gentle, easy approaches. When there, take the time to hire a mountain CFI and spend a day flying into the mountains.

I have spent considerable time flying in the mountains and landing on out-of-the way/ rough dirt strips, high up in the mountains. While challenging a pilot's skills, if properly trained, and obeying all the common-sense rules and laws of mountain flying and into high-altitude airports, it can be a safe and fun-filled endeavor.

I would use a small aircraft to get into short dirt strips at 6,000 to 7,000-ft. elevations. I would land with 1/3 to 1/2 fuel (because an airport at a much lower elevation would be 30-45 minutes away) late afternoon with lower temperatures, thus a lower DA. Also, later in the day, the winds would have lessened.

Usually, I would be flying over lower terrain and my trip into the mountains would only be the last 20 or so minutes of flight. After securing my aircraft, I would eat a cold meal and go to sleep. Arising the next morning, I would eat, slip on my backpack, grab my fishing gear, and head up the mountain to a clear stream, full of Brook Trout for excellent fishing (with no one else within 10 or more miles). The last day of fishing I would hike back down to the plane, eat, go to sleep and arise at dawn, then pack up and load the plane, preflight and depart when the air is cool and calm, then head for the nearest airport at a lower elevation to refuel and return home.

Get out a U.S. map and your airport directory. Look for exciting places on the eastern slopes of the Rockies at 5,000 to 6,000-ft. levels. Check out their airports (elevations, length of runways – multiple runways are best for winds – and services available). Use the Internet to learn about the type and availability of food, lodging, and all the fun things to do.

Suggestions for fun places to visit that have all the above services and tourist attractions are Santa Fe, New Mexico at 6,348 feet; Colorado Springs, Colorado at 6,187 feet; Casper, Wyoming at 5,350 feet; and Cheyenne, Wyoming at 6,159 feet. Now plan your summer trip.

EDITOR'S NOTE: Pilot, Viet Nam veteran and former university professor, Bob Worthington of Las Cruces, New Mexico, is the author of "Under Fire with ARVN Infantry" (https://mcfarlandbooks.com/product/Under-Fire-with-ARVN-Infantry/), and producer of the 2019 film "Combat Advisor in Vietnam" (www.borderlandsmedia.com). Facebook: Bob Worthington Writer (www.BobWorthingtonWriter.com).

DISCLAIMER: The information contained in this column is the expressed opinion of the author only, and readers are advised to seek the advice of their personal flight instructor and others, and refer to the Federal Aviation Regulations, FAA Aeronautical Information Manual and instructional materials before attempting any procedures discussed herein ❑

Spread Your Wings
You earned your pilot certificate — now what?

by Mark Baker
AOPA President & CEO


Mark Baker

AMERICAN AUTHOR MARK TWAIN ONCE SAID, *"Twenty years from now, you will be more disappointed by the things you didn't do, than by the ones you did do."* From personal experience, I can tell you Twain was onto something.

I have spent a good portion of my life around the aviation community, and I've yet to meet a pilot who regrets learning to fly. More often, it's *"I wish I hadn't waited so long."* Whether you pursued this skill to advance your career, learned to fly as a hobby, or have always dreamed of crossing it off your bucket list, I applaud you. Earning your wings is an accomplishment that should be celebrated, and it truly sets us apart from most of our co-workers, neighbors, and acquaintances.

For me, learning to fly was one of the most thrilling, rewarding, and challenging experiences of my life. However, there are a lot of pilots caught in a gray area after getting their certificate. Like all things, the honeymoon phase of taking up your first few passengers dwindles, and many pilots begin asking themselves—now what?

Statistics show that many pilots let their skills lapse over time, partly because they don't have a reason to venture out of the familiar traffic pattern at their local airports. But a multitude of opportunities exist—whether the goal is to build time, volunteer, or challenge yourself with a fun, new rating. Don't let your logbook sit on the shelf collecting dust. Put your skills to good use and get airborne. Enjoy all the freedoms that come with being a pilot in a country where the sky truly is the limit.

If you want to make a career out of flying, now's the time. Because of a growing number of retirees, a booming economy, and an increased thirst for air travel, pilots are in high demand. Aviation professionals are needed in legacy airlines, regionals, Part 91, and Part 135 operators. Boeing predicts a need for more than 800,000 new civil pilots to fly the global fleet over the next 20 years. Collegiate flight schools, such as Embry-Riddle Aeronautical University, have seen an increase in enrollment in the past year. Last fall's incoming class at Embry-Riddle's Daytona Beach, Florida, campus had 1,950 students—an increase of nearly 18 percent over the previous year.

Today, there are many opportunities to build coveted flight time without going down the traditional flight instructor route. In fact, many Part 135 operators are accepting pilots with fewer hours than previously demanded. Such positions are great opportunities to build time to qualify for the regional airlines. Some on-demand operators are recruiting first officers with as few as 300 hours total time. Aerial photography, air tour flying, pipeline patrol, and skydive operations are all great ways for low-time pilots to get more experience, up their confidence, and jump-start their careers. Plus, I can't think of any entry-level job with better office views.

No matter your experience, ratings, or time logged, we are all pilots with a passion for aviation. We all dared to take the leap, sacrificed the hours, and sat shoulder to shoulder with our instructors on a weekly basis. Should you ever find yourself in a rut, just remember what a remarkable achievement it is to become a pilot. Life is bound to be filled with some regrets, but I assure you, learning to fly will never be one of them. ❑

We Must Be Proactive!

by Kyle Lewis
Regional Manager for Government Affairs and Airport Advocacy / Great Lakes / AOPA


Kyle Lewis

In the Airports and State Advocacy Department of the Aircraft Owners & Pilots Association (AOPA), we are always trying to look ahead and be proactive on legislative and airport issues. Thankfully, we have proactive members who also have their eyes and ears open at the local level.

Our department at AOPA is somewhat unique from other AOPA staff in that we interact with our membership daily on issues affecting GA, specifically airports. AOPA does house the "Pilot Information Center" under the membership services sector, and they do an excellent job at answering general questions on Federal Aviation Regulations, buying/selling aircraft, medical-related questions and the like.

Our interactions with Airport Support Network (ASN) Volunteers can last months, if not years in some cases. We are currently working alongside our membership across the country on legislative and airport-related issues that will have an impact on general aviation.

In 2019, we recruited over 200 new ASN Volunteers to help support their own local airport and be that direct line of communication to AOPA. In 2020, we will be hosting a series of webinars in each region, focusing on airport-related topics, such as grant assurance interpretation, airspace, hangar leases, airport operations, and other pertinent topics our volunteers may find useful. We will be bringing in guest presenters from our legal staff, airspace experts, and in some cases, industry experts outside of AOPA, to answer questions. I encourage you to become involved and take part in the ASN program. Visit **www.aopa.org/**asn for more information and to sign up as a volunteer!

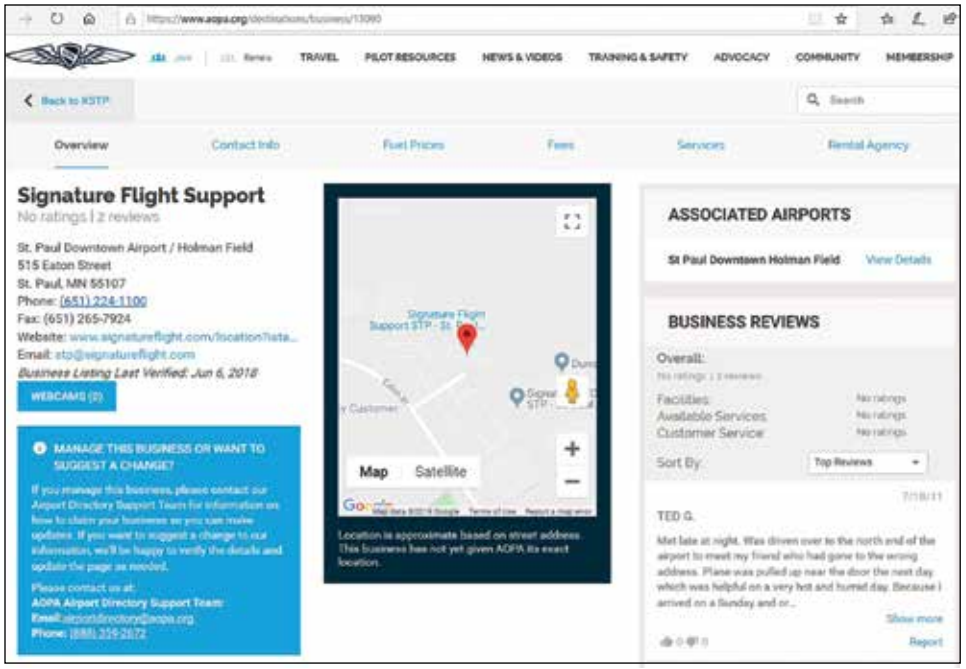
Ask & You Shall Receive

On December 5th, 2019, a new round of charting updates was released as part of the usual charting cycle.

The Metropolitan Airports Commission (MAC) in Minneapolis/St. Paul, Minnesota, AOPA, and the general aviation community have something to be proud of. St. Paul Downtown Airport (KSTP) had a new airport diagram released *(see graphic attached)* that included a notation of "GA Transient Ramp" located to the west of the administration and customs facility. This notation was the culmination of working with MAC staff, specifically Joe Harris, Director of Reliever Airports. Joe, a pilot and aircraft owner himself, understands the need for logical and common-sense airport diagram terminology when it comes to GA parking areas.

The MAC is one of the largest airport authorities in the United States and AOPA applauds the inclusion of our charting and transparency initiative in their planning and charting policies. Joe Harris has also commented *"The Metropolitan Airports Commission is a proud partner of AOPA's airport diagram initiative. The recommended GA parking labels give pilots more clarity on parking options. MAC has forged a strong partnership with AOPA to assist both FBOs and pilots to build ultimate success and transparency."*

As we all know, each airport is different and may require creative solutions regarding identifying and charting GA transient parking areas. This is where you as a pilot and productive member of the aviation community can help. Have a conversation with airport leadership, attend an airport commission meeting or talk to the local FBO manager and work on any issues at the local level.



AOPA is working diligently to provide an avenue for fee transparency in our "AOPA Airport Directory." Any airport or FBO can contact AOPA and receive a login to edit fee *(see inset graphic of FBO section)* structures in the airport directory, and it is absolutely free to do so. AOPA is also working with the FAA and other industry stakeholders on standard terminology for GA parking areas, as the MAC has already adopted.

This is not a one-size-fits-all solution to every airport or FBO issue, but simple common-sense changes can make a big difference.

It is important to emphasize that AOPA supports a competitive and healthy FBO market. FBOs around the country, large and small, provide excellent service to GA operations. AOPA is committed to providing our industry knowledge and resources to any airport, operator, or FBO on how to make their experience more suitable to the aviation community!

New Director of Regulatory Affairs

I would like to introduce you to a new member of the AOPA team who has ties to the Midwest, Christopher Cooper. Chris recently joined the Aircraft Owners and Pilots Association as Director of Regulatory Affairs, and is responsible for the development and management of aviation regulatory and certification policy on such issues as UAS/UAM, airman certification, security, flight training, operational regulations, and safety concerns. Chris has over 20 years of experience in the aerospace industry. Prior to AOPA, Chris held positions as an aviation claims attorney with Global Aerospace, First Officer with ExpressJet Airlines on the Embraer 145, and most recently, Assistant Professor at the University of North Dakota. Chris holds bachelor's degrees from the University of North Dakota and a Juris Doctor degree from the University of North Dakota School of Law. Chris will be attending AOPA events, so please stop by our information centers and welcome him!

It is a privilege to serve you! (kyle.lewis@aopa.org) ❑

AOPA Announces Regional Fly-Ins For 2020

Texas Two-Step
San Marcos, Texas, May 29-30, 2020

The Aircraft Owners & Pilots Association (AOPA) liked San Marcos, Texas, so much the first time, that they are going back in 2020, May 29-30. And to sweeten the second time around, they are adding a "Career Fair" and a little night music. Bands from all over Texas will help AOPA members celebrate a great reason to fly with two days of aviation excitement (aircraft displays and air shows) and nightly music festivals (local to semi-famous musicians). It's a little bit of country and a little bit of rock and roll, as San Marcos sits at a crossroad between the Live Music Capital of the World (Austin) and River City (San Antonio). Put on your dancing shoes and come discover why San Marcos is also called "San Marvelous."

Cowboy Up!
Casper, Wyoming, June 19-20, 2020

Dust off your boots and hitch up your chaps, the historic city of Casper, Wyoming will host an AOPA Fly-In, June 19-20. Faded signage on historic buildings will remind you that this is a western town, with roots in the era when pioneers came west to search for gold and when the horse was essential transportation. AOPA has saddled up with the city of Casper to hold its fly-in the same weekend as the "College National Rodeo Finals," so members can see exciting rodeo, as well as enjoy two days of aviation seminars and entertainment. Casper is also home to the remains of a 11,600-year-old Woolly Mammoth, fossils, and dinosaur tracks! If that's not enough excitement, Yellowstone, the Bighorn Mountains, and the Grand Tetons are nearby.

Picture This
Rochester, New York, September 11-12, 2020

Famously known as the home of Eastman Kodak, the first film for motion pictures, easy-to-use cameras for everyone, and the first digital camera, Rochester, New York is not only an innovative town, but a picturesque one too. AOPA will end its fly-in season there, September 11-12. Located just minutes from the Finger Lakes, Rochester is the metropolitan hub of this photo-worthy area. The nine lakes -- so-named because their long shapes look like fingers -- boast scenic drives, vineyards and wineries, seaplane excitement, and the home of aviation pioneer, Glenn Curtiss. This could be your chance to check off that bucket-list item and fly over Niagara Falls, too!

For additional information, contact the AOPA Pilot Information hotline at 800.872.2672. ❑

Girls In Aviation Day From Page 23

"It's important to let girls know about the numerous opportunities that are available to them in aviation, in this non-traditional career," said Jayne Snider, Chapter Vice President. "They need to know they can pursue and achieve their dreams through networking and scholarships. We're here to open those doors for them and get them thinking about aviation."

For more information on scholarship opportunities and events held by the Women in Aviation, International Great Lakes Chapter, email waigreatlakes@gmail.com. ❑

Proactive Airworthiness

by Thomas P. Turner
Executive Director
American Bonanza Society Air Safety Foundation

EDITOR'S NOTE: This article appeared in the January 2020 issue of *ABS Magazine.* It is being reprinted here by permission of the American Bonanza Society (ABS) in the interest of safety.

The American Bonanza Society Air Safety Foundation (ABS/ASF) took the unusual step of going to the FAA to request an airworthiness directive to address a critical flight controls safety issue. The result, AD 2019-21-08, is a textbook example of airworthiness and regulation done right – the type club and its maintenance experts collectively found a problem, we brought our concerns to the FAA and the manufacturer, and the type club created and promoted a recommended inspection so that the issue is addressed by aircraft owners – even before time permits for rulemaking to occur. Additionally, we shared our members' inspection results with the FAA and together limited the focus based on the actual data that emerged from ABS' voluntary inspection program, and the FAA acted on our recommendations to ensure safety across the entire fleet. Thanks to the FAA, and especially the engineers and management of the Wichita Aircraft Certification Office, for working cooperatively with the ABS Air Safety Foundation to achieve a speedy, yet measured response to this serious airworthiness condition.

In late 2018, ABS Lead Technical Advisor, Bob Ripley, was asked by the National Transportation Safety Board (NTSB) to act as a party to two separate investigations involving Beech Bonanzas. In both cases, inflight separation of the right aileron control cable caused the pilot not only to lose aileron control, but because of the Bonanza's interconnect between aileron and rudder, for the left aileron to go to a hard, full-up position, while the right aileron remained uselessly in trail. In both cases, the pilot was able to land using rudder for bank and heading control. Both of these events are still under NTSB investigation.

Bob and Curtis Boulware began inspecting control cables in airplanes that passed through their shops. We quickly found dozens of cases that share the same profile: the right aileron cable swaged ends, where they connect to turnbuckles, were corroded and in many cases completely failed. The safety wire is all that holds the aileron cable together in this condition. In almost all cases, the corrosion or failure is completely invisible unless the safety wire is removed – something that does not happen in the course of normal inspection. Bob Ripley even found a completely failed swaged end on his personal Bonanza, one

As soon as Anthony Restaino of Pembroke Pines, Fla., learned about possible corrosion of his aileron control cables on his 1964 Beech S35 V-Tail Bonanza, he checked and indeed found corrosion and had the repairs done immediately. In almost all cases, the corrosion or failure is completely invisible unless the safety wire is removed – something that does not happen in the course of normal inspections. *Dave Weiman Photo*

that obviously is very well maintained.

We began presenting the need for removing safety wire and inspecting all cable connects in our pilot and mechanic seminars in January 2019. We asked members to send us reports of what they found, both good and bad. We quickly found that failure is limited to the right aileron cable connection at a point where the turnbuckle is directly beneath the aft cabin heat duct. Evidence strongly suggests that routine condensation off that duct drips onto the turnbuckle, and the safety wire – necessary to preserve control in the event of cable failure – ironically traps this moisture against the swaged end and promotes corrosion. By early February, we had over 25 known cases of complete cable failure beneath the safety wire, some even where the aircraft are based in dry areas like New Mexico.

ABS/ASF published a recommended inspection procedure and promoted it using all the Society's communications outlets, as well as press releases through AOPA, EAA and the aviation media. We asked our members to submit results to us, as well as remind their mechanics of the need to file Service Difficulty Reports in cases of damaged or failed cables.

The data we received from voluntary inspections helped ABS/ASF quickly narrow the focus of the issue: 1964 through 1977 Bonanzas and Debonairs. Earlier airplanes do not have the aft cabin heat duct that travels over the turnbuckle. Later Bonanzas, all Barons and Travel Airs have aileron turnbuckles in the wheel wells, so while cable corrosion is still possible (easily seen during annual inspections), there is no safety wire in that area to trap moisture against the control system. ABS/ASF revised its recommended inspection in response to this new information and began promoting it heavily to our members in April 2019. We told our members not to wait for the government to tell them they need to address this vital safety issue.

We took our data to FAA in late February 2019, and in a separate meeting, presented our data to Textron Aviation. Both were unaware of the issue. As more data came in and we focused on the inspection, we updated both parties. FAA's first response was to propose a very costly and unnecessary preemptive control cable replacement for all ABS-type airplanes at each 15 years in service – over $10,000 per airplane. We countered with an "inspect and replace as necessary" protocol that was ultimately accepted by the FAA.

In April 2019, ABS/ASF formally requested the FAA to issue an airworthiness directive requiring inspection and replacement as necessary of control cables in 1964-1977 Bonanzas and Debonairs. We made this unusual request for four reasons:

1. The chat lines revealed reluctance among some owners to conduct the inspection, and resistance by some mechanics to conduct the inspection thoroughly since it was not mandated.

2. We publicized this issue extensively in and out of ABS publications, including through EAA and AOPA, but not everyone was getting the word. Only an AD would directly contact all owners and their mechanics.

3. We wanted to limit the scope and cost of compliance to only those airplanes susceptible to the problem, with replacement limited only to those airplanes with damaged cable connections.

4. We wanted owners who had voluntarily had their airplanes inspected to get credit for doing so, and not be financially penalized by having to do the inspection again after issuance of an AD.

Ultimately, the FAA accepted all of our recommendations.

AD 2019-21-08

The FAA published AD 2019-21-08 on November 7th. We were surprised that the AD requires only a one-time inspection, despite the ABS Technical Advisors' recommendation that there be a five-year repetitive inspection requirement to prevent and detect future corrosion and failure. In what may be an industry first, the AD recognizes voluntary inspection of the affected area in accordance with ABS/ASF's recommended procedure, properly documented as suggested by ABS/ASF, as meeting the requirements of the AD. Owners who did the right thing and had their airplanes inspected as soon as we knew of the critical airworthiness threat would not be penalized by having to do the inspection done again.

We were concerned that the AD was published as a Final Rule, giving owners less than six weeks to complete the inspection. More disturbingly, AD 2019-21-08 included four earlier models of Bonanzas that do not have the aft cabin heat duct. I immediately contacted the FAA, which told me the inspection interval is set by the manufacturer, and that the additional models were added on recommendation of Textron Aviation, which claims those models also have this extended heat duct. That same day I researched, wrote and delivered formal comments to the Notice of Proposed Rulemaking (NPRM) using illustrations from Beech publications showing these airplanes do not have the extended aft heater duct and were added to the AD in error. In a separate formal comment, ABS/ASF requested an extension of the compliance deadline to give FAA and Textron Aviation time to rectify the error, and ABS members to schedule the inspection during the busy holiday season.

AD 2019-23-10

Less than two weeks later, the FAA published AD 2019-23-10. This new AD supersedes 2019-21-08 and is identical, except that the K35 – P35 models are removed from this list of affected aircraft. According to the AD, owners of 977 Bonanzas were spared the time and expense of an unnecessary inspection solely as a result of the swift corrective input of the ABS Air Safety Foundation.

Although the short compliance deadline is still in effect, inspection and any repairs must have been completed as

of December 22, 2019. As of this writing (December 4), the FAA had yet responded to ABS/ASF's request for an extension. If that happened, you would have already been notified by email from ABS and have seen it on the ABS website.

Preventing Future Damage

With input from the ABS Technical Advisors, we will be publishing recommendations for ABS members to avoid future corrosion and failure of aileron control cable connections. Our plan is to have these suggestions posted on bonanza.org by January and published in the February ABS Magazine. A little prudent (and necessary) preemptive action at each annual inspection, when the IA is supposed to be visually inspecting, cleaning and lubricating this area already, is valuable; a voluntary repeat of the AD inspection at the fifth annual inspection after AD compliance and every five years thereafter is a good idea, whether mandated or not. Watch for the ABS Technical Advisors' best practices for preventing control cable swaged end corrosion and cracking at www.bonanza.org and in *ABS Magazine*.

A "type club" takes a big chance with its membership when it goes to the FAA asking for an AD to be issued against its members' airplanes. At the ABS Air Safety Foundation, we don't take our mission to protect lives and preserve the Beechcraft fleet lightly. Our members' response in this case has been almost universally positive, with expressions of gratitude not only for making them aware of a potentially catastrophic control failure in flight, but also for proactively limiting the compliance requirements on the basis of actual data. What began as a potential $10,000 or more complete control cable replacement for owners of every Beech Bonanza, Debonair, Baron and Travel Air, became a highly focused inspection and repair as necessary, affecting only about 3,100 airplanes where a very real hazard exists. We could only do this because many of you voluntarily inspected your airplanes and provided ABS the data we needed to address the real problem. The FAA's assistance was also invaluable in focusing the AD requirement, then swiftly replacing the first AD to address its error.

This has been the perfect example of an informed FAA response using the expertise of type clubs. We're also on track for a record level of fundraising for the year and our membership number is higher that it has been in over a decade, in part because our members know we're using their gifts to proactively look out for their safety. Thank you for your help. ❑

Epic Achieves FAA Type Certification

BEND, OREGON - Epic Aircraft has announced that the Federal Aviation Administration (FAA) has granted type certification for its E1000 all-carbon-fiber aircraft design, concluding a rigorous seven-year program.

The Epic E1000 is based on the company's experimental Epic LT model, which was introduced in 2005 through an owner-assist build program based at Epic headquarters.

Epic has over 80 confirmed E1000 reservations from around the U.S., as well as Canada, Mexico, Central/South America, Europe, Russia, South Africa and Australia. The first seven E1000 customer aircraft are in various stages of fabrication, bonding and assembly. Production certification is targeted for the first quarter of 2020 (www.epicaircraft.com).

❑

T-28 Pilot Tells His Story of The Horrific Accident That Nearly Claimed His Life

Photos by Randy Arneson

As reported in the December 2019/January 2020 issue of *Midwest Flyer Magazine,* warbird pilot and commercial and residential real estate developer, Chuck Cook of Ham Lake, Minnesota, lived to tell about his horrific accident that occurred on August 23, 2018, while flying his 1954 T-28 Trojan. Through the generosity of Greg Herrick, owner of Golden Wings Museum at Anoka County-Blaine Airport (KANE) in Blaine, Minnesota, Cook shared his story with 200 friends and fellow aviators on November 24, 2019.

Cook experienced an inflight fire in the cockpit and crash landed his T-28 while attempting to land. His story was one of survival, and his presentation was intended to share some afterthoughts to encourage other pilots to be prepared for such emergencies and hopefully prevent future tragedies.

Cook described that day as beautiful weather-wise, and that he was right where he wanted to be, flying in formation with his buddies en route to a formation flyover event. About 15 minutes into the flight, the generator fail light came on, so he decided to separate from the formation and return to his home airport (KANE).

After turning the aircraft towards Anoka County, he sensed a slight smell of something burning. He radioed his flight lead and asked if there were fires burning out west and he replied yes, there were. The smell was slight and very soon dissipated, so Cook did not give it much further thought. He then switched DC power from battery/generator to battery only. Cook explained that in the T-28, when you have a generator failure and the DC power switch is in the battery/generator position, you have automatic load shed of the secondary bus. When DC power is switched to the battery-only position, you re-energize the secondary bus, which provides power for many systems, including the speed brake, landing gear position indicators – and on some aircraft – the radios.

Cook's direct flight home took him through Saint Paul Downtown Airport class D airspace, which required him to contact the tower and he was cleared through their airspace. After picking up ATIS at KANE, he then radioed Anoka tower. Other than the battery fail light, Cook said the flight back to KANE took about 15 minutes and was uneventful.

Upon reaching KANE, Cook entered the standard break-to-land position, and flew over the threshold of the runway at 1,000 feet above the ground, banked 60 degrees and flew a 360-degree descending circle-to-land procedure. After reducing power to 20 inches of manifold pressure, he deployed the speed brake.

Immediately, thick billowing smoke filled the cockpit. Cook opened the canopy to clear the smoke and announced to the tower that he had smoke in the cockpit. Right away

Chuck Cook's T-28 Trojan


First responders came out to the Golden Wings Museum for Chuck Cook's presentation.


Chuck Cook *(center)* is surrounded by more first responders.

Cook knew he had a serious problem, but feeling that he was too low to bail out, he elected to continue the turn to get the plane on the ground as soon as possible. Cook was being sprayed with a fluid, which at the time he thought was fuel. Following the NTSB investigation, it was determined from the chemical on Cook's flight suit that it was hydraulic fluid. The spray was very heavy and was even getting up inside the visor of his helmet.

At 180 degrees of turn and in level flight and reaching abeam the runway threshold, Cook dropped the gear and flaps. That's when the fire started and became ferocious, but Cook held the stick steady and continued the circle towards the threshold of the runway.

On very short final, Cook realized he could not continue the flare and landing and needed to do a controlled crash and get out of the aircraft as fast as possible. At about 100 feet AGL, Cook was veering left of course and saw the threshold of the runway in his peripheral vision. At this point he was losing his ability to see, so he decided to push the stick forward and drive the airplane home.

Cook remembers waking up to the sound of silence, but doesn't remember exiting the cockpit, but he did, and he was attempting to put out the fire on his clothing when first responders arrived on the scene. After he gave them his wife's name and phone number, he didn't remember a thing until he woke up in the hospital two months later from a medically induced coma with severe burns.

Chuck Cook has gained a renewed appreciation for life, and appreciates the support he has received from family and friends – both old and new. When you read his full story, you too will have a greater appreciation for life!

To read Chuck Cook's full story, go to the *Midwest Flyer Magazine* website **www.MidwestFlyer.com** and type his name in the search box, or go direct to the article: **https://midwestflyer.com/?p=12924**. ❑

Birthplace of Aviation... An Air Trail Around Ohio

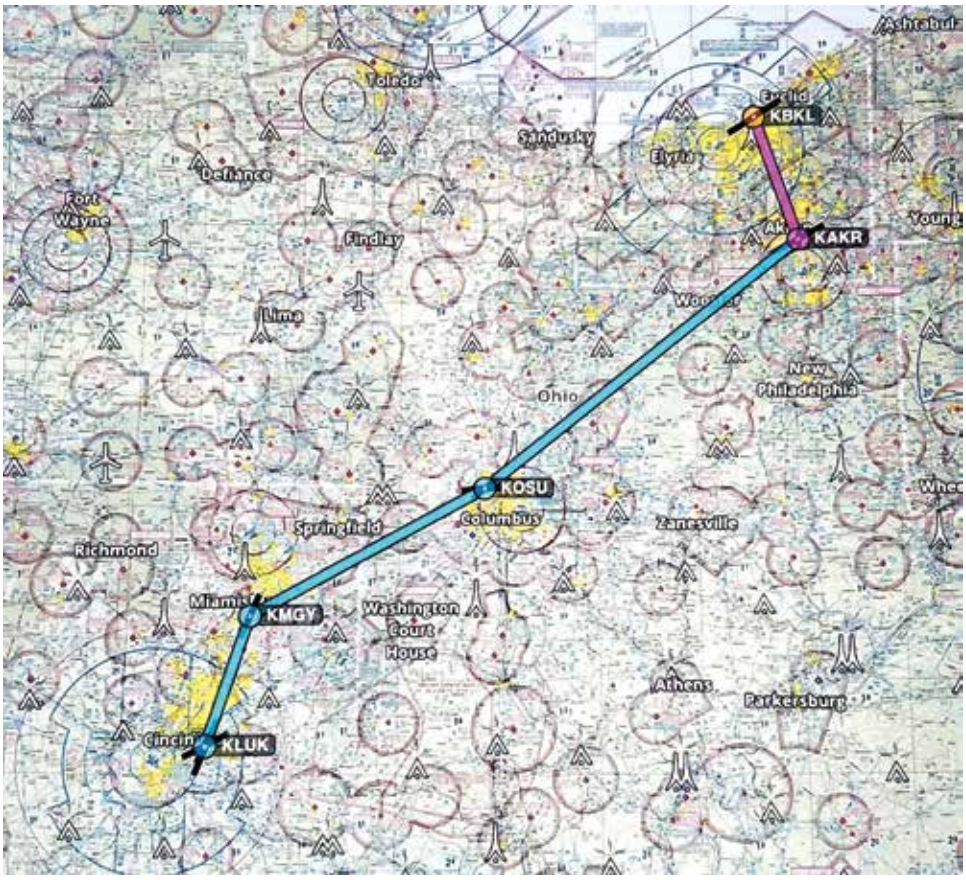
Wright Flyer III at Carillon Historical Park, in Dayton, Ohio.

by Yasmina Soria Platt


Yasmina Soria Platt

Ohio, the "Birthplace of Aviation," has been home to countless aviation inventions, the birthplace of many pioneering aviators, the cradle of the aviation industry, and the location of important events in the history of flight. Though the famous flight testing for The Wright Flyer was done at Kitty Hawk, North Carolina, the Wright brothers were born in Ohio and performed all their experiments that led to the invention in their home state. This air trail is just a sample of some of the things you can see, do and experience (aviation and not) throughout the state of Ohio, from northeast to southwest (or vice versa).

Downtown Cleveland is pretty quaint with nice areas by the Cuyahoga River and Lake Erie, many restaurants, bars, the West Side Market, museums (the most famous is probably the "Rock and Roll Hall of Fame"), a zoo, an aquarium, the



Our route throughout the state of Ohio: Cleveland, Akron, Columbus, Dayton and Cincinnati.
Image Courtesy of ForeFlight

USS Cod submarine, sports venues, and a botanical garden among other things.

Burke Lakefront Airport (center), along the shores of Lake Erie in Cleveland, Ohio.

Burke Lakefront Airport (KBKL) (https://www.burkeairport.com/) is a great airport to use if downtown is your destination. The International Women's Air and Space Museum (http://iwasm.org/wp-blog/) is on the field. It is open daily from 8:00 am to 8:00 pm and there is no charge! Also, keep in mind the airport has a fairly large airshow, the "Cleveland National Air Show" (https://www.clevelandairshow.com/) every year, usually around Labor Day.

Instagram favorite (especially for couples taking professional photos) is "Squire's Castle" in the North Chagrin Reservation (https://www.clevelandmetroparks.com/parks/visit/parks/north-chagrin-reservation). Either KBKL or Cuyahoga County Airport (KCGF) (http://publicworks.cuyahogacounty.us/en-US/County-Airport.aspx) would be your best destination airport to reach the castle.

You know I'm always going to advertise our National Parks. Between Cleveland and Akron, you can find Cuyahoga Valley National Park (https://www.nps.gov/cuva/). While it is not a "one of a kind," it is worth spending at least a full day there. You can go fishing/kayaking on the Cuyahoga River, hike (for example, around Brandywine Falls), bike (for example, on the Ohio and Erie Canal Towpath Trail), and/or take a scenic train ride through it. From January to May, the National Park Scenic excursion is a 2-hour 30-minute round trip. From June through October, the train runs Wednesday thru Sunday on an extended schedule. Peninsula, the little town in the middle of it, is cute and a good place to stop for lunch. If you decide to bike on the Towpath Trail, you can take the train back after you're done. The train can be flagged down at boarding stations by waving both arms over your head.

Squire's Castle in the North Chagrin Reservation.

You can access the park from a variety of airports: Medina Municipal (1G5), Kent State University (1G3), Wadsworth Municipal (3G3), Weltzien Skypark (15G), or Akron Fulton International (KAKR) for example. Wherever you land, rent a car and visit the park.

Akron

In addition to Cuyahoga Valley National Park and Kent State University's aviation program (https://www.kent.edu/cae), if you have kids or grandkids entering the college world,

Between Cleveland and Akron, you can find Cuyahoga Valley National Park, featuring the Cuyahoga River and Brandywine Falls, and the Ohio and Erie Canal Towpath Trail. You can bike the trail or take a scenic train ride through it from January to May. The National Park scenic train ride is 2 hours 30 minutes round trip.

Akron has other things you can visit, such as the Stan Hywet Hall and Gardens and a zoo.

But, more importantly, have you seen the "Goodyear Blimp" at events around the country, including EAA AirVenture Oshkosh? Well, the Goodyear Tire and Rubber Company maintains three operational bases (https://www.goodyearblimp.com/behind-the-scenes/airship-bases.html) and one of them (in fact, the headquarters) is in Suffield, southeast of Akron. Each base ensures that the blimp is ready to soar above its next destination.

Built in 1917, the Goodyear Airship Hangar at Wingfoot Lake is the company's oldest airship facility and one of the oldest active aircraft bases in the world. In addition to a maintenance and construction facility for Goodyear's blimp fleet, it is currently the home to Goodyear's new semi-rigid Zeppelin airship, "Wingfoot Three." Based on its contributions to Lighter-Than-Air, aviation in general and military significance during World War I and World War II, the Goodyear Airship Hangar at Wingfoot Lake was awarded an Ohio historical marker in 2018. You may be able to schedule a visit ahead of time.

Wingfoot Lake also has a state park you can visit (http://parks.ohiodnr.gov/wingfootlake). Akron Fulton International Airport (KAKR) (http://akronfultonairport.com/) is your best bet for visiting the city and its surroundings.

Columbus

Columbus is the capital of Ohio, so as such, you can always visit their capitol or statehouse. Additionally, Columbus is known for Easton Town Center -- the city's most popular restaurant and shop area, the Franklin Park Conservatory, the science education center called Cosi, the German Village, the Short North Arts District, and North Market, rated as one of the nation's top farmer's markets.

Ohio State University (KOSU), also known for its aviation program, Bolton Field (KTZR), and Columbus Southwest (04I), are the closest airports to town. The first two have towers and the last one does not.

Dayton

If we had to choose an aviation birthplace city within the state, it would be Dayton. To honor that, the National Park System (NPS) has the Wright-Dunbar Interpretive Center and the Huffman Prairie Flying Field Interpretive Center (https://www.nps.gov/daav/planyourvisit/visitorcenters.htm). While in town, you can also visit the John W. Berry, Sr. Wright Brothers Aviation Center where you can actually see the (restored) 1905 Wright Flyer III, the only plane to have earned the status as a national historic landmark.

Hawthorn Hill is the historic home of the Wright family. Orville passed away there in 1948. And, we are not done with aviation museums… there is also the National Museum of the U.S. Air Force (USAF) (https://www.nationalmuseum.af.mil/), and the National Aviation Hall of Fame (https://www.nationalaviation.org/). The National Museum of the

National Museum of the United States Air Force

U.S. Air Force is said to be the world's largest and oldest military aviation museum, and also the most-visited free tourist attraction in the state.

Aside from aviation, Dayton is also known for its performing areas (i.e. philharmonic, dance, opera, theater).

Dayton-Wright Brothers Airport (KMGY) (http://www.flydayton.com/dayton-wright-brothers-airport/), renamed as such on December 6, 1995 to honor the Wright brothers' accomplishments, is a General Aviation (GA) airport in Miami Township, approximately 12 miles south of Dayton. It's not the closest airport to town, but one you want to visit. The airport is home to Wright "B" Flyer (http://www.wright-b-flyer.org/), a museum honoring the accomplishments of the Wright brothers. It operates a growing fleet of "lookalike" reproductions, including a historically accurate and beautifully crafted replica of the Model B airplane, which visitors can arrange to fly in! They are open on Tuesdays, Thursdays, and Saturdays, from 9:00 am to 2:30 pm, and admission is free!

Ohio shows pride in its aviation heritage by featuring the "Wright Flyer" on its state seal.

Cincinnati

Cincinnati, the "Queen City" (and my husband's third home) has a lot of buildings registered on the National Register of Historic Places. Visits to Over-the-Rhine District and German-style MainStrasse Village are recommended. You can stroll through Eden Park or Smale Riverfront Park, a number of museums (some of which are in Over-the-Rhine), attend sports events, see the Cincinnati Arch, visit the country's second oldest zoo, and/or go 49 stories high on Carew Tower (https://cincinnatiusa.com/things-to-do/attractions/carew-tower-observation-deck) for the best views in town.

Cincinnati Municipal Airport – Lunken Field (KLUK) (https://www.cincinnati-oh.gov/dote/lunken-airport/) is the closest airport to downtown, and like the rest of the city, has a lot of history. When it opened in 1925, it was the largest municipal airport in the world, the original terminal has the oldest standing Air Traffic Control Tower, and it was the birthplace of American Airlines. You can learn more about the airport's history in this recent article: https://www.onlyinyourstate.com/ohio/cincinnati/lunken-airport-cincinnati/.

Lunken Field has its own bike path surrounding the airport and it connects with the Ohio River Trail which leads to downtown (https://www.traillink.com/trail/lunken-airport-bike-path/). What a great thing to have, especially with the current security environment everywhere. It reminds me of San Antonio and I love it! And, if that was not enough, the Sky Galley Restaurant on the field offers great views from their patio while enjoying a meal. Like Cleveland's Burke Lakefront Airport (KBKL), KLUK also has its largest event, "Lunken Airport Days" (http://www.cincinnatiwarbirds.org/), over Labor Day weekend. The event offers free admission and parking.

Let's go out and explore! Fly safe and fly often!

EDITOR'S NOTE: Yasmina Soria Platt has been with the international airport planning and development consulting firm AECOM since 2016. She also writes an aviation travel blog called "Air Trails" (www.airtrails.weebly.com), in addition to articles on pilot destinations for *Midwest Flyer Magazine*. Pilots can locate articles Yasmina has written by going to www.MidwestFlyer.com and typing in her name in the search box. ❑

DICK READE

A journey back in time!

by Jim Hanson

I've been flying for 58 years. You might well imagine that I've seen a lot of airplanes and met a lot of people. *(This writing gig may not PAY much, but it certainly gets me into a lot of airplanes and lets me meet a lot of interesting people!)* I've been fortunate to meet some of the "Titans of the Aviation Industry" – aircraft and avionics manufacturers, military heroes, inventors, hard-working homebuilders, writers, publishers, astronauts… It's been a great ride!

It's also taken me to a lot of places in 30,000 hours – 83 countries around the world, every state in the U.S., six continents and ocean crossings -- in 346 unique types of aircraft. Here's a story about an aircraft… a journey back in time, and the pilot who made an impression on me.

Jim Hanson of Albert Lea, Minnesota with Dick Reade of Mid-Continent Aircraft of Hayti, Missouri.

In January 1970, I was doing corporate flying from my home base in Albert Lea, Minnesota, for a company that owned a Beech Travel Air. The owner also owned an award-winning Piper Cub. Though he flew and enjoyed the Cub, he was one of those people who enjoyed the challenge of doing a restoration even more than flying the airplane. He wanted a Stearman, and negotiated a trade with Mid-Continent Aircraft, located in the town of Hayti, in the "boot heel" of Missouri. The problem was, there was no pilot that was going to fly a Cub (let alone an open-cockpit biplane) on a long cross-country from and back to Minnesota in January! He asked if I would do it, and when the boss "asks," the answer is almost always "Yes, Sir. When do I leave?" *(Besides, what 23-year-old kid wouldn't want adventure? Nobody ever said I was "smart!")*

It would be a LONG day just getting the Cub down there – 9 hours – and the days were short. I took off at "civil twilight," well before sunrise, "climbing to meet the dawn." There was a promise of a tailwind at altitude, but nearly an hour after takeoff, I looked back from 7500 feet. I could still see Albert Lea Lake behind me! I went low and made better speed. Eight and one-half hours and two fuel stops later, I landed on a crop-duster airstrip in Hayti, using the "IFR Method" *(in this case, it was "I follow RIVERS"—the Shell Rock and the Mississippi)*.

The people from Mid-Continent came out and looked at the Cub, and I inspected the Stearman. The Stearman was no prize, but I was told they had known the airplane for a long time, and it was dependable. The deal was confirmed, and I needed a checkout in the Stearman. I had learned to fly in my Cessna 120, and my flight instructor always said, "If you can fly this airplane, you'll never have a problem with another tailwheel airplane," and that's been true. Though I have flown Fairchild PT-series World War II trainers, I didn't have much "round engine" (radial) time, with the exception of some BT-13 and 15 time.

The owner of Mid-Continent, Dick Reade, gave me the checkout. He showed me how to start it, crawled into the front cockpit instructor's seat, and we made the first takeoff and landing.

"If I want to fly the airplane, I'll pat myself on top of my helmet," he explained. *"And you wiggle the stick to acknowledge."*

I made the first takeoff and on downwind, we exchanged controls and Dick rolled the airplane, then gave it back to me for the landing! I was taken by surprise, but made the landing anyway, and it was a good one. "Great!" he said. "Let's do it again!" Same scenario. He took it on the downwind, and pulled up into a loop. I made the second landing. Third takeoff, on the downwind, the roll was much faster. "What was THAT?" I asked after landing. He replied, "Snap Roll.

You were BORN with the airplane!" *(Actually, the airplane was five years older than I was!)* "Takeoff and have some fun!" he said.

I wanted to make Clarksville, Tennessee (where I had managed the military flying club at Ft. Campbell only a few years prior) before dark. The problem was, my checkpoints weren't coming up. Twenty minutes into the flight, I was lost! It was hard to check the other side of the chart. I was still fighting to keep my chart from blowing away. I thought, "If I just take up a heading of East, I'll eventually hit 60-mile-long Kentucky Lake, and I'll recognize where I am."

I turned about 20 degrees left, and realized that the compass never moved… it was frozen! I wondered if there was another compass in the front pit, so I carefully stowed the chart, held onto the cockpit tubing, unfastened my belts, and stood up. Nope! No compass in the front pit! In the waning light below the overcast, I put the sun behind me, and eventually did hit Kentucky Lake. I now had a choice. From my newly found position, it was about the same distance to the nearest airport as it was to my destination at Clarksville. I reasoned that rather than land at an unfamiliar airport for my fourth landing in the airplane, with fading light, I would continue to the known airport at Clarksville.

I avoided Ft. Campbell's restricted airspace by keeping away from the area where there were no ground lights – a Restricted Area. I kept the airplane high on the downwind, and pulled the power. I was shocked to see the shower of sparks come out of the exhaust. I had never seen the carbon come off a radial engine at night before, and thought I had lost the engine. I immediately turned toward the runway, only to discover what old-time aviators already knew… biplanes have *restricted* forward visibility during the DAYTIME, but they are virtually *blind* at NIGHT! I side-slipped to a landing and it was a good one. I was met by my friend, the airport manager. "Oh, it's YOU!" he said. Take my pickup and get out of here. One of the guys on the field is going to call the cops for landing without lights!"

After three days with old friends, I started northbound. The temperature was 60 degrees, so I didn't even wear my snowmobile suit. I stopped for fuel at Perryville, Missouri, and was surprised to see rows of Sabreliners on the airfield. It's where they built them. (In later years, I bought and sold nine of them). Changing to my snowmobile suit, I headed northbound.

I again followed the Mississippi, and as I passed St. Louis, I saw the then-almost-new Arch. I took out my Kodak, and snapped a photo of it. *(There was no "Alphabet Airspace" in those days.)* I thought about taking a photo on top of a roll, but didn't want to chance negative Gs, so I settled on a positive G loop instead. (A careful examination of the photo shows the upper camber of the airfoils inverted while at the top of the loop.)

I proceeded northbound. It was notably colder, and I ducked as deeply into the cockpit as I could to keep out of the wind. Looking at those cylinders exposed to the wind, I KNEW that there had to be SOME HEAT coming off from them, but couldn't feel any. Worse than that, the ceilings and visibilities were getting lower.

I stopped for fuel at Independence, Iowa and called Flight Service. They read the forecasts – deteriorating ceilings and visibilities in snow for the rest of my trip to Albert Lea. It didn't look good, but then I remembered that our company used to do powerline patrol from near Austin, Minnesota (only 22 miles east of Albert Lea) to Independence, flying 20 feet above the line and 20 feet to the side. I was very familiar with the line, AND the towers along the route! There were several airports enroute, so I jumped on the line to go as far as I could. The weather deteriorated, but I did make it into Austin with "one mile and clear of clouds." The ceilings were so low, however, that I couldn't make the 22 miles home. It was time to call it quits. That was January 24, 1970 – 50 years ago!

The Return Flight

I'd often thought about the owner of Mid-Continent. In 1976, famed FLYING magazine columnist, Gordon Baxter, did an article on him. Before then, I hadn't known what a personality Reade was! I had a three-day trip scheduled to St. Louis recently, and rather than stay in the city, I thought about going back to Hayti. I called Mid-Continent and asked about Reade, and was told, "He still comes to the office every day!" I HAD to go!

Reade was an Iowan, and received a degree in Agriculture from Iowa State. He enlisted in the Air Corps. His first flight was in 1943, and he flew stripped-down and unarmed P-38s in the Pacific doing photo-recon work. The airplanes flew at their max altitude – about 35,000 feet – and at long-range cruise, barely above a stall. Missions could be 10 hours long.

After the war, Reade took up cropdusting in Iowa, later moving south to Missouri. An inventive mind, he looked for ways to improve the airplanes and the industry. New designs for pumps, hoppers, booms, nozzles, and loading trucks came from his experience. He was a leader in this specialized field. In 1967, Reade was a cofounder and President of the National Association of Aerial Applicators (now a worldwide organization that advocates for safety and best practices in Ag Aviation).

Reade had "optimized" the Stearman, but to make ag aviation profitable, the industry needed purpose-built aircraft, designed for the rigorous job. The airplanes needed good short-field capability – fast loading, easy maintenance, good flying characteristics – and most of all, they needed to be SAFE. Reade had input in that as well, helping to design the Grumman Ag-Cat, and taking delivery of serial #1. He held the Ag-Cat dealership for most of the U.S. and all of Canada, and picked up a Piper Pawnee dealership as well. Mid-Continent has always been about service to the air ag industry. They haven't limited themselves to only selling airplanes… they sell modifications, hardware, loading equipment, and

everything an ag operator needs.

Mid-Continent eventually went on to acquire the manufacturing rights to the Grumman Ag-Cat, so the aircraft is well-supported. They even do turbine conversions on the strong airframe.

About Those Stearmans

With the advent of safer, more capable purpose-built ag planes, the Stearman ag era was coming to an end. Most operators would have simply scrapped them, but Reade recognized an opportunity. In the early 1960s, he placed small ads in aviation publications for the MCMD (Mid-Continent Maintenance Division) Custom Special Stearmans. They took clapped-out old Stearmans totally apart – all metal work checked, corrosion-proofed, and re-worked. All wood (including the wings) was built new. The aircraft fabric was new. The new owner could have his choice of engines on the new airplane, all done by first-class shops. The airplanes were things of beauty – hand-crafted by people who knew the airplane better than anyone else in the world. They were eagerly sought after by those who wanted the very best in an affordable antique sport aircraft. Once again, Reade had read the market, turning unwanted aircraft into great sport airplanes.

Visting A Legend

After calling to make sure Reade would be in his office, I pulled into the grass strip at Hayti, Missouri. The place was busy, with ag planes in the shop, on the ramp, or tied down. In the office, a number of people were working… on the phone on an aircraft sale, people involved in various maintenance projects, and a number of people involved in the ag insurance business. I asked if I might see Mr. Reade – told them that I'd like to pay my respects after 50 years – and was ushered into his office. The office was decorated with 3/4 of a century of photos and artifacts, befitting a man of his experience. Paintings and photos of his beloved P-38, Stearmans, Ag-Cats, ag planes of every make, certificates, recognition letters, congratulatory letters, and various memorabilia. I had been cautioned that the 97-year-old was hard of hearing – 14,000 hours behind powerful engines and in open cockpits had taken its toll. He stood up from behind his desk to shake my hand.

I told him about buying an airplane from him long ago, and his "unusual" checkout, and that we had really enjoyed the Stearman. He asked if we still had it. I told him that since we bought that aircraft, I have been in the FBO business, and had owned over 400 airplanes over the years, and brokered about twice that many more.

"Sounds like you and I have the same experience!" he commented. We talked for a few minutes more about his P-38 experience, the ag business, the MCMD Custom Special airplanes, and selling and servicing airplanes – over 135 years in the business between the two of us.

I noticed several copies of *Midwest Flyer Magazine* in the office – *(Hayti, on the Arkansas border, is getting to the far south edge of its distribution range)* – and explained that I sometimes write for the magazine, and wanted a photo of the two of us with the magazine. He obliged, but was in no rush, and with a trait shared by every good businessman, he made me feel that I was important to him.

I took my leave, and as I was driving away, I had to marvel at this aviation innovator – someone who ran an aviation empire, someone who was known throughout the world – an ag aviation industry leader – from a little grass airport in the middle of cotton fields in the Boot Heel of Missouri.

As Sherm Booen used to say on his long-running aviation television show in Minneapolis, *"This Wonderful World of Aviation!"*

EDITOR'S NOTE: Jim Hanson is the long-running fixed base operator at Albert Lea, Minnesota. Though he hasn't matched Dick Reade's record for FBO longevity, he hasn't given up! Jim has flown 346 unique airplane types. If you have an unusual type of aircraft that he may not have flown, contact him at 507-373- 0608 or jimhanson@deskmedia.com. ❑

Record-Setting Father & Son Air Racing Duo Win Big At EAA Wright Brothers Memorial Banquet

Yes, it is a busy and cold time of the year, but EAA members always come out in droves to hear a really great speaker or speakers at EAA's Annual Wright Brothers Memorial Banquet at the EAA Aviation Museum in Oshkosh, Wisconsin.

The event was held December 13, 2019 and featured racing icons, Steve Hinton and his son, Steven Hinton. The father-and-son duo have each won national air racing championships and set world speed records.

Steve Hinton, EAA 181203, is the president of Planes of Fame Air Museum in Chino, California, and a retired air racer who won two Unlimited-class national championships at the National Championship Air Races in Reno, Nevada, over the race course of his career. In 1979, Hinton set the

(L/R) Steve Hinton with his son, Steven Hinton, on stage during the Wright Brothers Memorial Banquet, at the EAA Aviation Museum, Oshkosh, Wisconsin. *EAA Photo/Connor Madison*

The program at EAA's Wright Brothers Memorial Banquet featured (L/R) Sean Elliott and Chris Henry of EAA, who interviewed renowned air racers, Steve Hinton and Steven Hinton. *EAA Photo/Connor Madison*

piston-driven aircraft 3-kilometer world speed record in the P-51D *Red Baron* (re-designated RB-51 due to extensive modifications), a record he held until 1989. Hinton is also renowned for his work in a variety of movies and television series, where he either served as a pilot or aerial coordinator. Among his many credits are *Black Sheep Squadron, Die Hard 2, The Rocketeer, Con Air, Air Force One, Pearl Harbor, Iron Man, Dunkirk, and First Man.*

As one of the most experienced warbird pilots in the world, Steve Hinton is regularly called on to perform test flights for newly restored warbirds. He rarely gives public presentations about his career, but did so at the Wright

Hundreds of EAA members and their families and friends gathered at the EAA Aviation Museum in Oshkosh, Wisconsin, for the Wright Brothers Memorial Banquet. *EAA Photo/Connor Madison*

Each year, *Midwest Flyer Magazine* invites its readers and business associates to attend EAA's Wright Brothers Memorial Banquet. Among those attending this year were (L/R) Ed and Joy Leineweber of Golden Age Aeroworks, Jeff Baum and Krys Brown of Wisconsin Aviation, and Peggy and Dave Weiman of *Midwest Flyer Magazine*.
Photo by Jessica Hellmer

banquet for EAA and its membership.

Steve Hinton's son, Steven Hinton, has won seven Unlimited-class national championships at the National Championship Air Races, doing so in the highly-modified P-51Ds, Strega and *Voodoo*. In 2017, he set the world speed record for a propeller-driven, piston-powered aircraft, doing so in *Voodoo* with a speed of 531.53 mph — breaking the record of 528 mph set by Lyle Shelton in 1989 in the F8F *Bearcat Rare Bear*, which had previously broken his father's record.

Steven Hinton is also involved in the motion picture industry and just completed *"Top Gun: Maverick,"* the sequel to *Top Gun* (1986), which stars Tom Cruise, Val Kilmer, Ed Harris, Miles Teller, Jennifer Connelly, Jon Hamm, Glen Powell, and Lewis Pullman. Cruise and Kilmer reprise their roles from the first film. *Top Gun: Maverick* is scheduled to be theatrically released in the United States 34 years after the 1986 original on June 26, 2020 by Paramount Pictures.

Steven Hinton said that he enjoyed doing the film and working with Tom Cruise, who is also a pilot, and has a *"need for speed!"*

EAA Chairman Jack Pelton welcomed attendees and the Hintons to the banquet, then turned the microphone over to EAA's Sean Elliott and Chris Henry who interviewed the Hintons on stage. A lot of effort goes into this event, from registration to catering to presentations, and all persons involved are to be commended.

EAA's 2020 Wright Brothers Memorial Banquet will be held December 11. Speakers to be announced soon! ❑

EAA Honors Five Aviators At Hall of Fame

OSHKOSH, WIS. – The Experimental Aircraft Association (EAA) recognized the contributions made by five members to the world of flight, as they were inducted into the EAA Sport Aviation Halls of Fame, November 7, 2019, at the EAA Aviation Center in Oshkosh, Wisconsin.

EAA Homebuilders Hall of Fame: Robert Nuckolls of Medicine Lodge, Kansas (EAA 205021) is an expert in aircraft electrical systems. His knowledge and experience have been invaluable to aircraft builders for more than 30 years.

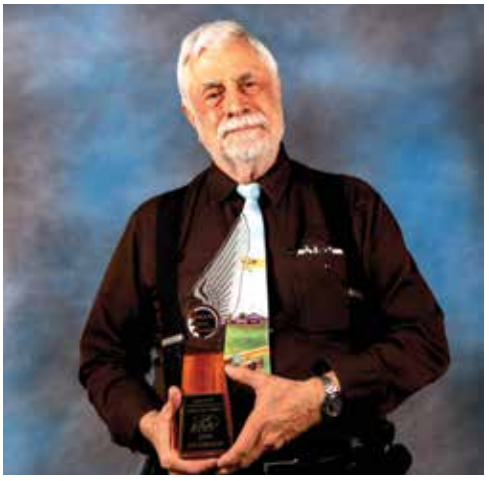
International Aerobatic Club Hall of Fame: John Morrissey of Lee's Summit, Missouri (EAA 83879) has been involved in aerobatic competition since the 1970s, won national championships in both the Sportsman and Advanced Categories, and competed in the World Aerobatic Championships. Morrissey is also known for his specialized aerobatic training camps, which have shaped many aerobatic careers.

Warbirds of America Hall of Fame: Dennis Sanders of Ione, California (EAA 299945) and his family have spent decades restoring and maintaining warbirds, particularly the Hawker Sea Fury. Sanders is perhaps best known for his participation in the Unlimited Gold Category at the National Championship Air Races in Reno, Nevada, which he won the 2019 national title with the legendary Sea Fury "Dreadnought."

Vintage Aircraft Association Hall of Fame: John Turgyan

2019 Aerobatics inductee, John Morrissey *(center)*.

Jack Pelton presented the 2019 Henry Kimberly Spirit of Leadership Award to Michel Bryson.



2019 Homebuilders inductee, Robert (Bob) Nuckolls.

Sandra Partee represented her father, James Morris "Morry" Hummel, 2019 Ultralights inductee.

2019 Vintage inductee, John Turgyan.

2019 Warbirds inductee, Dennis Sanders.

of New Egypt, New Jersey (EAA 71313) has had a steadfast commitment to the preservation and restoration of vintage aircraft. He has owned, restored or maintained a Ryan, Stinson, Howard, Spartan, Beech, and Waco.

EAA Ultralights Hall of Fame: James Morris "Morry" Hummel (EAA 8892) was inducted posthumously for his role in the interest and growth of the ultralight community, beginning with his "HummelBird" in the 1980s, and the all-metal "UltraCruiser."

Michel Bryson of Oshkosh, Wis., received the "Henry Kimberly Spirit of Leadership Award" for having chaired the International Visitors Tent team at EAA AirVenture Oshkosh for more than 15 years. ❑

One of The Original Organizers of Sun 'n Fun Dies Unexpectedly

Ed Escallon

The Laird Super Solution on display at the EAA Aviation Museum, Oshkosh, Wisconsin. *EAA Photo*

Eduardo Carlos Escallon
OCTOBER 28, 1943 – SEPTEMBER 5, 2019

Midwest Flyer Magazine readers may remember the story published in 2017 about a Dutch couple who came to the United States to learn to fly, then bought a 1943 Aeronca L-3 Defender, and had it shipped back to Holland, arriving on September 21, 2017. The couple – Sharon Thiry and Huub van Iwaarden of Cadzand, Holland – learned to fly at Wild Aerobatics (www.wild-aerobatics.com) at Kokomo Municipal Airport, Kokomo, Indiana (KOKK). Sadly, van Iwaarden, 28, died unexpectedly on December 23, 2017 due to cardiac arrest while exercising. More recently, one of their flight instructors, Ed Escallon, 75, also died unexpectedly on September 5, 2019, shortly after arriving at a fly-in in South Carolina.

Eduardo (Ed) C. Escallon was born in Bogota, Colombia and lived in many places in both South America and North America, settling in Indiana in 1977.

A mechanical engineer by trade, Escallon worked for Boeing and NASA in the propulsion field where his work included jets, rockets, and finally electric propulsion and the deposition of small droplets and powders.

Escallon founded Terronics, which held more than two dozen patents, and implemented dramatic new technologies applying coatings to various materials.

Escallon's second avocation was aviation, and he was a highly skilled pilot, flight instructor and aviation historian. He wrote three books on aviation, and was involved in helping to organize the first annual Sun 'n Fun Fly-In in Lakeland, Fla., in 1975.

The first Sun 'n Fun fly-in was held January 24-26, 1975, and was hosted by EAA Chapter 454 of Lakeland, Fla., and sponsored by the Southeastern EAA Sport Aviation Council (SESAC), with the Florida Sport Aviation Antique and Classic Association (FSAACA) pitching in as well. SESAC is a council of 58 EAA Chapters in the eight southeastern states from Virginia to Mississippi. FSAACA is affiliated with EAA's Antique-Classic Division.

Billy Henderson was the General Chairman, and Martin Jones was Co-Chairman. They were ably assisted by Bill Ehlen, Executive Director of SESAC, and Ed Escallon, President of FSAACA.

Also, in 1975, FSAACA, under the leadership of Escallon, retrieved the remains of the "Laird Super Solution" biplane racer from the Smithsonian and began its restoration. The aircraft's designer and original test pilot, Matty Laird, himself, oversaw the project. The aircraft is now on display in the EAA Museum in Oshkosh, Wisconsin.

The Laird Super Solution won the 1931 transcontinental Bendix Trophy Race with Jimmy Doolittle at the controls. Doolittle flew from Los Angeles, Calif. to Cleveland, Ohio at a record speed of 223 mph, and after refueling, sped on to Newark, N.J., clipping 1 hour and 8 minutes off Frank Hawk's transcontinental record. Doolittle's average speed for the 2450-mile coast-to-coast flight was 217 mph.

Escallon's father, mother and brother were also pilots and his aunt was one of the first 27 women to fly military aircraft for the United States during World War II. Escallon only knew his aunt for a week before her tragic death in a mid-air collision, but she was an inspiration to him, nevertheless.

Sharon Thiry said this about her flight instructor: "Ed had a passion for aviation, inspired others by taking them for a ride in his Piper J-5 Cub Cruiser or his Fairchild PT-26. Among those who Ed inspired was his brother, Rob Escallon, who flew with United Airlines for 25 years.

"Ed lived an extraordinary life, which is seen in his accomplishments, and most importantly, through the relationships he enjoyed in both business and his personal life. He truly lived life to the fullest and showed many people around him that you should not just talk about doing, but rather do!"

EDITOR'S NOTE: To read articles about Sharon Thiry and Ed Escallon, go to **www.MidwestFlyer.com** and type in their names in the search box, or go direct to **https://midwestflyer.com/?s=thiry**. ❑

Midwest Talent Made Up The Cast At Price County Fly-In & Airshow

The performers of the Price County Fly-In & Airshow.

by Brittany Lueth (Nielsen)

The Price County Fly-In & Airshow in Phillips, Wisconsin, was another hit with the local community and people visiting Phillips over the Fourth of July weekend. Airshow performers from across the Midwest brought exhilarating aerobatic performances and kept the audience at the edge of their seats. The two-day airshow included Grant Nielsen of Rice Lake, Wisconsin, flying his CAP 232 called "Bubbles;" Craig Gifford of Minneapolis, Minnesota, flying a Staudacher; Dave Scott of Marinette, Wisconsin, with his Pitts; Mike Weinfurter of Rhinelander, Wisconsin, with his L19 Birddog; Don Arvold of A.C.E. Helicopters, Colfax, Wisconsin, providing helicopter rides throughout the weekend; and the Vanguard Squadron from Tea, South Dakota, with their aerobatic formation team performance. Darrel Massman of Waupaca, Wisconsin, served as airboss and airshow coordinator. The diversity of the show brought together biplanes, warbirds, formation flying and high-performance monoplanes to this rural/recreational community of 1,478 residents.

Duane Grube, owner of Harbor View Pub & Eatery *(center)*, with announcer Brittany Lueth (Nielsen) *(left)*, and airshow performer, Grant Nielsen *(right)*.

The Friday evening and Saturday afternoon airshow were packed with high-flying action as families enjoyed the show from the deck at Harbor View Pub & Eatery, located across the highway from Price County Airport. A live band performed at the conclusion of the Friday evening airshow.

As the pilots tumbled and snap-rolled their airplanes, two announcers – Jeff Overby of Scottsdale, Arizona and Brittany Nielsen of Rice Lake, Wisconsin – described the aerobatic routines and shared stories about the performers. It was entertainment on the ground and in the sky!

The show kicked off with the National Anthem, and as the song concluded, from high above, U.S. Unlimited Aerobatic Team member, Craig Gifford, flew his beautiful red, white, and blue Staudacher monoplane, "Captain America," down towards the crowd, brought it knife edge, and left the audience cheering for more! Grant Nielsen followed with a beautiful performance in his CAP 232 named "Bubbles," and showcased the impeccable roll-rate of this aircraft, while a large bubble machine provided visual wonder on the ground. The show concluded with the Vanguard Squadron demonstrating precision aerobatic formation flying. The audience was captivated when the team showcased the Vanguard Heart in the sky, as well as their signature bomb burst.

It's thumbs up for this airshow fan.

For many years, Duane and Bonny Grube of Harbor View Pub & Eatery, have sponsored this airshow, so it remains free to the Phillips community as an annual Fourth of July celebration. Additional support is provided by other local businesses, the Price County Airport, and volunteers. ❑

MINNESOTA AERONAUTICS BULLETIN
www.dot.state.mn.us/aero
The State of Minnesota provides this Technical Bulletin in the interest of Aviation Safety and to Promote Aeronautical Progress in the State and Nation.

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Minnesota DOT Office of Aeronautics
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Minnesota Airports – Contributing To The State's Economy
The Minnesota Statewide Airport Economic Impact Study

by Julie Carr
Aviation Planner
MNDOT Office of Aeronautics


Julie Carr

In 2019, the Minnesota Department of Transportation's Office of Aeronautics conducted a study of the annual economic impacts generated by 126 of Minnesota's 133 public airports. In addition to the 126 study airports, there are seven public airports owned by the Metropolitan Airports Commission (MAC). The MAC recently completed two economic impact studies and both studies were integrated into the 2019 Minnesota Statewide Airport Economic Impact Study to provide statewide totals.

There are five economic impact categories where data was collected. The five categories are airport management, business tenants, average annual capital investment, and spending by visitors who arrive on general aviation airplanes and commercial flights. For each of these categories, annual economic impacts are reported for employment, payroll, spending, and economic activity. The economic activity category is the sum of payroll and spending, and represents the flow of "dollars" from the airports into the state and local economies.

To start, on-site visits were conducted with many airports and business tenants to collect data. Additional data was then collected through online surveys. The information provided by airports and business tenants was essential to developing the estimated economic impacts and their participation was essential to the study data.

Capital investment data was provided by the Federal Aviation Administration, airports, business tenants, and MnDOT. Five years of capital investment spending was collected and then averaged to get the annual capital investment.

In addition, airports and fixed base operators throughout the state helped distribute surveys to visitors who traveled to Minnesota on general aviation airplanes. The eight commercial airports included in the study all distributed surveys to departing commercial visitors. The results from visitor surveys help determine how long an air visitor stays, and how much they spend for lodging, food, ground transportation, entertainment/recreation, and other retail purchases.

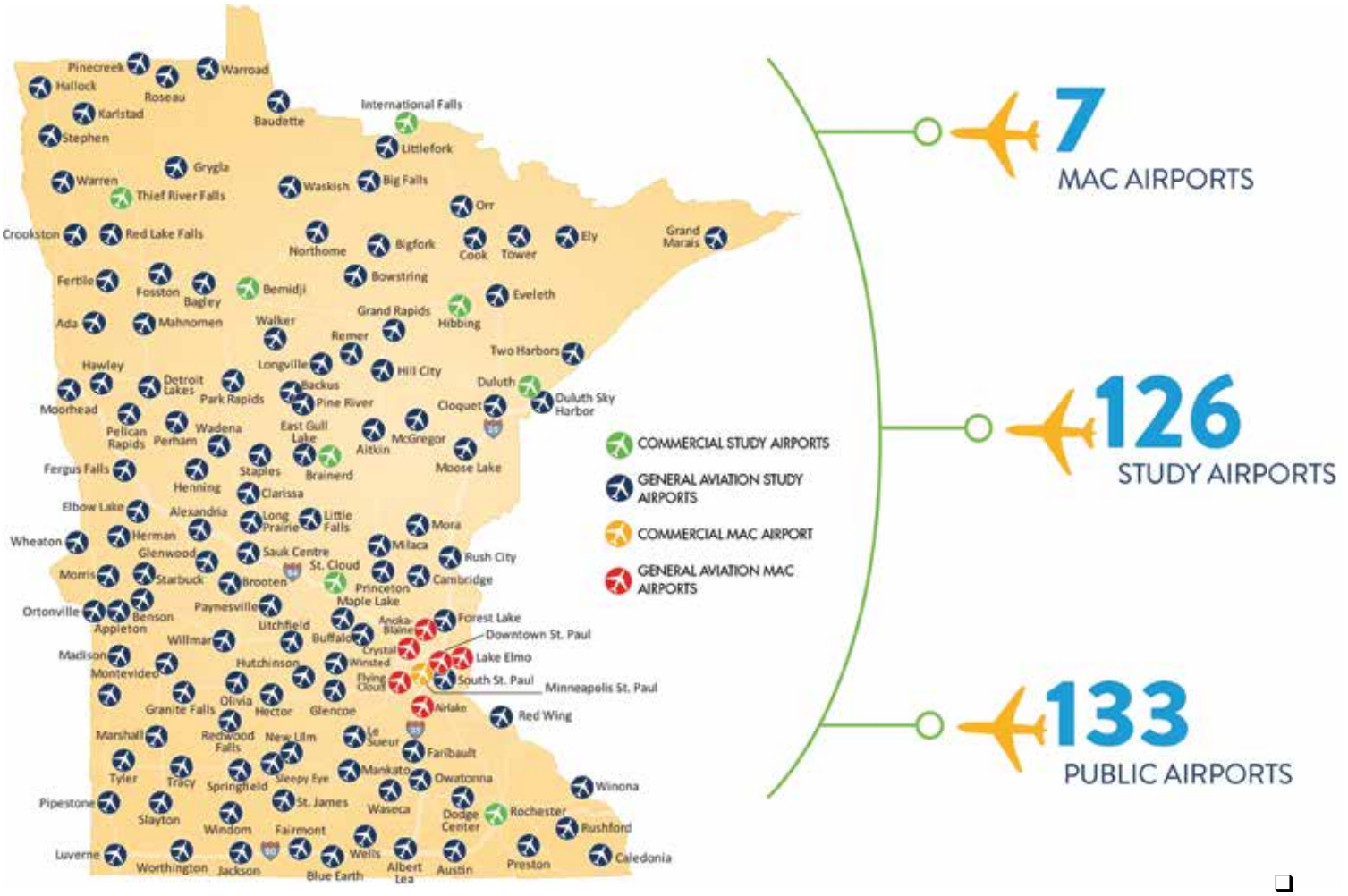
Once direct economic impacts were estimated, IMPLAN, an input/output econometric model, was used to show how direct impacts multiply, creating additional indirect and induced impacts to the economy.

Beyond estimating the economic impact of each airport, many interesting stories were collected around the state. The research identified hundreds of businesses in the state that rely on their local airport. Case studies describe how airports support Minnesota's important agricultural industry, how healthcare and emergency providers benefit from the airports, and how forest firefighting in the state relies on the support of public airports. There is a back-story for each of the 126 study airports in terms of how the airport specifically benefits the communities it serves.

The MnDOT study provides a baseline economic impact for each of the 126 study airports. The economic impact reflects conditions at the time data gathering was completed in 2019. As the aviation industry is dynamic and constantly changing, MnDOT also produced a tool that study airports can use to estimate changes to their baseline economic impacts. For instance, if the airport loses or gains a new business tenant, the economic impact calculator can be used to calculate that potential impact.

Training will be available on the methodology of the study, to assist local stakeholders in sharing the economic benefits of their airport. Each session will also include training on how to use the economic impact calculator. To register for the training, visit **http://airtap.umn.edu/events/workshops/economic/index.html.**

The entire Minnesota Statewide Airport Economic Impact Study, including individual airport economic impact reports and all other supporting materials, will be released late-February/early-March 2020.



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The Importance of Accurate Runway Condition Reporting To Winter Flying!

by Rick Braunig
Manager, Aviation Safety & Enforcement
MnDOT Aeronautics


Rick Braunig

As I'm writing this article, the first snowfalls of the season are coming down and I've only started my snow blower for practice. As you are reading this, the snow probably doesn't seem as pretty, but spring will come.

If you have been flying all winter, I'm hoping you have seen great reporting of airport conditions by our wonderful airport managers… the RCAM (Runway Condition Assessment Matrix) numbers starting to translate into meaningful information. We like to watch the system as a whole as storms move through. If the airports with lots of staff and equipment are reporting low numbers (1-ice or 2-greater than 1/8-inch of water or slush), I would be suspicious of their neighbors who don't have an RCAM report.

If you look for NOTAMs at: https://pilotweb.nas.faa.gov/PilotWeb/ and use the "Radius Search" feature, you can see all the airports in your target area.

Runway Condition reports all start with FICON (Field Condition), so you can skip through those tower light outages pretty quickly. When in doubt, reach out and call the airport manager.

Be careful of early morning departures. Airport managers have been rumored to sleep at night and may not have updated the NOTAMs from an overnight snow. Also realize that at many of the smaller airports, the same person plows both the city and the airport. They may not be asleep, but struggling to meet competing demands. In many cases, those people aren't even pilots.

If that sounds like your home base, we would encourage you to get involved. Pilots cannot issue NOTAMs, but they can help the authorized individuals to be aware of the conditions. If you can swing by the airport and you notice that the conditions don't match the NOTAMs, give the airport manager a call.

See how I'm trying to get you to learn more about the

RCAM system? Pretty crafty of me.

For those of you who have been taking the winter off and not flying, now is a good time to start thinking about spring. Hopefully you preserved your engine for the winter. Start thinking about making a date with your mechanic to get it back in operation and giving it a once over. Might be a good time for the annual. Remember, you have been in preservation as well, so a date with the local flight instructor would be in order as well. Meantime, I'll be praying for an early spring so we don't have to worry about snow anymore. ❑

31st Annual Minnesota Aviation Hall of Fame To Be Held At Minneapolis-St. Paul International Airport

For the first time in the history of the Minnesota Aviation Hall of Fame, the annual investiture ceremonies will be held at an airport on Saturday, April 18, 2020 at the new InterContinental Hotel at Minneapolis-St Paul International Airport (KMSP).

Inductees include Eugene Andreotti, Jr., Dr. Harold H. Brown, Chester W. Hazelton, Glenn L. Hovland, Barbara J. Wiley-Lindquist, James G. Baker, James T. Hancock and William A. Mavencamp.

Eugene Andreotti, Jr. (Maj Gen, Ret), long associated with the Minnesota Air Guard, was Minnesota Adjutant General, 1988-2003. Andreotti was born in St. Paul, Minnesota and earned a Bachelor's Degree in Political Science from the University of Minnesota. He worked briefly for North Central Airlines and later for Blue Cross/Blue Shield.

Joining the Minnesota Air National Guard, Andreotti was commissioned after graduation from pilot training at Laughlin Air Force Base, Texas. In 1971, he began flying the Boeing C-97 Stratofreighter. He was an air technician and held many positions, including Chief Safety and Maintenance Group Commander for the 133rd Airlift Wing (AW). Andreotti later transitioned to the C-130 Hercules and logged over 5,000 hours of flight time.

In 1988, Minnesota Governor Rudy Perpich appointed Andreotti Minnesota Adjutant General; the first and only Air National Guard member to be appointed to that position, which he held thru 2003.

Andreotti advocated for and installed at Minneapolis and Duluth, the Starbase Minnesota education program, which has served over 50,000 inner city students, teaching them technology and aeronautics through the Science, Technology, Engineering and Math (STEM) Program.

Dr. Harold H. Brown was a Tuskegee Airman during World War II, served in the Korean War, and was a pilot with the Strategic Air Command (SAC), college vice president, lecturer and book author.

Brown was born in Minneapolis, Minneapolis, and is a graduate of Minneapolis North High School. He took his first airplane ride at Wold-Chamberlain Field in 1941 and soloed at Moton Field in Tuskegee, Alabama, after enlisting in the Army Air Corps.

Brown trained in the PT-17, BT-13 and AT-6 and was assigned to fly fighter aircraft. He went on to fly combat missions in the P-47N Thunderbolt, P-38 Lightning and the P-51C/D Mustang. His first assignment was with the 332nd Fighter Group at Ramitelli Air Field, Italy. Flying his 30th mission in Italy, he was strafing a German train when the locomotive's boiler blew up and shrapnel damaged his engine, forcing him to bail out. He was captured and spent the last few weeks of the war in a German prisoner of war camp.

After the war, Brown received orders to be an instructor at Lockbourne Air Force Base, Columbus, Ohio. At the start of the Korean War, Brown was transferred to the Far East Material Command at Tachikawa, Japan. He flew missions from Taegu, Pusan and Seoul bases in Korea. During one flight, he experienced an explosive decompression while flying an F-80 Shooting Star jet fighter. The canopy departed the aircraft taking the rudder with it, also leaving a two-inch gash along his flight helmet. The canopy almost took his head off. Brown was able to safely land the aircraft.

Following the Korean War, with his unit still segregated, Brown was again assigned to Tuskegee Army Airfield as a flight instructor. He went on to earn qualifications as a bombardier/navigator while stationed at Lockbourne AFB a second time. He then advanced to become an electronics instructor and then supervised other instructors as the chief of basic electronics. As a senior pilot, Brown was selected to serve in the Strategic Air Command where he qualified as a B-47 pilot. In January of 1958, his unit's mission transitioned from reconnaissance to electronic countermeasures. Eventually Brown became a flight instructor on the B-47. In 1961, he was hand selected to be a SAC Command Post Controller.

In 1965, Brown transitioned from active duty as a Lt. Colonel and attended Ohio University, receiving a degree in Mathematics. He went on to obtain his doctoral degree and taught at Columbus Area Technical School. He became chair of the Electrical Engineering Program and eventually vice president of Columbus State Community College.

Chester W. Hazelton (1910-2001) was an aerial photographer with Mark Hurd Aerial Surveys, and a global photographer.

Hazelton was born in Minneapolis, Minnesota. He began flying at Freeman Aircraft Service in 1933 in an OX-5 Travel Air, and received his Private, Commercial and Transport Pilot Certificates in the same year. He worked briefly at Freeman Aircraft Service as an instructor and special assignment pilot.

Hazelton spent the largest part of his career flying aerial photography missions. He joined the Mark Hurd Aerial Survey Company in 1938, flying missions for the Soil Conservation Service and the U.S. Geological Survey. Based out of St. Cloud, Minnesota, Hazelton flew mapping flights over northern Minnesota, and in New York, Massachusetts, Pennsylvania and Maine.

When World War II broke out, the government had absorbed most of the Hurd employees and aircraft. Because of that, Hazelton joined Pratt & Whitney's aircraft service department, training military mechanics on the installation of engines. Later he worked for Springfield Flying Service in Springfield, Missouri, ferrying new Cessna aircraft to customers. Following the war, Hazelton returned to the Twin Cities and worked at Northwest Airlines for one year, then returned to the Mark Hurd Aerial Survey Company in 1955.

At the time of his death in 2001, he had accumulated over 20,000 hours of flight time.

Glenn L. Hovland (1920 – 1994) was a World War II flight instructor, balloon flight support pilot, and corporate pilot.

A native of Austin, Minnesota, he enlisted in the Army Air Corps in 1941, and became a flight cadet, soloing in 1942. He went on to earn his wings and a commission as a 2nd Lieutenant. He was assigned duties as a flight instructor at Yuma, Arizona; Pecos, Texas; and Lincoln, Nebraska, accumulating over 2,200 flight hours.

After he transitioned out of the Air Corps in 1945, Hovland embarked on an extensive aviation career beginning as a civilian instructor at Oxnard, California. In 1946, he moved back to Austin, Minnesota, where he flew charter flights across the country for local businessmen in a Navion, which was named "Spam Town" after his hometown's most famous product. He partnered with Austin Aero Service and continued flight instructing while serving as a Civil Air Patrol commander. During this period, Hovland flew charter flights for several well-known politicians, including Adlai Stevenson, Estes Kefauver and President Eisenhower.

In September 1955, Hovland was hired to ferry Lockheed Lodestars from Spain to Minneapolis where they were to be demilitarized and sold for civilian use. It was during this time that he worked as a chase plane pilot for high-altitude balloons. Among the balloons Hovland tracked was the balloon piloted by Joseph Kittinger in "Project Manhigh," a pre-space aeromedical project of the U.S. Air Force from 1955-1958. Hovland tracked the balloon from South St. Paul, which reached an altitude of 95,000 feet. Under a follow-up project, Hovland tracked Major David Simons on another epic flight that topped an altitude of 101,000 feet.

Hovland later began working for Minnesota Airmotive and became a corporate pilot for Hormel Company. Hovland flew at least 6,800 hours chasing balloons and over 40,000 hours in all when he retired in 1982.

Barbara J. Wiley-Lindquist is a native of Robbinsdale, Minnesota. Her father was the pilot for her first airplane ride at Minneapolis-Crystal Airport. She later soloed a Cessna 150 in 1965 and earned her Private Pilot Certificate a year later. She went on to earn her Instrument, Seaplane, Instructor and Air Transport Pilot Certificates by 1971, a Bachelor of Science Degree in Education from the University of Minnesota, and taught in the Osseo School District.

Once Wiley accumulated 4,000 hours of flight time instructing and flying charter at Crystal Shamrock, she applied at North Central Airlines. Because she was a woman seeking a job in a male-dominated occupation, she masked her gender on the application by only using her first initial and last name.

Wiley was hired by North Central Airlines in 1974 as a First Officer and flew the Convair 580, becoming one of the first women hired by a major airline to fly "right seat."

Wiley's pioneering career continued with her becoming a DC-9 first officer in 1977, Convair 580 captain in 1979, DC-9 captain in 1984, and an Airbus A320 captain in 1991. She achieved the rank of captain on the Boeing 747-400 in 2004. Following her retirement from the airlines in 2005, she transitioned to screening and interviewing prospective pilots for Compass and Endeavor Airlines.

James T. Hancock is a Vietnam veteran, was a captain with Northwest Airlines, a pilot examiner with the Federal Aviation Administration, an aircraft homebuilder, and has made 1,000 parachute jumps.

William A. Mavencamp of Maple Lake, Minnesota, was involved in Vocational Flight Training from 1970 until 1978. An FAA-designated examiner from 1972-2010, Mavencamp gave more than 20,000 checkrides during his career. He passed away in 2015.

In addition to the inductees, the Minnesota Aviation Hall of Fame will present awards to Marsha S. Bordner as "Aviation Writer of the Year" for her book "Keep Your Airspeed Up," and to sculptor, Nicholas Legeros, as "Best Aviation Artist of The Year."

Minnesota Aviation Hall of Fame sponsors include the MSP Airport Foundation (Foundation Sponsor), Delta Air Lines (Forever In-Flight Sponsor), Cirrus Aircraft and Signature Flight Support (Jet-Setters Sponsors), Aircraft Owners & Pilots Association (AOPA) and Wipaire, Inc. (Pioneer Sponsors), and JETPUBS, Inc. and Wings of the North (In-Kind Contributors).To register for the banquet, complete and mail the registration form at www.mnhalloffame.org or register online at www.eventbrite.com with a credit card payment.

The deadline for banquet reservations is April 11, 2020. Reservations will be accepted if space permits after that date, but specific seating requests may not be honored. All seating is assigned, and no tickets will be sold at the door.

For reservations at the InterContinental Hotel call 800-496-7361. Use code "V8H" for a special MAHOF room rate of $179.00 (www.intercontinentalmsp.com). For additional information, email MAHOFBanquetReservations@gmail.com or call 952-906-2833. ❑

Aeronautics Report

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Automated Weather Reporting

by Hal Davis
WisDOT Bureau of Aeronautics


Hal Davis

Weather information plays a crucial role during flight planning and in flight. From your local TV meteorologist, to airport-specific observations and forecasts, weather information can be obtained from many sources in written, verbal, and visual formats. As with any information, it is important to understand where this information comes from and its intended purpose before using it for decision-making.

What is Automated Weather Reporting?

Other than glancing at the windsock, automated weather reports are probably the most common source of weather information for pilots. Even if they've done nothing else, most pilots will listen to the weather report prior to takeoff or landing, assuming one is available.

Automated weather reporting systems share many similarities and some minor differences. The most common types include:

- Automated Surface Observing System (ASOS)
- Automated Weather Observing System (AWOS)
- Automatic Terminal Information Service (ATIS)

The primary purpose of each of these systems is to identify and report current weather conditions at a particular airport. This is done through a series of specialized sensors, which measure current weather conditions, such as temperature, wind speed, wind direction, cloud height, and visibility. This information is then updated and broadcast on a continuous loop to pilots through an automated recording.

Most pilots are accustomed to listening to the recording over the radio. Radio frequencies, as well as the automated weather reporting system type, can be found on several Federal Aviation Administration (FAA) publications, including sectional charts, approach plates, and airport diagrams. Alternatively, you can listen to the recording over the phone. The FAA chart supplement, and other popular third-party aviation resources like ForeFlight and AirNav, will list both the frequency and phone number.

Try it Now!

If you're not familiar with automated weather reporting systems, here's a quick way to experience one for yourself. Just call any of the numbers listed below and listen to the automated message. Don't worry, you won't have to talk to anyone. Just dial and listen to the looped message.

Airport	Associated City	Type	Phone Number
John F. Kennedy Memorial Airport	Ashland	ASOS	715-682-5541
Door County Cherryland Airport	Sturgeon Bay	AWOS	920-743-7087
Dane County Regional Airport	Madison	ATIS	608-249-0615

No matter which service you call, the information given will be in the same order:

1. Airport Name Identification
2. Time of Report (in Zulu time aka Universal Time Coordinated aka Greenwich Mean Time)
3. Wind Direction and Speed
4. Visibility
5. Sky Condition
6. Temperature and Dew Point
7. Altimeter (i.e. Atmospheric Pressure)
8. Additional Remarks

AWOS and ASOS

To the end user, both AWOS and ASOS weather reporting systems are functionally the same. The only real differences are behind the scenes. For instance, the methodologies for deriving various readings may vary by the specific equipment and software installed. Another primary difference is who owns and maintains the equipment. AWOS are systems owned by the airport and are typically acquired with FAA funding assistance. In Wisconsin, the state administers and funds a statewide AWOS maintenance program to keep the systems in working order. There are 51 AWOS-equipped airports in Wisconsin.

These systems are further classified depending on their capabilities as follows:

Classification	Weather Parameters Reported
AWOS-A	Altimeter
AWOS-AV	Altimeter and visibility
AWOS-I	Altimeter, wind, temperature, dew point, density altitude
AWOS-II	AWOS-I plus visibility
AWOS-III	AWOS-II plus cloud/ceiling data
AWOS-III P	AWOS-III plus precipitation identification
AWOS-III T	AWOS-III plus thunderstorm/lightning identification
AWOS-III P/T	AWOS-III plus precipitation and thunderstorm/lightning identification
AWOS-IV	AWOS-III plus precipitation occurrence, type and accumulation, freezing rain, thunderstorm, and runway surface sensors.

Conversely, the ASOS program is a nationwide network of weather stations which facilitate both aviation and non-aviation specific weather forecasting. The system is managed jointly by the National Weather Service, FAA, and Department of Defense. At a minimum, an ASOS will provide the same capabilities as a AWOS-III P with some additional capabilities. There are 18 ASOS-equipped airports in Wisconsin.

ATIS

ATIS is a tool used by air traffic control facilities to alleviate frequency congestion by broadcasting essential information routinely needed by pilots through a looped message on a separate radio frequency. Weather information is a primary component of the ATIS radio broadcast, along with other information, such as notices to airmen, active runways, and available approaches. Each iteration of the ATIS broadcast is assigned a letter in the phonetic alphabet used by air traffic controllers to verify receipt of the information from pilots.

ATIS is not a standalone weather observation and reporting system. The weather information itself is derived from the on-field AWOS or ASOS. However, in some instances the automated weather observations are augmented by qualified aviation weather observers. If the air traffic control facility closes during certain hours, the ATIS broadcast will revert to the standard AWOS/ASOS recording. Similarly, calling the phone number listed for an airport with an ATIS will connect you to the AWOS/ASOS recording, rather than the actual ATIS broadcast.

Other Remarks and Notices

In some locations, airports may have the ability to record special remarks or notices to be included at the end of AWOS or ASOS transmissions. These messages, in addition to those

remarks given on an ATIS broadcast, are not a replacement for the Notices to Airmen (NOTAM) system. Airports are still expected to publish appropriate NOTAMs and pilots should always check an official source for a comprehensive list of active NOTAMs.

How old is your weather information?

Other than your firsthand observations, like noting the position of the windsock or raindrops on the windscreen, any weather information you receive is not "real-time". The age of the information depends on the source. AWOS and ASOS transmissions are updated every minute. While those systems are responsible for providing the weather information for ATIS broadcasts and the airport's written Meteorological Aerodrome Report (METAR), these sources of weather information may be up to an hour old. Both ATIS and METARs are generally updated 55 minutes past the hour, but can be updated more frequently, especially during changing weather.

AWOS Troubleshooting

Occasionally, AWOS components may stop working for one reason or another. If you are an airport manager and this happens at your airport, DO NOT attempt to fix the system yourself. We know most airport managers are "go-getters". It may be tempting to try and troubleshoot and fix the problem yourself. DON'T DO IT! Only FAA-certified AWOS technicians may service an AWOS. Trying to save time or money by doing it yourself may ultimately jeopardize the entire system, even if your fix is successful.

For any AWOS issues in Wisconsin, contact Michael Menon at 608-267-5272 or Michael.Menon@dot.wi.gov.

Find Out More

For more information about automated weather reporting systems, see the FAA Aeronautical Information Manual and visit faa.gov/air_traffic/weather/asos/ for a full listing of AWOS/ASOS system information in your state. ❑

Meet Corbin Montgomery

Airport Engineering Specialist

Wisconsin Bureau of Aeronautics

Corbin Montgomery joined the Wisconsin Bureau of Aeronautics (BOA) in November 2019. As an airport engineering specialist, Corbin is responsible for managing projects at nine airports in Wisconsin. His duties include helping airports develop a realistic and achievable capital improvement plan; contracting with consultants for planning, design and construction engineering services; conducting plan reviews; and working as a liaison between local sponsors and state and federal agencies.

Corbin Montgomery

Corbin earned a bachelor's degree in Aviation Management from the University of Dubuque in 2019. Before Corbin attended the University of Dubuque, he worked as a heavy equipment operator. During his time in school, he had an internship with Dubuque Regional Airport in the operations department.

In his free time, Corbin enjoys hiking, golfing, fishing, and anything aviation related. For a full list of Wisconsin airports and the BOA staff member assigned to each airport, go to **www.wisconsindot.gov/boa-pm**. ❑

IA Mechanic Refresher Seminar

Early registration is now open for the annual Wisconsin Department of Transportation Mechanics Refresher and Inspection Authorization (IA) Renewal Seminar. The seminar is scheduled for Saturday, February 22, 2020, at the Holiday Inn and Convention Center in Stevens Point, Wisconsin. It will feature an exhibit hall with numerous industry representatives and displays. Throughout the day, speakers will present on a variety of Federal Aviation Administration-approved aviation maintenance topics. Early registration is just $35 and ends February 7th. For more information, please visit: **wisconsindot.gov/avtraining**. ❑

Wittman Regional Airport To Build New General Aviation Terminal

OSHKOSH, WIS. – Supervisors of the Winnebago County Board have approved three resolutions to move forward with the construction of a new general aviation (GA) terminal at Wittman Regional Airport.

The terminal project has been in the works for several years as operating costs of the existing terminal have risen. Two existing structures located on 20th Avenue will be replaced by a single, more efficient and right-sized facility to appropriately serve the airport, community, and flying public.

The current GA terminal, built in 1958, occupies 6,254 square feet and is operated by Basler Flight Service. The adjacent 33,000 square foot terminal was constructed in 1971 to serve commercial airline operations. Commercial airline service concluded in 2003.

Jim Schell, airport director, expects to have plans finalized and submitted to the Wisconsin Bureau of Aeronautics and City of Oshkosh in early 2020 with a bid opening in late April. Construction of the new GA terminal is planned to commence as early as May 2020 with completion expected approximately 13 months later. The new facility will be a single-story, 12,500 sq. ft. building. In addition to serving general aviation, the new building will also provide space for Basler Flight Service, airport administrative offices, space for a rental car operation, and meeting rooms available to the general public.

Total construction cost is currently estimated at $6.8 million. Grant assistance from the Wisconsin Bureau of Aeronautics will be $1.8 million with the remaining balance being funded by the county. The total investment includes demolition of both existing facilities, site work and paving for a new parking lot, constructing the new GA terminal, and an improved access road from 20th Avenue.

For further information, contact Jim Schell at JSchell@co.winnebago.wi.us, or (920) 236-4930 (www.wittmanairport.com). ❑

An Unexpected Career Path Leads To A World of Possibilities: A Conversation With Aviation Maintenance Technology Student, Noah Anderson

"One of the best things is that students go right from learning in the classroom to the hangar to learn it hands-on." Noah Anderson

"Somehow I knew that this program was the perfect fit for me." Noah Anderson

Northland: Where are you originally from?

Noah: I am from East Grand Forks (Minnesota) originally. I went to Sacred Heart School in East Grand Forks, and after graduation, I attended Northland's East Grand Forks campus.

Northland: How did you choose the Aviation Maintenance Technology program?

Noah: I had been a student on the East Grand Forks campus for over a year. I enrolled expecting to take my generals and move on to a four-year college. However, I was really undecided about what major to pursue. I was just trying to figure out what I wanted to do, when my cousin serving with the U.S. Border Patrol in Grand Forks, who works with drones at the Grand Forks Airforce Base and Grand Sky, encouraged me to check out the number of aviation programs at the Thief River Falls campus. I decided to take a tour to explore the campus and learn more about the aviation programs. Lynn McGlynn (Administrative Assistant – Aerospace) was there to give me the tour, and as soon as I walked into the hangar, I instantly knew the Aviation Maintenance Technology program was for me.

Northland: Did you have any prior aviation experience?

Noah: I had zero aviation experience prior to Northland and had only flown in a plane once, and that was intimidating. However, I somehow knew that this program was the perfect fit for me. I was up to the challenge.

Northland: What is something you didn't expect about the AMT program?

Noah: Most everything was unexpected! I was only one of a couple of fellow students that had no prior aviation exposure before coming to Northland. In general, I was nervous about being qualified to work in the field – particularly when you have people's safety in your hands – but I realized pretty quickly that it's attainable. My instructors instilled confidence in me, and made me believe in myself, made me believe that I can do this.

Northland: What do you like about Northland's Aviation Maintenance Technology program?

Noah: The facility is fantastic, and the program is top-notch. Class size and the resources available to students really lends itself to an extremely well-rounded educational experience. All instructors came from the industry, so they

have real-world experience. One of the best things is that students go right from learning in the classroom to the hangar to learn it hands-on.

Northland: What are your future career goals?

Noah: I graduated last spring with an Associate of Applied Science (AAS) degree in Aviation Maintenance Technology and a certificate in Unmanned Aviation Technology Maintenance Systems. I was offered a job at General Atomics Aeronautical Systems in Grand Forks, North Dakota, as a mechanic. General Atomics specializes in remotely piloted aircraft systems. They are very aware of the quality of AMT students that Northland produces, and I think that gave me a leg up in landing the job. In the future, I hope to work my way up into management and help lead other new mechanics in the field.

Northland: What advice do you have for potential students considering the AMT program?

Noah: Don't be intimidated. Pretty much anyone can do this. If you're looking to work with your hands, you couldn't find a better program with better job opportunities. Every couple of weeks there was a different company meeting with students, attempting to recruit the soon-to-be graduates. The possibilities are really endless. Graduates of this program are qualified to work for not just Delta, but NASA as well. I also don't see this industry slowing down. More and more people flying and unmanned aircraft systems have expanded this field and opened up a whole new world of opportunities. It really is the wave of the future.

Northland: Do you have any hobbies outside of school?

Noah: I love being outdoors; hunting and fishing. I'm really interested in carbon fiber construction for race cars, drift cars, and car body panels. A friend and I are considering opening up a composite and carbon fiber shop on the side.

This material is based in part upon work supported by the National Science Foundation (DUE 1902574). Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

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Lucy Newell...
New Zealand Pilot Working In The Canada Bush

by Dave Weiman

While the demand for commercial pilots may be at an all-time high, the Canada fishing lodge company, Wilderness North in Thunder Bay, Ontario, is attracting pilots from as far away as New Zealand.

On our annual Canada Fishing Fly-Out to "Miminiska Lodge" in Ontario in August 2019 – one of several lodges owned by Alan and Krista Cheeseman of Wilderness North, and one of few lodges with its own airstrip (CPS5) – we had the pleasure of meeting their newest pilot, Lucy Newell, 24, of New Zealand.

Lucy Newell behind the controls of the Wilderness North de Havilland Beaver. *Bevan Dewes Photo*

All of us guys watched as Newell made her approach to Miminiska Lake in the de Havilland Beaver, then docked in strong winds as if it were something she did every day, which it is. We also watched as she loaded gear and a canoe for some guests going on a one-day canoe trip to do a little sightseeing and trout fishing. Newell accepted help from the dock crew, but loaded the Beaver herself to ensure proper weight and balance.

Growing up on a farm on the South Island of New Zealand, Newell knows what work is. Her father owned and ran a high-country sheep and beef station, there.

Although her father had always wanted to get his pilot's license, he never had the opportunity. So, he proposed the idea to his daughter and she hasn't looked back since.

Newell started flying when she was 18, but actually completed all six of her Private Pilot License exams before ever getting into an airplane (i.e. referred to as an "aeroplane" in New Zealand). "I thought that if I enjoyed the theory, I'd probably enjoy the flying," said Newell.

After high school, Newell received a diploma in general aviation at the International Aviation Academy of New Zealand (IAANZ) in Christchurch, and said this education was very "procedurally" based. "I made the decision to go to another flight school for a more practical approach for my instructor rating."

Newell holds a Category B Flight Instructor Rating-Aeroplane, issued by the New Zealand Civil Aviation Authority, and a Commercial Pilot License, issued by Transport Canada. In New Zealand, there are three levels of instructor ratings: A, B and C with C being the first rating. Newell also has an aerobatic rating, so she is ready for anything, flying-wise.

Newell had been instructing for a company called Classic Flights in Wanaka, New Zealand, when she heard about the opening at Wilderness North. Classic Flights was operating an array of aircraft, including a Cessna 172, Piper PA-28, Diamond 40, 7GCAA Citabria, and two DH82A British Tiger Moths.

"I was lucky enough to fly the Tiger Moth on scenic and aerobatic flights under our Adventure Aviation Certificate," says Newell. (Under New Zealand Civil Aviation Authority, Part 115, Adventure Aviation - Certification and Operations, all adventure aviation operators must hold an operator certificate.)

Newell's boyfriend, Bevan Dewes, also enjoys flying vintage aircraft. Dewes is co-owner of Dewes Brothers Ltd., a beekeeping business specializing in Manuka honey and Nuc production, and flys a parachute jump-plane and World War I aircraft based in Masterton for movie director and producer, Peter Jackson.

Newell has 2530 hours total time with a majority of those hours instructing, and doing initial 'trial flights' for

Lucy Newell prepares to load the Wilderness North de Havilland Beaver at Miminiska Lodge, Ontario. *Dave Weiman Photo*

customers wanting a flight experience. As of last fall, she had approximately 120 hours of floatplane time, but she flys like someone with a thousand hours. Newell came to Canada having flown only 8 hours in a PA18 Super Cub for her initial seaplane rating, and picked up another 25 hours in the Cessna 185 at Wilderness North before getting checked out in the Beaver.

"My future goals are mainly focused on aviation, so I would probably say, my goals outside of work include flying vintage and rare aircraft. The Tiger Moth is a very special aircraft to me, but I am working on doing a Harvard rating in the future as well."

Newell was lucky enough to be given a reference by a friend who flys for Wilderness North in Indonesia. "At the time, there was not a flying position available, but they kindly opened a position for me to have a chance to start with the company.

As for the pros and cons of flying for Wilderness North, "I wouldn't say there are any cons. Just like any job, when you are working, you are working. Great rewards don't come without hard work. It would be a boring life, otherwise! I enjoy the challenge of a fast-paced work day and problem solving. I have not been disappointed with my experience in Canada!

"The pros are endless, really… Fantastic employers! Krista and Alan Cheeseman are two of the hardest-working people I have ever met, and go out of their way to welcome guests and employees, alike.

"I have the opportunity to fly unreal aeroplanes – from the Cessna 185 to the Beaver and Otter, to Caravans and Air Tractors. (Wilderness North operates Air Tractors out of Nakina, Ontario and Indonesia, hauling fuel). The fleet is impressive to say the least!

"A company can't operate well without great, hard-working employees, and there isn't any shortage of awesome people at Wilderness North! I felt welcomed and part of the family the day I arrived from New Zealand.

"I promise, this isn't a paid promo! Wilderness North is just a great place to work and I can't rave enough about it.

"When I return to Canada from my break back home in New Zealand, I will be flying a Grand Caravan with Wilderness North out of Nakina, Ontario, transporting passengers and cargo throughout the winter.

Lucy Newell with the Wilderness North Cessna 185. *Bevan Dewes Photo*

"My goal is to work towards flying the Air Tractor in the future. This is the 802F model with a Fuel Boss conversion. Each load carries 4000L of gas! And I like the prospect of flying the plane in Indonesia. This will come with more challenges, which appeals to me!"

Do you have any interest in flying for the airlines?

"To be honest, the airlines have not been calling me. I enjoy flying in the bush and using my hands and feet. Wilderness North is a very attractive company with an array of incredible aeroplanes and operations, so I see myself staying with them for a long time!"

Flying To Miminiska Lodge, Ontario

Each year, *Midwest Flyer Magazine* promotes three "group trips" to Miminiska Lodge. The lodge is located 196 nm north of Thunder Bay on the Albany River Watershed, and is only accessible by air. Its 2400 ft. grass airstrip (CPS5) makes the lodge especially appealing to pilots with aircraft on wheels.

While all three of the group trips for 2020 are booked, there are a few reservations still available for individuals on a plane-by-plane basis. For additional information, contact Lynette Mishibinijima at Wilderness North: 807-983-2047 or toll free: 888-465-3474. ❑

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Go to "Calendar" at www.MidwestFlyer.com and post your aviation event.

You can also email: info@midwestflyer.com – Or – Mail To: Midwest Flyer Magazine, 6031 Lawry Court, Oregon, WI 53575

NOTAM: Pilots, be sure to call events in advance to confirm dates and for traffic advisories and NOTAMs.

Also, use only current aeronautical charts, etc., for navigation and not calendar listing information.

Midwest Flyer Magazine is not responsible for the accuracy of, or reliance on, any information published.

* Indicates any new or updated calendar listings since the previous issue.

FEBRUARY 2020

15 **Buffalo (KCFE), Minn. -** Chili Feed & Cookout 11am-3pm. For further information or to enter a pot of chili in the cookout, contact Laura Herrmann at ljherrmann@yahoo.com

22* **Stevens Point, Wis. -** Wisconsin Department of Transportation Mechanics Refresher and Inspection Authorization (IA) Renewal Seminar at the Holiday Inn and Convention Center. **wisconsindot.gov/avtraining**

22* **Oshkosh, Wis. -** Winter Flight Fest featuring Skiplane Fly-In and Family Flgiht fest at EAA Pioneer Airport 10am-4:30pm. For updates www.eaa.org/eaa-museum/eaa-museum-events/Winter-Flight-Fest

23* **Warroad Minn. -** Ski Plane Fly-In Breakfast 8am-Noon. Ski Planes land on the Warroad River, Wheel Planes at the Warroad Airport (KRRT). Shuttle service available. Info contact Dave Paulson 218-386-1818, 218-242-3990 dpaulson@ssbwarroad.com

29 **Mille Lacs Lake, Minn. -** Iceport 2020 at Mac's Twin Bay on Lake Mille Lac 10am-3pm. Please visit www.facebook.com/CreateLift/ for updates.

MARCH 2020

14* **Cloquet Minn. -** Carlton County Airport Fly-In 10am-2pm. Rain/snow or shine, food will be served at our annual birthday fly-in. For more information call 218-348-0608.

31-4/5 **Lakeland, Fla. -** Sun 'n Fun Aerospace Expo. www.flysnf.org/sun-n-fun-intl-fly-expo/

16-17 **Brooklyn Center, Minn.** - MN Aviation Maintenance Technician Conference at the Earle Brown Center.

APRIL 2020

1-5 **Lakeland, Fla. -** Sun 'n Fun Aerospace Expo. www.flysnf.org/sun-n-fun-intl-fly-expo/

8* **St. Paul Minn. - Minnesota Aviation Day At The Capitol 2020. Contact Tim Cossalter at timcossalter@outlook.com or call 651-269-1221 for more information.**

21-23 **Waterloo, Iowa -** IPAA (Iowa Public Airports Association) Airports Conference. www.iowaairports.org/

29-5/1 **Rochester, (KRST) Minn. -** 2020 Minnesota Airports Conference at the Mayo Center.

30-5/3 **Branson Mo. -** United States Pilots Association (USPA) Spring FlyOut. 417-338-2225 www.USPilots.org

MAY 2020

1-3 **Branson Mo. -** United States Pilots Association (USPA) Spring FlyOut. 417-338-2225 www.USPilots.org

3-5 **Elkhart Lake, Wis. -** 65th Annual Wisconsin Aviation Conference sponsor by the Sheboygan County Memorial Airport (KSBM) will be held at The Osthoff Resort. (https://wiama.org).

15-17 **Brainerd, Minn. -** MN Seaplane Spring Safety Seminar at Madden's.

20-21 **St. Charles, Ill. -** 2020 Illinois Aviation Conference at the Hilton Garden Inn. www.illinoisaviation.org

29-30* **San Marcos (KHYI), Texas - 2020 AOPA Fly-In. Friday night Flightline Cookout, short takeoff and landing (STOL) invitational, drone show, seminars, exhibits, and more! www.aopa.org**

JUNE 2020

1-3 **Redwood Falls, (KRWF) Minn. -** Breakfast 8am-Noon. 507-430-8872.

7* **Stevens Point, Wis. -** Stevens Point Bi-Annual Air Show. The event will include breakfast (starts at 7am) & lunch with airshow beginning at 1pm. 715-345-8989.

8-12* **Madison, Wis. -** Aviation Crew & Pilot Passion Camp at Edgewood High School. Do you ever dream of flying a plane? Does flying fascinate you? Are you curious about the air traffic in the sky and how they find their destination? Are you a tech who wants to know how to interpret cockpit instruments? This class will be a terrific introduction to fuel your curiosity about flight! www.edgewoodhs.org

13* **Omaha (KMLE), Nebraska -** Aviation STEM Day. Career Opportunities In Aviation from Cockpit to Ground Support, Regulators to Air Traffic Management. www.AviationSTEMDay.org. Pancake Breakfast 7-11am CDT. General Public 8am-3pm for exhibits and many activities. 402-510-3528. Hague.Howey@AviationSTEMDAY.org

19-20* **Casper (KCPR), Wyo. - 2020 AOPA Fly-In. Friday night Flightline Cookout, short takeoff and landing (STOL) invitational, drone show, seminars, exhibits, and more! www.aopa.org**

28* **Pender (0C4), Nebraska -** Breakfast 8am-Noon. 816-210-2081.

JULY 2020

15-18* **Wausau (KAUW), Wis. -** National Ercoupe Convention. Syd Cohen 715-842-7814 Cell: 715-573-7063 sydlois@charter.net or Arden Krueger 715-842-9055 Cell: 715-574-0319 abk@fabco.com

20-26 **Oshkosh, Wis. - EAA AirVenture Oshkosh 2020. www.eaa.org / airventure**

22-24 **Clinton, Iowa -** 20th Annual Cessna 150-152 Fly-In. cessna150152flyin.org

25-26* **Milwaukee, Wis. -** Milwaukee Air and Water Show. mkeairwatershow.com

AUGUST 2020

6-8* **Ames (KAMW) , Iowa -** Youth STEM Aviation Rally (6th), Fly-In/Drive-In breakfast, pilot safety seminar, exhibits, displays and airshow (8th). Chuck 515-964-1398 chuckdsmcc@aol.com

8* **Ames (KAMW) , Iowa -** Fly Iowa 2020. Youth STEM Aviation 515-292-9056 www.centraliowaair.com

9-15 **Miminiska Lodge, Ontario, Canada - Canada Fishing Fly-Out - GROUP TRIPS ARE BOOKED. But for reservations for going on your own, contact Lynette Mish at Wilderness North toll free: 1-888-465-3474.**

15-16* **Chicago, Ill. -** Chicago Air and Water Show. The show can be viewed along the lakefront from Fullerton to Oak Street, with North Avenue Beach as the focal point.

SEPTEMBER 2020

11-12* **Rochester (KROC), New York - 2020 AOPA Fly-In. Friday night Flightline Cookout, short takeoff and landing (STOL) invitational, drone show, seminars, exhibits, and more! www.aopa.org**

13-16 **Greenville, South Carolina -** The 89th Annual NASAO Convention & Trade Show will be held September 13-16, 2020 at the Hyatt Regency. (www.nasao.org

DECEMBER 2020

11* **Oshkosh, Wis. - Wright Brothers Memorial Banquet. www.eaa.org**

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