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AOPA

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Contents

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ON THE COVER: Three biplanes flying over Clear Lake, Iowa (from top to bottom): Brian Aukes of Huxley, Iowa, flying the "Red Baron" -- a 450 Stearman (PT-27), once flown by the Red Baron Stearman Squadron; Matthew Sawhill of Ankeny, Iowa, flying a Stock Stearman (PT-17); and Dan Sokolowski of Clear Lake, Iowa, flying "Blondie" -- a Stock Stearman (N2S-2), which was a trainer flown by the Women Airforce Service Pilots (WASP) at Avenger Field in Sweetwater, Texas, during World War II. *Box5 Media Photo by Adam Glowaski (www.Box5Media.com). The photo plane was a T-6 Texan flown by Doug Rozendaal.*

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Aviators To Be Remembered In Part For Their Entrepreneurship

by Dave Weiman

In this issue of *Midwest Flyer Magazine,* you will read about a number of people in the aviation community who have flown West – most due to age, but one person from illness. Several of these people were renown and highly respected aviation business people, namely Mary Jane Rice of Willmar, Minnesota, and Francis and Joyce Einarson of International Falls, Minnesota.

In feature articles, we describe when, why and how they got started in aviation, and how they succeeded. They were all entrepreneurs, invested a lot of time and money in their businesses, and they risked everything to see their dreams come true. As their businesses grew, they employed dozens of people, contributed to aviation and their local economy, and aviation became a way of life for them and their families.

I want to especially recognize longtime contributing editor, Lynnwood "Woody" K. Minar, who left this earth way before his time. His articles describing his experiences as a flight instructor were always fun to read, and he was able to get his point across, which has made us all better pilots. Woody also wrote about some of his seaplane adventures flying from Minnesota to Florida and elsewhere. Woody will be sorely missed by all who knew, loved and respected him.

Also featured in this issue is the "Sling TSi" homebuilt aircraft, which is manufactured by the Airplane Factory of Torrance, Calif. In describing this amazing aircraft, which flew non-stop from Torrance, California to Oshkosh, Wisconsin to exhibit at EAA AirVenture Oshkosh, I note that one of their customers was so thoroughly pleased with the aircraft that he became part owner of the company, and is now its Chief Executive Officer. Like many of the exhibitors at EAA AirVenture Oshkosh, Wayne Toddun and his business partners, are taking a gamble that their aircraft will succeed when others have failed. We wish them great success!

The editorial in the August/September 2019 issue of *Midwest Flyer Magazine* on why the size of fuel hoses on self-serve systems is so important, is beginning to resonate throughout the aviation community. Concerned pilots have called and written about the situations at their local airports, and what they are doing about it. Hopefully airport managers who know they have a problem will take positive action to correct their situation. *(See the Letter To The Editor immediately following this editorial.)* ❑

Letters

Dave:

Great article about the size of self-serve fuel hoses. Our local airport has an old-style manual (system), and worn out reel with a fuel hose and nozzle that is larger than it needs to be. The hose and nozzle were recently replaced by someone who did not know the correct size. Before being replaced, I was able to handle the refueling, but with the extra weight of the hose and fuel inside the hose, it has become more than I care to struggle with. So, when I need fuel, I fly 25 miles down the road to a more user-friendly airport. It's all okay, as it gives me another excuse to fly, and the manager loves my business.

Until I read your article, I thought I was the only person with the problem, but I see that I am not alone. I might add that I am 78 years old and not as strong as years past. That is something that should also be considered as there is a great percentage of senior pilots these days.

Robert L. Mann
Gothenburg, Nebraska

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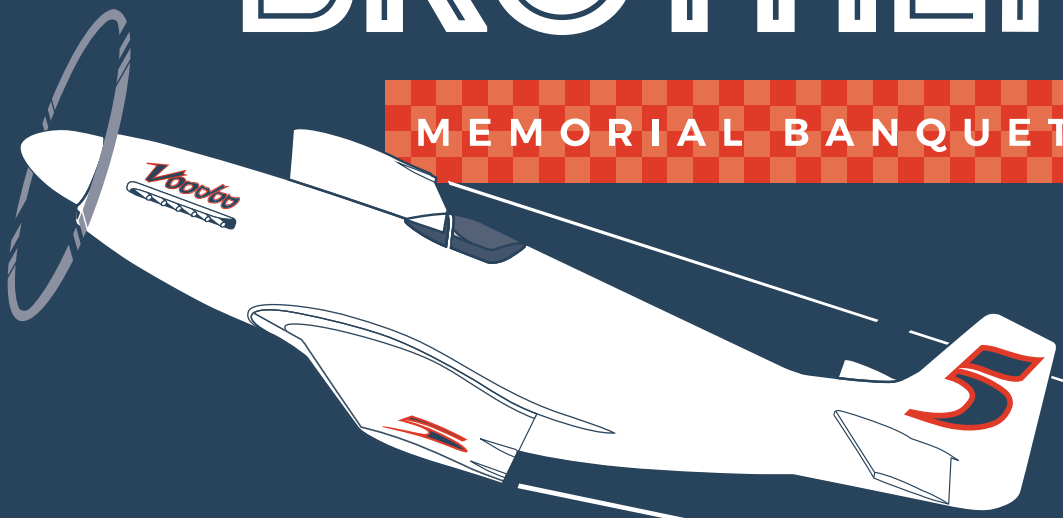

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Arguing Aggravating and Mitigating Circumstances In Civil Penalty Cases

by Greg Reigel, Esq.

Greg Reigel

When the FAA assesses a civil penalty for regulatory violations, it is required to take into account both aggravating and mitigating circumstances when it calculates the penalty. Typically the FAA focuses on aggravating circumstances to support assessment of a higher civil penalty. On the other hand, respondents argue that mitigating circumstances are present that justify a lower civil penalty. But if the case ends up going to hearing, it then becomes the administrative law judge's ("ALJ") responsibility to decide (1) whether any aggravating or mitigating circumstances are present, and (2) how/whether those circumstances may impact the civil penalty assessed by the FAA.

As an initial matter, the FAA has the burden of justifying the amount of the civil penalty. The ALJ must then look at the totality of the circumstances surrounding the violation to determine whether the civil penalty is sufficient to serve as a deterrent to both the respondent and the industry as a whole. As guidance, the ALJ may consider the following factors the FAA is supposed to consider per FAA Order 2150.3C FAA Compliance and Enforcement Program:

- The nature of the violation;
- Whether the violation was inadvertent or not deliberate. This is typically a mitigating factor, and the absence of inadvertence isn't automatically an aggravating factor;
- If the respondent is a certificate holder, the certificate holder's level of experience;
- The attitude or "compliance disposition" of the respondent;
- The degree of hazard posed by the violation;
- Any action taken by an employer or other authority;
- The respondent's use of a certificate;
- The respondent's violation history, if any. This is only an aggravating factor. A violation-free history is expected and is not a mitigating factor;
- Decisional law;
- The respondent's financial ability to absorb a sanction;
- Consistency of sanction;
- Whether the respondent reported the violation voluntarily; and
- What, if any, corrective action the respondent may have taken as a result of the violation.

If you are facing a proposed civil penalty or appealing an assessed civil penalty, you should definitely determine whether any of the circumstances of your situation support any of these mitigating factors and then argue those facts to the FAA or ALJ to try and reduce the civil penalty.

On the other hand, if any of your circumstances could be characterized as aggravating factors, you will also want to identify those facts, because you know the FAA will. You can then determine how best to argue against and minimize the impact those aggravating circumstances may have on the civil penalty.

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The Monday Morning Aviation Quarterback Club & New Avionics

by Michael J. (Mick) Kaufman

Michael Kaufman

It has now been several months and some 15-plus hours since I got my budget-driven, avionics update in my Bonanza, and I have still not taken the airplane into hard Instrument Meteorological Conditions (IMC). It is not that I am unfamiliar with my navigator, but there is a lot of interfacing I am still trying to learn.

After a recent fatal accident, the "Monday Morning Aviation Quarterback Club" has reconvened to express some of their thoughts on what might have happened. In several of my previous columns in *Midwest Flyer Magazine,* I have commented on this accident, trying not to speculate as to what might have happened. One known fact about this accident, however, was that the aircraft had new avionics, and the pilot launched into low IMC on takeoff.

I remember my first IMC flight with a then state-of-the-art Apollo 618 Loran navigator. After a reroute from air traffic control (ATC), I turned the unit completely off and started tuning the VORs.

Since the days of VORs and ADFs are coming to an end, we have seen new state-of-the-art navigators arriving on the market at a rapid pace, and all of them have their own unique features. Along with this comes the need for professional instruction and the bewildered instructor needs training as well. I can't imagine any instructor knowing every box and how it should interface with all the other systems in an airplane.

My recently installed navigator was the first Wide Area Augmentation System (WAAS) to hit the aviation market, and was first labeled as the Apollo CNX80. After Apollo was purchased by Garmin, the CNX80 became known as the Garmin 480.

Both the Garmin 480 and 430/530 navigators are considered end-of-life units as they are not fully supported by available repairs or full databases. The Garmin 480 has some unique features and was way ahead of its time for capability.

I have a remote transponder and ADS-B control, National Oceanic and Atmospheric Administration (NOAA) weather channels, dual frequency monitoring

on the com channels, fuel monitor and the ability to share flight plans with my Garmin Area 660. This might not seem to be so unique for today's avionics, but this is a decade old unit with some features still not available in all navigators. These units do so many things for us; they have so many menus and menus inside of menus that this could become the demise of a pilot becoming so involved in a unit that he/she forgets the number one task – TO FLY THE AIRPLANE! The National Transportation Safety Board (NTSB) data still shows more fatalities with glass panels and sophisticated navigators than with conventional steam gauges.

Think about the following clearance and how you would use your navigator:

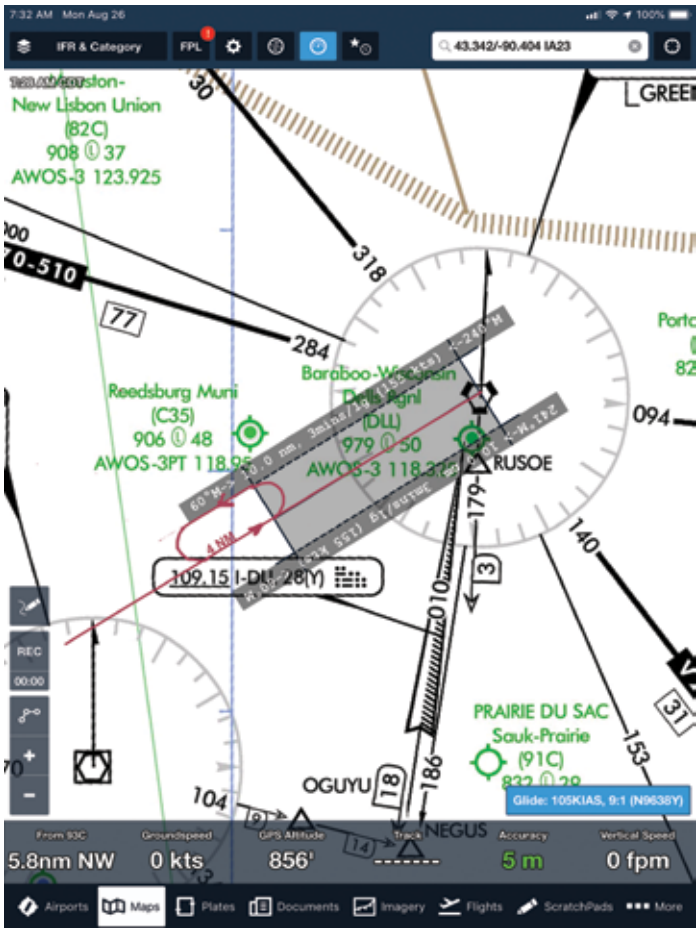

FIG. 1

ATC: Piper N2898D, we have a holding clearance. Advise when ready to copy.

Pilot: Ready to copy clearance.

ATC: Piper N2898D, you are cleared to hold 20 DME miles southwest of the Dells VOR on the 240-degree radial, left turns, 4-mile legs. Expect further clearance at 18:45 Zulu.

You may be overwhelmed by this and say to yourself, "when would I ever get such a clearance, other than when flying in the northeast part of the country? Consider it a challenge from me on your next IFR training flight in VFR conditions. Draw this on paper first, and then go to your navigator. Good luck! (See FIG 1.)

Because the quarterback club has discussed new avionics and a low IMC departure as probable cause in this accident, let's look at a few tips on low IMC departures, assuming the pilot is somewhat of a Jedi on his avionics.

There is the human factor of seeing the outside visual references disappear as you fly into IMC. I had brought this to the attention of pilots in a previous article. We can, and many of us have, gotten our instrument rating and had never flown in IMC. When I am training a pilot for his instrument rating, I welcome the opportunity to fly in IMC conditions once the pilot has the basic skills to do so. If they have not had the opportunity to experience real IMC, especially launching into low IMC, I recommend contacting me or any other qualified instrument instructor for that first-time experience.

It is imperative to go immediately to the instruments on rotation, and not try to maintain visual reference as long as possible. If you have a "flight director," this is a fantastic tool for the low IMC takeoff if you know how to use it and set it up properly. Align the airplane with the runway, set your heading bug, and push the go-around button on your yoke or throttle. This will set your pitch for climb out and keep your wings level.

The flight director is a function of your autopilot, and I recommend you hand-fly the flight director until such time as you can devote enough brainpower to monitor the situation after engaging the autopilot servos. Anything can malfunction, but I have seen too many circumstances where the high-pilot workload during departure allowed an autopilot to do unexpected things, and going unmonitored for just a few seconds could be your demise. If you cannot hand-fly the airplane on departure, you have no business taking off in such conditions.

Another area – besides the human factor – is not being familiar with the equipment in your airplane. There could be an avionics failure, an interface problem or an interface that is different from what you have seen with similar installations.

For example, the Garmin G5 electronic attitude indicator has been known to have shielding problems inherent with its

design. The G5 is a fantastic piece of equipment and I wish I could have afforded to include it as part of my avionics upgrade.

If your aircraft has stray radio frequency interference from other devices or noise from strobe lights, there have been cases where this has caused issues for the G5. I noticed on the installation instructions from the devices that were being installed in my aircraft, that certain distances needed to be maintained between antennas and certain wiring needed a minimum separation.

Recently, I had my biennial flight review (BFR) and instrument proficiency check (IPC), and with another instructor/safety pilot onboard, I could experiment with devices and interfaces without jeopardizing flight safety. There is no better way to find out how different boxes will work together.

I was surprised to find when I loaded the approach on my Garmin 480 navigator that the approach chart was auto loaded on my Garmin Area 660, but only if I had a certain menu selected. There are many times avionics technicians have to use their own past experiences when interfacing the many different units from different manufacturers to get them to work together.

When Beechcraft started producing the G36 Bonanza and the G58 Baron, you could feel assured that all of the equipment played well together. If you flew different N-numbered G36 airplanes, you would not see any differences. The airlines always make sure that a pilot flying a Boeing 737-300 can go from one airplane to another with exactly the same equipment and no surprises.

Learn the airplane you fly, its equipment and interfaces, and use an instructor or safety pilot, and remember the same equipment in one airplane may be different in another airplane, unless it comes as a factory package.

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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. ❑

Single Pilot IFR

by Harold Green


Harold Green

Those pilots who hold an instrument rating and fly in the United States are some of the most privileged people on the face of the earth. They can climb into an airplane, takeoff and fly into clouds, fly for several hours with no visual contact with the ground, maintain communication with Air Traffic Control (ATC), then fly an instrument approach to the destination airport and, lo and behold, there is the runway within sight and easily accessible. There is probably no other activity, at least legal and moral, which affords the same sense of satisfaction and accomplishment. Yet in the yin and yang of things, this activity also offers the most possibility of disaster. This is particularly true for the majority of personal-use pilots and freight haulers, along with others who fly in Instrument Meteorological Conditions (IMC) with only one pilot, otherwise known as "single-pilot IFR".

Single-pilot IFR entails a very heavy workload on the pilot, having to fly the airplane, navigate and talk with ATC, sometimes all at the same time. It is to those folks, and those planning on joining those ranks, that this article is directed.

It should be remembered that the ATC system is set up principally to control airline traffic, since these are the folks who carry the most people. Airlines operate with at least two pilots onboard. This makes the task of instrument flight, communications, navigation and systems management much less of a burden than it is for the single pilot.

True, in general, the single pilot is not flying an airplane that operates at Mach speeds and weighs hundreds of tons. However, the number of pilot actions relative to IFR flight that need to be done are the same. It is still necessary to fly the airplane, determine where you are and where you need to go (i.e. navigate), and initiate or respond to communication with ATC. Further, ATC generally places the same requirements on everyone without regard to what type of operation is involved, and that is proper and the only practical way for the system to work.

The burden on the single pilot in instrument operations is intense and requires a high level of proficiency and focused attention. For single-pilot operation to succeed, several things must be in place. The most important are pilot competence and currency. Both require nurturing and practice to achieve and maintain.

Competence in this context may be divided into two categories: 1) Familiarity with the airplane being flown, and 2) Ability to readily assess the airplane flight situation virtually instinctively.

Familiarity with the airplane means operation with automatic response. This includes control manipulation and system operations including fuel system, landing gear, flaps and any other goodies with which your airplane is equipped. In short, airplane handling should be like breathing. The only way to achieve this state is by flying the plane, which may, if desired, include considerable time in a realistic simulator.

While as much time as possible should be in IMC, it is not necessary that all time be in IMC.

Familiarity with an aircraft can be achieved simply by flying it, particularly in unusual situations. Partial panel operations, compass turns, vertical S maneuvers, and canyon approaches are not only good training exercises, they also make for good currency exercises. Also, simply habitually flying your airplane precisely even in non-instrument flight can be a great help.

For a simple example, start setting touchdown targets on every landing, while holding airspeed constant and at a level which should not be measured by a Mach number. Remember when your instructor required this? Those people who fly with precision are usually a step above the herd in instrument flight. Additionally, when changing altitude or airspeed, do so by adjusting the power settings to predetermined levels to accomplish the task. This reduces the amount of attention required to achieve stable flight in the new condition.

Key to maintaining attention on the critical factors is cockpit organization. During flight, the pilot must access an impressive amount of information, record clearances, retrieve frequencies, and utilize checklists. All of this while flying the airplane, communicating with ATC, and obtaining weather information in addition to navigating.

Since flying the airplane includes fuel management, systems review and the mundane task of keeping the dirty side down, it is very important that all documents and information sources are readily available and always in the same place.

Having to search for needed information has two very important negative consequences. First, it distracts from the key task of keeping the dirty side down, and second, moving one's head around searching for something is an open invitation to "vertigo". Therefore, having things where one can reach them without looking is far more important than

one might first suppose.

How this is accomplished is far less important than accessibility and consistency. If you like the multi-pocket gadget bag attached to your leg, that's fine. Just keep everything you need on a routine basis in the bag and in the same place in your aircraft. Also, keep a pen or pencil on a string so when, not if, you drop it, you can retrieve it easily.

The equipment in any airplane is only as good as the pilot's ability to operate it. It is one thing to be able to program the latest whiz-bang electronic toy while in visual meteorological conditions, and while not talking with ATC, but it is quite another thing to operate the equipment in IMC when things have just changed, you are executing a missed approach, and ATC is giving you a clearance to a fix you have never heard of before. This is where single-pilot IFR becomes a challenge.

Add to these duties, additional issues, which can be caused by system failures. (This is NOT a good time to lose an engine in your twin.) You need to know how to handle this situation instinctively and without time to think about how to work the equipment.

Modern avionics requires far more pilot input than legacy equipment. One airframe manufacturer recommends 100 hours of experience with the avionics before flying hard IFR. That's even with an autopilot. The same manufacturer says the aircraft should not be flown IFR without an autopilot.

Because of the additional pilot workload with advanced avionics under these conditions, an autopilot has become a virtual necessity. An autopilot permits the pilot to reduce the workload while catching up with other things. The downside of this is that the autopilot often changes mode with inputs to the controlling avionics.

For example, the pilot may believe the autopilot is still receiving input from the navigation equipment when in fact it has changed to roll mode as a result of a change made to some other element of the system. Consequently, the autopilot mode should be checked after every input to the navigation equipment. Otherwise, you may be off to unknown parts to the consternation of both you and the controller. It is wise to remember that for the autopilot, approaching the glideslope from above is a no-no. If the circumstances require you to do this, it is best to fly the airplane manually or ask for vectors to go around and try again.

With legacy radios and navigation equipment, life was simple. Changes could be accomplished simply by reaching for a knob without looking, except to glance to confirm you were touching the correct knob. Then rotation of the knob could be done with merely a glance, without turning your

head, to see if the correct entry was made. You simply had to select which unit to use, if you had more than one unit, then set the frequency, twist the Omni Bearing Selector (OBS), and you were in fat city.

With advanced avionics, knobs and buttons take on a new meaning, depending on the mode the equipment is in. This means the pilot must be familiar with the equipment to an extent not required by legacy equipment. Further, an erroneous input requires more time and concentration to correct.

I am not implying that modern equipment is inferior to legacy equipment. Quite the contrary. Modern equipment provides many advantages in situational awareness, information access and aircraft operations in general. However, the price to be paid for this luxury is a greater need for being proficient with the avionics and maintaining that proficiency with higher overhead to achieve both goals. As a result, it is more important now to maintain proficiency with the equipment, and it takes much more effort on the part of the pilot to do so.

It would not be appropriate to close this discussion without reference to operating light twins in the IMC environment. While it is true the avionics, navigation and communication requirements are the same as singles, there are a few differences worth noting.

Twins tend to be more massive than singles. That means that even more so than a hot single of the same speed, it takes more time to slow a twin down. As a result, it is imperative to stay ahead of the twin.

While the avionics systems in a twin are the same as a single, the aircraft systems are not.

The principal areas of concern are fuel and electrical systems. Fuel systems generally consist of main tanks, and one or more auxiliary tanks for each engine, and usually there are opportunities for cross feeding between engines. In addition to intelligent fuel management, the best procedure in IMC operations is to make sure that before beginning any approach, the fuel system is set to maximize available fuel so as to minimize the actions required in case of a missed approach. Having to switch tanks and play with boost pumps while executing a missed approach, in addition to handling a dead engine due to fuel mismanagement, is a very good way to get into trouble.

Electrical concerns are also different in a twin. Not only does a twin have the advantage of two sources of electrical power, a twin also has a balancing control that can fail. Therefore, attention should be devoted to the alternator output of both engines prior to beginning any approach.

The increased reliability of a twin requires some additional pilot management to take full advantage of that reliability. Therefore, the six-month, six approaches for currency is, in my opinion, totally inadequate to maintain currency with modern avionics and high-performance airplanes, either singles or twins. A much better plan would be six approaches in two months, and those approaches should require extensive manipulation of the equipment, coupled with active communication with ATC. Further, if the airplane is more than the vanilla Cessna 172, Piper Warrior, etc., or if flying is routinely performed into high traffic density areas, serious consideration should be given to installing an autopilot if one is not currently installed.

While nav coupling is highly desirable, at a minimum, the autopilot should offer heading hold and altitude control, including rate of altitude change. Rate of altitude change is desirable because when executing a missed approach, life becomes very busy and heading, altitude and destination changes are involved, all while talking to ATC.

Should the workload become too heavy, it is fair to admit that fact to the controllers and ask for guidance. They will provide headings and altitudes and let you get yourself together again. This is, fortunately, a rare occurrence.

Does all this mean that single-pilot IFR is only for superhuman folks? Not at all. Many pilots do it every day. Given a pilot dedicated to maintaining proficiency, single-pilot IFR is not only safe, it is one of the most rewarding activities in flying. There are less than 700,000 active pilots in the entire U.S., and an even smaller number who are qualified to enjoy this special activity.

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).

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How To Avoid Prop Damage On A Gravel Airstrip & What To Do If You Are Missing An Airframe Maintenance Logbook

by Pete Schoeninger


Pete Schoeninger

Q: What trends do you see in used airplane values?

A: As I see it, I think the market is fairly strong, led by airplanes commonly used for training, especially late model Skyhawks. New airplane sales have picked up a bit in the first 6 months of this year. But older airplanes that are neglected and haven't been flying, and haven't had annual inspections recently, are decreasing in value. I suspect this because as owners face increasing costs of bringing them back to life, and making them ADS-B compliant, they are electing to scrap them out.

Q: What does tire size mean, and what about ply rating requirements?

A: The most common general aviation tire size is 6:00-6. The 6:00 is the width of the tire in inches, and the 6 is the rim diameter in inches. Occasionally you will see a number followed by an x, followed by the standard width and rim size. This is NOT usually shown on real common tires which are on many general aviation airplanes. One example would be the tire used on a Cessna 172RG and 182RG, which is 15x6:00-6. The 15x6:00-6 is a smaller diameter tire than most 6:00-6 tires, but retains the common 6-inch width and 6-inch rim opening, and is made to retract and fit into the small wheel well of a 172RG and the 182RG.

The ply rating, usually 4 or 6 or 8, is shown on the side wall of the tire. The higher the ply rating, the more weight the tire can carry. For instance, a 1975 Cessna 172 uses a 6:00-6 tire with 4-ply rating, but the heavier 1975 C182 uses a 6:00-6 tire with 6-ply rating. The newest C172, which is a little heavier than the old ones, also require a 6-ply tire. You often can use a higher ply rating tire than required, but not lower. Check with your mechanic to make sure.

Q: I visited the New Holstein, Wisconsin airport for the Super Cub function the week before Oshkosh 2019. Lots of the owners I talked with had what they called a "3 X 3" landing gear conversion. What in the world is a 3 X 3 landing gear?

A: The 3 x 3 landing gear moves the wheels 3 inches forward and has 3-inch longer gear legs. This allows the airplane to sit on the ground at a higher angle of attack, allowing liftoff at a slightly slower speed, and gives needed clearance for bigger props. Some Cubs are modified with bigger engines and bigger props and bigger tires, all which move the empty C.G. forward a little. Moving the gear forward a little should reduce the chances of a nose over. The 3 x 3 landing gear and big tires combine to allow higher angle of attack takeoffs and landings, but come at the expense of reduced visibility over the nose while landing and taxiing. The big tires slow cruising speed because they have more drag. They also will roll over obstacles found on off-airport landing areas, like small rocks, uneven terrain, airplane salesmen, etc.

Q: My buddy says the only difference between the 1962 Cessna 172 and 1962 Cessna 175 is that engine RPMs are increased and a geared prop was added to develop more power. Is that true?

A: No, they are different airplanes. The 1962 C172 is approved by the FAA on type certificate 3A12. The 1962 C175, the Hawk XP, and the 172RG, are all certified on FAA type certificate 3A17. While the airplanes appear cosmetically similar, there are substantial differences in fuel capacity, engines, gross weights, control travel, etc.

Q: l am looking to buy a friend's 1967 Bonanza. The second airframe maintenance logbook which would cover airframe maintenance from 1976 through 1985 is missing. All other records seem normal. Our local shop, which maintains the airplane, says it is in good condition. How concerned should I be about this missing logbook?

A: Any missing airframe maintenance logbooks is some detriment to value, but there is no set amount of decrease… each situation is unique. If there are good engine records covering the years missing, and airframe logs showing routine annual inspections and maintenance, the impact on value would be relatively small. But if both the airframe and engine logs for 8-10 years are missing, that is more of a concern. You can, and should, spend ten bucks on a CD from the FAA on your prospective Bonanza purchase, which should show your major repair and alteration forms (337) to find major incidences during the missing airframe log periods. Do an internet search for FAA CD.

Q: I recently purchased a 1978 Piper Warrior. During taxi the airplane occasionally wiggles a little. I took it to the local FBO shop and asked their mechanic to check nose steering linkage. After about an hour he pronounced the nose linkage and rigging as all OK, but my Warrior still wiggles sometimes. Now what?

A: I think you may have the Cherokee Waltz, and a failure to communicate, too! Had you told your mechanic your symptoms, he probably would have first jacked up one side of the airplane, let some air out of the oleo, to check if the main gear wobbled a little before checking nose linkage and rigging. If the main gear wobbles a little, the gear probably needs some maintenance to include removing, cleaning and inspecting the scissors; checking shims; and re-greasing. Once again, a failure to communicate between owner and his mechanic may have cost you some money. (Thanks to A+P/IA Leon Rinke of Redgranite, Wisconsin, for help on this question.)

Q: Six weeks ago, while on vacation in Alaska, I hired a local pilot with a Skyhawk to take me for a ride to a couple of remote strips. On takeoff from a gravel strip, the pilot pushed the throttle in, only about halfway until we were going perhaps 25 mph or so, then he added full power. We forgot to ask him why he did that, so I am asking you now?

A: A propeller on a stationary or slow-moving airplane turning up full power on a gravel surface will suck up some gravel into the prop, causing prop damage. If you wait until you have some speed before going to full rpm, most of the

gravel will blow up behind your prop.

Q: This summer, I went for my biennial flight review with a CFI who is new to me. It was a warm day. I used the checklist to include checking mags, and then pulled on carb heat for a couple of seconds, and noted the expected RPM drop. At that point the CFI suggested I pull carb heat on again, leave it on for 30 seconds, which I did. I was surprised that the engine coughed a little, then RPMs actually picked up a little.

A: You made a mistake that I have seen frequently. Your carb heat check should not only make sure the carb heat is working, but also check that you have not accumulated carb ice during taxi for takeoff, which is what you had. Some CFIs recommend on very humid warm days to leave the carb heat on from the end of your runup to the beginning of your takeoff roll, to prevent further accumulation. Some airplane designers locate the carb heat control in their airplanes so that you can turn it on or off with your thumb when you advance power. Some will argue that you might ingest a bit of unfiltered air during this brief period. But if you ask any engine if it would rather inhale a few whiffs of unfiltered air vs inhaling carb ice, you can guess what the answer is.

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. ❑

High On Health

Introduction by Dr. Bill Blank

Dr. Bill Blank

As many of you know, marijuana for recreational use and some of its derivatives, have been legalized in several states. While they are legal in some states, they are illegal from the federal point of view. A pilot testing positive for marijuana will probably lose his medical certificate. The following article first appeared in the *FAA Safety Briefing* magazine (May/June 2019) and then in the July 1st issue of the Federal Air Surgeon's Bulletin. It is being reprinted in this issue of *Midwest Flyer Magazine* with the permission of the Federal Air Surgeon, Dr. Michael A. Berry. If the name "Berry" seems familiar, it is because Dr. Michael Berry is the son of Dr. Charles Berry, who was one of the principal physicians involved in the Apollo space program. Dr. Michael A. Berry grew up in Houston and went to school with some of the astronauts' children.

Dr. Michael Berry received an M.D. from the University of Texas Southwestern Medical School, and an M.S. in Preventive Medicine from Ohio State University. He is certified by the American Board of Preventive Medicine in Aerospace Medicine. He served as an FAA Senior Aviation Medical Examiner and as Vice-President of Preventive and Aerospace Medicine Consultants for 25 years before joining the FAA. He also served as both a U.S. Air Force and NASA flight surgeon.

Marijuana and Derivatives: What are the Aeromedical Implications?

by Michael A. Berry, MD

The Federal Air Surgeon's office has received a number of inquiries about marijuana due to the recent increase in the number of states around the country that have approved its use for medical and recreational purposes. Specifically, airmen are concerned about the safety of cannabidiol (CBD) oil use and how such use impacts an airman's medical certificate. Be aware that federal law – not state law – governs FAA medical and pilot certification.

First, we should note that commonly used terms within the context of marijuana can be confusing. The marijuana or cannabis plant contains more than 400 different chemicals and 60 cannabinoid compounds, all of which are absorbed when the whole leaf is smoked or ingested. The compound responsible for the euphoric, mind-altering effect is tetrahydrocannabinol (THC). Although the use of cannabis is legal for medical and/or recreational use in many states, the United States Drug Enforcement Agency (DEA) continues to classify the whole cannabis plant as a Schedule I controlled substance, which is defined as "drugs with no currently accepted medical use and a high potential for abuse." The

U.S. Department of Transportation (DOT) drug test includes THC, and its presence at defined levels constitutes a positive drug test.

More recently, interest has grown in other compounds derived from the cannabis plant that may have positive health benefits, but without the mind-altering features of THC. One such compound being widely marketed is CBD oil. In 2018, the FDA announced the approval of Epidiolex (cannabidiol), purified pharmaceutical grade CBD extract from the cannabis plant, for the treatment of seizures associated with two rare and severe forms of epilepsy. As an FDA approved medication, it is subject to strict quality control. In other words, you know what you are getting. Commercially available CBD, by contrast, is not regulated and may be contaminated with a variety of substances, most significantly, THC. Product labels are often inaccurate. Although most CBD products claim to have under 0.3 percent THC, they could contain high enough levels of THC to make a drug test positive. Use of CBD oil is not accepted as an affirmative defense against a positive drug test.

Furthermore, despite legalization in some states, it remains uncertain whether marijuana has therapeutic benefits that outweigh its health risks. There is evidence that marijuana adversely affects brain function both acutely and chronically, especially in younger individuals. It is generally agreed that currently available marijuana products are more potent than those used in older research, which casts doubt on the reliability of that research. We need to understand much more before considering the use of marijuana and its derivatives for airman certificate holders. Please also be aware that no special issuances have been granted for conditions treated with medical marijuana.

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.

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 the Federal Aviation Regulations and FAA Aeronautical Information Manual for additional information and clarification ❑

What makes a pilot?

by Mark Baker
AOPA President & CEO


Mark Baker

If you're like me, you're friends with a lot of pilots and aviation enthusiasts, and it's safe to assume your social media pages were ablaze with "Top Gun" posts following the release this summer of the sequel's two-minute trailer. It's no surprise that the classic 1986 film featuring rebel fighter pilots, top-notch military action, and Mach speed is a hit with pilots. In fact, following the film's release, the U.S. Navy reported its highest application rates, which got me thinking: Could Hollywood be the answer to attracting the next generation?

Probably not, but Tom Cruise, equipped with a leather jacket, aviator glasses, and an inverted F-14, sure makes being a pilot look cool. And maybe that's the trick – the cool factor. While most of us don't have our sights set on the level of recognition garnered by legendary greats, such as Bob Hoover or John Glenn, we all share an appreciation and excitement for aviation. Regardless of whether you make a huge name for yourself in this industry, and whether flying is a part of your life or your whole life, there's no question that we belong to a niche group. So, what makes a pilot?

For starters, confidence is key. I'm not talking about Maverick-like arrogance, but rather the ability to make decisions and stick with them. It's a transferable trait that can be applied to other aspects of life. Some of the best business leaders I know are war veterans who flew B-17s and Corsairs in their glory days. It makes sense. Leaders are often good decision-makers, able to consume large amounts of information quickly, and aren't opposed to risk – all qualities that make up a confident pilot.

While you'll have a hard time finding a pilot who lacks confidence, it's not the only trait one should possess. Humility is also crucial. Veteran pilots can log thousands of hours, but the best pilots are willing to learn from each flight.

Pilots must also be good communicators. Contrary to popular belief, we aren't all extroverts who crave small talk and mingling at hangar parties. In aviation, however, clear communications are important. Behind the yoke, we must make our intentions known, whether it's to ATC, to other aircraft in the vicinity, or even to the radio silence at a grassy airstrip in the middle of nowhere.

Finally, one of the most important qualities of a good pilot is the ability to remain calm under pressure. That's easier said than done. When you fly often, emergencies are bound to arise. It's not that easy to remain calm when your aircraft suddenly gets struck by lightning, or a vital instrument fails in adverse conditions, but the unexpected does happen; it's just a matter of when.

We all have our strengths and weaknesses when flying. One pilot may be an ace when keying up the mic, while others may take longer to learn basic stick-and-rudder skills. But we're all aware that these traits working in harmony are what make a good, safe pilot – you don't have to do a low pass over the airport blasting Danger Zone to feel like a renegade. You can fly low and slow in your Piper Cub with the freedom to be an adventurer, while exploring remote mountainsides, and landing on glassy water and backcountry terrain. Being a pilot will never lose its cool factor. Once we show that to the next generation, they'll truly understand why we love what we do. ❑

State, Federal & Local Airport Grants & The Airport Sponsor's Responsibility

by Kyle Lewis
Regional Manager / Government Affairs & Airport Advocacy / Great Lakes Aircraft Owners & Pilots Association


Kyle Lewis

A question that is always being asked by airports – large and small – is "how can we find or become eligible for more grant money?" Unfortunately, there is not a one size fits all answer. If the question is specific to FAA Airport Improvement Program (AIP) monies, the competition is tough, and the eligibility is black and white. AIP is dependent on National Plan of Integrated Airport Systems (NPIAS) status, airport category, eligibility and scope of requested project, and the ability of the sponsor to pay local match portions of the grant (usually 10% of total project cost for GA airports).

These AIP-funded projects must be on an approved Airport Layout Plan (ALP) and 5-year or 10-year Capital Improvement Plan (CIP) that is submitted to the FAA by the airport sponsor. Eligible airports also receive "entitlement grants" at $150,000 per year for GA airports, and can be banked for 4 years to be used on larger projects. $600,000 can go a long way toward a ramp, taxiway, or runway rehabilitation. This is a very basic explanation of how FAA AIP grant funding works, and if you would like a more in-depth read, visit AOPA's Airport Advocacy webpages, seek out your local AOPA Airport Support Network volunteer, or visit the FAA's AIP funding website at FAA.gov/airports/aip.

Along with FAA funding, most states offer state-level airport grants borne of state appropriated funds. In general, these grants are for the same type of projects that the FAA funds, but less money is in the pot, so to speak. States also try to pay 50% of the local share of an FAA-awarded grant, which lessens the burden on an airport sponsor. When a state can pay matching funds, more FAA grants are leveraged in that state, so a win-win for airports!

States are mandated by the FAA to retain aviation fuel

sales tax revenues in a dedicated aviation fund, specifically for investment in the aviation system to that state. Unfortunately, not all 50 states are meeting the requirement, and AOPA is actively engaged in states that are not yet in line with the FAA policy.

Another somewhat unique situation falls to "block grant" states. In my region, Wisconsin, Michigan, and Illinois all receive a block grant from the FAA, which is basically a large chunk of money, to be administered on behalf of the FAA by the specific state to airports. There are currently 10 block grant states across the country with the FAA looking into allowing 10 more into the program.

The above explanation is the "in the box" funding for airports. What else is available? Depends on where you look! There is a slew of local monies to be had; it is just a matter of being proactive and finding the correct source.

Local economic development partnerships may have grants or money available for investment. The hurdle to overcome, is finding the right person to be the advocate for the airport. AOPA's Airport Support Network (ASN) is positioned to be just that. Find out who that person is, and if your airport does not have an ASN volunteer, think about becoming that individual.

The easiest way for an airport to grow, or to become more visible as an economic driver in the community, is to become partnered with the community. Educate the local leaders, and show the real value of the airport to neighbors. Remember, airplane noise is usually the sound of progress. Of course, the stigma remains that airplanes are just for the rich, and we all know that is a false statement. Make aviation valuable to a local high school STEM program, turn interest into careers, and build up the airport community by being a good neighbor!

Another question we often field from members is how can my airport build more hangars? In short, the FAA does not consider hangar construction a priority project. Hangars can only be AIP eligible when all other airside safety related items have been addressed – obstruction removal, pavements, lighting systems, etc.

Hangar construction becomes a local issue, and funding can be provided from the airport sponsor or from private investments. Many airports allow land leases, and private hangar construction on that leased public land. Reversionary clauses in those leases are commonplace and necessary for the airport sponsor to retain "exclusive rights" under the federal grant obligations. The basis is, the structure will become property of the airport sponsor at the end of the lease. Terms vary, but it is common to see 20 and 30-year leaseholds (with a lease extension or renewal in some cases). Some leases allow for the sale of the structure, or removal, but that is uncommon. If your airport is interested in this avenue, AOPA can help educate and provide resources on how this works and what FAA requirements may need to be met. The public-private partnership investment model is becoming more commonplace at airports and is common sense for sustainability of the airport.

T-hangars are also constructed and managed by third party investment, under similar lease terms as the private hangars. This may be a more cost-effective alternative for the tenant.

Again, these are all very general explanations of funding and investment sources. I would encourage you to contact me with specific questions related to the individual situation.

During the fall, I will be attending conferences in Indiana and Wisconsin. The Aviation Indiana Conference is held in Michigan City, October 15-16 at the Blue Chip Casino. The Wisconsin Airport Operations and Land Use Conference will be held October 29-30 at Hotel Mead, Wisconsin Rapids. AOPA will be presenting at both, so please say hello if you are attending!

It is a privilege to be able to serve you and the GA community! (kyle.lewis@aopa.org) ❑

Schweiss Doors Updates Installation/Delivery Truck

FAIRFAX, MINN. – Schweiss Doors, leaders in manufacturing hydraulic and bifold liftstrap aircraft hangar doors, has manufactured a new-design utility box for its installers to use at the jobsite to improve the installation process. The new tool box has 23 storage drawers, eight compartments, a portable welder and welding reels. The truck pulls a 40-foot trailer for hauling its custom doors to jobsites. In addition to manufacturing hydraulic and bifold liftstrap doors, Schweiss Doors assists in the installation of its doors (www.bifold.com).

The Schweiss Doors installation truck. ❑

This well-maintained Cessna 150 rents for $150/hour wet, with an instructor. *Yasmina Platt Photo*

The scenery near Lib Mandy Airport (SPLX), approximately 43 miles south of Lima, Perú. *Yasmina Platt Photo*

Beyond Airspace – Flying Around Lima, Perú

by Yasmina Platt

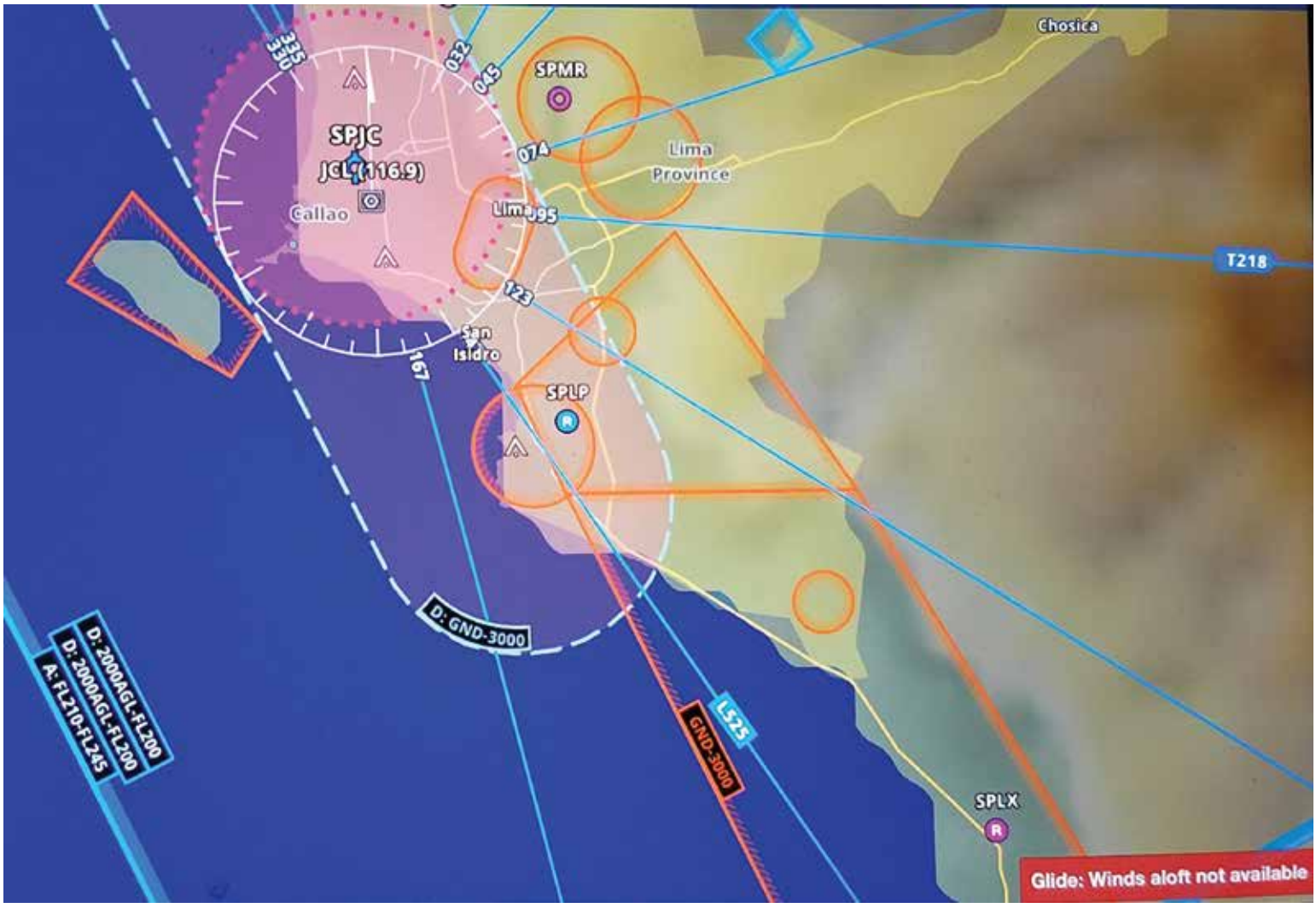
Yasmina Platt

After a few work trips to Lima, Perú, I was asked to temporarily relocate there. You may already know from my other articles that I do not like to stay still much on the weekends and that I love to explore the outdoors and learn about different areas, cultures, foods, etc. I especially love to experience flight in different parts of the world. I already wrote a separate article about flying over the country's incredible Nazca Lines but, if you remember, I could not do it as a pilot, but rather as a passenger due to flight restrictions. That was not going to stop me from finding ways to fly myself.

Jorge Chávez International Airport (LIM or SPJC) does not hardly have any General Aviation (GA) activity, but I was able to rent an airplane and fly with a local CFI at the Lib Mandy Airport (SPLX), a GA airport approximately 43 miles south of Lima. The hardest part was actually getting there… Although the distance may seem reasonable, the amount of traffic, lack of highways, and crazy driving skills of the locals made this an hour and a half drive each way. I was also concerned rideshares or taxis would not pick up from the GA airport for my return trip but, thankfully, they did.

The airport lacks an Aeronautical Information Publication (AIP) listing as far as I can tell, and the best information for it can be obtained directly from the flight schools or on flight planning apps. Lib Mandy, itself, at 200 feet MSL, is not in any particular type of airspace (not like we are used to in the States, anyway). However, it is in a restricted area (R-68) from the surface to 3,000 feet MSL and SPIM – Lima's Flight Information Region (FIR), like an Air Route Traffic Control Center or ARTCC in the U.S. – goes from the surface to 20,000 feet MSL.

SPLX has a single, paved runway (Runway 14/32, approximately 3,300 feet long by 59 feet wide) with no instrument approaches, but it does have a visual tower. Its



The airspace in and around Jorge Chávez International Airport (SPJC), Lima, Perú. Lib Mandy Airport (SPLX) is located in the lower righthand corner of the chart.
Image Courtesy of ForeFlight

facilities, especially the pavement, is not in the greatest of condition. It is mostly busy with flight training and has a smaller aerodrome just on the other side of the Pan-American Highway, which is also quite busy with ultralights and Light Sport Aircraft (LSA).

I rented a well-maintained Cessna 150 for $150/hour wet, with the instructor. A local, VFR flight to learn the procedures and check out the scenery was the objective. I knew crossing over LIM to fly north of it was not an option and flying east is a challenge because of the rising terrain and powerful Andes, but I had assumed such local flight would include a flight over Lima. I was wrong. There are lots of restrictions in the area prohibiting VFR flying without a previously established flight plan. So, we just flew south of SPLX for a while, checking out the little towns, beaches, agriculture, and hillsides. Even though we were outside of all airspace, we had to coordinate and remain in contact with Lima Approach the entire time. It was disappointing and a bit surprising considering I have flown in much busier airspace in South America (such as Sao Paulo) without these restrictions, but I learned yet another lesson and the next flight will be a cross-country with a filed flight plan. It also served as another reminder of how good we have it in the U.S. Let's keep it that way!

To read other destination articles, visit www.airtrails.weebly.com. *Fly safe and fly often!*

EDITOR'S NOTE: Yasmina 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 Platt has written by going to www.MidwestFlyer.com and typing in her name in the search box.

A Flight To Canada...
Familiar Surroundings From A Different Perspective!

On approach to Miminiska Lodge, Ontario (CPS5).
Pete Aarsvold Photo

by Dave Weiman

Last year, I wrote an article describing my flight to Ontario, Canada to participate in the annual ***Canada Fishing Fly-Out to Miminiska Lodge.*** Accompanying me was an old classmate of mine from the Twin Cities. It was great to reconnect with him, after 50 years – someone I used to see almost daily in and out of school because of our interest in music. While our careers led us in different directions, we really hadn't changed that much.

This year I flew to Miminiska Lodge, August 8-13, 2019, with another old friend… someone I worked with at a YMCA camp during college. While we would occasionally see one another at staff reunions, neither of us ever envisioned we would someday be flying to Canada together to go fishing!

For the first leg of the trip, I flew from my home base in Oregon, Wisconsin, direct to Blue Earth, Minnesota (KSBU), to pick up my friend. From Blue Earth, I planned our route to Thunder Bay, Ontario via Rochester (RST) and Duluth (DLH) to take us passed our old Y camp near Amery, Wisconsin. Seeing the camp from 5000 feet MSL took us back 50 years, but from a different perspective – looking down from above, rather than around a campfire.

Isolated thunderstorms in Duluth, Minnesota, necessitated we divert to the west to Aitken, Minnesota (KAIT), then direct Thunder Bay. That flight path took us east of Mille Lacs Lake, and directly over my sister and brother-in-law's land, where I helped build a cabin when I was 16 years old.

Great memories, but looking down at those woods reminded me of a turning point in my life. It was there I decided to spend $850.00 I had saved to buy a snowmobile, and instead get my pilot certificate.

The windsock and flags on the sand point in front of the lodge.
Dave Weiman Photo

Trip Planning

Packing for the trip requires considerable planning, and includes our weight; essential equipment for the plane (i.e. extra oil, basic tools, tie-down kit, aircraft cover); and survival equipment and gear, such as life preservers, a personal locator beacon (PLB), first aid kit, tent, food and water, and warm clothes. Some pilots bring a shot gun with them for wildlife protection in the event of an emergency, off-field landing. In order to transport a firearm, the Royal Canadian Mounted Police requires pilots to complete

Aircraft that flew in for the Canada Fishing Fly-Out to Miminiska Lodge.
Dave Weiman Photo

a non-resident firearm declaration form (RCMP 5589) and pay a $25.00 fee. For pilots who fly over the Great Lakes, a life raft and dry suits are recommended, as is training in water ditching survival. Of course, what kind of a fishing trip would it be without "fishing tackle" (breakdown rods in protective rod cases are nice), a rain suit, and a hat. And don't forget sunscreen, insect repellant and mosquito netting to go over your head. A copy of the "Canada Flight Supplement" and navigational charts are a must, even though most pilots nowadays use iPads with ForeFlight for flight planning and navigation, and most aircraft are equipped with GPS. Yes, it gets to be a lot of stuff. That's why we encourage pilots in our group to fly two people per four-place aircraft, and to complete "weight and balance" computations to ensure they remain within the envelope for their aircraft. Planning one's fuel stops is also essential because airports are far and few between in Canada.

Prior to taking off from Blue Earth, we donned our Revere life preservers, and I briefed my friend on emergency procedures, including what to do if we had to make a water landing; the location of tools to cut seat belts and break windows; and how to activate the onboard GPS Emergency Locator Transmitter (ELT), and my Personal Locator Beacon (PLB), which I wore around my neck for quick access. Knowing that we would be on either a flight plan or flight itinerary, and that Canada has one of the best search and rescue organizations in the world, was reassuring. Knowing that my friend was an experienced emergency medical technician was also reassuring.

(L/R) Pete Aarsvold, Wes Waite and Ralph Benjamin with Benjamin's 1999 Cessna 182S Skylane. *Dave Phillips Photo*

Months before the trip, I ordered and obtained my 2019 U.S. Customs & Border Protection "aircraft decal" online at **https://dtops.cbp.dhs.gov**. Then just days prior to the trip, I filed our outbound (from U.S.) and inbound (from Canada) "flight manifests" using the U.S. Customs & Border Protection *electronic Advance Passenger Information System* (eAPIS). (To register, go to **https://eapis.cbp.dhs.gov/**.)

The night before our departure from the United States, I called Canada Customs at **888-CAN-PASS** and gave them our ETA to Thunder Bay International (CYQT) where we would clear Canada Customs. Canada Customs requires that pilots call them at least 2 hours in advance of their ETA, and no sooner than 48 hours in advance. If you think you will arrive earlier or later than anticipated (give or take 15 minutes), Canada Customs welcomes updates to your ETA. In providing ETAs, we also need to remember that both Thunder Bay and Miminiska Lodge are in the Eastern time zone, while Minnesota and Pickle Lake, Ontario are in the Central time zone. It would be a whole lot easier if U.S. and Canada Customs went by Zulu Time, but they don't. It would also be helpful if all Customs offices used aircraft tracking tools, such as "FlightAware," so they know exactly when we will be arriving at our airports of entry.

U.S. Customs & Border Protection (CBP) requires that pilots confirm their ETA to their

Lucy Newell lands the Wilderness North de Havilland DHC-2 Beaver on Lake Miminiska to pick up guests for a one-day Trout fishing expedition by canoe.

Dave Weiman Photo

airport of entry as filed on their flight manifest at least 1 hour prior to their ETA, or prior to departing the U.S., then update it as necessary.

CBP states: *"If changes to an already transmitted manifest are necessary, an updated and amended manifest must be submitted to CBP. Only amendments regarding flight cancellations, expected time of arrival (ETA) or changes in arrival location to an already transmitted manifest may be submitted telephonically, by radio, or through existing processes and procedures and should be coordinated directly with the CBP destination port."* If you change the "date" of your arrival, passengers or crew, you must submit a new flight manifest.

In order to cross the U.S. and Canada border, pilots must either be on a VFR or IFR flight plan, obtain a transponder squawk code from either Center or Flight Service, and be on frequency with either Center or Flight Service. The simplest way to fulfill all three requirements is to be on an IFR flight plan. When returning to the U.S. from Canada, pilots are required to follow the same procedure: file

Participants in the 2019 Canada Fishing Fly-Out to Miminiska Lodge!
Photo by Mary Zocchi

Don Stackhouse
William Chase Photo

Scott Alperin
Gary Bulzan Photo

and activate a flight plan, obtain a squawk code, and be on frequency.

Radar and radio coverage in northeast Minnesota is sparse, especially at lower altitudes (we were at 5000 feet MSL flying to Thunder Bay), but Minneapolis Center knew our route of flight, last known position, groundspeed and ETA to Thunder Bay, even though we were not on radar. Once 50 miles or so southwest of Thunder Bay, we contacted Thunder Bay Arrival (Approach Control) and they picked us up on radar.

Customs officials in both the U.S. and Canada will want to see your pilot certificate and passport, as well as the passports of each crew member and passenger. It is also good to have your medical certificate and aircraft registration available should officials ask for them. The Canadian government also requires pilots to have a "certificate of insurance" proving liability coverage, and a "Radio-Telephone

Operator's Permit," and a "Radio Station License" for your aircraft.

Upon landing, when you speak with either the Canada Customs official in person or on the telephone, the official will give you a "clearance report number" which you should keep in your possession throughout your stay. You should also request the official's name and badge number to document who you spoke with or met. For the return flight back to the U.S., U.S. Customs will not give you a clearance report number, so be sure to get the name and badge number of the official you meet with at your airport of entry, as this will be the only proof you will have that you actually cleared customs.

Upon our arrival in Thunder Bay, Canada Border Services (CBS) officers were not present, which is not uncommon, especially if you arrive past normal business hours. In these circumstances, the pilot-in-command may get out of his aircraft and go inside the fixed base operation to call 888-CAN-PASS to clear customs. Thanks to cell phones and extended coverages, I simply called CBS while standing by my aircraft, and once I received our clearance report number, my passenger and I were both free to leave our aircraft. Remember that neither you as pilot-in-command – nor your passengers – may get out of your aircraft when you return to the U.S., until you are met by a U.S. Customs officer, and he gives you the okay.

Once we cleared customs in Thunder Bay, the fixed base operator topped us off and we called for the airport shuttle to the Valhalla Inn, located on the northeast corner of Thunder Bay International Airport. Others in our group who cleared customs in Thunder Bay the following day, topped off and flew on to Miminiska Lodge that same day without staying over. They just had to get up earlier than we did to arrive at Miminiska by 12:00 noon.

In Canada, pilots are required to file a flight plan if flying 25 miles beyond their departure airport, unless someone at their destination airport is expecting them, and can contact Winnipeg Flight Service (FSS) to initiate search and rescue if they do not show up within 1 hour of their ETA. But a flight plan is only as good as the radio reception or telephone at your destination, so you can cancel it upon your arrival.

Before we departed Thunder Bay, we contacted the Wilderness North office in Thunder Bay with our "flight itineraries." They in turn notified Miminiska Lodge of our ETA via email. *(See Transport Canada Regulations 602.73 thru 602.77.)* Others in our group were flying from Cleveland, Ohio, so their airport of entry was Sault Ste Marie (CYAM).

The weather was excellent to Armstrong (CYYW), 79 nm south of Miminiska Lodge (CPS5), but after Armstrong, there were scattered rain showers and low ceilings.

We departed Thunder Bay with the plan that we would fly at least as far as Armstrong, look at the weather, and if nothing else, fly back to Thunder Bay if conditions hadn't improved.

Those of us who flew together stayed in radio contact on 122.75 Mhz. As we flew north, we relayed observed weather conditions to one another, and reported our groundspeed, altitude and distance from Miminiska Lodge. We also monitored 126.7 Mhz, as that is the frequency used in Canada for pilot reports. And on a good day, depending on your altitude and position, you can reach Winnipeg Flight Service on that frequency, and on a number of other frequencies. Refer to the Canada Flight Supplement and navigation charts for frequencies, airport information and much more!

Most aircraft in our group were equipped with ADS–B in and out, providing both traffic and weather, and enabling us to keep track of one another enroute.

Greg Stratz
Bob Carew Photo

Bob Carew
Greg Stratz Photo

Phil Peterson
Mark Peterson Photo

Mark Peterson
Phil Peterson Photo

Rick Bronecki
Rex White Photo

(L/R) Will, William and William Chase
Don Stackhouse Photo

Rex White
Rick Bronecki Photo

As we proceeded along our route of flight, the Wilderness North Cessna Caravan led the way and reported the flight conditions to the rest of us. Fortunately, the weather gradually improved, and by the time we arrived, the clouds were broken to scattered, and visibility was unrestricted.

Ralph Benjamin of Fitchburg, Wisconsin, was next in line with his Cessna 182 Skylane, followed by Phil and Mark Peterson of Oregon, Wisconsin in their C182, followed by yours truly in our C182, Greg Stratz of Fond du Lac in his Beechcraft F33A Bonanza, and Rex White of Oconomowoc, Wisconsin in his C182. A Glasair Sportsman 2+2, flown by Scott Alperin of Cleveland, Ohio, arrived that afternoon.

One aircraft in our group – a Beechcraft Travel Air BE95 flown by Bill Tenney of Cleveland, Ohio – arrived the day before, and a Beechcraft Model 35 V-Tail Bonanza flown by Bill Chase of Des Moines, Iowa, arrived later in the week. Eight aircraft in all with 21 pilots and passengers, from all walks of life. Unfortunately, we had to turn people away this year, as the lodge was full. *A good reason to book this trip early!*

There's not always a satellite telephone available at the lodge, but there is WiFi internet service, and upon our arrival, the lodge manager emailed back to the Wilderness North office in Thunder Bay that we had arrived safely, thereby canceling our flight itineraries. *"Wi-Fi Calling"* through Verizon, using the iPhone 6 or newer version iPhone, has worked at Miminiska. If you have never used the Wi-Fi Calling feature on your iPhone, and Verizon is your mobile phone carrier, I encourage you to call Verizon at 800-922-0204 and have them assist you in setting it up. Also, be sure to shut down and reboot your iPhone once you land in Canada to ensure a good connection.

Miminiska Lodge

Very few Canada fishing lodges have their own airstrip, and fewer are as remote as Miminiska Lodge, located miles from any roads. This makes Miminiska especially appealing to pilots and true outdoorsmen.

Based on the information contained in the Canada Flight Supplement, the elevation at Miminiska Lodge (CPS5) is approximately 1000 feet ASL (Above Sea Level), so we used 2000 feet ASL as our pattern altitude, 122.8 Mhz as the common traffic advisory frequency (CTAF), and began making position announcements 5 nm out below 4000 feet ASL.

Seeing the flags blowing on the sand point, which extends about 1,000 feet south from the lodge, and observing the direction of the waves on the lake, confirmed that the wind direction was from the west, at which time we entered on a left downwind for Runway 27.

Lodge manager, Matthew Scott, was standing by as we shut down and secured our aircraft. Matt then transported our gear to our cabins using an all-terrain vehicle.

It was great to get acquainted with Matt and reacquainted with fellow lodge manager, Dave Phillips, who worked at the lodge in 2018. Both Matt and Dave are from Fremantle, West Australia. Once we got settled in, Matt briefed us on lodge policy and procedures.

Miminiska Lodge features a rustic dining room overlooking the lake; a lounge for kicking back and relaxing; a full bar, billiard room, and big screen satellite television; and Wi-Fi internet as noted earlier. There is also a sauna by the lake, and canoes, kayaks, and paddle boards for your enjoyment.

Most of our pilots and their passengers had been on this trip in previous years, but joining us for the first time was a retired FAA inspector at the Milwaukee Flight Standards District Office, and his friend – both from Oconomowoc, Wisconsin; a student pilot from Middleton, Wisconsin; an optometrist from Cleveland, Ohio; and a pilot, and his son, grandson and best friend from Des Moines, Iowa.

Everyone in our group came from unique and diverse backgrounds. While our perspectives on life may differ, "flying" was our common denominator, and the news of the day was how the fish were biting, not politics.

Miminiska Lodge can accommodate up to 30 guests at a time, so after dinner the first night, we put all of the tables together and welcomed all guests to join us, including some folks from San Antonio, Texas. We were one happy group at the lodge for breakfast and dinner, and at our daily shore lunch on none other than "Shore Lunch Island."

Personally, I would like to prepare our own shore lunches, but I am always out-voted in favor of having the staff at Miminiska Lodge prepare our meals for us. However, one of the staff members had to be flown out on a medical emergency, so some of us offered to prepare shore lunch for the rest of the group that day, and we had fun doing it.

Aside from that one shore lunch, all meals were professionally prepared and were superb! Each evening, guests complete a menu sheet to specify what they want for breakfast and lunch the following day – either group shore lunch or shore lunch on their own, or their choice of sandwiches. Regardless, everyone is treated to a batch of fresh baked homemade cookies!

Breakfast is served at 7:00 a.m. or whenever you get up. Group shore lunch is at noon. "Happy Half Hour" begins at 5:30 p.m., and dinner is served at 6:00 p.m. A fresh pot of coffee is delivered to your cabin each morning, and thermoses and coolers are waiting for you in your boat. *From the dining room to the docks, the staff at Miminiska Lodge is the best!*

What About The Fishing?

Located on the Albany River Watershed in northwest Ontario, Miminiska Lodge offers guests the opportunity to experience the raw beauty of pristine boreal wilderness. Northern Pike and Walleye are caught in abundance. Brook Trout can be caught at the mouth of the Albany River.

There are three ways to effectively catch fish at Miminiska Lodge – trolling, jigging and casting – but to be successful at either, we were advised by the more experienced fishermen in our group that you MUST keep your line in the water!

Trolling crankbaits is a good way to cover a large body of water and locate concentrations of Walleye and Northern Pike. Good baits are #7 and #9 fire tiger and purple tiger Flicker Shads, neon yellow and orange Perch Pattern Shads, and orange and gold Rapala Shad Raps and similar crankbaits that run 8-12 feet below the surface. Jointed Rapalas are good for shallower depths and attract both species of fish.

Jigging over structure is a traditional way of catching Walleye and the unsuspecting Northern Pike. For jigging, we used 1/8th and 1/4-ounce jigs in a variety of colors with Mister Twister Tails in chartreuse or white. Jigs with any variety of artificial Gulp minnow, worm or leaches also work extremely well.

Casting copper or silver spoons in the bays is always effective for Northern Pike. Casting crank baits on a wind-blown shore is usually productive for Walleye.

None of us used any live bait, but it can be ordered in advance through Wilderness North. You cannot bring live bait into Canada from the U.S.

As for fishing rods, I take two rods and several reels: one medium weight rod for Walleyes and one heavy weight rod for Northerns. If you don't have a heavy weight rod, two medium weight rods will work, as well.

Wilderness North will obtain Ontario fishing licenses and outdoors cards for guests, as well as any special beverages and provisions desired, providing the office is notified in advance.

Everything is waiting for you upon your arrival. And when you are ready to depart, any fish you have caught to take home are cleaned, frozen and placed in your cooler for you.

Guests are allowed to keep two fish of each species: Northern Pike under 27 inches in length, and Walleyes under 18 inches. This is a conservation policy which helps to maintain a superb fishery.

The lodge provides 16 ft. Lund boats with 25 hp, 4-stroke, electric start Yamaha motors and fish finders.

Guides are available, but are not necessary for guests who have navigated the waters before, but are highly recommended for newcomers or inexperienced fishermen.

The lodge has a detailed map of the watershed showing where to catch each species of fish, but due to an increase in water temperature and a decrease in water level, that does not always hold true. Regardless, there was plenty of action for everyone, and we never went hungry.

For those who want to take a break from fishing, there are waterfalls on one end of the river you can hike to see, an old gold mining camp, and Church Island, where there is a small church you can go inside and sign the guest book. Outside the church is the grave of the last native priest to have held services there. Miminiska Lodge also offers one-day excursions for Brook Trout fishing and canoeing on nearby rivers. For those trips, guests were flown out by Lucy Newell of New Zealand with a de Havilland DHC-2 Beaver on straight floats.

Our Flight Home

Guests on the ***Canada Fishing Fly-Out to Miminiska Lodge*** have their choice of either a three-night/two-day trip, or a five-night/four-day trip, so our arrival and departure days varied somewhat, as did our routes flying home. Some of us filed IFR flight plans and others, VFR flight plans, and cleared U.S. Customs in either Duluth, International Falls, Sault Ste Marie, Green Bay or Des Moines.

Since Miminiska Lodge is 196 nm north of Thunder Bay, pilots need to climb to 10,000 feet MSL and be within 100 nm of the Canada/U.S. border before they can reach Winnipeg Center. However, your flight plan is automatically activated as per the proposed time of departure specified on your flight plan. To confirm your actual departure time, you can contact Winnipeg Flight Service shortly after takeoff once you reach altitude.

A number of us flew to Pickle Lake, Ontario (CYPL), located 62 nm west of Miminiska, Lodge, for fuel, to file our flight plans, and to call U.S. Customs at our airports of entry to confirm or update our ETAs. Due to winds aloft, we filed and maintained 4000 MSL, and activated our flight plan to International Falls (KINL) with Thunder Bay Radio upon our departure from Pickle Lake (122.2 Mhz 5 NM 4300 ASL).

Thunder Bay Radio advised us to call Winnipeg Center 150 miles north of International Falls, but while we could

Rapids above Snake Falls on the Albany River.
Dave Weiman Photo

Sunrise on Lake Miminiska.
William Chase Photo

hear Center on frequency at that distance, they could not hear us until we were about 75 miles north of International Falls at our altitude. We were unable to reach Minneapolis Center until we were 30 miles from International Falls.

2020 Canada Fishing Fly-Out

The dates and trip options for the ***2020 Canada Fishing Fly-Out to Miminiska Lodge*** are August 9-12, 2020 and August 12-15, 2020 for the three-night/two-day trips, and August 9-14, 2020 for the five-night/four-day trip. For special group rates, email me at dave@midwestflyer.com.

For reservations, call Lynette Mish at Wilderness North toll free at **888-465-3474**, and be sure to check out the ***Wilderness North*** website: **www.wildernessnorth.com**. There's even a special section on the website for pilots who fly their own aircraft to the lodge, like us.

Some people go on this trip for the fishing, and others for the adventure of the flight, but most go for the total experience and pilot camaraderie, and to reinvigorate oneself, meet new people, and reconnect with old friends!

EDITOR'S NOTE: Check out the podcast about this trip, which was originally aired on the weekly radio program, the ***"World of Aviation"*** on Minneapolis AM 1280 and FM 107.5. Select the **7/28/2019** podcast: **https://am1280thepatriot.com/content/all/world-of-aviation-podcast**, or simply go to: **www.am1280thepatriot.com** and click on "podcasts," then scan down to the ***"World of Aviation"*** and select the **7/28/2019** podcast.

Program host, Al Malmberg, and Dave Weiman of *Midwest Flyer Magazine*, did a series of four 15-minute programs during ***EAA AirVenture Oshkosh 2019*** in July. The fourth program is devoted to describing the ***Canada Fishing Fly-Out to Miminiska Lodge.***

This flyout is a service of Wilderness North. Neither *Midwest Flyer Magazine*, Flyer Publications, Inc., nor their staffs and owners, or anyone else affiliated with the magazine, assume any responsibility for reliance on the information contained herein or elsewhere, or liability for anyone's participation on the trip or for the trip itself. Any flight planning and navigational information mentioned in this article or elsewhere is subject to change and error, and is the responsibility of the reader to research, verify and confirm. Pilots are urged to reference the Canada Flight Supplement, Canada Navigational Charts, Nav Canada and Federal Aviation Administration publications and resources, and the various electronic data bases, such as ForeFlight, to obtain and confirm information.

Whether on wheels or floats, this Canada fishing trip is for you, so don't put off booking your trip for 2020, as space is limited! ❑

Don't Be Complacent: Survival Tips For Winter Flying

by Bob Worthington


Bob Worthington

It was late summer, in the mountains in the Middle East, in combat. I was a U.S. Marine PFC (Private First Class). Military privates are at the bottom of the food chain with one exception: For work details, they head any list. I was a member of a USMC (U.S. Marine Corps) infantry battalion, which was preparing to be released from combat. Part of our unit consisted of M-48 tanks, armed with 90 mm cannons. The work detail was to visit each tank site and recover all of its 90 mm point-detonating rounds and transport them to an ordnance supply point. The detail consisted of a 2 ½ ton truck with driver, a corporal, and four privates with strong backs.

Our day began at the supply point where a non-commissioned officer (NCO) showed us how to cover the entire truck bed with sandbags, then create a sand-bagged cradle for each 90 mm round. Using this demonstration, we could transport between nine to a dozen rounds each trip. The tanks were scattered throughout the mountain and the dirt road to each position was more like an animal path, rutted, curvy, and at least 30 feet straight down on one side or the other. It was very hot, the dirt trails were slippery and dangerous, and every tank had 10-12 rounds to be moved.

Half-way through the morning we realized that only transporting 10-12 rounds at a time would require days to complete the job. We were also mindful that nothing bad happened, so far. If, instead of building a separate cradle for each round, we placed a sandbag in front, one bag on each side, we could double our carrying capacity. Also, our driver was getting used to the treacherous mountain dirt roads and thought he could up his speed from 10 to 15 mph to 25 to 30 mph.

By mid-afternoon, we were dead-beat, hot, and still had a lot more rounds left to be picked up. Also, nothing bad had happened. So, we put one bag in front, one bag between rounds, and the driver could hit 45 mph on straightaways. By dark, we had completed our task and nothing bad ever happened.

What was the lesson we never learned? Humans will undertake risky situations, and if nothing bad happens, are willing to increase the risk, assuming nothing bad will ever happen. We became complacent. For us, fortunately, we ran out of point-detonating tank rounds before one exploded.

In January of my sophomore year in college, the local paper ran a story of four missing doctors. Collectively they held medical calls at clinics they supervised around northern New Hampshire. One was a pilot and he flew them to the clinics. Once a week, they would fly to each clinic, see their patients, and return that evening. However, one snowy, winter night, they never returned.

I dropped out of college, enlisted in the Marines, completed my hitch, and returned to college. Three and a half years after the docs disappeared, some hikers in the mountains came across their plane and the NTSB (National Transportation Safety Board) began their investigation. Apparently, all survived the crash, but having made this trip every week for a long time, they became complacent, believing since nothing bad had ever happened, nothing would.

They all flew in their street clothes, coat and tie, low quarter shoes, and no survival gear in the plane. They survived the crash, but succumbed to the elements. Sub-freezing temperatures with no protection, killed them. They had become complacent.

Studies on the causes of aviation accidents reveal the same thing. Seventy-five to eighty-five percent of the reason for the accident is because the pilot made a wrong decision. He or she either failed to recognize a potential problem or ignored what could happen. Running out of fuel always makes me wonder. Why does a pilot, knowing that he/she only has one hour of fuel in the plane, initiate a one-hour flight? As an aviation psychologist I know why. The pilot is convinced that he/she can make that flight, successfully. After all, nothing bad has ever happened before, so it will not happen this time. They become complacent.

One time I was on climb out in our Mooney 201 when the engine quit, and I made an unscheduled, off-airport landing. My wife and I survived, but the airplane didn't. Cause of the crash? Faulty engine design. A second time was right after I landed my Cessna Skylane 182RG. The nose gear collapsed, immediately stopping the plane, requiring over $90K to repair a $150K plane. The reason? Unknown. There was no evidence of any kind of failure.

I mention these incidents to reinforce the fact that anything made by man has the capability to fail at any time. And sometimes the failure may have no rational or reason. We fly very complex machines which can malfunction. Is this common? Of course not. Some pilots have experienced tens of thousands of flight hours with nary a hiccup.

As you read this article, it is October. The day-time temps are very mild, in the high 50s or low 60s. But in a few weeks the night-time temperatures in the Upper Midwest will hover around the freezing mark. My question to you is, what do you carry in the back of your plane? If your plane decides to quit flying and you go down as dusk approaches, can you survive the night? Is there enough survival equipment to protect everyone in the plane for that night?

So, what is my point in all of this? First, a plane can quit functioning at the most inopportune time. Ask any member of the "Caterpillar Club." Second, there are things a pilot can do to mitigate an unfortunate event, to make things better, not worse.

General aviation survival consists of two parts: First, preparation prior to the flight, and second, what you do once on the ground.

Begin by filing a flight plan, VFR or IFR. Enough said. If not IFR, use flight following. When in the sky, I love it when I know I am more than a blip on a radar screen…I am a real person, talking on the radio with another real person who knows who that blip is. I feel secure. Also, let friends or family know where and when you will be flying. At the very least if you do not arrive at your destination airport, someone will start a search for you.

If you lose an engine and do make an unscheduled, off-airport landing, your ELT (Emergency Locator Transmitter), if on and armed, will transmit a signal letting the proper authorities know where you are. A second source of security is found in a personal locator beacon or PLB, a personal ELT. This device, carried on your person, when activated, transmits a signal, just like your aircraft's ELT, showing where you are, on the ground.

Survival, on the ground, depends on your training, your physical condition, your current state of mind, and having the appropriate survival gear in the plane. Survival equipment in the back of a plane depends on when you fly and where you fly. What I carried when flying across Alaska was totally different than what I carried flying across the southwest deserts. Also, survival gear is a compromise between weight and the worse you think you may need protection from. In the summer deserts, one needs fluids while in the Upper Midwest during winter, it is protection from cold.

Based on my training and experience in survival, I made my own survival gear. These include protection from the weather, fluids, and food (energy). Flying over the Midwest reveals plenty of streams, rivers, ponds, and lakes. But a crash site one-half-mile away from a source of water may become meaningless if you flew solo and now have two broken legs.

Since most of my flying consisted of long cross-country flights, my baggage contained plenty of clothing, shirts, pants, coats, etc. Therefore, extra weather protection was already at hand. Survival gear in the back of a plane is not subjected to bad weather, rough handling, and being used, over and over for a long time. It is for (hopefully) a one-episode event, and until being used, is handled with care and protected. Mummy sleeping bags can be purchased for $20-$40, weighing 2-3 pounds, and good for temps down to the teens or zero degrees.

Food should be high in calories and nutrients -- dried fruits and nuts, dried meats (jerky) and protein bars package in assorted zip-lock plastic bags which can be used for other purposes. A caution on fluids. They are most necessary, but also heavy. I do not recommend energy drinks because of their contents. Sports drinks, such as Gatorade, were designed for a specific purpose, to maintain the body's ionic balance after a vigorous workout. High in sugar and sodium, they were not designed as an alternative to plain water. My survival gear contains plain bottled water.

All of my survival gear fits inside a backpack which also contained several heavy-duty, large, plastic garbage bags. In the plane, I have a comprehensive medical kit with an excellent book on first aid. My medical kit contains supplies to treat broken bones, serious cuts, infection and pain. If you have never done so, avail yourself to lessons and seminars in practical first aid. Include a couple of bottles of water purification tablets, just in case.

Other items I deemed important include a lightweight foil emergency blanket, lightweight ponchos, a Swiss knife or Leatherman-type tool, a lightweight collapsible shovel and small hatchet, and several feet of parachute cord. Waterproof matches (I would take "strike anywhere" table matches, dip in melted candle wax, and store is a small medicine bottle), small flashlights with extra batteries, and heat tabs (chemical tabs which burn providing heat to cook with), and assorted spices.

Next is an item that in today's "politically correct" environment can lead to trouble, legally or otherwise. On my cross-country flights I carried a handgun. For some of the states I flew over, my possession was illegal. I knew that. The handgun would be used as protection against wild animals, signaling, or for food as a 9 mm

hollow-point round fired into a pool of water in a stream can stun enough fish for several meals. Depending on your beliefs and your own expertise, some might consider a small shotgun or a small carbine. Just be aware of the laws regarding firearms in the states (or countries) you wish to pass over. The decision to transport a firearm in your aircraft is a personal one and I do not advocate it either way. I am only sharing with you what I have done, and my rationale as to why.

My survival pack also includes a cooking pot with a cup inside, both lightweight aluminum, and a sheath knife (I prefer the U.S. Air Force survival knife issued to pilots). Additionally, I always carry two or three paperback novels so I wouldn't become bored, waiting to be rescued.

We all carry insurance on our cars, planes, recreational vehicles, and homes, but how many of us have submitted a claim for a tornado-destroyed car or a burned-down house? We don't assume we will lose a home or vehicle, but we are not complacent, we are insured. So, when flying, don't be complacent, carry survival gear.

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). ❑

Work On MSP's Long-Term Plan For 2040 Now Underway

MINNEAPOLIS/ST. PAUL, MINN. – This spring the staff at Minneapolis-St. Paul International Airport (KMSP) started looking toward the future and have begun work on the long-term planning process for the airport.

Creating a long-term plan is important not only to travelers who rely on the Metropolitan Airports Commission (MAC) to provide an efficient and enjoyable experience, but also to the entire region, as KMSP supports more than 89,000 area jobs and generates nearly $16 billion in total economic output.

The airport also helps Minnesota retain businesses, including the 17 Fortune 500 companies in the Twin Cities, which rely on the airport to move both goods and people to places around the globe.

The process includes studying airport facility and infrastructure needs based on 20-year projections of passenger and aircraft operations growth. The KMSP Airport 2040 Long-Term Plan will ultimately help MAC, which owns and operates KMSP, to better understand future facility needs.

The planning process will fulfill a state requirement for the airport and is a significant undertaking for MAC staff. In addition to research and statistical modeling, MAC has also begun engaging key stakeholders to ensure it receives meaningful feedback and ideas throughout the process.

To help accomplish this, MAC has created a 29-member Stakeholder Advisory Panel, comprised of individuals representing surrounding communities, airport tenants, federal agencies, specific passenger groups, regional businesses, and tourism associations, who will provide that input. The panel's first meeting was held earlier this year.

Individuals interested in receiving updates to the planning process - including when public meetings are scheduled - should visit **https://www.mspairport.com/long-term-plan** and sign up to receive e-news specific to this topic. ❑

Sebring Cancels U.S. Sport Aviation Expo

The annual U.S. Sport Aviation Expo hosted at Sebring Regional Airport in Sebring, Florida since 2003, has been canceled effective immediately, as announced by the airport authority on May 30. The airport will instead focus on youth and growing the future of aviation. The city of Sebring's Highlands County school board was one of dozens across the United States that is participating in the AOPA High School Initiative that offers free aviation-based science, technology, engineering, and math (STEM) curriculum to ninth and tenth grade teachers and students.

The airport authority's statement also said that it would "focus more resources and energy toward the development of new programs in emerging aviation areas including manned, optionally manned, and unmanned systems" that include "aerial, terrestrial, and marine platforms."

The Sebring event had grown in popularity since light sport aircraft burst onto the scene in the early 2000s with hopes to provide pilots with a lower cost pathway to the sky through smaller aircraft and alternative licensing regulations.

During the fifteenth anniversary show in January 2019, the event was affected by high winds and a tornado watch that canceled forums, several introductory flights, and other activities. In 2016, the Deland Sport Aviation Showcase, held in November, also in Florida, began to compete with the U.S. Sport Aviation Expo (AOPA). ❑

The New Golden Age of Small-Quantity, High-Quality Aircraft Parts Production: Breaking It Down Into Contributing Elements

Third in a Series of Articles

by Ed Leineweber

Ed Leineweber

By now, regular *Midwest Flyer Magazine* readers are probably familiar with my fascination with an emerging design, prototyping and production phenomenon I have dubbed *"the New Golden Age of Small-Quantity, High-Quality Aircraft Parts Production,"* which, I maintain, is bringing dramatic and beneficial changes to our aviation world. These developments will enable us homebuilders to make some of our own parts at home, enable small shops to keep vintage aircraft flying, and kit companies rolling out affordable, state-of-the art personal aircraft, among other opportunities.

I explored this phenomenon initially in the December 2018/January 2019 issue of *Midwest Flyer Magazine* with an article on Tromblay Tool LLC, a small company which I see as exemplifying certain aspects of this New Golden Age. I then followed up in the June/July 2019 issue with an introductory discussion of the phenomenon itself by interviewing Adam Morrison of Streamline Designs, an engineering firm fully engaged in advancing this New Golden Age. What follows is the first foray into a deeper exploration of the confluence of factors itemized in Adam's interview.

Tony Tromblay explains the operations and applications of one of the CNC machines at Tromblay Tool LLC, profiled in the December 2018/January 2019 issue of *Midwest Flyer Magazine.*

Affordable, Easy-To-Use CAD & CNC Machines

The obvious place to start is the revolutionary advancement of two complementary technologies: Computer-Aided Design (CAD) software and Computer Numerically Controlled (CNC) machines. CAD software began by simply moving the two-dimensional drawing process from the drafting table to the computer, but by the late 1980s, it had blossomed into depicting three-dimensional (3D) images. This early 3D software was expensive and required extensive training and a high degree of skill to use it effectively. As such, it was far beyond the reach of all but the largest engineering firms and production facilities.

The last 20 years, however, have seen rapid development of CAD systems and their widespread use, bringing prices down dramatically and skill levels required for productive use well within the range of small shops, fabricators and even homebuilders. Many companies even provide free online or down-loadable versions of their software with capabilities

This is a control wheel for the Beechcraft Staggerwing. It was machined by Tim Ryan of Vintage Aerofab, Newton, Kansas, in their CNC mill from a solid billet. This is an excellent example of the use of this technology for small-quantity, high-quality vintage aircraft parts production. (Vintage Aerofab will be featured in an upcoming article in this series.)

This sprocket is also for the Staggerwing. Used in the gear retraction system, it is made from the original drawings. The turning operations are completed by Vintage Aerofab in their CNC lathe from solid bar. It is then transferred over to the Hurco VM20 Marching Center to finish the sprocket tooth form. After deburring and inspection, the sprocket is sent out to be cadmium plated with Type I cad plating (silver color).

sufficient to revolutionize the simplest design, prototyping and fabrication project.

Computer Numerically Controlled (CNC) machines are capable of working with minimal human operator involvement as they follow a complex computer- directed set of instructions enabling the machines to follow a prescribed tool path, creating complex shapes in a variety of materials through turning, milling, grinding and other operations that are fully automated and extremely precise.

When they first came on the scene, use of such machines was limited to high-end players due to their large size, installation requirements, such as three-phase electrical power and massive foundations to accommodate their substantial weight. No surprise that these early CNC machines were also very expensive.

In recent years, however, CNC machines have seen a similar trajectory as CAD systems with sophisticated development, lower cost and simplified user interfaces, have made the technology more accessible to less well-healed players. Additionally, much smaller CNC machines are available today at prices about one-tenth of those of years ago and can be powered by nothing more than 120-volt house current. While such smaller lighter-duty machines cannot work at high speeds 24 hours a day, they can be equally capable of turning out complex, high-quality parts from even hard-to-machine materials, although in smaller quantities. Finally, it should be noted that CNC machines today can work a wide variety of materials, including wood and plastic, and can conduct many operations not usually associated with old-style machining, such as routing, waterjet cutting and welding, all without hands-on operator control.

A discussion of these two revolutionary technologies should also include brief mention of a related, but more recently popularized development: 3D printing. This technology, often referred to as an example of "additive manufacturing" in that it builds up parts through adding material to the emerging part, rather than removing it as in traditional machining operations, has been around since the 1980s, but was generally unavailable to a wider user population due to its complexity in programing, large size units and substantial required investment. Nowadays, however, these units can be readily purchased from many sources at prices starting at a few hundred dollars and set up on any workbench or kitchen counter and plugged into house current. Equally important to the expanding use of 3D printing technology is the readily available free or inexpensive CAD software that allows simple programming inputs to generate the obscure, but ubiquitous, G Code necessary to run nearly every CNC machine ever produced.

Much More To Come!

There can be little doubt that technological advancements like CAD software and CNC machines alone have revolutionized small aircraft construction and maintenance, but these better-known elements are only the tip of the massive iceberg that is fostering this New Golden Age. In coming articles, we will continue to explore the many other

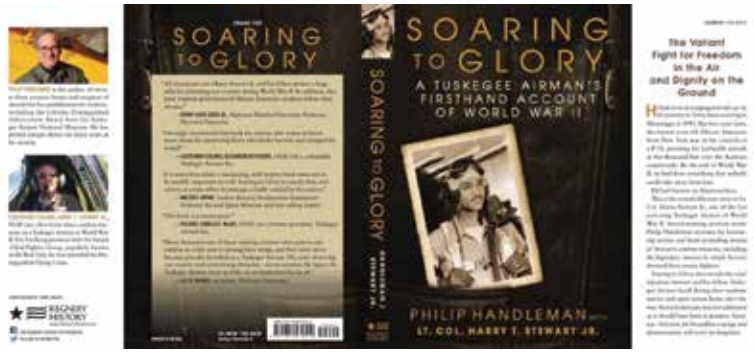
lesser known factors outlined in the earlier articles.

These are some of the developments whose confluence is creating the New Golden Age of Small-Quantity, High-Quality Aircraft Parts Production discussed in this series of articles:

- Affordable, easy-to-use Computer Assisted Design (CAD) software tools.
- Newer, more easily programed Computer Numerical Control (CNC) machines.
- Connected and networked factories.
- Associated reductions in labor inputs and price.
- Specialization culture versus mass production.
- Rapid prototyping and on-demand production capabilities.
- Reduced cost of machines with good capability.
- Open-source tools and methods.
- Crowdsourcing and crowdfunding access to start-up capital.
- Agile product management making its way into hardware production.
- Emergence of additive versus subtractive manufacturing.
- The availability of on-demand services and the gig economy.
- The expanding use of industry consensus standards as a means of accelerating the pace of new product certification.

EDITOR'S NOTE: Ed Leineweber is licensed to practice law in Wisconsin. Now, mostly retired from the legal profession, including 20 years as a circuit court judge, Ed focuses his limited practice in Aviation Law and Alternative Dispute Resolution, including Mediation. As a pilot for nearly 40 years, aircraft owner, Certified Flight Instructor, licensed aviation maintenance technician, former fixed base operator, airport manager, and FAA Safety Team member, Ed is experienced in most aspects of general aviation. When not practicing law, he enjoys working in his shop at the airport on aircraft restorations and on his aircraft kit company, and spending time with family and friends. ❑

Living WWII Tuskegee Fighter Pilot's Triumph Against Nazis Abroad & Racism At Home



WASHINGTON, DC - "Colored people aren't accepted as airline pilots." The "negro type has not the proper reflexes to make a first-class fighter pilot." These were the degrading sentiments that faced eighteen-year-old Lt. Col. Harry Stewart Jr. as he journeyed in a segregated rail car to Army basic training in Mississippi in 1943. But two years later, the twenty-year-old African American from New York was at the controls of a P-51, prowling for Luftwaffe aircraft at 5,000 feet over the Austrian countryside. By the end of World War II, Stewart had done something that nobody could take away from him...he had become an American hero.

"Soaring to Glory: A Tuskegee Airman's Firsthand Account of WWII" (Regnery History; June 4, 2019; $29.99) is the remarkable true story of Lt. Col. Harry Stewart Jr., one of the last surviving Tuskegee Airmen of World War II. In the style of Laura Hillenbrand's "Unbroken," award-winning aviation writer Philip Handleman recreates the harrowing action and heart-pounding drama of Stewart's combat missions, including the legendary mission in which he downed three enemy fighters.

In addition to thrilling dogfights and never-before-told personal stories from Stewart, Soaring to Glory reveals the cruel injustices he and his fellow Tuskegee Airmen faced during their wartime service and upon their return home. ❑

Boeing Plaza at "WomenVenture" featured 1,000 women who are involved in aviation and a Boeing 787-8 Dreamliner flown to Oshkosh, Wisconsin by an all-female crew from United Airlines.
WomenVenture 2019 Photo by Chris Miller

Past, Present & Future: Opportunities For Women Aviators of All Ages

by Kristine Reigel

Since the earliest days of aviation, women have been involved. From the first female mechanic in 1902, to the Women Airforce Service Pilots (WASP) of World War II, the first American female astronaut in 1983, and the first female fighter pilot in 1993, the number of women pilots has increased from 70 in 1929 to over 40,000 today. And yet this is still only 10% of the entire pilot population in the U.S. We need more female pilots, engineers, mechanics and air traffic controllers. EAA AirVenture Oshkosh, July 22-28, 2019, Oshkosh, Wisconsin, had many opportunities available to educate and support women and girls of all ages. Here are just a few of the resources available to women at the World's Greatest Aviation Celebration:

WomenVenture

Celebrating its twelfth year, WomenVenture by Boeing is a social and networking event which takes place during EAA AirVenture for women who are already part of – or thinking of becoming part of – the aviation community.

"WomenVenture Wednesday" is the peak event of the week. This year the day began with a breakfast attended by more than 400 men, women and girls, and featured former Naval Aviator and Southwest Airlines Captain Tammie Jo Shults. Shults shared stories of inspiration on how she became a pilot in the face of adversity when many people told her it couldn't be done. She also shared her story of safely landing a Southwest Airlines Boeing 737-700 (Flight 1380) that experienced an uncontained engine failure and of her upcoming book, "Nerves of Steel". On April 17, 2018, Shults and her crew departed New York-LaGuardia Airport en route to Dallas Love Field, when debris from the engine damaged the fuselage, causing rapid depressurization. The crew diverted the aircraft to Philadelphia International Airport and made a safe landing, although one passenger was partially ejected from the aircraft and later died.

Next on the agenda was "Boeing Plaza" to have a photo taken with 1,000 other women in purple shirts. According to Molly Martin, Outreach Director for Women in Aviation International (WAI), this is an annual event at WomenVenture. The energy for the photo is always palpable. This year was even more so as the backdrop for the 2019 photo was a Boeing 787-8 Dreamliner flown to Oshkosh by an all-female flight crew. After the photo shoot, the women aviators headed to Theater in the Woods for the annual WomenVenture Power Lunch featuring U.S. Air Force Colonel Kim "Killer Chick" Campbell as the guest speaker.

Women in Aviation International

Women in Aviation International members "seek to inspire and stand for encouragement, continued education, and a whole lot of fun!" If you're a lover of all-things aviation and aerospace, and enjoy sharing your passion with others, WAI would love to have you as a member.

Once a year, WAI holds its annual convention which includes a Girls in Aviation component. Separately, all

around the globe each year, WAI's local chapters host "Girls in Aviation Day" https://www.wai.org/events/girls-aviation-day-2019. This year's event will be held October 5, 2019. WAI also offers scholarships to girls and women of all ages to further their flight training and education.

Women in Aviation has a booth in Hangar B at EAA AirVenture with great merchandise and a friendly staff on hand ready to answer any questions and support girls and women on their journey to make aviation their career.

Ninety-Nines

Founded by Amelia Earhart and 98 other female aviators, the Ninety-Nines is celebrating its 90th anniversary this year. The mission statement of the Ninety-Nines is as follows:

"The Ninety-Nines® is the International Organization of Women Pilots that promotes advancement of aviation through education, scholarships and mutual support while honoring our unique history and sharing our passion for flight."

What this means in short is that the Ninety-Nines is an international membership organization of licensed female pilots and student pilots from 44 countries with thousands of members. The Ninety-Nines offers scholarships, instructor referrals, exclusive member benefits and career opportunities for women throughout the aviation industry.

On Thursday afternoon during the week of EAA AirVenture, the Ninety-Nines hosted a reception for its members at the Pilot Proficiency Center featuring SAFE Speaker Judy Phelps whose topic was "Loss of Control - Keeping the Sunny Side Up". Later that afternoon Lightspeed Aviation hosted a celebration of the Ninety-Nines at a reception in their tent across from Hangar B.

The Ninety-Nines also has a booth in Hangar B and a friendly staff to answer questions, provide guidance and enroll or renew memberships on site. The Ninety-Nines is conveniently located next to the booth for the Air Race Classic (https://www.ninety-nines.org/).

Air Race Classic

Another exciting opportunity for female pilots is the Air Race Classic https://www.airraceclassic.org/.

Women's air racing started on August 18, 1929, when 19 female pilots bravely took off to race from Santa Monica, California to Cleveland, Ohio in what was then called the "Women's Air Derby" and later dubbed the "Powder Puff Derby" by comedian Will Rogers.

At the time, there were only 70 licensed female pilots in the United States, and only 40 qualified to take part in this contest. Race rules stipulated that the aircraft must have horsepower "appropriate for a woman." Women aviation pioneers, such as Amelia Earhart, Iris Lois Thaden, Phoebe Jane Fairfrave Omlie, Opal Kunz and "Attagirl" Edith Foltz, were all racers.

Today's Air Race Classic is in keeping with the messages of the pioneering women in aviation who were passionate about encouraging current and future women pilots. One of the most notable ways that this is shown is the opportunity for student pilots to enter as "additional teammates" or crewmembers, as long as that student has logged 5 hours in an airplane. The Air Race Classic also hosts youth events, publishes books for kids and teachers about the race, and hosts a Collegiate Air Race Classic.

CAE

The world of aviation needs more women and CAE is ready to train them. Each year CAE (a worldwide leader in training for civil aviation, defense and security, and health care) offers five scholarships for young women interested in aviation careers: https://www.cae.com/civil-aviation/become-a-pilot/our-pilot-training-programmes/cae-women-in-flight-scholarship-program. CAE educates young women and then helps them on their way to finding a career in their chosen field.

GIFT Academy

Certified Flight Instructors Mary and Laurence Latimer, and their daughter, Tamara Latimer Griffith, founded "GIFT

Academy" in 2011. Drawing on the premise of the Women Airforce Service Pilots (WASP) of World War II, they wondered what kind of success they might have if they could teach women pilots with an all-female staff during a week-long training event. The response was phenomenal and GIFT Academy was born.

GIFT, and its sister program LIFT, is a nonprofit program designed to help women get started in their flight training or tackle hurdles that may be hindering their progress. The week-long event also offers mentoring, peer-to-peer learning, and a variety of instructors with different teaching techniques and aircraft.

Mary Latimer stresses the importance of matching instructors with students when it comes to the process of flight training. She attributes the female instructor/female student pilot relationship to a better learning environment. One reason for this is that some female students have complained of being propositioned by male instructors in-flight. This can make an already nerve-wracking situation unbearable and cause a student to give up.

The cost of the event is $1,500, which includes 10 hours of dual instruction, lunches, and ground school. A $300 deposit is required to reserve a spot. Scholarships may also be available. Training takes place in Vernon, Elk City, and Justin, Texas, all conveniently located just outside the Dallas Ft. Worth metroplex. Mary, her daughter Tamara, and her granddaughter are all instructors, as well as other female volunteers.

Conclusion

EAA AirVenture Oshkosh is a great place to expose women – young and old – to aviation. It is an especially unique opportunity for young women who may be interested in a career in aviation. After all, they too are the future of aviation. ❑

The Sling TSi Makes Impressive Flight To Oshkosh

by Dave Weiman

In the 12 months between EAA AirVenture Oshkosh fly-ins at Wittman Regional Airport in Oshkosh, Wisconsin, there is a great deal of work and preparation that goes on behind the scenes that most attendees are not aware of, and do not fully appreciate. Work on new aircraft designs, technology and programs with a considerable amount of time and money invested in research and development. Success of all products and services depend on their uniqueness, practicality, cost and competition, and whether or not they are filling a void that needs filling.

Sling TSi
Airplane Factory Photo

One aircraft that caught my attention this year was the "Sling TSi" – a modern, fast and economical four-place aircraft, equipped with a turbo-injected Rotax 915 iS FADEC (full authority digital engine control) engine, gullwing doors, a robust landing gear, a large cabin and luggage area, has fully-adjustable leather seats, a glass cockpit, and a glass canopy providing excellent visibility. The aircraft is manufactured by the Airplane Factory in Torrance, California.

The Sling TSi Kit has all of the style, economy and practical utility of the Sling 4, but with more speed! And it's available as a Quickbuild Kit (FAA audited 51% kit) or build-assist program through Midwest Sky Sports in Caro, Michigan or Sling Central in NormaTn, Oklahoma.

The Sling TSi features an all-new highspeed wing design – optimized for the power and weight of the aircraft. The leading edge of the wing is flush-riveted for low drag. The forward fuselage and empennage are also flush-riveted. The landing gear is airfoiled with low-drag wheel pants incorporated, and there is a new cowling design.

The interior, seating, ventilation and heating systems are improved for passenger comfort and luxury.

Designed by pilots for pilots, the Sling TSi features a selection of Garmin avionics, including a 10.6-inch

(L/R) Jean d' Assonville and Wayne Toddun flying non-stop from Torrance, California to Oshkosh, Wisconsin. *Airplane Factory Photo*

Oshkosh (KOSH) bearing 049 degrees, 1158 nm at FL270. *Airplane Factory Photo*

G3X Touch EFIS, backup G5 Electronic Flight Display, GTR 200 Com Radio, Garmin Autopilot, GTX 45R Transponder with ADS-B In/Out, and GMA 245R Bluetooth Audio Panel.

When I learned that the Sling TSi was flying non-stop from Torrance, California (KTOA) to Oshkosh, Wisconsin (KOSH) – a distance of 1,512 nm – that's when the aircraft really got my attention. The aircraft departed at 7:00 a.m. PDT on July 19, 2019 and landed in Oshkosh before 7:00 pm CDT (under 10 hours).

The manufacturer made this flight to expand the ceiling of the aircraft and to demonstrate its maximum range and cruise speeds. Normal cruise is 155 KTAS at 9,500 feet. The turbocharged FADEC engine allows the aircraft to climb into the 20,000 feet-plus flight levels.

The aircraft flew to Oshkosh with standard fuel tanks (45 gallons) plus long-range wing tip tanks (an additional 22 gallons total), plus internal portable tanks (20 gallons) for a total fuel capacity of 87 gallons, burning 7-8 gph of MOGAS. The Sling TSi has a total operating cost of around $60/hr.

I compared this with our 1976 Cessna 182 Skylane that has a total fuel capacity of 80 gallons with 75 gallons usable, burns twice the fuel using 100LL, and has a slower cruise speed. But our C182 has a larger cabin and greater hauling capability. Remember, too, that the additional fuel tanks on the Sling TSi were unique to the test aircraft, so the standard Sling TSi cannot fly non-stop for 10 hours. It all boils down to your particular mission, as to which aircraft is best suited for you!

One of the pilots onboard the non-stop flight was Wayne Toddun, a person who first became a customer, and is now CO and CEO of the Airplane Factory because he believes in the Sling. His business partner, Jean d'Assonville, who flew the Sling around the world in 2011, was the other pilot onboard. I had the pleasure to meet and interview Wayne at AirVenture and learn more about the Sling TSi and their record-setting flight.

"We were at 27,000 feet for a relatively short period of time," Wayne said. "It was really mostly a ceiling test to see how high we could get. We had a small headwind at 27,000 feet, but a tailwind at 17,500 feet, so it made sense to do most of the flight at that altitude."

Since this was a test flight of sorts, we asked Wayne if he and Jean were wearing parachutes. His reply: "No, but we (the aircraft) had a whole-plane ballistic parachute." The Magnum 901 Ballistic Parachute Recovery System is optional equipment, as is dual Garmin G3X Touch EFIS, and a GTN650 IFR Navigator.

The aircraft costs $164,062 for a factory-assisted quick-build kit with engine, avionics, and constant-speed propeller. The factory can complete the aircraft for another $80,000 or so.

For additional information, contact Wayne Toddum at 310-406-5498 or email wayne@slingpilotacademy.com. In addition to the Sling TSi, the Airplane Factory manufactures the Sling LSA, Sling 2 Kit and Sling 4 Kit (https://www.airplanefactory.com). The company is also involved in professional flight training through the Sling Pilot Academy (www.slingpilotacademy.com). ❑

One Kid's Perspective of EAA AirVenture Oshkosh 2019

by The Kid Reporter!

The Kid Reporter with the P-51 Mustang, "Moonbeam McSwine".

When I walked into the grounds at EAA AirVenture Oshkosh this year, July 22-28, 2019, I felt a warm breeze. The first thing we did was to observe people learning how to build an airplane. They were building the wings with fabric. There are a variety of workshops covering aircraft restoration and construction that are taught by skilled craftsmen, including working with fabric, composite materials, wood and sheet metal. There was also a welding station where they were welding aluminum.

We then went to the flight-line, where I saw some amazing planes like warbirds, and some unique water/land planes. There was one shiny, light blue plane that especially caught my eye. It was a P-51 Mustang named "Moonbeam McSwine". This was my favorite plane, to be honest!

When the airshow got underway, we watched the U.S. Air Force Thunderbirds F-16s fly by on their way to an airshow in Milwaukee. After they left, we watched other aerobatic acts for a while, then walked through the "Education and Career Center". It was there that I talked to representatives from NASA. There was even a model of a futuristic plane. It had 10 propellers. That's a lot!

The Education and Career Center features exhibits by colleges, universities, and technical schools that offer programs in aviation and science, technology, engineering, and mathematics or STEM-based curriculums. It is also the place for aspiring aviators to network with a variety of leading aviation companies and the airlines.

Aircraft homebuilders are learning fabric techniques at one of many workshops at EAA AirVenture Oshkosh 2019. *Peggy Weiman Photo*

Heritage Flight featuring P-51 Mustangs with a USAF F-22 Raptor. *Chris Bildilli Photo*

Julie Clark flying her T-34 Mentor in her last performance at EAA AirVenture Oshkosh. Clark is retiring from performing after the 2019 airshow season. *Chris Bildilli Photo*

F-22 Raptor
Chris Bildilli Photo

U.S.Air Force Thunderbirds
Chris Bildilli Photo

We then visited the "Innovation Showcase" where some of the industry's heavyweights and exciting new start-up companies showcased their latest inventions for future flight and space.

There were also displays and demonstrations of unmanned aircraft systems (UAS) or "drones," which is a growing industry within the aviation world. The "Drone Cage" at AirVenture gives attendees the opportunity to actually fly a drone and learn how they are used.

Fun facts about me: My favorite plane is the P-51 Mustang. My favorite jet is the Stealth Bomber.

I hope to see you next year at EAA AirVenture Oshkosh, July 20-26, 2020. Reporting exclusively for *Midwest Flyer Magazine,* The Kid Reporter! **ERW** ❑

Airbus Promoted Innovations & Jobs At EAA AirVenture Oshkosh

Airbus Vahana VTOL

An RV-12 built by Wichita, Kansas-area high school students as part of an educational program sponsored by the Airbus Foundation.

OSHKOSH, WIS. – Airbus highlighted three big stories at EAA AirVenture Oshkosh, July 22-28, 2019, with special exhibits on innovation for the future of commercial air travel and aerospace.

AIR TAXI – VAHANA! One of the hottest stories in aviation today is the design for the world's first autonomous "air taxi" – the Airbus Vahana VTOL – which is an all-electric, single-seat, tilt-wing vehicle demonstrator that focuses on advancing self-piloted, electric vertical take-off and landing (eVTOL) flight. To date, Vahana has flown over 80 full-scale test flights. The prototype for this aircraft made its Oshkosh debut. Vahana is part of the Airbus Urban Air Mobility effort to provide an alternative to congestion encountered in urban areas.

JOBS IN AEROSPACE! Airbus continues to build its inclusive and diverse employee community across the U.S. by recruiting employees at AirVenture.

STUDENTS MAKING PLANES! Another display on innovation at the Airbus booth included an RV-12 experimental light sport aircraft built by Wichita, Kansas-area high school students as part of an educational program sponsored by the Airbus Foundation. The two-seat airplane was the first RV-12 built in 2018 by select students from the Maize School District's Career Academy aerospace engineering program.

The Airbus Foundation provides funding for the Flying Challenge program through the educational, non-profit Tango Flight of Georgetown, Texas. Students built the aircraft

under the supervision and mentorship of volunteers from the Airbus Americas Engineering Center in Wichita, and Wichita State University's Technical College (WSU Tech). The aircraft was auctioned off during AirVenture with the proceeds going back into supporting the ongoing student program. ❑

Boeing Plaza Hosts WomenVenture

Now in its twelfth year, WomenVenture, a week-long social and networking event for women during EAA AirVenture Oshkosh, attracts hundreds of women who are part of the aviation community and enjoy getting together to be inspired, to network, and to just plain have fun. More than a thousand women gathered in Boeing Plaza on July 24, 2019 for WomenVenture's annual group photo, with most participants wearing their purple WomenVenture t-shirts.

"Our annual WomenVenture photo is a family reunion for us," says Women in Aviation International President Dr. Peggy Chabrian. "If we could bottle the energy in Boeing Plaza during this gathering, we could light up the sky. For many participants, taking part in this annual photo is a favorite part of AirVenture week."

See article on page 40. ❑

D-Day Squadron Makes Appearance At EAA AirVenture

OSHKOSH, WIS. – The D-Day Squadron, having successfully crossed the Atlantic with 15 C-47 and DC-3 aircraft, traveled to EAA AirVenture Oshkosh, Oshkosh, Wisconsin, July 22-28, 2019 with 10 aircraft, to participate in The World's Greatest Aviation Event." Prior to Oshkosh, the squadron completed multiple paratrooper drops and a presidential flyover for the 75th anniversary of the Normandy landings in France, the 70th anniversary of the Berlin Airlift, and commemorations in Connecticut, Maine, Scotland, United Kingdom, France, Germany and Italy.

Back from the 75th anniversary of the Normandy landings in France, the D-Day Squadron consisting of 10 C-47 and DC-3 aircraft, participated in EAA AirVenture Oshkosh 2019. *EAA Photo by Nick Moore*

Other accomplishments by the squadron included personally honoring six D-Day veterans, flying 150,000 total miles, 1,050 total flight hours, 1,776 miles flown over water, 7 weeks on the road for crews across 8 countries, 11 flight information regions covered by squadron aircraft, 5,000 lbs. of Jelly Belly parachutes dropped during the 70th anniversary of the Berlin Airlift, participation by 75 pilots participated, one presidential flyover was done on the 75th anniversary of D-Day, one route completed over Manhattan and around the Statue of Liberty, 2.3 million people reached on social media, events covered by 195 individual accredited media, and 45 partners and major donors helped to make every accomplishment a reality.

"'Mission Accomplished' may seem like an overused phrase, but I'm not sure what else you can say," declared Moreno Aguiari, director of marketing and public relations for the D-Day Squadron. "There was no one person responsible for this effort. An incredible number of people came together to fly 75-year-old aircraft to some of the most remote locations on the planet, then attended weeks of celebrations honoring the Greatest Generation and their incredible achievements. Then, they made the journey a second time to return home. But it also goes far beyond the pilots and crews, as that only scratches the surface of the logistical support that each aircraft received during every leg of the journey."

"We could never have accomplished this without the support of our partners and donors," concurred Lyndse Costabile, corporate and donor relations coordinator, for the D-Day Squadron. "Discounted fuel, ground handling, FBO fees, flight gear, event sponsorship, marketing support; the efforts contributed by these organizations was as fitting as

CONTINUED ON PAGE 59

Wipaire To Provide New Customers With Lifetime Membership In Seaplane Pilots Association

OSHKOSH, WIS. – Wipaire, Inc. has announced a partnership with the Seaplane Pilots Association (SPA) to increase support of pro-seaplane initiatives by sponsoring lifetime memberships for its customers.

"Beginning July 22, 2019, all new owners of Wipline floats will receive complimentary lifetime membership with the Seaplane Pilots Association," said Chuck Wiplinger, third generation president of the family-owned aircraft float manufacturer, headquartered in South St. Paul, Minnesota. "This increases awareness and participation for our customers on the many benefits of joining SPA."

Steven McCaughey, Executive Director of SPA, said: "SPA serves as the resource for seaplane pilot education, which is helpful for new float owners. Through lifetime membership, they'll receive discounts on insurance, access to safety seminars and be able to enjoy our events and splash-ins."

EAA Seaplane Base, Oshkosh, Wisconsin.
File Photo by Woody Minar

McCaughey continued: "Our lifetime members provide support critical to our advocacy. This includes our efforts to maintain open waterways and work with government entities to create pro-seaplane legislation. Partnering with Wipaire for lifetime membership supports the mission of SPA: Protecting and Promoting Water Flying. We truly appreciate this exclusive benefit being included with the purchase of new Wipline floats."

The Seaplane Pilots Association's primary focus is to promote safe seaplane operations and protect the privilege to share the nation's waterways with recreational, governmental and commercial operators.

SPA field directors and members work around the nation to ensure the fair access to water flight. They do this by working with pilots, communities and governing agencies to resolve conflicts and ensure fair and equal access through positive outreach, that includes educating policy-makers and the public through educational programs and videos so that these decisions can be made from an informed perspective, versus one made on assumptions by those not familiar with seaplanes and seaplane operations. SPA is the only organization in the world solely dedicated to working on these issues for seaplane pilots and operators at a local, state and national level.

For additional information, call Steven McCaughey at 863-701-7979 or email steve@seaplanes.org (www.seaplanepilotsassociation.org). ❑

Inspiring Flight Instructor & Columnist, Lynnwood "Woody" K. Minar

March 14, 1949 – July 3, 2019

ST. CROIX FALLS, WIS. – Well-known flight instructor, designated pilot examiner, and writer, Lynnwood "Woody" K. Minar, 70, of St. Croix Falls, Wisconsin, passed away on July 3, 2019, from Primary Central Nervous System Lymphoma, an aggressive rare cancer of the brain.

Lynnwood "Woody" K. Minar

Woody had a zest for life and always had a positive outlook. Anyone who knew him, knew he had a great sense of humor that could not easily be forgotten. He also loved to tell stories about his adventures and experiences as a flight instructor – many of which were chronicled in his column "From The Right Seat," published in *Midwest Flyer Magazine.*

Woody had a drive for being successful and a love for travel. In 1968, he followed in his father's footsteps and joined the U.S. Navy. For nine years, he served in Guam, Hawaii and Maine as a Cryptologic Technician in the Naval Security Group. He left the Navy with an honorable discharge in 1978. Soon after, he started working for the Central Intelligence Agency (CIA) where his first post was in Georgetown, Guyana, South America, followed by Addis Ababa, Ethiopia, Africa. He served more than 20 years in South and Central America, Africa, Europe and Western and Southern Russia.

Woody loved seeing the world and was fortunate to travel frequently for work, visiting many countries along his journey including Saudi Arabia, Italy, Germany, Russia, Czech Republic, England, France, Libya, Egypt, Liberia, and Djibouti. His last post was in Croughton, England, where he and Connie lived for three years. He happily retired from the CIA in 1998 and was honored with the Career Intelligence Medal for his dedicated service.

After retiring, Woody and his wife, Connie, moved back to their hometown of St. Croix Falls. He enjoyed filling his free time with golfing, photography, amateur "ham" radio, flying, and hunting at the Canadian Club Hunting Camp where he was the designated camp scribe. Many days you could find Woody enjoying his morning coffee group or golfing with his buddies when he was not at the airport.

After a successful career, Woody did not stop there. He obtained his Private Pilot Certificate in July 2000, followed by his Commercial and Flight Instructor Certificates in March 2003. After years of training students and new pilots, the Minneapolis Flight Standards District Office (FSDO) of the Federal Aviation Administration (FAA) made him a Designated Pilot Examiner (DPE) in April 2012. His list of aviation credentials included CFI (ASEL & ASES), CFII, MEI (AMEL & AMES), CFI-G (Glider), Gold Seal CFI, AGI, and IGI. He was also an FAASTeam Representative. Woody was a six-time recipient of the Master Instructor Award by the National Association of Flight Instructors, and in 2009 and 2012, the Minneapolis FSDO recognized him as Flight Instructor of the Year, and the FAA Great Lakes Region recognized him as Flight Instructor of the Year in 2012. Additionally, Woody's name is listed on the Wall of Honor at the Smithsonian National Air and Space Museum, Chantilly, Virginia.

Woody was the Chief Flight Instructor at Osceola AeroSport at Osceola Municipal Airport (KOEO) in Osceola, Wisconsin, and a flight instructor with Adventure Seaplanes in Lino Lakes, Minn. and Lake Wales, Fla. Several hundred friends and family members attended a celebration of life for Woody at KOEO on August 17, 2019.

Woody's family meant the world to him. He is survived by his wife, Constance "Connie" (Norlander); daughters, Gayle Michelle Minar, Sterling, Va. and Karyn Kay Minar (Gary Jorgensen), Lino Lakes, Minn.; grandsons Dustin Lane Findlay, Altavista, Va., Jonathon "Cody" Findlay, and new granddaughter-in-law, Ciara (Swanson) Findlay, Cary, N.C., and his cat, "Curly."

Woody was born as an only child to Karl and Bette (Janacek) Minar in St. Croix Falls, Wis. on March 14, 1949. He is preceded in death by his parents, many aunts and uncles, and his beloved dog "Lady" and cat "Bowser". Memorials may be made in memory of Woody Minar to the Hazelden Betty Ford Foundation, PO Box 64348, St. Paul, MN 55164-0348 (www.hazeldenbettyford.org/donate).

Woody Minar's many columns and articles are archived on the *Midwest Flyer Magazine* website: www.midwestflyer.com. Simply type "Woody Minar" in the search box on the home page and all articles will be listed. ❑

Early Minnesota Aviatrix – Mary Jane Rice – Remembered!

WILLMAR, MINN. – Mary Jane Rice, 99, of Willmar, Minnesota, passed away July 17, 2019. She was born to Agda and Guy Leasman in Hector, Minn., on August 29, 1919. She married John L. Rice on February 14, 1946, in Willmar, and together they raised two daughters and established themselves as prominent fixtures in aviation and their local community.

Mary Jane's lifelong passion for flying began as a teenager. She earned her private pilot certificate in 1940 and soon became one of the first women in the state of Minnesota to hold a commercial pilot certificate. As a new pilot, Mary Jane was the only female member of the Hector Flying Club and a charter member of the Minnesota Chapter of the international organization of women pilots, the Ninety-Nines.

In 1945, Mary Jane and John founded Willmar Air Service, Inc. Together, they managed the airport and operated their business, with Mary Jane ultimately logging 63 years in the office. In 1964, Mary Jane's contributions to local aviation earned her the first "Mrs. Aviation" title from the Minnesota Aviation Trades Association (MATA). Mary Jane – along with John – was inducted into the Minnesota Aviation Hall of Fame in 1994. She ultimately joined the ranks of Amelia Earhart and the Wright brothers with an induction into the International Forest of Friendship, a living memorial dedicated to the world history of aviation, in Atchison, Kansas.

Beyond her love of flying, Mary Jane was drawn to water. She spent countless hours combing the beaches of Sanibel Island, Florida, with her children, grandchildren and great-grandchildren. At home, she cherished her time at Green Lake.

Mary Jane Rice will be remembered for her pioneering nature, deep curiosity and keen interest in the world around her.

Mary Jane was preceded in death by her husband, John. She is survived by her daughters and their spouses, Janet and Bruce Jaeger, Laurie and Steve Schwarz, and her grandchildren and their spouses, some of whom are enjoying successful careers in aviation.

Memorials are preferred to Bethel Lutheran Church, 411 Becker Avenue SW, Willmar MN 56201. ❑

The Einarson Family of International Falls Celebrates The Lives of Francis & Joyce Einarson

INTERNATIONAL FALLS, MINN. – Family and friends are celebrating the lives of two iconic figures in aviation, Francis William Einarson, 91, died May 10, 2019, and Joyce Lucille Einarson, 88, died May 18, 2019.

Francis and Joyce Einarson on their 68th wedding anniversary, April 14, 2019.
Ray Strege Photo

Francis William Einarson

Francis was born on September 27, 1927 in Middle River, Minnesota to parents, James T. and Ellen R. Einarson. He graduated from Middle River High School in 1945, and served in the U.S. Army from 1946-1947.

On April 14, 1951, Francis married Joyce Lucille Napper, and together they had five children, Twila "Pia", Franella "Piper", Francis James, Tucky, and Thor.

Francis had a lifelong fascination with aviation. He took his first ride in an airplane in 1939, and learned to fly after the war.

Francis's older brother, James A. Einarson, attended Spartan School of Aviation in Tulsa, Oklahoma. Upon completing his private pilot training, he suggested to Francis that there may be an opportunity for them in aviation, so in 1948, Francis, James and their parents pooled their resources, purchased a used 1947 Aeronca 7AC "Champ" from Spartan for $2,000, and bought the fixed base operation at International Falls Airport (now Falls International Airport - Einarson Field, KINL) from Van Etten for $3,000, and founded Einarson Bros. Flying Service. It was James who taught his younger brother, Francis, how to fly.

The $2,000 outlay of cash for the Aeronca "Champ" had drained the family's resources, so they financed the purchase of the business for five years, and Francis, James, and Thor took full-time jobs in the Minnesota at the Ontario Pulp & Paper mill, working the 4:00 p.m. to midnight shift so they could operate the fixed base operation during the day. In their absence, Ellen fueled aircraft and took care of the office duties.

The fixed base operation provided flight-training, fuel, maintenance and sightseeing tours of the area.

Francis logged countless hours of accident-free flight, and conducted many search and rescue operations and pioneered early air ambulance service to northern Minnesota and Ontario. He flew many lifesaving air ambulance trips, and in 1970, installed an incubator in his airplane to transport premature infants.

Francis aided the University of Minnesota's cosmic ray research program, and lobbied the state and federal government to improve International Falls Airport. Through his efforts, Falls International Airport grew from a small 3000 ft. runway to a first-class international airport with scheduled airline service, and international service to the general aviation community.

At the completion of Francis' career, Falls International Airport had a 7400 ft. primary runway (13/31), both with ILS approaches, VORTAC navaid, and direct live communications to Minneapolis Center, in the air and on the ground.

NOTHING happened at Falls International Airport without Francis' input, as he was respected for his experience, knowledge and good wit. Francis made it a point to meet and great every scheduled flight, as well as general aviation aircraft that arrived/departed – a tradition carried on by his son, Thor, who manages the airport today.

Francis was the consummate flight instructor. His passion for training pilots was recognized when he was named "Flight

Instructor of The Year," and in 1998, he was inducted into the Minnesota Aviation Hall Of Fame.

The Francis W. Einarson Scholarship Fund at Rainy River Community College is being established for students interested in aviation. Memorials may be directed care of Francis J. Einarson, 16157 70th Avenue North, Maple Grove, MN 55311. Memorials may also be sent to the Salvation Army, 1301 3rd Ave, International Falls, MN 56649; and the International Falls Public Library, 750 4th St, International Falls, MN 56649.

Joyce Lucille Einarson

Joyce Lucille Einarson, 88, of International Falls, Minnesota, was born February 16, 1931 in International Falls to parents William A. and Gertrude M. (Blake) Napper. She was the fifth of 12 children.

Joyce was never a stranger to hard work. She instilled in her children the value of faith, family, and hard work. She attended schools in Littlefork and International Falls, putting aside her studies a number of times and returning to the workforce to provide funds for her parents, at one time purchasing eyeglasses for her younger sisters. She eventually earned her High School Equivalency Diploma (HSED) at age 68.

Joyce's early career as a telephone operator and direct sales entrepreneur, provided financial support for her growing family. She enjoyed reading, cooking, baking, the needle arts, and singing, valued the arts, and was a natural with a sewing machine, in which she created clothing for her five growing children.

A tireless church worker, Joyce served in many circles, and opened their home to missionaries from around the world, giving her children their first experience of a world view of life. She was also a Certified Home Health Aide for Koochiching County, providing personal care to patients.

The matriarch of the Einarson family, Joyce stood beside her husband, Francis, as he built a career in aviation and community service.

Memorials in Joyce Einarson's name may be sent to the Evangelical Covenant Church, 1631 1st Ave E, International Falls, MN 56649. ❑

Minnesota Aviation Trades Association – Investing In The Future!

Congratulations to NATHAN WURST of Chaska, Minnesota, who was selected to receive the 2019 MATA Scholarship!

Nathan is working on his private pilot certificate at Thunderbird Aviation at Flying Cloud Airport in Eden Prairie, Minnesota, and has been accepted at the University of North Dakota John D. Odegard School of Aerospace Sciences beginning this fall.

To help pay for his education, Nathan started working as a line service technician at Thunderbird Aviation in the fall of 2018 while a senior in high school. Nathan stated: ***"I believe in hard work and focus in order to succeed as a pilot. I see the aviation community as bonded over its love of flight… It is a community that I am proud to be a part of for the rest of my life."***

To be eligible for the MATA Scholarship, applicants must be currently enrolled in a flight training curriculum at a Minnesota flight school that is also a member of MATA, and write an essay on why they want to learn to fly or continue their training. The applicant's ability to communicate their current position and future goals is very important. The scholarship application, details, updates and requirements can be found at **https://www.mata-online.org/**

One of the goals of the Minnesota Aviation Trades Association is to help create tomorrow's aviation professionals, while supporting member flight schools.

Aviation businesses interested in becoming a MATA member and supporting the organization's efforts to promote and represent the industry before government, should contact **Nancy Olson at 952-851-0631 Ext 322 or email ngo@thunderbirdaviation.com.**

MATA – The Choice & Voice of Aviation Businesses Since 1945

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.
Cassandra Isackson, Director **Dan McDowell, Editor**
Minnesota DOT Office of Aeronautics
222 East Plato Boulevard • St. Paul, MN 55107-1618
651-234-7200 or (toll free) 1-800-657-3922

Changes At Aeronautics

by Cassandra Isackson
Director, Minnesota DOT Office of Aeronautics


Cassandra Isackson

Every day I learn more about aviation, and the impact our MnDOT Aeronautics office has on air transportation for Minnesotans. Although I still feel "new" at the office, it has already been more than five years since I became the Aeronautics Director – and in that time, more than half of our staff is new. While we miss those who have retired, or gone on to new challenges, we still have great people doing amazing things. We continue to work hard for aviation safety, aviators, and airports in Minnesota.

Check out our website at: http://www.dot.state.mn.us/aero/programs.html for a list of many functions we support. Two of the areas where I notice the biggest changes are in our Navigation Systems work, and the rapidly changing area of drone flight.

If you belong to an organization interested in supporting Minnesota aviation, please remember to invite any of our specialists to speak to your group about a topic of interest. The contact list is printed here; you too may be surprised at how many new names there are. The list might be worth posting at your airport next to the MN/DOT weather machine:

- Adopt-An-Airport - Darlene Dahlseide - 651-234-7248
- Adopt-A-School - Darlene Dahlseide - 651-234-7248
- Aeronautical Chart - Darlene Dahlseide - 651-234-7248
- Aeronautical News and Tech Bulletin - Dan McDowell - 651-234-7182
- Air Service Marketing - Kevin Carlson - 651-234-7191
- Air Transportation - Scheduling (shuttle schedule - Internal MnDOT employees only) - Sheila Kvilvang - Linda Connor - 651-234-7222
- Aircraft Registration - Sandra Martinez - Jana Thompson - 651-234-7204
- Airport Directory - Kelly Akhund - 651-234-7234
- Airport Electrical and Lighting Systems - John Schroeder - 651-234-7251
- Airport Improvement Program (AIP) - Dan Boerner - 651-234-7244
- Airport Inspections - 5010 Program - Kelly Akhund - 651-234-7234
- Airport Layout Plan (ALP) - Kevin Carlson - 651-234-7191
- Airport Licenses - Kelly Akhund - 651-234-7234
- Airport Maintenance - Dan Boerner - 651-234-7244
- Airport Land Use Zoning - Ryan Gaug - 651-234-7236
- Aviation Education and Resources - Darlene Dahlseide - 651-234-7248
- Aviation Maintenance Technician's Conference - Darlene Dahlseide - 651-234-7248
- Aviation Planning - Ryan Gaug - 651-234-7191
- Capital Improvement Program (CIP) - Dan Boerner - 651-234-7244
- Commercial Operations - Leanne Gaiovnik - 651-234-7232
- Enforcement - Rules and Regulations - Rick Braunig - 651-234-7230
- Fly MN Airports! - Darlene Dahlseide - 651-234-7182
- Funding and Grants - Dan Boerner - 651-234-7244 - Matt Lebens - 651-234-7243
- Geographic Information Systems (GIS) - Rick Braunig - 651-234-7230
- Hangar Loan Program - Brian Conklin - 651-234-7241
- Heliports - Rick Braunig - 651-234-7230
- Maintenance and Operation (M and O) - Jenny Bahneman - 651-234-7240
- Navigation Aids General - Michael Hartell - 651-234-7225
- Pavement Management - Dan Boerner - 651-234-7244
- Pavement Marking and Striping - Kelly Akhund - 651-234-7251
- Promotional Programs and Activities - Darlene Dahlseide - 651-234-7182
- Seaplane Seminar - Jeff Flynn - 651-234-7235
- Small Tower Registry - Darlene Dahlseide - 651-234-7248
- Tall Towers - Darlene Dahlseide - 651-234-7248
- Unmanned Aircraft Systems (UAS) or Drones - Tony Fernando - 651-234-7227
- Weather Dissemination (MN/WAS) - Michael Hartell - 651-234-7125
- Weather Observation System (AWOS) - Michael Hartell - 651-234-7225
- Windsock Replacement - Leanne Gaiovnik - 651-234-7232 ❑

It's Not That Far Away

With winter nearly upon us, it's the time of the year when those who continue to fly begin to wonder how they will find the runway under low visibility conditions. What if you have a little help in finding the runway and then landing precisely and consistently, even in the low visibility conditions? Would you want that help?

Soon, this help will come via an onboard "autoland" system, or a combination of an autoland system and a very skilled pair of hands and eyes. Imagine how great it would be to have an autoland system in your GA aircraft!

Well that dream is not that far away. The German federal government's project called the "C2Land Program," in a collaboration with Technical University of Munich and Technische Universität Braunschweig, has developed the technology for an autoland capable GA aircraft. The system utilizes GPS in part to guide the aircraft to the GA airport runway and it can do so in low-visibility conditions.

The only problem with that is the supplied GPS coordinates aren't always exact and thus are not reliable to put an aircraft down and centered on the proper runway. It would then require the pilot to take manual control before touch down if the system was running only via GPS. But by adding some additional technology and combining that input data with the GPS data, the system is able to accurately guide the GA aircraft to a safe landing.

The additional technology includes both a visible-light and an infrared camera. Image processing software analyzes the cameras' video and is able to accurately display the aircraft's position relative to the runway, as the aircraft approaches the runway. It combines the visual data with the GPS data and is then able to provide the autopilot with more precise data, thus leading the aircraft to a safe landing, even in low visibility situations.

The system was installed on a Diamond DA42 Twin Star, which was flown successfully to a perfect landing. Thomas Wimmer, the test pilot for the project said, "The cameras already recognize the runway at a great distance from the airport." He added, "The system then guides the aircraft through the landing approach on a completely automatic basis and lands it precisely on the runway's centerline."

So, take heart GA pilots. Someday soon, you too may have an autoland system added to your aircraft to aid you in executing better landings. It is simply a matter of time before the system is operational, and that future is not that far away.

Source: Technical University of Munich.
https://newatlas.com/auto-landing-system-small-airports/60443/ ❑

Applications For Minnesota Aviation Hall of Fame Scholarships Now Being Accepted!

The Minnesota Aviation Hall of Fame (MAHF) wishes to remind the aviation community that the deadline for applying for its 2020 aviation scholarships is December 31, 2019.

This past spring, the Minnesota Aviation Hall of Fame presented four scholarships valued at $1,500.00 each at its annual banquet in April. All of the information for applying for these scholarships can be found on the MAHF website: www.mnaviationhalloffame.org. Once on the website, click SCHOLARSHIPS.

One application is all that is necessary to qualify for all four scholarships. Recipients will be notified by the end of January 2020, and the scholarships will be presented at the MAHF annual induction banquet in April 2020.

The four scholarships include the Minnesota Aviation Hall of Fame Scholarship, which is funded by numerous anonymous Hall of Fame donors; the Hinz Family Red Tail Scholarship, which is sponsored by the family of the late Donald E. Hinz, who lost his life while flying the P-51C Red Tail Mustang at the Red Wing, Minnesota airshow in 2004; the Dahlberg Family Scholarship in honor of 1997 Minnesota Aviation Hall of Fame inductee and World War II ace, Kenneth Dahlberg; and the Brig. Gen. George Schulstad Scholarship, named after the Vietnam veteran and combat pilot.

The scholarships will be awarded to individuals who meet at least one of the following criteria:

1. Expresses a desire to advance their flight training, however they must possess at least a private pilot certificate.
2. Wishes to advance their aviation career.
3. Wishes to make a career change into aviation.
4. Currently enrolled in a post-secondary aviation-related program (i.e. college aviation program, flight training, aviation technical school, flight dispatcher school). Please note that it would be helpful if the applicant for this scholarship has logged flight-time, but it is not a requirement.

The purpose of the Minnesota Aviation Hall of Fame is to establish and maintain an ongoing means of honoring native Minnesotans, who have contributed in a significant manner to the development, advancement and promotion of aviation in the state, or elsewhere; or to honor individuals who were not native to Minnesota, but who enhanced the aviation climate in Minnesota in their careers.

For additional information, email or call Patrick Halligan at flyinghooligan@gmail.com (651-341-9264).

❑

Aeronautics Report

Wisconsin Bureau of Aeronautics
P.O. Box 7914, Madison, WI 53707-7914

David M. Greene, Director
(608) 266-3351

www.wisconsindot.gov

Wisconsin Welcomes "Above the Clouds" – An Organization Devoted to Inspiring Underserved Young People Through the Wonder of Flight

by Meredith Alt
WisDOT Bureau of Aeronautics


Meredith Alt

A line of volunteers holding signs and ringing cowbells cheered the newest arriving teenager at the entrance to Morey Field in Middleton, Wisconsin, on July 13th. Thirteen-year-old Ameria looked away, then smiled shyly, while volunteers participating in the "Above the Clouds" flight day called out, "Woohoo!! This is your special day!" and other words of encouragement. Meanwhile, out on the runway, another group cheered for the passengers who were about to land: a teenage boy and his mother, both wearing huge smiles.

This year, Wisconsin has become the second location of the Massachusetts-based organization, "Above the Clouds," whose mission is "to bring joy and hope through the wonder of small aircraft flight to children and teens who are seriously ill, disabled, underserved, or facing other serious adversity."

The founder of the Madison-area chapter, Susan Schwaab, is a recently retired United 777 Captain who says she learned about the organization around 2 years ago, while researching flying programs for underserved kids. She wanted to combine her love of flying with volunteer work with kids and teenagers in need.

"Their mission of bringing joy and hope is a really important part of the program," Schwaab says. "The goal is for each kid to feel celebrated. It's their special experience."

A unique part of the program is that families get to share the experience. Twelve-year old De'aisha had never been in an airplane and brought along her grandmother Delores. De'aisha said her favorite part was getting to try flying the plane herself while her grandmother, who had been on a commercial plane, but not in a small plane, said, "For us to go up together was so exciting… It's all about a first time. It was awesome."

Volunteers commented on the individualized attention each participant received. Breezy Moczynski, a member of the local chapters of both EAA and Women in Aviation International, participates in a variety of aviation outreach and says each of the groups' activities are important for reaching

young people. "This [event] is intimate," she says. "I've seen a kid and parent get off the plane and hug."

For now, Schwaab plans to have around five young people participate in each flight day. As part of making each person feel celebrated, she works with community members to identify participants who will find the experience particularly meaningful. As the day of their flight nears, she helps to build anticipation and excitement. At the event, each participant receives an individualized flight lesson, participates in a pre-flight with their pilot, and a team of people wave and cheer as they take off.

A post-flight celebration is also meant to recognize the participants. After landing, each young person heads inside to take a picture with his or her pilot, is awarded a flight jacket, and is invited to write about the experience in an "Above the Clouds" journal. Several entries exclaimed "This was the best day of my life!"

Schwaab hopes that the experience of flying opens participants' eyes to new possibilities and to recognize that flying is something they can do. For participants who want to continue with aviation, "Above the Clouds" has three levels to its program: the introductory flights (Dream Flyers), a second mentoring level in which teenagers have the opportunity to fly regularly (Discovery Flyers), and a third level in which teenagers set goals and are encouraged to develop discipline, integrity, and other life skills (Cadet Flyers).

With the first flight events of 2019 a resounding success, Schwaab plans to hold additional flight days monthly through the fall and to start again next spring. She is looking for volunteers who would like to be part of the joy of future "Above the Clouds" activities as pilots or on the ground.

For more information, please visit the Above the Clouds website at https://abovethecloudskids.org or contact Susan Schwaab at susan@abovethecloudskids.org. ❑

Fly Wisconsin... Still Going Strong!

by Hal Davis
WisDOT Bureau of Aeronautics


Hal Davis

It's now been over two years since the Wisconsin Airport Management Association and Wisconsin Department of Transportation teamed up to launch the "Fly Wisconsin Passport Program". For those unfamiliar, the Fly Wisconsin program rewards pilots and their passengers for flying into Wisconsin airports, attending FAA safety seminars and visiting Wisconsin's aviation attractions. Participation in the program is free and open to all pilots and passengers from any state.

Since the start of the program, 1,300 people have registered. So far, only seven aviators have completed the entire program and earned the coveted leather jacket, though many more have earned the t-shirt and flight bag.

For those already participating in the program, we recently added the option to earn *bonus activity stamps.* To review the updated rules and stamp locations, or to register for the program, visit our website at: wisconsindot.gov/flywi.

Also, join us on Facebook at: facebook.com/groups/flywi.

❑

Register for the WisDOT Airport Operations & Land Use Seminar

Each fall, the Wisconsin Department of Transportation Bureau of Aeronautics (BOA) holds a two-day Airport Operations & Land Use Seminar for the people responsible for managing our state's airports. The 2019 Seminar will take place Tuesday, October 29th and Wednesday, October 30th at the Hotel Mead in Wisconsin Rapids.

This year's seminar will include sessions from BOA, the Federal Aviation Administration (FAA), Aircraft Owners and Pilots Association (AOPA), National Association of State Aviation Officials (NASAO), National Business Aviation Association (NBAA), and more!

We invite all airport managers, airport owners, airport committee members and anyone else who has a hand in managing an airport to attend. There's no better opportunity for interacting with FAA officials, BOA staff, airport consultants and other airport managers.

For more information about the seminar, and to register, visit wisconsindot.gov/avtraining. Registration deadline is October 22, 2019.

Hope to see you there! ❑

Northland Community & Technical College Awarded $7 Million National Science Foundation Advanced Technological Education Grant

Grant to aid in the formation of the National Center for Autonomous Technologies.

Northland Community & Technical College, along with five other partner agencies, has been awarded a National Science Foundation (NSF) grant in the amount of seven million dollars; the largest grant ever awarded to Northland. This grant will facilitate the formation of the National Center for Autonomous Technologies (NCAT) to be hosted on Northland's Aerospace site in Thief River Falls, MN. Northland will partner with St. Cloud State University (SCSU), Marine Advanced Technology Education Inspiration for Innovation (MATE II), Center for Advanced Automotive Technology (CAAT), National Geospatial Technology Center of Excellence (GeoTech), and the Minnesota State Transportation Center of Excellence (TCOE) to educate and promote autonomous technologies throughout the United States.

Photos taken at National Science Foundation (NSF) visit to Northland Community & Technical College (NCTC) on May 20, 2019, when NSF officials met with college and other grant partners. Here, NSF officials observe a virtual reality technology demonstration.

The NCAT will join the NSF's large circle of Advanced Technological Education Centers (ATE). "We will build upon the work of several other NSF ATE program investments including Northland's DRONETECH programs, MATE, CAAT, and GeoTech. These in addition to other investments will contribute to the NCAT meeting the rapid developments in autonomous technologies," expresses Jon Beck, Northland Unmanned Aerial Systems (UAS) Instructor & NCAT Principal Investigator.

Autonomous technology is already woven into the fabric of everyday life. From autonomous guided agricultural equipment to household vacuums that are able to independently navigate the living room. "Advanced vehicle technology is here. The NCAT will create the infrastructure to develop skilled technicians who will build the workforce of today and tomorrow to meet industry demands," explains Christopher Hadfield, Director of the Minnesota State

Agriculture AT is demonstrated.

NSF officials visit with VEX Robotics students.

Transportation Center for Excellence, "In two years, 60% of all new vehicles will have autonomous technology components."

The NCAT will focus on air, land, and sea autonomous technologies: unmanned aircraft systems (UAS), connected automated vehicles (CAV), and unmanned underwater vehicles (UUV). "Our mission has four main tenets," states Curtis Zoller, Northland Associate Dean of Aerospace & Agriculture, "to educate the educators, to promote student involvement, engage the workforce and community, and to act as an education hub for autonomous technology across the country."

The NCAT will construct professional development workshops for educators and industry professionals and promote and provide support to encourage more engagement in STEM and autonomous technologies in secondary and post-secondary education, particularly in underserved areas. In addition, the NCAT aims to involve workforce and community stakeholders, to help identify and solve everyday issues with autonomous technology.

"Northland has driven innovation in autonomous technology education for almost a decade," states Beck, "Autonomous technologies will transform the way society lives, works, and travels. The NCAT will provide significant advancements in technical education required to sustain the United States as a leader in autonomous technologies."

"We are very appreciative to the National Science Foundation for awarding this exceptionally large and prestigious grant to Northland and our partner institutions," expresses Northland's President Dennis Bona. "I'm also extremely proud of our Aerospace team for demonstrating their expertise in autonomous technology, as well as the tremendous effort they put into preparing for this grant. Receiving this grant will further Northland's national reputation for aerospace education and establish us as a leader in this field of study."

Northland Community and Technical College is a comprehensive college with campuses in Thief River Falls, MN, and East Grand Forks, MN. Northland also has an aerospace site in Thief River Falls, MN, and a satellite site in Roseau, MN. Northland offers certificates, diplomas, transfer courses, two-year degrees (A.A.S., A.S., A.A.) in more than 80 areas of study, workforce training and education programs. Northland is a member of Minnesota State, the fourth-largest system of two-year colleges and four-year universities in the United States, and is accredited by the Higher Learning Commission of the North Central Association. Northland is an affirmative action/equal opportunity employer & educator. For more information about Northland Community & Technical College, visit www.northlandcollege.edu or call 1.800.959.6282. ❑

Duluth to the Moon

by Sandra Ettestad
Founder & President, Duluth Aviation Institute

DULUTH, MINN. – Like many great accomplishments, the goal began with one small step that became one giant leap for all mankind. In 1925 at the age of 12, Robert Gilruth entered a model airplane contest sponsored by the Duluth News Tribune. He built a model of Lindbergh's airplane, the Spirit of St. Louis.

(Standing L/R) Astronauts John Glenn and Alan Shepard with Robert Gilruth.
NASA Photo

Born in Nashwauk, Minnesota, Gilruth moved to Duluth when his father was hired as a teacher in the local school district. Gilruth attended the Duluth Normal School and graduated in 1931 from Duluth Central High School. At the height of the Great Depression, he went to Duluth Junior College located on the top floor of Denfeld High School. His parents did not have enough money to send him to the state university. Mentored by Lewis A. Rodert, a recent graduate from the University of Minnesota, Gilruth pursued his interest in aviation while at junior college. Rodert taught the course, Principles of Flight, to Gilruth and two other students.

Gilruth transferred to the University of Minnesota in his junior year. Preparing for graduation, he decided to work for the National Advisory Committee for Aeronautics (NACA), the predecessor to the National Aeronautics and Space Administration (NASA). During the Great Depression with no positions open at NACA, Gilruth pursued a Master of Science degree in aeronautical engineering. He completed his degree in 1936, writing a thesis on "The Effect of Wing Tip Propellers on the Aerodynamic Characteristics of a Low Aspect Ratio Wing".

While writing his thesis, Gilruth was offered a position at NACA as an aeronautical engineer at the Langley Memorial Aeronautical Laboratory in Hampton, Virginia. There, he worked in flight research writing many reports for numerous studies. The ultimate study by Gilruth came in 1943 when he wrote "Requirements for Satisfactory Flying Qualities of Airplanes". This report formed the basis of subsequent military specifications for stability and control of airplanes.

In 1945, Gilruth had a chance to lead his own organization, Pilotless Aircraft Research Division (PARD). While he ran PARD, he became fascinated with the prospect of human spaceflight and worked on convincing the American public that human spaceflight was possible. NACA leadership promoted Gilruth to Assistant Director of the Langley Memorial Aeronautical Laboratory in 1952. NACA was absorbed by NASA in 1958. At Langley, Gilruth was project manager of the Space Task Group and assistant director of the new NASA Space Project Center.

The Space Task Group moved forward with Project Mercury and the establishment of an astronaut corps. NASA's selection for the astronaut corps envisioned pilots operating experimental flying machines first and later scientists. Gilruth's Space Task Group narrowed the candidates to 18. Gilruth made the final selection of seven men that became heroes to the American public. Gilruth had enormous respect for the astronauts and realized they embodied the deepest virtues of the United States.

May of 1961, Robert Gilruth's life changed forever when President John F. Kennedy announced the decision to land an American on the Moon by the end of the decade. Gilruth agreed to take on the responsibility for managing the human element of the program. Kennedy gave Gilruth an opportunity to lead by approving the Apollo program.

From the NASA budget, approximately 50 percent went directly to human spaceflight under the direction of Gilruth and his team. Gilruth moved to Houston, Texas and became the first director of the Manned Spacecraft Center, later renamed the Johnson Space Center. On May 5, 1961, the first launch of Mercury was piloted by Alan Shepard.

Gilruth oversaw all aspects of his responsibilities, hired

Calendar

Include the **DATE, TIMES, LOCATION** ***(CITY, STATE & AIRPORT NAME & I.D.),*** and **CONTACT PERSON'S TELEPHONE NUMBER**, as well as that person's address & email address for reference. First 15 words **FREE.** $.75 for each additional word.

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.

OCTOBER 2019

29-5/1 **Savannah Ga. -** USPA Fall FlyOut. Go to https://uspilots.org/flyouts/upcoming-trips/26-201910-savannahga?utm_source=newsletter_59&utm_medium=email&utm_campaign=fall-flyout-savannah-ga-it-s-not-too-late-to-register - for more information.

DECEMBER 2019

13* **Oshkosh, Wis. - Wright Brothers Memorial Banquet at the EAA Aviation Museum Eagle Hangar featuring air racing legends Steve Hinton & Steven Hinton. Info - EAA.org/WrightBrothers**

APRIL 2020

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

MAY 2020

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).

JULY 2020

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

AUGUST 2020

9-12* **Miminiska Lodge, Ontario, Canada - Canada Fishing Fly-Out 3-Night/2-Day Trip. FOR RESERVATIONS: Contact Lynette Mish at Wilderness North toll free: 1-888-465-3474.**

9-14* **Miminiska Lodge, Ontario, Canada - Canada Fishing Fly-Out 5-Night/4-Day Trip. FOR RESERVATIONS: Contact Lynette Mish at Wilderness North toll free: 1-888-465-3474.**

12-15* **Miminiska Lodge, Ontario, Canada - Canada Fishing Fly-Out 3-Night/2-Day Trip. FOR RESERVATIONS: Contact Lynette Mish at Wilderness North toll free: 1-888-465-3474.**
NOTE: Email info@midwestflyer.com for special group rates for the "Canada Fishing Fly-Out to Miminiska Lodge".

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excellent people, and orchestrated 200 contractors and 150 subcontractors for the development of the Apollo program and the goal of human spaceflight. From Mercury to Gemini and Apollo, challenges, tragedy and success were endured for the greater goal of putting man on the Moon and returning him safely to Earth.

On July 20, 1969, Neil Armstrong and Buzz Aldrin descended to the Moon's surface for the Apollo 11 mission, while Michael Collins remained circling in the command module. All three astronauts safely returned to earth on July 24, 1969.

The Gilruth Continuum, an educational program of the Duluth Aviation Institute, has taught over 6,000 students in Duluth, Hermantown, and Proctor, Minn. The aviation science curriculum is taught in coordination with the associated school districts and the 6th grade science teachers. The program started with one small step -- a letter to the 6th grade science teachers.

The Duluth Aviation Institute's vision is to have a community inspired and enriched by the art and science of aviation. The institute's goal is to inspire students to land another Eagle and come again in peace for all mankind (duluthaviationinstitute.org). ❑

D-Day Squadron From Page 46

the tribute they helped to produce. They came together in a plethora of ways with the same mindset and unified purpose like so many did 75 years ago."

To gain a greater understanding on how such a monumental project unfolded, and ultimately succeeded in its mission, the D-Day Squadron is proud to announce that a documentary film will be released that covers the events and journey that started in May of 2019 and continued through EAA AirVenture Oshkosh.

About the D-Day Squadron

The D-Day Squadron is the part of the Tunison Foundation, a non-profit 501(c)(3) charitable organization. In June 2019, the D-Day Squadron led an American fleet of 15 historic, restored C-47 World War II military aircraft to take part in a flyover of more than 30 international aircraft to drop over 200 paratroopers over the original 1944 drop zones in Normandy, commemorating the 75th anniversary of D-Day. The event honored the citizen soldiers of the war, whose bravery led the Allies to the liberation of France, and then to an end of the devastating war in Europe. The squadron's education program takes the compelling story of the citizen soldier to audiences at airshows and events off the flight-line to honor these brave Americans and ensure their memory and significance is appreciated for generations to come. The group's efforts are funded through the generous tax-deductible contribution of their supporters. Learn more at DDaySquadron.org.

For additional information, email Moreno "Mo" Aguiari at director@ddaysquadron.org or call 404-202-9348. ❑

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FAA Presents National General Aviation Awards To Three Entrepreneurs At EAA AirVenture Oshkosh

OSHKOSH, WIS. – The Federal Aviation Administration (FAA) General Aviation Awards were presented this year at EAA AirVenture Oshkosh, July 22-28, 2019, to three entrepreneurs:

Gary Reeves, founder and owner of PilotSafety.org, was named Certificated Flight Instructor of the Year; Dave Monti, owner of Rebuilt Aircraft, was named Aviation Maintenance Technician of the Year; and Karen Ann Kalishek, an independent CFI, was named FAA Safety Team Representative of the Year.

Reeves, an airline transport pilot and master flight instructor, founded PilotSafety.org in 2012 as a training organization, offering free and low-cost educational programs nationally. He also provides intensive instruction courses in avionics systems from Avidyne, Garmin, ForeFlight, and Genesis, among others. He speaks at events across the country, including at many AOPA Regional Fly-Ins.

Monti, an A&P mechanic with inspection authorization, is an icon in the Beechcraft maintenance world, having participated in specialized training programs for Bonanzas and Barons for more than 30 years. Members of the Beech community with maintenance questions know that he is only a phone call away. His company, Rebuilt Aircraft in Minden, Nevada, stocks thousands of airframe parts for numerous models of aircraft, in addition to servicing Beechcraft aircraft.

Kalishek started KAL Consulting and Training in Green Bay, Wisconsin in 1995. She is an FAA Gold Seal Instructor, Master Instructor and holds a master's degree in business administration with additional postgraduate education in intercultural management. She has been a FAASTeam representative since 2013 and was named Lead Representative in the Milwaukee region in 2015. Kalishek is a captain in the Civil Air Patrol, has mentored other FAASTeam representatives, and was recently named to a new position with the Wings Pro program. She also created a training program for aviation first responders. ❑

Finland To Join Nordic Forefront In Reducing Emissions In Aviation

Finland's incoming government introduced its Government Programme, June 3, 2019, which includes ambitious climate targets and a goal for carbon neutral Finland in 2035. As part of reducing transport-related emissions, the share of biofuels in aviation is targeted at 30% through a blending obligation.

"This is a significant goal, enabling Finland to join the forerunners in reducing emissions in aviation. Air traffic is predicted to double during the next 15 years. The aviation industry has committed to carbon neutral growth starting from 2020, all while reducing net carbon emissions by 50% by 2050.

Currently, renewable jet fuel offers the only viable alternative to fossil liquid fuels for powering aircraft," says Ilkka Räsänen of Neste Corporation. Neste produces Neste MY Renewable Jet Fuel™ from waste and residues, and aims to grow its production capacity in the following years.

The Norwegian government's target is to increase the share of renewable fuels in aviation to 30% by 2030. As a first step, a law was passed this spring obligating aviation fuel suppliers to blend at least 0.5% of biofuel into their products starting from 2020.

Similarly, in Sweden, a report was published at the beginning of March 2019. It aims to concretize the target in the government agreement to increase the share of biofuels in aviation. The report proposes an obligation for decreasing greenhouse gas emissions. The reduction level would be 0.8% in 2021, and gradually increase to 27% in 2030. ❑

Iowa DOT Office of Aeronautics Now Aviation Bureau

AMES, IOWA – The Iowa Department of Transportation (DOT) Office of Aviation has a new name. To better align with naming conventions in Iowa code and at other state agencies, all offices at the Iowa DOT are now referred to as "bureaus." The name change has been implemented across all divisions within the Iowa DOT and reflects no realignment or functional changes. Printed materials and documents may continue to refer to the old name until updates are made in the normal course of business. So, it's goodbye to the "Iowa DOT's Office of Aviation" and hello to the "Iowa DOT Aviation Bureau"! ❑

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