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FEBRUARY/MARCH 2016

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To go or not to go

When it comes to deciding whether or not to launch on a particular flight, we look at weather, evaluate our wellness, gather information about the route and airports where we'll fly, make plans and contingency plans, and, ultimately, make a choice about whether or not to take off.

Sometimes the decision is easy. Deciding to take off for some spot landing practice at your home airport on a day with no wind and clear skies is pretty much a no brainer. Go for it. Deciding to launch from a short runway with a full load on a hot day for a flight through unfamiliar mountain terrain in marginal VFR, also a no-brainer. Just don't.

But these aren't the decisions we need help making. It's the times when one or two factors seem off, when there's a lot of uncertainty, or when conditions are changing that the decisions become more difficult. That can be especially true at this time of year when many of us fly a little less often and may face more variables in the air and on the ground.

To make the decision a little easier, give you an objective point of view, and help you hone your own judgment about complex situations, the AOPA Air Safety Institute offers a great tool called the Flight Risk Evaluator. It's available on AOPA.org and anyone can use it—you don't have to be an AOPA member.

The tool gives you the option to run through a variety of pre-programmed scenarios that let you test your judgment against its recommendations. But even better, it allows you to input the specifications for your own flight, including information about your skills and currency, the aircraft you fly, the weather, the terrain, and other details that can help you make the go/no-go decision. Based on the information you provide, the Flight Risk Evaluator tells you where your flight falls on a safety scale that runs from 0% to 100% safe.

Of course, a tool is no substitute for your own good judgment and self-knowledge, but it can help give you the confidence you need to go or the justification you need to keep both feet firmly on the ground.

Mark R. Baker
President & CEO, AOPA

Vol. 38. No. 2

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ON THE COVER: Airshow performer, Patty Wagstaff, flying the Extra 330LX at EAA AirVenture Oshkosh 2015. Complete story beginning on page 28. *Chris Bildilli Photo*

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Why Mentorship Is Important & Easier Today Than Ever Before!

by Dave Weiman

I don't think very many of us would be in aviation today if it were not for the selflessness of a "mentor." For myself, I always had an interest in flying, but did not take that initial step to learn to fly until a fellow college student took me flying and introduced me to the right people.

Mentorship can mean the difference between someone learning to fly, or not learning to fly, and being a mentor is easier today than ever before, thanks to some incredible tools available at the AOPA website: **www.aopa.org**.

The next time you sense that someone is interested in flying, but doesn't know where to begin, show them the AOPA website, then click the tab *"Learn To Fly."* There, they can learn more about flying and get many of their questions answered.

Also, share with them why you learned to fly, and how flying has affected your life career-wise, travel-wise, and personal enjoyment-wise.

Compare the cost and convenience of private flying with other forms of transportation and recreation.

Tell them that some pilots like to go high and fast, while others like to go low and slow. Some like the latest in avionics, while others just want a stick and rudder. Some like to fly to big city airports and have a car and red carpet waiting for them when they arrive, while others prefer to land on a snow-covered grass strip with skis in the winter, or on a lake with floats in the summer.

The AOPA website has a feature to locate a local "flight school" among the 3,000 that exist in the U.S. today. But if you already know of a good flight school and instructor in your area, make the proper introductions. After that, your job as a mentor can be done and it is then up to the flight instructor to mentor his student from that point on.

We hope you enjoy this issue of *Midwest Flyer Magazine.* ❑

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FEBRUARY/MARCH 2016
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January 1	February - March
March 1	April - May
May 1	June - July
July 1	August - September
September 1	October - November

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Index To Advertisers

Hi Dave:

Thank you for the coverage of our gyroplane flight in the December 2015/January 2016 issue of *Midwest Flyer Magazine* (Pilots Crisscross USA In Experimental Aircraft & Set World Records).

I received eight (8) messages from individuals who said they read about the flight in MWF specifically. One was a United States Air National Guard KC135 pilot who sent greetings from Qatar in the Middle East with a picture of the page from the magazine. He is based out of Selfridge Air National Guard Base in Harrison, Michigan.

I wonder if I can get six (6) copies of the magazine. I am happy to send you a check for them and a subscription.

We have an embroidered mission patch and I would like to send you a few.

All the best!

John Craparo
Georgetown, Texas

John:

Glad pilots the world over read about your exciting flight across the United States in your Magni M16 gyroplane.

Please keep us posted on any future record-setting flights. As for the KC135 pilot in Qatar, please send me his email address, so we can contact him. Thank you! The magazines are in the mail.

Dave Weiman
Editor/Publisher

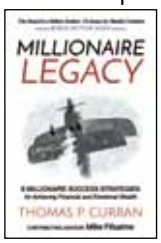
Hey Dave:

I sent you a complimentary copy of my book, ***"Millionaire Legacy."*** My goal in writing the book was to share the real story behind Sean D. Tucker, Capt. Julie Clark, Capt. Chesley "Sully" Sullenberger III, and others. My book focuses on their perseverance and dedication to overcome tremendous challenges in order to reach ultimate victory. There have been stories that briefly mention their backgrounds, but my book goes much deeper and reveals their "true mindset" for achieving success.

I have also featured other well-known individuals, but it was critical for me to include Sean, Julie, and Sully.

"Millionaire Legacy" will be released in March 2016. I would appreciate mention of it in an upcoming issue of *Midwest Flyer Magazine.*

Thank you!



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EAA/AOPA Member
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Business & Life Coach
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ISBN 978-1-63047-669-4, 245 pages, paperback: $18.95

Tom:

Congratulations on the book! I am sure Sean, Julie and Sully appreciate your efforts, and people will gain from reading it.

Dave Weiman
Editor/Publisher

Ask Pete!

by Pete Schoeninger


Pete Schoeninger

Q: Why didn't you mention in the last issue of *Midwest Flyer Magazine,* your usual annual recommendation of having my mechanic remove my wheel pants for winter operations, like you usually do?

A: Yes, Leon, I caught hell from several sharp readers like you. You're all correct… I should have repeated that recommendation. And I could have added, think twice before taking off from a slushy runway into cooler air. It is possible for your wheels to freeze in position, and when you land on a bare, paved runway, you could blow a tire. I've seen it happen. In a retractable gear airplane, it may be a good idea to recycle the gear a couple of times after taking off from a sloppy runway, as the gear can freeze in place retracted, which happened to me once in a 182RG.

Another reader asked why is it that Cirrus aircraft owners never remove their wheel pants. For that question, we deferred to Cirrus Aircraft Great Plains Regional Sales Director Gary Black. Black checked with Cirrus Aircraft's chief engineer, who stated that their wheel pants are designed to minimize snow or slush build up. There is an aft bulkhead to the wheel pant, and the gaps on the front and sides are large enough to minimize trapped snow. "Our history of leaving these on in 20 winters in Duluth attests to it so far," says Black.

Q: While traveling "Out West" last summer, I noticed several airplanes tied outside that had gust locks installed, some of which looked homemade. Are they a good idea?

A: If you anticipate storing your airplane outside, yes, they are a good idea, especially for certain airplanes which are more susceptible to controls sustaining damage than others. Your mechanic can tell you if your airplane is particularly vulnerable, and give you some advice on store bought or homemade gust locks. But remember, BE SURE to remove any gust lock before flight!!

Q: On the same subject, it seems to me there is more wind damage to high-wing airplanes from gusty winds or thunderstorms, than there is to low-wing airplanes. Why is this?

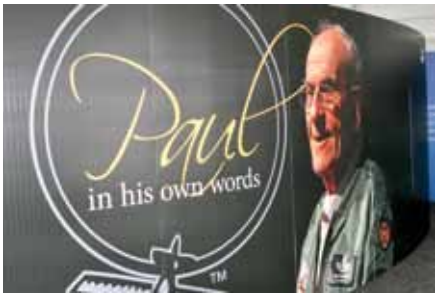
A: A properly secured airplane should sustain pretty strong winds without damage. An unsecured, high-wing airplane not tied down might tip over a little easier than a low-wing airplane, as their center of gravity may be a little higher than a low-wing airplane (wing with fuel above cabin vs below), and low-wing airplanes often have a wider main gear stance. In either case, it should be a moot point as a prudent airplane owner/pilot should always secure his airplane when left outside, and should have a tie-down rope kit on board. Also, it's a good idea to call ahead to a destination to make sure either hangar space or tie-downs are available if there is a possibility of wind significant enough to move your airplane around. (That means any kind of wind to a Cub, but only near hurricane winds to a 747.)

EDITOR'S NOTE: Pete Schoeninger is an aviation consultant and aircraft appraiser who lives in Wisconsin. He is an experienced fixed base operator, aircraft salesman and airport manager. Email your questions about all things aviation to: **Pete.Harriet@gmail.com**. For assistance with aircraft appraisals or fixed base operator and airport management consultation, call **262-533-3056**. Any answers provided in this column are the opinion of the author and not necessarily this publication, or its editor, publisher, owners and affiliates. ❑

Paulisms by Paul Poberezny

(September 14, 1921 – August 22, 2013)

Paul H. Poberezny founded the Experimental Aircraft Association (EAA) in 1953 and spent a significant part of his life promoting aviation and fighting for the freedom to fly. Paul was an aviator and aircraft designer, but more than that, he was a leader.



With the permission of EAA and the Poberezny family, we are proud to present to you one of many "Paulisms" – actual quotations from Paul that embody his beliefs, his legacy, and his impact on EAA and its members. We hope you enjoy them in remembrance of this great man, and take his comments to heart.

EXCELLENCE: ***"EAA stands for family, high standards, and cleanliness."*** ❑

5TH ANNUAL

MINNESOTA AVIATION

DAY AT THE CAPITOL

On Wednesday, March 16th, 2016, the aviation community will come together at the Minnesota State Capitol to visit with their state senators and representatives to tell them how important aviation and their local airports are to their constituents and to their communities.

Anyone actively involved in aviation in Minnesota and who believes in the importance of his or her local airport is encouraged to participate.

AVIATION WORKS FOR MINNESOTA

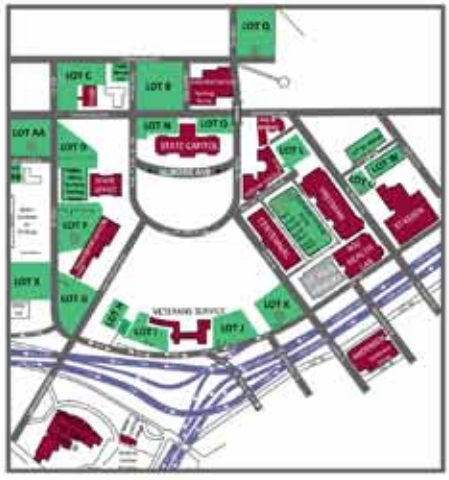
EVENT SCHEDULE

0900 KICK OFF BREAKFAST

0930-1145 LEGISLATIVE MEETINGS

1200 BOX LUNCH AT CAPITOL

1245 -1430 HOUSE TRANSPORTATION COMMITTEE MEETING



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D.C. Circuit Court of Appeals Grounds Flytenow & AirPooler Private Pilot Flight-Sharing Concept

by Gregory J. Reigel

Greg Reigel

As you may know, one of the ways a private pilot is permitted to reduce the cost of a particular flight is to share that expense with the passenger(s) on the flight. The applicable regulation, 14 CFR 61.113(a), provides that "no person who holds a private pilot certificate may act as pilot in command of an aircraft that is carrying passengers or property for compensation or hire; nor may that person, for compensation or hire, act as pilot in command of an aircraft." However, Paragraph (c) of the regulation states "[a] private pilot may not pay less than the pro rata share of the operating expenses of a flight with passengers, provided the expenses involve only fuel, oil, airport expenditures, or rental fees." This creates an exception to the prohibition on private pilots receiving compensation for flying.

Using this exception, and presumably with the Uber and Airbnb ride sharing concepts in mind, two companies, Flytenow and AirPooler, created websites that would allow a private pilot to offer his or her planned flight to potential passengers who would be willing to share the expenses of the flight under Section 61.113(c). However, before the concepts really took flight, both AirPooler and Flytenow requested legal interpretations from the FAA regarding whether their business concept was in compliance with federal aviation regulations. The FAA responded to both requests with a resounding "no."

The FAA concluded that a private pilot using a web-based service to offer flights to potential passengers would be holding himself or herself out as a common carrier to transport persons from place to place for compensation. The regulations prohibit that type of operation by a private pilot. Rather, under the proposed scenario the FAA stated that the pilot would need to have both a commercial pilot certificate and also an air carrier certificate. The FAA's decision relied upon the FAA's previous interpretations of the terms "compensation" and "holding out" as they are used in the regulations. Flytenow disagreed with the FAA's interpretations and its application of both the definitions of "compensation" and "holding out" as they applied to its business model. It then filed a petition asking the D.C. Circuit Court of Appeals to set aside the FAA's legal interpretations. In a not-so-surprising decision, the D.C. Circuit Court of Appeals rejected Flytenow's petition in its entirety and confirmed the FAA's interpretations.

First, the Court confirmed that a private pilot's receipt of any reimbursement of expenses is compensation. Thus, given the FAA's broad view of "compensation," a private pilot's receipt of a pro-rata share of a flight's expenses from passengers would be compensation, albeit permitted compensation under Section 61.113(c).

Next, the Court had no trouble determining that private pilots using the Flytenow website to offer flights would be "holding out" as the FAA interpreted that term. The Court observed that any potential passenger could arrange for a flight by simply using Flytenow's website. And although use of the website was limited to members, in order to become a member, a potential passenger merely needed to sign up. Further, the Court did not think that a member pilot's authority to decide not to accept particular passengers limited the "holding out" by that pilot. Thus, the Court agreed with the FAA's position that a private pilot's sharing of flight expenses with passengers obtained through the Flytenow website would be contrary to the regulations.

However, the Court went on to note that "pilots communicating to defined and limited groups remain free to invite passengers for common

purpose expense-sharing flights." It confirmed a previous opinion by the FAA that a private pilot's posting of a flight on a bulletin board may be permitted in certain circumstances. The Court also stated that "[o]ther kinds of internet-based communications, such as e-mail among friends, for example, seem unlikely to be deemed 'holding out' under the FAA's interpretation." Finally, perhaps in fear that its decision would be misinterpreted, the Court concluded by stating "[p]rivate pilots continue to enjoy the right to share expenses with their passengers, so long as they share a common purpose and do not hold themselves out as offering services to the public." ***So, what does this mean?***

Well, for starters, it means that offering flights through a broadly based flight-sharing system or website open to anyone (e.g. John Q. Public) is likely going to be interpreted as "holding out." However, the Court's language does suggest that making flight-sharing available to a more limited or defined pool of potential passengers may not be considered "holding out."

Unfortunately, the Court did not provide any further guidance on where the "holding out" threshold would be crossed. Somewhere between "communications between friends" and "communications to the public at large" is neither specific, nor is it helpful. Finding the sweetspot where the pool of potential passengers is large enough to justify the business model for flight-sharing, yet still small enough that it is not "holding out," may be difficult. But for those who may want to pursue or revisit this type of flight-sharing arrangement, it is better than a complete ban.

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

❑

Which George Is Steering The Airplane?

by Michael J. "Mick" Kaufman


Michael Kaufman

When I first got acquainted with autopilots, they were referred to by the pilots that flew them as, "George." In this issue of *Midwest Flyer Magazine,* I will devote most of my column to "George" and some exciting new developments with ADS-B.

In the correspondence I receive from our readers, I get the most questions on autopilots. In fact, I would like to reference a call I received a few days ago from an instructor and his client that were trying to solve a problem with an autopilot in a Beechcraft Baron.

The problem they were having was that the autopilot would not capture the glide-slope using a King 225 autopilot with a flight director. I will admit that I did not solve this problem alone and had to call my dear friend, colleague and co-worker, Bill Hale of Ft Collins, Colorado, who is an autopilot "Jedi." There were actually two Georges involved and it seems there was a fight between them. There were two GPSS modules and it was unclear as to where the data going to the brain of the 225 autopilot was coming from.

First, let's cover a bit of history and an understanding of the King 225 autopilot.

I believe that the King 225 was the first general aviation autopilot that had the capability of doing GPS-steering. As we were transitioning from using VORs to GPS, some of the early GPS receivers could output a digital data stream to allow the autopilot to make smooth and well-planned turns and better tracking. Like all of the autopilots to follow the 225, it is necessary to have two inputs – the digital input for the new GPS units, and the analogue one to provide the inputs from

Fig 1

VORs, localizers and glide-slopes. We need to picture a GPS navigator (see Fig 1). In this example, we will use the Garmin 530, outputting two data streams, the analogue one and the digital one, regardless of whether or not the source is a GPS or VOR/Localizer. The autopilot must decide which one of those data streams to use and that is where the pilot enters the process.

Fig 2

When your avionics installer first installs the system, he programs your GPS and autopilot to work together. In our example, the GPS senses that you are on an approach and gives you this message "APR Guidance Available" (Fig 2 Left), which is activated by pushing the procedure button on the Garmin 430/530 Navigator. This turns off the digital feed to the autopilot, so we now have an autopilot with no data input. The navigator then gives the pilot a message instructing him to "Enable AP APR Outputs" (Fig 2 Right). This is accomplished by pushing the "APR" twice. The purpose of the two pushes of the APR button is that this turns the approach tracking off and then back on again, and seeing that we have shut off the digital data stream when the autopilot comes back on, it only sees the analogue data stream and will

follow it. Many of the later autopilots with later technology do not need the pilot to manually shut off the digital data stream for the autopilot to sense and couple to a glide-slope in analogue mode.

In the beginning of this column, I mentioned two Georges flying this airplane, the confusing part of this scenario. This aircraft had a Garmin G500 PFD (Primary Flight Display) and there is a second GPS-steering unit as part of this display unit. I have also experienced this issue with the Aspen display, which also has a GPS-steering module as part of this display unit.

Fig 3

The recommended solution to fix this problem was to disconnect the data wire supplying the digital signal to the 225 autopilot and wire it similar to the unit displayed in Fig 3. The display in Fig 3 is what we typically find when we add GPS-steering to an older analogue autopilot. This diagram also shows what most aircraft are using with most of the older technology autopilots that are on the market. Note the comment at the bottom of Fig 3, stating that the newer firmware update from Garmin disables the digital data stream completely, once passing the final approach fix on non-GPS approaches. We tried this in a Cessna 182 with dual Garmin 430s, an S-TEC 30 autopilot, and GPSS steering, and we still had the digital data. We will be checking this one out and will report back in this column in a future issue.

Revelations In ADS-B Technology

In November 2015, while at the Bonanza/Baron flight training clinic in Norfolk, Virginia, one of the participants attending the clinic showed and demonstrated a homemade ADS-B receiver he had built for ADS-B "in." I was quite impressed with the unit, and being an electronic geek, I decided to build one as well. I had all the parts required in my electronics/ham-shack, so the cost was a zero out-of-pocket expenditure. I was a bit skeptical at first, but after a brief test

flight in a friend's Cessna 182, I am calling it a great success!

The brain of the unit is a small microcomputer called a "Raspberry Pi" and is available for $35.00 from many Internet sources. There is a YouTube video on construction of the unit at *https://www.youtube.com/watch?v=QE7kd-PJ2iE* and documentation is available on the Internet.

The author/inventor, Christopher Young, claims the unit can be built for under $120 using new parts. Young needs much credit as his unit emulates the most popular, commercially available unit "Stratus," which sells for between $600 to $800, depending on options, and is displayed and supported on "Foreflight," which is the most popular aviation software for the iPad.

For those pilots who would rather spend money on a commercial product than build something, Bad Elf has introduced a new ADS-B receiver that they will be marketing. The basic unit sells for $295.00 and is a neat compact unit. It is being supported by many of the flight planning programs on the iPad, but Foreflight is not yet supporting it as of this writing.

In the June/July 2013 issue of *Midwest Flyer Magazine,* I evaluated the Skyguard TWX ADSB In/Out transceiver and was quite pleased with its performance at that time. We had tested the unit in a Cessna 182 and in my Bonanza. Shortly after our tests, I received a phone call from the FAA's ADS-B compliance person asking about what we were using in our aircraft, as if I did something wrong. His comment during the conversation was that he had observed an ADS-B "out" signal with our N numbers and wanted to follow up on the equipment we were testing.

A recent announcement from Skyguard TWX was that the FAA has certified their portable unit for use in experimental and light sport aircraft. In a recent FAA ruling on ADS-B out units, some changes were made in the rules to allow non-TSO'd ADS-B transceivers to be used in experimental and light sport aircraft, providing that they meet certain performance minimums and installation criteria. I have been talking with Don Houtz of Skyguard TWX, who has approval for his box based on its testing and performance data. I will cover more of the details in the next issue of *Midwest Flyer Magazine.* My hope is that this approval will carry over to many of our light production aircraft as well, and we can lower the cost of the ADS-B out 2020 mandate.

Winter has arrived in the Midwest. Fly safe.

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

FAA Beefs Up Security At Chicago Center

AURORA, ILL. – The Federal Aviation Administration has significantly increased the security of its air traffic systems to ensure that they are more resilient and less vulnerable to the type of attack that occurred at the Chicago En Route Center in Aurora, Illinois on September 26, 2014, when an off-duty, contract employee set fire to the facility.

Fortunately, Chicago Center was able to transfer control of Chicago-area airspace to other adjacent centers and within 3 days, more than 80 percent of traffic was restored at O Hare, and more than 90 percent of traffic was restored at Midway.

The FAA immediately launched a 30-day review of contingency plans and security protocols for its major facilities. The agency systematically evaluated its ability to minimize the "insider threat." This included an intense analysis focusing on parts of the infrastructure where one or more points of attack have a high probability of significantly compromising air traffic operations.

Security enhancements now include improved oversight of security assessments at facilities, an increase in the frequency of assessments, additional access restrictions, and more robust verification of employees and contractors. The FAA has also increased the monitoring of contractor company compliance with security requirements and instituted mandatory reviews of contract and contractor personnel changes. ❑

Confidence vs. Complacency

by Harold Green


Harold Green

Recently, I was asked, *"How does a pilot develop confidence in his/her piloting ability?"* My answer is weak because everyone reacts differently and I am certainly not an expert, or anything remotely close to it, when it comes to psychology. However, based on personal experience and observations of others over more than a few years of flight experience, I have opinions and I am not reluctant to share them. However, be advised that if you disagree or feel my answers are incomplete, you are probably correct, and I encourage you to express your opinion via email. After all, confidence is a very subjective thing.

I suggest that attaining confidence in flight requires confidence in two principal constituents of flight: aircraft handling and judgment. Aircraft handling, because proper and correct airplane control is obviously the starting point for all flying activities as a pilot. Judgment, because without judgment, mistakes lead to danger which in turn, can lead to disaster, or at the least, a very scary situation. After all, we do operate in a medium, which, while giving a great deal of satisfaction, also is totally indifferent to our presence or our mistakes.

First, consider aircraft handling. Early on we learn the rudiments of safe piloting of aircraft. Stay coordinated, watch your pitch and therefore, your airspeed, and on and on. Initially, students ask questions like: "How much rudder should I use?" The answer, "Just enough to put the nose where you want it," can be very unsatisfying until the student finally puts it all together. Then comes the added complexity of maneuvering the aircraft while paying attention to the world outside the airplane, as in turns-around-a-point, maneuvers. Add to this the fun of communicating via radio, and when all is said and done, the fledgling pilot begins to feel at home in the airplane. Control movements become instinctive and natural requiring little or no thought. At this point, we are confident we can fly the airplane safely, albeit within limited environmental conditions.

Note that achievement of this requires both training (i.e. education) and practice (i.e. proficiency). Both require some time. How much time depends on the individual, the frequency of practice and many other factors. Then we move on to airplanes with greater performance and the process repeats, albeit on a much shorter scale

because now we know the ground rules and simply have to apply them to the new plane. Our confidence is initially reduced, as we begin the learning process, but rapidly reasserts itself.

Judgment is a more complex matter. Everyone exercises their judgment every day in routine, non-flying matters, however, flying adds a new dimension to the process.

Weather is a very important consideration, here, because it affects everything we do in aviation. Hence, we need to gain confidence that we not only can interpret weather, but we can relate weather to the potential hazards that may be encountered in our flight.

For example, can we handle a 15 knot crosswind? What will the weather be in 3 hours when we arrive at our destination?

As we develop new capabilities, our judgment needs to encompass the new possibilities offered.

If operating under Instrument Flight Rules (IFR), will we be comfortable shooting a VOR approach to minimums at a strange airport? Will our judgment extend to accurately assess the possibility of encountering ice on the trip?

There are a great number of possibilities we could consider. The number grows rapidly as utilization of the aircraft and the aircraft capability increases.

The development of judgment is actually very simple: Learn everything you can about anything that can affect your flight, gain as much experience as you can without exposing yourself to undue risk, and lastly, learn from the other person's mistakes. The mistakes of other people are the cheapest, safest experience you will find anywhere. Now, putting all of this together, confidence in our piloting ability is based not only on what we are capable of, but also upon our ability to recognize situations, which are beyond our ability.

Judgment comes into play here, also, because we must be able to recognize situations, which are beyond our capability and react accordingly. This provides a sense of security knowing that we are totally in control of the situation.

Confidence is gained from situations, which test our abilities. The process can be accelerated by a controlled, progressive increase in challenges.

For example, crosswind landings are a challenge for all of us. That challenge never really goes away because there is always a stronger crosswind to contend with. If the crosswind limit we have set for ourselves is 10 knots, then we can practice with 10 knot crosswinds until we are confident we can handle them under all conditions, including significant gusts. The next step then is to increase our limit a small amount and stay at this limit until we reach the same level of confidence.

An additional technique is to set a target for all flight operations. For example, picking a touchdown point on every landing and attempting to make that point is an excellent confidence builder. Attempting to hold altitude with zero variation is a reward in itself. In all operations, precision should be the goal.

If flying in Instrument Meteorological Conditions (IMC), pilots typically begin with a ceiling and visibility limit well above the published minimums for an approach. Then, under very controlled conditions, these limits should be lowered until we are comfortable flying to published minimums. This should be done slowly with careful planning. Having an experienced safety pilot along is also a good idea. However, the ability to fly an approach to published minimums and doing so with confidence, is worth the effort. Also, when doing so, bear in mind that 800 (feet) and 1 (mile) is very different from 800 and 5. Approach carefully (pun intended.).

Everything seems to come with two sides. Carried too far, confidence becomes complacency. Complacency can be very dangerous, leading to incautious decisions with disastrous consequences. Flying is, after all, a dangerous activity if not treated with respect. When treated with respect, flying is just as safe as we choose to make it.

In summary, confidence is gained by achieving capability and maintaining currency, pushing you to be a more precise, analytical pilot. Most of this can be accomplished simply by paying attention to specific tasks and setting tight goals while flying your normal routine. With practice, this becomes very enjoyable.

Remember, cautiously pushing your limits is an important part of this effort, as is continuing education. The result will be increased pleasure in your flying, to say nothing of greater safety.

EDITOR'S NOTE: Harold Green is an Instrument and Multi-Engine Flight Instructor (CFII, MEII) at Morey Airplane Company in Middleton, Wisconsin (C29). Green was named "Wisconsin Flight Instructor of the Year" by the Federal Aviation Administration in 2011, he is a recipient of the "Wright Brothers Master Pilot Award," and has been a flight instructor since 1976. Readers can email questions and comments to Harold Green at harlgren@aol.com or call 608-836-1711 (www.MoreyAirplane.com). ❑

How Hypoxia Can Ruin A Flight

by Dr. Bill Blank, MD


Dr. Bill Blank

In the last issue, *Midwest Flyer Magazine* Editor Dave Weiman wrote about a general aviation oxygen system, so I thought an article about "hypoxia" would be helpful.

Hypoxia means lack of oxygen and in our case, we are talking about the brain not getting enough oxygen. The brain uses 20-25% of the oxygen consumed by the human body. The consumption does not vary depending on our level of physical activity. The brain is always on the job. On the other hand, oxygen usage of our muscles and heart does vary with physical activity.

The problem with hypoxia in aviators is its insidious onset. That is not to say that its onset is undetectable, but the airman must know his own individual symptoms of onset. These vary between individuals. Once hypoxia sets in and the brain isn't functioning well, the ability of the airman to deal with it is greatly reduced. The time of useful consciousness has passed.

How does hypoxia occur?

With each breath of air, we need a certain minimum number of oxygen molecules for good brain function. Air normally contains 21% oxygen and 78% nitrogen. As we climb and the outside pressure decreases, air is still 21% oxygen. The problem is we have less oxygen molecules in each breath. We finally get to an altitude where symptoms of hypoxia appear. The altitude at which this starts varies between individuals.

In order to be able to fly at higher altitudes where hypoxia can occur, oxygen systems have been developed. If we breathe 100% oxygen, all of the molecules in the air we breathe are oxygen molecules. We can therefore go higher before we become hypoxic. Eventually, even 100% oxygen at the low pressure of high altitudes cannot do the job. In order for the oxygen to reach the brain, the pressure must be high enough to drive the oxygen into the blood. If not, the oxygen wants to leave the blood for the lungs, exactly the opposite of what we want. To fly at these altitudes, a pressurized breathing system is needed. The other solution is to have a pressurized airplane. In this case, the air pressure in the cabin provides an environment similar to standing on the top of an 8,000 ft.

mountain. This altitude varies between airplane designs, but is where many airline cabins are designed to be.

Much of the research on hypoxia was done after World War I and up to World War II. It was done on young, healthy men and was used to develop regulations to decrease the likelihood of hypoxia-related accidents. It is a bit of a stretch to say that the current group of GA pilots is characterized as being a group of young, healthy individuals.

Military pilots receive extensive altitude training. They experience simulated high-altitude flight in altitude chambers. They learn what happens if a mask malfunctions or they experience sudden decompression. A major goal of the training is to teach pilots to recognize their own symptoms of incipient hypoxia, while they have time to react.

What are the symptoms of hypoxia?

1. Increased breathing rate, headache, fatigue.
2. Lightheaded or dizzy sensations, listlessness.
3. Tingling or warm sensations, sweating.
4. Poor coordination, impairment of judgment.
5. Loss of, or reduced vision, sleepiness.
6. Blue color of skin, fingernails, and lips.
7. Behavior changes, euphoria.

In addition, night vision is affected. The rod cells in our retina used for night vision are much more sensitive to lack of oxygen than the cones used for daylight vision. That is why supplemental oxygen is recommended when flying above 5,000 ft. at night.

The rules for GA pilots regarding the use of supplemental oxygen:

1. For flight above a cabin pressure of 12,500 ft. and below 14,000 ft. for more than 30 minutes, the minimum flight crew must use oxygen.
2. For flight above 14,000 ft., the minimum flight crew must use oxygen at all times.
3. Above 15,000 ft., each occupant must be provided with oxygen.
4. Flight in pressurized aircraft requires special training and an altitude endorsement.

Those of you who fly at high altitudes may want to know your own incipient symptoms of hypoxia. A free course is available at the Civil AeroMedical Institute (CAMI) in Oklahoma City. They can be contacted at 405-954-4837 for further information. A valid medical is required.

I took the course several years ago. My first symptom was euphoria. I was quite happy. When they ask me to add 2+1, I knew that I should know the answer, but could not answer the question. I actually thought it was funny that I could not answer it. When I looked at how I had written my name afterwards, a 2-year old could have done better. In addition to altitude training, as a pilot, you may wish to consider a "supplemental oxygen system." The regulations specify the altitude above which supplemental oxygen use is mandatory. That doesn't mean we can't use supplemental oxygen at lower altitudes. This is another way to compensate for age.

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. Blank is a retired Ophthalmologist, but still gives some of the ophthalmology lectures at AME renewal seminars. Flying-wise, Blank holds an Airline Transport Pilot Certificate and has 5300 hours. He is a Certified Instrument Flight Instructor (CFII), and has given over 1200 hours of aerobatic instruction. In addition, Blank was an airshow performer through the 2014 season, and held a Statement of Aerobatic Competency (SAC) since 1987. ❑

U.S. Senate Passes Third-Class Medical Reform

FREDERICK, MD – The full Senate passed the Pilot's Bill of Rights 2 (PBR2), December 15, 2015, which will now go to the House for consideration. The Senate passed the bill, which includes third-class medical reform, by unanimous consent, less than one week after it was reported out by the Senate Committee on Commerce, Science and Transportation. The bill must also pass the House, where it has 152 bipartisan cosponsors, before it can go to the President for his signature (www.aopa.org). ❑

A Hand Up For Flying Clubs

by Mark R. Baker
President & CEO
Aircraft Owners & Pilots Association


Mark Baker

It's never been easier, or more cost-effective, to start and operate a flying club, thanks to some great new benefits created just for flying clubs by AOPA.

As many of you may know by now, I'm an enthusiastic supporter of flying clubs and I've been a member myself. They give pilots a tight knit community, a place to learn and share their love of aviation, and access to the pleasure of aircraft ownership at a fraction of the cost. Many even offer activities to get your non-flying family members involved.

At AOPA, we want as many people as possible to have access to that experience. That's one reason we created the ***AOPA Flying Club Network,*** and it's why we've developed some great new benefits and tools for clubs.

AOPA Network flying clubs now have access to free scheduling software that allows them to schedule up to six "resources," such as aircraft and flight instructors. The software from Multi Service Technology Solutions even gives clubs the ability to create invoices and accept credit card payments, making it easy to manage assets and member accounts.

We're also making it easier for pilots to find the right club for them. We recently updated the AOPA Flying Club Finder with sophisticated new search filters that allow you to look for clubs not only by location, but also by the types of equipment and services they offer. So, if you want to find a club that operates tailwheels and offers flight instruction, you can. Anyone can use the Flying Club Finder, and there's no charge to list your club.

If you can't find a club that matches your interests, maybe you'd like to get together with some friends and start a club of your own. We're making that easier, too. We've added a brand new resource library to our website that will walk you through the steps you'll need to take to get your club off the ground. Start with our "checklist for starting a flying club," then read through our collection of articles that will guide you through decisions about everything from what form your club should take, to purchasing your first aircraft. We've even posted sample bylaws, articles of incorporation, lease agreements and other documents to help you along the way. And of course our flying club experts are available to answer your questions and offer support along the way.

Whether you want to join a club, start a club, or just learn more about how a flying club can make flying easier, more fun, and more affordable, visit AOPA.org or call our Pilot Information Center. ❑

2016 AOPA Fly-Ins:

May 21	Michael J. Smith Field (MRH) in Beaufort, North Carolina
Aug. 20	Bremerton National Airport (PWT) in Bremerton, Washington
Sept. 17	WK Kellogg Airport (BTL) in Battle Creek, Michigan
Oct. 1	Earnest A. Love Field (PRC) in Prescott, Arizona

Mark your calendar!

WWW.AOPA.ORG/COMMUNITY-AND-EVENTS/AOPA-FLY-IN/2016

AOPA Great Lakes Regional Report

Priorities For The New Year

News & Information You'll Want To Know In Ohio, Michigan, Indiana, Illinois, Wisconsin, Minnesota, North Dakota & South Dakota

by Bryan Budds
Manager, AOPA Great Lakes Region


Bryan Budds

Over the past year, you likely have read several *Great Lakes Regional Reports* and noticed a strong focus on AOPA's efforts to secure sustainable funding mechanisms for general aviation airports across states in the Great Lakes Region. This is a core focus of AOPA's efforts within the state legislative arena, but with a new year comes new goals for your association and 2016 will be no different.

While several legislative victories in 2015 secured additional airport funding in states like Michigan and Ohio, and similar efforts nearing completion in Minnesota and Indiana, AOPA will expand its focus to the future – and the future of airport protection – while still maintaining a close watch on state budget situations and taxes GA pilots are subject to across the region.

How often have we encountered the story of the airport neighbor that is upset with the noise level, or observed airport operations, limited by buildings, trees, or other obstructions being placed in the safety areas near our airports? I am sure everyone knows of at least one story and it's something AOPA members report to me with unfortunate frequency. But, what can be done? How can we truly help address the core of the problem, rather than attempting to triage the issue after that water tower, school, or apartment building is built? The answer is simple, but requires truly a long-term vision – ***land use planning.***

Now, before you fall asleep, let's talk about this objectively. Obviously, no city or county councilor or commissioner wants to be put into a position of choosing between approving a new development and restricting an airport in his or her municipality. A rational policymaker wants both things to coexist in a thoughtful and well-planned manner. Unfortunately, in any political body, the planning process is much more short term – with our leaders leaving that issue "for the next guy." In the airport policy world that type of vision causes many of our issues and here's why.

Consider your local airport for a moment. Imagine now that a brand new elementary school has been built underneath the heavily used traffic pattern. Of course, noise complaints begin to stream steadily into the FAA, the state aviation department, and local policymakers. Quickly, thereafter, attempts to modify the traffic pattern are put in place, but do not cause a decrease in noise complaints. The FAA begins to take a closer look at where and why the complaints are being made and finds the airport is not fully in compliance with its grant assurances dealing with airport zoning and can then limit the funds being made available to the airport, close runways, or even worse. You certainly can see how the issue progresses, and it's a cycle AOPA wants to eliminate. Luckily, several states in our area have done some great work in this area – notably both Wisconsin and Minnesota. Wisconsin's Airport Land Use Guidebook (http://wisconsindot.gov/Documents/doing-bus/aeronautics/resources/arptlusguibk.pdf) is available to airport management, local policymakers, and the public and clearly explains the importance of proper land use zoning and the role of both state and local policymakers in the process. Similarly, Minnesota's Land Use Compatibility Manual (http://www.dot.state.mn.us/aero/planning/landuse-compatibility-manual.html) provides similar guidance and serves as one of the strongest airport land use planning documents in the country.

In the coming months, AOPA will be collecting best practices on airport zoning from across the region and country, meeting with stakeholders on how to implement a system where one does not exist, or improve the existing system. In most states, this will require a legislative modification, so keep an eye out in AOPA's publications and in *Midwest Flyer Magazine* as they progress! ❑

Contact **bryan.budds@aopa.org or twitter.com/aopagreatlakes**

AOPA Announces New Flying Club Benefits

FREDERICK, MD – The Aircraft Owners and Pilots Association (AOPA) has free scheduling software and other new benefits and tools available to flying clubs. The software, available exclusively to AOPA Flying Club Network members, allows clubs to schedule up to six "resources," such as aircraft and flight instructors. With an unlimited number of users and the capability to process credit card payments, and create invoices, the software from Multi Service Technology Solutions, Inc., offers the capability and flexibility to serve clubs of all sizes and types. In addition to the new scheduling software, AOPA is making it easier than ever for pilots to find their ideal flying club (www.aopa.oom. ❑

AOPA Central Regional Report

Review of 2015's Advocacy Efforts In The Central Region

News & Information You'll Want To Know In Kansas, Missouri, Nebraska & Iowa

by Yasmina Platt

Manager, AOPA Central Southwest Region

Yasmina Platt

Addressing the big issues that will affect the way we fly for decades to come requires a big commitment, and 2015 has been a year marked by steady progress on some of the biggest issues of all.

Some of the nationwide/federal issues AOPA worked on in 2015 include addressing barriers to Automatic Dependent Surveillance-Broadcast (ADS-B) equipage; introducing the Pilot's Bill of Rights 2 to include third class medical reform, as well as protections for pilots facing enforcement actions; integrating Unmanned Aircraft Systems (UAS) or "drones" into the National Airspace System (NAS); and identifying a replacement for unleaded avgas (100LL). AOPA was also a key player in growing the General Aviation Caucuses in both houses, with the House reaching an all-time membership record of 274 representatives. However, when it comes to making an impact on the way we fly, it's not just national issues that make a difference… AOPA is equally hard at work on the state level and at local airports to keep GA flying.

Yasmina Platt and Kansas Governor Brownback.

Kansas Rep. Seiwert, Yasmina Platt, and Kansas Rep. Carmichael.

Aviation stakeholders at Iowa's "Transportation Day at the Capitol."

In 2015, we monitored over 750 bills across the regions, taking an active advocacy role on many of them. Among the state legislative victories racked up in the Central Region (Kansas, Missouri, Nebraska & Iowa) were:

• Airport improvement funding/appropriations in all four states.

• Several pieces of legislation to protect GA education and flight instruction providers, to promote good land-use and protect navigable airspace in the form of the Airport Zoning Act, and to preserve the process for closing airports and repaying open state grants in Iowa.

• A fly-away sales tax exemption on aircraft in Missouri.

• Property tax cuts on business aircraft and an improved law regarding the marking and registration of Meteorological Evaluation Towers (MET), as well as an enforcement provision of those two requirements in Nebraska.

And, sometimes in politics, the good news is that bad news won't happen. This year, we had to fight the reversion, diversion, and/or elimination of aviation-generated funds from state aviation funds in several states. In addition, Kansas, Missouri, and Iowa all had Aviation/Transportation Days at their respective state capitols, providing a great opportunity for pilots, aviation organizations (like AOPA), and legislators to meet and chat about our agenda and the importance and benefit of general aviation to each respective state.

I am looking forward to another productive year in 2016! Stay tuned for ways you can contribute.

❑

Contact yasmina.platt@aopa.org or @AOPACentralSW

AOPA Calls UAS Task Force Recommendations, "A Good Start"

FREDERICK, MD – The FAA announced, November 23, 2015, that it has accepted the final recommendations of its Unmanned Aircraft Systems (UAS) Registration Task Force Aviation Rulemaking Committee, and has begun the rulemaking process, moving the agency one step closer to establishing registration procedures ahead of anticipated record holiday sales of drones. The Aircraft Owners and Pilots Association (AOPA) participated in the task force, along with 24 other organizations representing the manned and unmanned aircraft communities, drone manufacturers, and retailers, such as Amazon and Walmart, that hope to use drones in their businesses.

"The real goal is to create a culture of accountability and safety—and that means giving operators the information they need to fly safely while making it as easy as possible for them to participate in the system," said Jim Coon, AOPA senior vice president of government affairs, who represented the association on the panel.

"Throughout the process, AOPA argued for rules that would ensure safety, protect the National Airspace System (NAS), and support participation and innovation in the drone community.

The task force, which met for three days in early November, was charged with developing recommendations for what types of UAS would need to be registered, registration processes, and establishing proof of registration and markings (www.aopa.org). ❑

New FAA Recreational UAS/Drone Registration Program: Better Than Nothing?

by Russell A. Klingaman
Attorney At Law


Russell Klingaman

On December 14, 2015, the Federal Aviation Administration (FAA) issued its interim final rule entitled "Registration And Marking Requirements For Small Unmanned Aircraft" (80 Federal Register 78594). The registration rules, which became effective one week later (December 21, 2015), establish a web-based process for the registration of small unmanned aircraft systems (sUAS) used by non-commercial (i.e. hobby or recreational) owner/operators. The FAA created the rule based upon its review of public comments and recommendations from the Unmanned Aircraft System Registration Task Force.

In its executive summary for the rule, the FAA estimates that 1.6 million small unmanned aircraft systems would be sold in 2015 to non-commercial operators. The FAA declared: "With this rapid proliferation of sUAS will come an unprecedented number of sUAS owners and operators who are new to aviation and thus have no understanding of the NAS [National Airspace System] with the safety requirements for operating in the NAS."

The registration process has two primary goals: (1) educate UAS operators on safety requirements before they begin flying, and (2) quickly identify operators in the event of an incident or an accident involving UAS equipment.

Here is a summary of the major provisions in the registration rule:

- Registration is required for all recreational operators of UAS equipment as "model aircraft" weighing more than .55 pounds and less than 55 pounds.
- Using an online web-based system, each registrant will be required to provide the FAA with: (1) his/her name, (2) a physical address, (3) an e-mail address, (4) the UAS make, model, and serial number, if available, and (5) credit card information for the registration fee.
- Each operator is assigned a registration number which must be written on or affixed to each UAS operated by the registrant.
- The registration fee is $5 per operator, regardless of the number of UAS owned by the registrant. (Registrants will receive a $5 credit – making the registration free – if they get registered before January 21, 2016.)

• Registration is required for operators 13 years of age and older (younger owner/operators must have their aircraft registered by a person who is at least 13 years of age).

• Registration is not required for UAS equipment operated exclusively indoors.

Each registrant will receive, via email, a Certificate of Aircraft Registration. Once the registrant completes the registration process, the certificate will be available for download.

Operators may print a hard copy of the certificate if they wish. A person operating UAS equipment in the NAS will be required to present his/her certificates when requested by federal, state or local law enforcement officers.

Concerning enforcement, the FAA has the power to impose significant civil penalties – up to $27,500 – per violation. It is unlikely, however, that large fines (i.e. greater than $1,000) will be imposed upon first-time violators of the registration rule in the absence of evidence of other misconduct. In 2015, the FAA adopted a new compliance philosophy putting greater emphasis on education, and less emphasis on punishments. See FAA Orders 8000.373 and 2150.3B.

It must be recognized that the registration process does not apply to UAS equipment operated for commercial purposes, which are governed by section 333 of Public Law 112-95, otherwise known as the FAA Modernization and Reform Act of 2012.

Education As A Primary Goal

One of the main goals of the registration rule is to reduce unsafe operations through education. Each registrant will receive important educational information along with his/her certificate. Concerning education, the FAA states:

The small unmanned aircraft registration platform described in this rule will require the registrants to review a summary of the sUAS operational guidelines before completing unmanned small aircraft registration. The FAA believes this is an invaluable access point to deliver sUAS operational safety information. The information will also direct registrants to additional sources of safety information generated by the FAA and other stakeholders, such as FAAsafety.gov and knowbeforeyoufly.org. Delivering post registration safety information to registrants on a continuous basis will help to remind the registrant[s] of their safety-of-flight obligations and help reduce sUAS risks in the NAS.

The rest of this article will discuss some of the most interesting proposals submitted to the FAA during the lead up to the creation of the registration rule. As UAS problems grow, it is reasonable to predict that some of the topics discussed below may become part of the laws governing UAS operations.

Personal Information For Registration

Many commenters suggested that the FAA should collect more information from registrants than just name, address and email. They want the FAA to collect and record personal information such as: (1) dates of birth, (2) driver's license numbers, (3) Social Security numbers, (4) passport numbers, (5) nationality, (6) proof of citizenship, and (7) insurance information.

The FAA justifies its need for just basic contact information as follows:

An accurate mailing address is necessary because the FAA often relies on regular mail by the United States Postal Service to provide notice of administrative actions, serve enforcement documents, and provide other information.

Although email will reduce the agency's reliance on regular mail for certain purposes, such as the provision of educational material, a mailing address is still required to support the agency's compliance and enforcement actions.

Specifically justifying the need for an email address, the FAA said: "[E] mail allows for targeted delivery of educational [and] other safety-related materials directly to small unmanned aircraft owners."

Point-of-Sale Registration

One area of considerable controversy surrounding the new rule is the FAA's rejection of a registration-at-the-point-of-sale requirement. Commenters supporting a point-of-sale rule argued that UAS purchasers should be forced to demonstrate their knowledge of UAS rules of operation as part of the purchase transaction. The FAA determined, however, that it did not possess the power to create a point-of-sale rule. See 49 U.S.C. sec. 44101(a), which states that aircraft registrations are only required prior to operating aircraft, not when aircraft are purchased.

However, the FAA also stated:

[The new rule] does not foreclose the opportunity for the development of the point-of-sale web-based application for registration that relieves the associated burdens identified by commentators. The agency encourages innovation in point-of-sale registration as it may provide the agency with a means by which to receive information

regarding small unmanned aircraft in a seamless fashion, and hopes to work with retailers and manufacturers in the future to make the process as simple as possible.

Marking UAS Equipment With Registration Information

Many commenters were opposed to the idea of simply handwriting the registrant's certificate number on his/her UAS equipment. In fact, several commenters proposed various electronic means to aid in UAS identification, such as requiring UAS equipment to emit a radio signal to aid in identification. One commenter recommended having a microchip on each UAS programmed to the registration number so that an electronic device, such as a smart phone with the proper app installed, could read the microchip and display the aircraft's registration number. Concerning these suggestions, the FAA simply stated: "[A] requirement to identify a small unmanned aircraft using certain equipment [is] beyond the scope of this rule."

UAS Pilot Certificate

A number of commenters recommended that the FAA implement a *licensing system* for UAS recreational operators – not just a registration system. They believe that registration alone does little to guarantee that a recreational UAS operator understands the rules of safety for operating in the NAS. They argue that a licensing system – with a testing component – is the best way to ensure safe operations in the NAS. They want a rule that requires registrants to pass a test as part of the registration process.

As with the point-of-sale suggestions, the FAA determined that it does not have the power to require a license for recreational/model UAS operators under the 2012 Reform Act.

Equipment – Based Requirements

Many of the comments received by the FAA focused not only on rules applicable to the *operators,* but applicable to the *equipment itself.* These commenters argued for equipment requirements, such as: (1) indestructible data plates, (2) ADS-B transmitters, and (3) visible strobe lights. Other examples of such technologies are QR codes and radio frequency identification (RFID). Some commenters argued that UAS equipment should be manufactured so that it can only be turned on and operated after the consumer registers the UAS and receives and applies an "activation code." Again, the FAA rejected these proposals as beyond its current set of goals and/or powers.

Future UAS Requirements?

It is important to recognize that the new registration rule is only the first step towards managing the new problems and safety concerns created by the rapid proliferation of UAS equipment in the NAS. Along these lines, the FAA states:

[T]he agency expects to continuously evaluate the database and the web-based registration process and look for opportunities to further develop the technical functionality of both. As with other aspects of UAS integration into the NAS, our approach to registration will be incremental. The Administrator may authorize expanded technical capabilities going forward, but the initial goal is to make this process as minimally burdensome as possible to encourage compliance with the registration requirement.

Concerning the future of UAS regulations, the FAA says:

Accountability in sUAS operation, along with identification of the aircraft owner, are desired outcomes for this rule.

While commenters provided a number of recommendations for further action towards these goals that are outside the scope of this rule making, the FAA found that one predominant recurring theme addressed education regarding safe sUAS operations.

The FAA agrees that education is a key component for reaching the agency's aircraft registration goals and is an overarching tenet in ensuring the safety of the NAS. The FAA will continue to evaluate these additional methods recommended by the commenters for encouraging safe and responsible use among sUAS operators for future guidance material and rule-making.

Is The New Rule Better Than Nothing?

The critics of the new registration rule can be divided into two broad categories: (1) those who believe the FAA has gone

too far, and (2) those who believe the FAA has not gone far enough.

In the first group are leaders and members of the Academy of Modern Aeronautics (AMA). These folks oppose the registration rule on various grounds including: (1) the safety risks of UAS recreational operations in the NAS are overestimated, and (2) the registration rule violates the 2012 Reform Act. In fact, the AMA has advised its members (totaling approximately 185,000) not to participate in the registration program. The AMA has also indicated it may make a legal challenge to the new rule. The AMA's arguments are based, in part, on language in the 2012 Reform Act which states that the FAA "may not promulgate any rule or regulation regarding a 'model aircraft'." One criteria for being a model aircraft is that it be operated "in accordance with a community-based set of Safety Guidelines and within the programming of a nationwide community-based organization."

On the other side of the debate are folks who believe that the FAA should impose UAS rules more comprehensive than just a web-based registration process.

So, did the FAA go too far, or not far enough, with its new registration rule? This author believes that the FAA's registration program is a good start to dealing with the growing UAS problem. As a final note, it should be recognized that the FAA's new UAS registration rule is being challenged in court. Stay tuned!

EDITOR'S NOTE: Russell A. Klingaman is a partner with the Hinshaw & Culbertson LLP law firm in Milwaukee, Wis. As an instrument-rated private pilot and aircraft owner, Klingaman has a special interest in aviation law, and teaches aviation law at Marquette Law School and UW-Oshkosh. Questions and comments about the foregoing topic may be directed to Russell A. Klingaman at rklingaman@hinshawlaw.com. ❑

AIR SHOWS & FLY-INS

Top Airshow Performers To Fly At EAA AirVenture-Oshkosh 2016

OSHKOSH, WIS. – Some of the world's top airshow performers have made their commitments to fly at EAA AirVenture Oshkosh 2016, July 25-31 at Wittman Regional Airport in Oshkosh, as part of the afternoon and night air shows.

The Canadian Snowbirds will be a headline act at EAA AirVenture Oshkosh 2016.

"Over the past several years we've dedicated ourselves to create the best air show lineup for both our afternoon and night air shows at Oshkosh," said Rick Larsen, EAA's vice president of communities and member benefits who coordinates AirVenture features and attractions. "That means using the feedback we collect each year to bring back favorite performers, while adding exciting new acts, unique highlights, and air show attractions connected with particular aircraft and anniversaries. Air show performers know that flying at Oshkosh establishes them as one of the best, performing for the most knowledgeable audiences in all of aviation."

Among the performers and aircraft already committed to Oshkosh in 2016 are: AeroShell Aerobatic Team (T-6s), Luca Bertossio (Swift S-1 glider), Jeff Boerboon (Sasquatch), Bob Carlton (SubSonex JSX-2), Kirby Chambliss (Edge 540), Matt Chapman (Extra 300LX), Kevin Coleman (Extra 330SC), Kyle Franklin (Dracula), Geico Skytypers (SNJs), Mike Goulian (Extra 330SC), Rob Holland (MX-2), Jerry Kerby (RV-8), John Klatt (MX-S), Greg Koontz (Xtreme Decathlon), Sammy Mason (Pitts S-1S), Paul McCowan (American flag skydiver), Patriot Parachute Team (Skydivers), Jim Peitz (F-33C Bonanza), Rex and Melissa Pemberton (Edge 540/ Wingsuit), Kent Pietsch (Interstate Cadet), Gene Soucy/ Teresa Stokes (Showcat), Bill Stein (Edge 540), Skip Stewart (Prometheus), Team Aerostar (Yak-52s), Team Redline (RV), Sean D. Tucker (Oracle Challenger III), Matt Younkin (Twin Beech), and Patty Wagstaff (Extra 330LX).

Among warbird performers already confirmed are the Tora Tora Tora demonstration, Texas Flying Legends, "Class of '45" Mustang flown by Scott Yoak and Corsair flown by Jim Tobul, and Greg Shelton's Wildcat.

A big draw this year will be the Canadian Forces 431 Air Demonstration Squadron, the "Snowbirds," who fly nine Canadair CT-114 Tutor jet trainers, including two solo aircraft. The squadron is based at 15 Wing, near Moose Jaw, Saskatchewan.

More performers will be announced in the months ahead (www.eaa.org). ❑

Sunglass Eye Protection For Pilots, Skiers & Mountain Climbers

Pilots have very unique needs for special eye protection. The sun is incredibly bright above the clouds, and one can easily be blinded by solar glare. Ultraviolet rays are especially dangerous and damaging at high altitudes, requiring extra protection. This affects not only pilots, but also high-altitude skiers and mountain climbers.

Looking down in the cockpit to read charts, instruments, and iPad computers can be difficult with lenses that are too dark. Trying to read the digital instruments is almost impossible with polarized lenses, so the FAA has now ruled against pilots wearing polarized lenses in the cockpit.

Polarized lenses also produce blotchy images on aircraft windshields, which are annoying and difficult to see through, and eliminate the "glint" seen on approaching aircraft, which can affect a pilot's ability to see and avoid.

An alternative to polarized lens technology is the "Extreme Glare" sunglass lens.

The manufacturer, Zurich International, says that the ideal lens for pilots is a "rose" colored lens with a graduated tint – darker at the top, but much lighter at the bottom. Pilots benefit from maximum ultraviolet protection, the darker rose tint at the top protects against blinding glare, and the lighter tint at the lower one-third of the lens makes viewing charts and avionics, much easier.

Rose tint lenses enhance colors without altering the actual color seen. Rose tint lenses make reds redder, blues bluer, whites whiter, greens greener, and yellows more yellow. Thus, rose lenses provide better contrast, better definition, and better depth perception. Gray tint lenses cannot accomplish these feats, but on the other hand, "Extreme Glare" gray lens technology does block more glare than any other technology known today.

Extreme Glare sunglasses are reasonably priced, comfortable, and their warranty from breakage is good for two years. While a soft carrying case is included with each purchase and helps prevent scratching, a hard case is recommended to avoid the frame from breaking.

To order or for additional information, go to **www.Z-XG.com,** a site for sore eyes!

Zurich International is owned by optician, Bruce Holden, and is headquartered in Elk Grove, Calif. (1-800-533-5665). ❑

Patty Wagstaff...
Passing On The Gold of Her Experience To Others

by Dave Weiman

Patty Wagstaff

A regular performer at EAA AirVenture Oshkosh and a dozen other airshows in the U.S. and abroad each year, is Patty Wagstaff, now flying the Extra 330LX.

A six-time member of the U.S. Aerobatic Team, Patty Wagstaff has won gold, silver and bronze medals at the World Aerobatic Championships (1985-1996), and is the first woman to win the title of U.S. National Aerobatic Champion, and one of few pilots to win it three times (1991, 1992, 1993).

Patty Wagstaff grew up in and around airplanes. Moving to Japan when she was 9 years old where her father was a captain for Japan Air Lines, her earliest memories include sitting with her father at the controls of his airplanes. At 10 years old, her father let her take the controls of his DC-6, and her lifelong love affair with airplanes began.

From Japan, Wagstaff's travels took her to Southeast Asia, Europe and Australia where she lived and traveled up the west coast in a small boat.

In 1979, she moved to Dillingham, Alaska – a small town in the southwest part of the state, where she worked for the Bristol Bay Native Association. Her job involved traveling to each of the remote villages in the region, areas only accessible by air.

Patty Wagstaff's first experience with bush flying was not a positive one. The first airplane she chartered for her job crashed on takeoff, so she decided to learn to fly herself, hiring friend and later husband, Bob Wagstaff, to travel with her in his Cessna 185 floatplane. She went on to earn her Instrument, Seaplane, and Commercial Helicopter Ratings; Commercial and Instrument Flight Instructor Pilot Certificates; and is now rated and qualified to fly everything from World War II fighters to jets.

A lifelong curiosity in aerobatics led Patty Wagstaff to attend her first airshow in British Columbia in 1983. Five years after acquiring her pilot certificate, she earned a spot on the U.S. Aerobatic Team.

Patty Wagstaff is a six-time recipient of the "First Lady of Aerobatics" Betty Skelton Award (1988-1994), and is the recipient of the National Air and Space Museum Award for Current Achievement (1994).

In March 1994, Patty Wagstaff's "Goodrich Extra 260," which she flew in national and world aerobatic competition, and early airshows, went on display in the Smithsonian National Air & Space Museum in Washington, D.C., where it remains in the Pioneers of Flight Gallery to this day.

Having received many awards for her flying, Patty Wagstaff is particularly proud of receiving the airshow industry's most prestigious awards, the "ICAS Sword of Excellence" (1995) and the "Bill Barber Award For Showmanship" (1998). In addition, Patty Wagstaff has been inducted into the National Aviation Hall of Fame (2004), awarded the Air Force Association Lifetime Achievement Award (2005), and inducted into the Air Show Hall of Fame (2006), and the International Aerospace Hall of Fame (2007).

In 2014, Patty Wagstaff was named an "AOPA Ambassador" by the Aircraft Owners & Pilots Association to help promote general aviation and encourage other pilots to support the organization.

"AOPA has a long history of representing pilots and aviation enthusiasts and is one of the most important defenders of the freedom to fly we have in this country," says Wagstaff. *"It's up to all of us to support AOPA."*

Besides bush flying, aerobatic competition and performing in airshows, Patty Wagstaff's career has included working as a stunt pilot and aerial coordinator for the film and television industry; demonstrating Raytheon's (now Hawker

Beechcraft's) T6A/B Texan II military trainer and light attack aircraft; currency and aerobatic training of pilots of the Kenya Wildlife Service (KWS) in East Africa; and flying for Cal Fire as an air attack pilot in the OV-10 Bronco (2010-13).

Since then, Wagstaff founded "Patty Wagstaff Aerobatic School" on Northeast Florida Regional Airport (KSGJ) in St. Augustine, Florida, and she continues to perform in airshows around the world.

Patty Wagstaff's flight school is located at Southeast Aero, the U.S. distributor for Extra Aircraft. The flight school is for both aspiring aerobatic pilots, and general aviation pilots interested in increasing their flying skills.

"We use both a Super Decathlon and an Extra 300L in our school and train pilots of all experience levels in upset recovery, precision aerobatics, spin recovery and even formation flying on request," says Wagstaff.

"It is a lot of fun to see students progress and gain confidence and skill when they expand their personal envelope. When they complete their training, they leave our school as safer and more confident pilots. We are also expanding into corporate upset recovery training and have some exciting new things coming up, so stay tuned for that."

Southeast Aero sponsors the Extra 330LX featured on the cover of this issue of *Midwest Flyer Magazine* for Patty Wagstaff's airshow performances.

"Equipped with the large Lycoming AEIO-580 engine, the LX is the first unlimited aerobatic aircraft with two seats, is super maneuverable, and has great vertical performance, an awesome roll rate, and it's good looking!" says Wagstaff.

Other sponsors of Patty Wagstaff Airshows include Bose Headsets, MT Propeller, Barrett Precision Engines, Champion Aerospace, Goodyear Tire Corporation, National Parachutes, Concorde Battery and Lord Corporation.

For additional information about flight training at Patty Wagstaff Aerobatic School, email Patty Wagstaff at pattyaerobatics@gmail.com or visit her website at www.pattywagstaff.com/school.html.

To book Patty Wagstaff for your airshow, call 904-806-5778 or email patty@pattywagstaff.com. ❑

Extra 330LX
Chris Bildilli Photo

Let's Fly & Dine

Eau Claire Airport Restaurant To Reopen Soon!

EAU CLAIRE, WIS. – Pilots will be pleased to learn that the restaurant in the Chippewa Valley Regional Airport (KEAU) terminal in Eau Claire, Wisconsin, will soon reopen as the "Hangar 54 Grill." A date has not yet been set as to when the restaurant will be open for business. For additional information, contact the airport at 715-839-6241 (www.chippewavalleyairport.com). Charity Zich is the airport director. ❑

A Flight With Team Aerodynamix

by Larry E. Nazimek

There are many formation teams on the airshow circuit, but *Team Aerodynamix,* the world's largest air show team, is unique in that it consists of 10 planes. I got to fly with them prior to the Chicago Air & Water Show in August 2015.

Team Aerodynamix flys privately-owned RV kit planes, most of which are RV-8s (single-engine, two-seat tandem, tail draggers). For this flight, I flew with John "Mutter" Hornbeck in his RV-6, built by team member Jerry Kight, the only plane in the group with side-by-side seating. Hornbeck is a custom homebuilder from Anderson, South Carolina.

Since the pilots own the planes, each has a different paint scheme. The advantage of this is that each pilot knows who is flying each plane. The pilots live in various towns in the Southeast.

Most of their formations are flown in "elements," where the element leader flies off of (with reference to) the flight leader, while the element members fly off of their element leader.

For their giant V formation, however, each plane maintains his position on the plane beside him. In

other words, the second plane in the row is positioned on the first, the third on the second, etc. When flying in formation, you are constantly making small corrections (always assuming that you are never in perfect position) to maintain your position, so each plane's movement is "amplified" by the movement of the plane on its wing.

When pilots are first learning to fly in formation, #2 will be making large corrections, with #3 having to make even larger ones to keep on #2's wing. If you have five (5) planes in echelon (line abreast), and the pilots are not experienced in formation flying, the #5 plane may have a difficult time with this "crack the whip" effect, and even the most experienced pilots sometimes have problems in turbulence.

There are maneuvers where experienced pilots will appreciate the difficulty more than other spectators, such as the "outside loop," and flying in echelon with a large number of planes, is one of them.

The team members are highly experienced precision formation pilots, but, as Hornbeck explained, this effect is why they avoid large echelons in most of their formations. One can analyze their various formations to determine who is flying off of whom.

"We generally try to fly in the same position for each flight, but we're prepared to fly any position as is needed to fill an empty spot," said Hornbeck. In other words, if one aircraft must drop out, rather than leaving a noticeable space, another will fill in. As any pilot will appreciate, when you have 10 planes, there is a good chance that one will have maintenance problems.

Their experience and expertise enables Team Aerodynamix to move all 10 planes as one, as though they were welded together. In one of their formations, for example, instead of an "arrow," the flanking planes drop back to fly off of the third plane in the column, forming what resembles the wings of an airliner, while those in the straight line, form the fuselage.

Their formations are constructed with the spectators' frame of reference in mind. While flying in a trail formation, each plane will fly behind, and slightly below, the plane in front, but this slight difference in altitude will not be apparent to someone on the ground, as the team flies overhead.

When the planes go "smoke on," the spectators see parallel lines, but for those in the formation, it's an entirely different effect...one that needs to be seen from the cockpit to appreciate it.

In addition to their "day show," *Team Aerodynamix* also has a night show with greater emphasis on the lighting effects. While the Chicago show is a day event, they did some night flying along Chicago's lakefront.

The group's founder, Mike "Kahuna" Stewart, explained that he had been flying for several years when an Air Force colonel taught him formation flying. He really loved it, and he shared his newly found passion with fellow pilots who flew RVs. In 2002, they formed *Team Aerodynamix* in Atlanta.

Some of the original pilots have left the team, but were replaced.

Hornbeck explained that he had been flying his plane for several years when he learned formation flying, and he became friends with the other team members. After a few years, one of the pilots left the team, and he was there to fill the vacancy. As Hornbeck put it, "It doesn't make us rich, but it does enable us to pursue our hobby."

Team members were part of the largest civilian aircraft formation world record that was flown in 2007 and 2009 (consisting of 37 RV aircraft).

This is one airshow act you won't want to miss in 2016. ❑

Under The Radar: Air Cargo At GA Airports

by Mike Maynard & Marc Cocanougher

Picture this – you operate an automotive parts manufacturing plant in Indiana. An automotive assembly plant needs additional product by tomorrow morning in Montgomery, Alabama or the assembly line shuts down. It is too far to truck the supplies. Air transport is your only option.

This scenario happens countless times across the U.S. and an entire logistics industry has arisen to meet the demand for "next-day" transportation of important documents and "just-in-time" delivery of important materials, critical parts and medical supplies.

Air cargo aircraft, and the airports that support them, are often depicted in the media as large cargo jets operating at major commercial service airports across the country. While the bulk of air cargo is transported in this manner, there are dozens of general aviation airports across the country used by "feeder" cargo aircraft on a scheduled basis for FedEx Express, DHL, and UPS, as well as contracted charter or ad hoc flights for specific industries. In fact, some businesses in the health care industry have their own fleet of single-engine and twin-engine piston aircraft. Many of these flights go unnoticed by the general public since most occur at night and early morning, but the general public would be affected if these flights did not occur.

To meet the demand, three types of carriers have evolved over the past several decades.

Hub-and-Spoke Air Cargo Operators

The typical mission for Part 135 and Part 121 cargo carriers using piston and turboprop aircraft is to retrieve packages and other cargo from smaller communities and fly them in late evening to a major airport where they are consolidated with freight from other markets and loaded aboard a cargo jet for a longer flight to a hub. Afterward, that process is reversed as cargo is then offloaded from a large freighter arriving before dawn from the sort center, to another

Kalitta Charters staff load a Falcon 20 at Willow Run Airport, Ypsilanti, Mich. *Kalitta Charters Photo*

airplane for delivery early in the morning to its ultimate destination, often a smaller community. In some cases the aircraft fly directly to the hub. While many of the airports that support this activity are commercial service, there are a number of supporting general aviation airports.

Warsaw Municipal Airport in Indiana provides a base of operations for a UPS feeder flight to the Louisville World Hub. UPS contracts with Air Cargo Carriers LLC to make the 1-hour and 10-minute flight from Warsaw to Louisville five nights a week in a Shorts 360 twin-engine turboprop. The flight aids UPS by avoiding the 4-hour 30-minute truck drive to the hub, that provides UPS customers later cut-off times for shipments. Warsaw is home to five prominent biomedical firms and has earned the moniker of "The Orthopedics Capital of the World." Given the urgency of shipments related to orthopedic surgeries, it is not surprising that UPS bases an aircraft in the market.

It is not unusual for a single industry to create the demand to position an aircraft in a particular market. Industries that commonly use air cargo are businesses that regularly ship high-value, time-sensitive products, such as aerospace equipment, automotive parts, pharmaceutical, computers, cell phones and electronics, and high-end, seasonal apparel. General aviation airports located near distribution centers may also be utilized by the express industry.

The Regional Air Cargo Carriers Association (RACCA) is a trade organization dedicated to meeting the policy, communications and information needs of on-demand cargo aircraft operators in the U.S. The organization has more than 50 FAA-certificated air carrier members, which fly some 800 aircraft per night in the U.S., Mexico, and the Caribbean. Stan Bernstein, President of RACCA, states: "Those 800 aircraft serve a lot of small town America getting that service, and most of those communities are unaware of how that

Quest Diagnostics aircraft, like this Phenom 100, crisscross the U.S. every day, transporting vital medical samples. *Quest Diagnostics Photo*

package gets to them."

Bruce Longacre is Director-East Region Operations at Ameriflight, one of the leading regional cargo contractors in the U.S. When it comes to cargo feeder operations at general aviation airports, Ameriflight has certain criteria they seek.

"We operate four types of turboprop cargo aircraft including the B99, EMB120, Metro III and B1900," says Longacre. "As far as general aviation airports and infrastructure go, our criteria for selecting airports is based on approach minimums, and as far as how much ground support there is at an airport, we are flexible. In general, we need some type of airport weather reporting, either automated or observed."

When it comes to ground handling, freight haulers like Ameriflight typically rely on fixed base operators (FBOs).

"We prefer an FBO because we want to have support for vehicle access, assist with load and off-load, fuel of course, and sometimes aircraft maintenance," says Longacre.

General aviation airports that are Part 139 certificated provide an advantage to contract air carrier airports. "We would always prefer to operate at Part 139 airports that have some level of airport rescue and firefighting, and these would have FBO service as well, which goes hand-in-hand. If a shipper has 10 to 15 minutes in schedule flexibility, Ameriflight would prefer to operate at the nearest Part 139 airport."

But that doesn't prevent Ameriflight from operating at non-Part 139 airports. Ameriflight operates at general aviation airports throughout Nebraska, for example, including Hastings and Beatrice.

Longacre continues: "Ameriflight still relies heavily on land-based NAVAID equipment since, of our 200 aircraft, 80 or so have GPS capability. Most of the time that's an ILS. The rest of the time is some type of precision approach with relatively decent minimums."

Ad Hoc Air Cargo Operators

With significant automotive manufacturing and vehicle assembly presence throughout the Midwest, it is not surprising to see the number of ad hoc carriers based in the region. Midwest-based ad hoc cargo carriers heavily involved in auto parts hauling include Royal Air Freight (Waterford Twp, MI), Priority Air Charter (Apple Creek, OH), Kalitta Charters (Ypsilanti, MI), and USA Jet Airlines (Belleville, MI). These ad hoc airlines operate aircraft ranging from twin-engine piston Cessna 310s, all the way up to DC-9s. According to Longacre, it is estimated that 75 percent of Ameriflight's charters are related to the automotive industry.

Kalitta Charters commonly flies bulkier items on Falcon 20s from Willow Run Airport near Ypsilanti, Mich., to general aviation airports in proximity to automobile assembly plants, such as Hawkins Field near Nissan's Vehicle Assembly Plant in Canton, Mississippi. Prior to the launch of a new automobile model, new tooling is required at the plant and often needs to be flown in along with other emergency components.

Carriers like Kalitta often prefer to use general aviation airports due to fuel costs, ease of ramp access, off/on-loading capabilities/equipment, and proximity to their customer. Ultimately, significant savings in time and money can be achieved by using general aviation airports, rather than larger and busier commercial airports. The security/gate access aspect of commercial service airports can be a limiting factor as well, as can ramp worker availability. Many times, FBOs at GA airports are on call 24 hours a day to serve emergency shipments.

Specialist Air Cargo Operators

Aircraft supporting the healthcare industry crisscross the country every night transporting medical specimens, medical devices, and tissues and organs.

Quest Diagnostics, a major provider of clinical laboratory services, is one of the most active specialty carriers in the industry, moving thousands of its laboratory samples every single day with its own fleet of aircraft. For example, one daily Quest (Pilatus PC-12) route originates from Spirit of St. Louis Airport and makes stops in Jackson, New Orleans, Houston, Dallas, and Kansas City before returning to St. Louis. Many of these stops occur at general aviation airports, where handlers transfer specimen bags for transport to their requisite testing destination.

In an industry where lives are literally on the line, time is of the essence to Quest's operation.

Quest considers a combination of factors when determining which airport to fly into, such as proximity to the consolidation point, and ease of access to the airport ramp. These items all factor into the most important factor – time – since the healthcare of many depend on cargo shipments, which are extremely time critical.

Ameriflight also provides specialty medical shipments focusing solely on nuclear medicine. Air transport is required since the half-life of these products is less than 24 hours. Radioactive-based imaging requires that diagnostic radioactive medicine be injected into cancer or cardiovascular patients during the imaging process prior to surgery.

Longacre explains: "Some facilities need it earlier so Ameriflight moves the material in early evening, gets it to its destination by midnight, such as Atlanta, and then that product is available at the hospital for procedures as early as 4 a.m. The surgeons can then do the imaging at 5 a.m. and perform surgery by 6 a.m."

The Future

With an uptick in online purchases on websites like Amazon.com, carriers like Ameriflight are seeing increased demand to fly to more airports in small town America. According to Bernstein of RACCA, "The 800-pound gorilla in the room is Amazon.com, and we're not quite sure what direction they are going to turn in." In the fall of 2015, Amazon experimented with a scheduled charter operation using both wide-body jets and, as rumor has it, regional feeder aircraft. Rumor also has it that Amazon will decide in 2016 whether to build on this logistics model or continue to rely solely on contracted truck and air logistics providers.

So, while there is an increase in demand for regional cargo operations, there is a major bump ahead for the industry. "The biggest limitation to regional cargo carrier growth is the pilot shortage," Bernstein emphasizes. One reason for the pilot shortage is a federal rule that took effect in August 2013. It increased the flight time needed to work as a copilot at a commercial airline from 250 hours to 1,500 hours. In the past, a new pilot could reach the necessary 250 hours through a year or less of giving flight instruction. Now, it takes more than three years of typical flight instructing to cross the higher threshold of 1,500 hours. That changes the dynamic of becoming a professional pilot.

"At the major airlines, we are seeing enormous numbers of retiring pilots and RACCA member carriers are seeing their pilots pulled into those vacant slots," Bernstein said. "The thing that is so discouraging is that the FAA elected, per Congress, to change the pilot rules and training times to become a pilot for the airlines. As a result we are seeing a tremendous decrease in students entering flight schools. It used to be that flying a Caravan or a Shorts in the middle of the night carrying freight was an entry-level pilot position. For a number of our carriers, management pilots are flying, certain routes have had to been curtailed as a result of shortages, and the outlook is not bright because Capitol Hill is pretty well stuck where they are and they are not about to change any laws they have created. The $64,000 question is when a pilot graduates from college with 250 hours, how do they get to 1,500 hours?"

EDITOR'S NOTE: **Mike Maynard** is an Aviation Project Manager with CDM Smith, specializing in airport master plans, air cargo studies, economic impact analysis and airport system planning. Earlier in his career Maynard was a network planning and schedule analyst with DHL Worldwide Express.

Marc Cocanougher is an aviation planner with CDM Smith, specializing in airport master plans, system planning, economics and freight. ❑

Aircraft Owner Makes Efficient Use of Hangar Space

Tom Green of Marcelona, Mich., designed a home and aircraft hangar combination at Lakes of the North Airport to store his two airplanes – a Cessna T337 Skymaster and Lake 240 Renegade amphibian – four snowmobiles, four cars, and two 24-foot boats. In addition, the hangar has a 39 x 13-foot workroom.

"The whole hangar part of the house has no walls more than a foot," Green says. "In between are seven doors. Starting out from one side of the house, there's a garage door, then I have a 3-foot pass door for people to walk in. A 42-foot Schweiss Doors hydraulic door, another garage door and then a second Schweiss Doors hydraulic door follow that. Then

there's another pass door and a third garage door."

From the air, Green's hangar home is star-shaped, featuring the two 42 x 12-foot hydraulic doors from Minnesota-based manufacturer, Schweiss Doors. Green's planes enter the hangar and are housed on elevated tracks, 3 feet above the ground to allow more usable floor space in the hangar. The hangar and hydraulic doors, both at a 45-degree angle from the elevated taxiway, blend into the home.

Green selected hydraulic doors over bifold doors because he needed the clearance and didn't want the hangar any taller than necessary. Schweiss hydraulic doors operate smoothly and open to about 90 degrees.

EDITOR'S NOTE: For additional information on Schweiss Doors hydraulic and bi-fold lift-strap doors for new and existing buildings, visit www.bifold.com. ❑

OPERATION LZ...
A Community Air Show To Finally Welcome Home Our Vietnam Vets

by Jim Hanson

Regardless of national policy in Washington, we tend to support our military personnel, whether we agree with that policy or not. For instance, when the decision was made to get involved in the Vietnam War, hundreds of thousands of Midwesterners either joined or were drafted to serve in the military, many who did not return. I was one of the lucky ones! Vietnam introduced rural and urban kids alike to people and lifestyles they had only heard about. It brought a partial end to our insularity.

Anti-war protests happened mostly on the coasts, but here in the Midwest, "our people" were happy to *have us home,* and we were happy to *be home.* We quickly shed our uniforms to get on with our lives. The war was forgotten for the most part – by the non-participants – but never quite by the participants.

"Operation LZ" was the homecoming for Vietnam vets that most never received. Here author and veteran, Jim Hanson, received his welcome home hug.

Vietnam vets saluted an "AH-1 Cobra" helicopter, as it came to a hover during the National Anthem.

The one thing that Vietnam vets did *not* get when they returned was a triumphant homecoming – a *"Thank You"* for their service that had been accorded to military veterans in nearly every other major conflict.

One reason was disgust over the war itself, but the other reason was that unlike other deployments, most Vietnam vets were deployed individually with orders to report and not as a unit, so after serving their time "in-country," they came home individually as well. They were separated from the service shortly thereafter, without public acknowledgement of their service. They quietly re-integrated into their former lives, but some were changed forever.

Fast-forward 40 years or more. The small city of Forest City, Iowa (pop. 4,151) noted that it was the 40th anniversary of the end of that war, and that many vets in Iowa *still* hadn't received the *Thank You* due them. Many towns this size would simply shrug it off and ask, "What could WE do?" The people of Forest City elected to do what they could – provide the missing *"Welcome Home"* celebration that veterans had missed. It would be a one-time celebration (not an annual event), so the organizers resolved to make it the very best homecoming they were capable of organizing.

I had heard rumblings about an upcoming aviation event in Forest City, but my flight schedule was so full that I had no extra time to give it much thought – that is until Dick and Theresa Trimble gave me a call. They asked if I had heard of "Operation LZ" (LZ means "Landing Zone" in military parlance…a particularly apt name, as a "landing zone" was something familiar to every helicopter-deployed veteran, and it could also be applied to "landing" safely back home). I told them I had heard of it. They asked, "Would you consider being our announcer for the air show?" I could ill-afford to take the time. On the other hand, it was a very good cause, and it was the right thing to do for my fellow vets, so I agreed to do it, although I am more of a writer than a public speaker.

A meeting with the Trimbles provided a thumbnail of the event. It was to be a Vietnam veteran homecoming, with events split between the airport and the Winnebago

campgrounds (Forest City is home to RV giant Winnebago Industries), located adjacent to one another. The "Nine-County Committee" would provide the welcome home with a cast metal Vietnam service medal, an Operation LZ commemorative "Challenge Coin," bands, speeches, entertainment, a traveling replica of the Vietnam Wall memorial, food, fireworks, friends – and most unique of all – every vet would receive a "welcome home hug" from the ladies of the greeting party!

I asked how many people they were expecting, and was told, "About 500 vets, plus their friends and families… 2,000 to 2,500 people in all."

How wrong they were. The show would eventually attract 4,000 vets, and a total of 25,000 people, including 1,900 school children. The committee, and the town, simply adapted. Here in the Midwest, if a few more people show up at your house than anticipated, you simply welcome them and add more chairs to the table, so that's what Forest City, Iowa did.

Sky Soldiers invited the public to view their Hueys, a Cobra, and a Bird Dog on display in a hangar at the Forest City, Iowa airport.

The Trimbles had already done a lot of preliminary work on the air show portion. I asked them about the theme. "Vietnam was an air war," Dick explained. The "Huey" helicopter was the iconic emblem of the war. Everyone involved – vets and those who only watched it on TV – remembers the images of the Huey, and the distinctive WOP-WOP-WOP sound of the two-bladed rotor.

"We would like to keep the theme Vietnam-centric," Dick continued. "We've been offered a number of World War II warbirds, but we would like to keep it to birds that flew during the Vietnam era." Since so many of the Vietnam aircraft were jets, that really limits the field, but our mission was defined.

The Hueys were easy. Committee member, Riley Lewis, had already contacted "Sky Soldiers" out of Atlanta, Ga. They are a non-profit group dedicated to preserving the helicopters of the Vietnam War. Though they hadn't previously done exhibitions west of the Mississippi, spokesman Joe Emerson lives in Iowa, and they made an exception, into an FAA exemption, allowing them to sell rides in their aircraft… something that has been a big draw across the country. They agreed to bring up two UH-1 Hueys, and as a bonus, a "Cobra" two-place attack helicopter! Now we had aircraft that the public could not only see, but could actually ride in.

The big and speedy "Grumman Mohawk" is capable of impressive short-field operations, with a slow approach speed and reversing propellers.

I went to EAA AirVenture Oshkosh this past year, looking for other aircraft. Normally, there are a number of "Bird Dogs" (O-1) and "Skymasters" (O-2), used as observation aircraft during the war, but for some reason, the number of

these aircraft was down from previous years. For a higher-performance aircraft, I was looking for a "Mohawk" – a twin-turboprop aircraft that performed surveillance missions, mostly at night. I found one and thought we had a deal, but the owner backed out a couple of weeks later. The hunt continued. Sky Soldiers came to the rescue, offering to bring a Bird Dog in addition to the helicopters, but we still needed a Mohawk.

The "Skyraider" was known as "The Spad" because it was a propeller-driven airplane in the age of jets, but "grunts" loved it because of its huge load of ordinance and its ability to loiter for a long time to keep the bad guys away.

Meanwhile, Jim Rohlf of Monticello, Iowa, heard about Operation LZ, and offered to bring his "Skyraider" – a hulking big carrier-capable piston-engine aircraft widely used in Vietnam as a ground-support aircraft. "Grunts" appreciated the Skyraider because of its ability to deliver close-air support – the ability to linger over a target, and the huge supply of ordinance it carried (more payload than a B-17 and only on one engine!) Then, we received an unexpected call. A Mohawk pilot had heard that we needed a Mohawk, and that the previous contact had pulled out. He conferred with another Mohawk owner in Florida, and told us, "If you want it, we'll come!" and so they did.

The Iowa National Guard was contacted and agreed to bring up a big "Chinook" heavy-lift helicopter (perhaps it had something to do with Iowa Governor Terry Branstad being a native of the Forest City area). We were looking for an O-6 "Loach" and an "OH-58 Bell" scout helicopter, and though they were available, most have been reconfigured for civilian use. As word spread, however, we did pick up an additional Huey flying in for static display, and two more Bird Dogs. A "T-28 Trojan" flew in for static display (the U.S. didn't fly them in Vietnam, but the Vietnamese put them to good use for close-air support). Our dance card was filling up!

The Cessna L-19 (or O-1) "Bird Dog" pointed out the enemy to the "fast movers" (jets).

We had three hot air balloons with POW-MIA themes available from "Freedom Flight" of St. Cloud, Minnesota, for tethered rides, but they were staged near the campground to avoid interfering with airport operations.

"Des Moines Skydivers" was engaged to do a "flag jump" to open the air show each day, and also to provide tandem parachute jumps for anyone willing to purchase them. To fill out the air show, the "POET Aviation Demonstration Team" was engaged to provide a three-ship aerobatic display. The fact that the team's RV aircraft are powered by ethanol is popular with Iowans, as the state is a leader in ethanol production.

While most of the demonstration aircraft could be flown as "normal operations," an aerobatic team required that we obtain a waiver from the FAA. That meant that notices to airmen (NOTAMs) had to be filed, the airport closed, crowd restrictions and crowd control enforced, aerobatic display areas cleared and listed, performers and aircraft cleared by the FAA, briefings held, and an FAA inspector or other authorized air show monitor, had to be onsite. All this comes under the responsibility of the "air boss"—the person responsible for working with airport management, performers, and the FAA, and coordinating the actual air show production. The committee decided that since I was going to be the announcer, that I could assume the duties of the air boss, as well, which is generally not a good idea, but I conceded. I met individually with each performer prior to the show to go over procedures and paperwork, so there would be no surprises when we met for the official FAA briefing.

Friday night, we got the weather forecast, and it wasn't good…early morning fog, gradually lifting to 1500 feet during the day, but no better. This required revamping the entire air show schedule, but thanks to the cooperation of everyone involved, we improvised and the new format was a success!

After the show was over, I made it a point to drive home via a different route. Not only was the town decorated with American flags and welcome signs, but every road within a 20-mile radius was similarly festooned. I was so proud of little Forest City, Iowa for giving vets the welcome home they so rightfully deserved, but never received.

When asked if the town would hold another air show next year, the answer was "no." Again, the intent of the event was to provide the homecoming, and Forest City did that. Perhaps

These young boys examining photos and artifacts are only a few years younger than the boys sent to Vietnam in the 1960s and '70s.

A replica of the Vietnam Wall memorial that is in Washington, D.C.

other communities would like to put on a similar event and I encourage them to do so.

I appreciated the committee for inviting me to participate in their event. As a Vietnam-era vet myself, I felt it was needed…it was the right thing to do. As a pilot and a writer, it allowed me to contribute what I could to the event. As a Midwesterner, it showcased Midwest values and the abilities of Midwesterners to "do the right thing." It is something that could likely not be replicated anywhere but in the Midwest. It was one of the best things I've ever done.

A 21-member committee (from nine counties) financed Operation LZ, along with individuals, businesses, and institutions. Donations ranged from $5 from a widow to $30,000 from a foundation. Most American Legion and VFW Posts donated. We also had cash raffles, and sold T-shirts and hats. The cost to put this event on was around $260,000.

If you would like to stage a similar event in your community, contact Riley Lewis at lewisrk@wctatel.net. Like most Midwesterners, Riley is always willing to help. Also, visit the Operation LZ website at http://www.operationlz.com/ and Sky Soldiers at http://www.armyav.org/home-page.html.

EDITOR'S NOTE: Jim Hanson is the long-time fixed base operator at Albert Lea, Minnesota. Always a contrarian, he bucked the trend and sneaked south into Iowa for this event. If you would like to contact him, he can be reached at 507-373-0608, or via email at jimhanson@deskmedia.com. ❑

FAA Final Rule Regarding Student Pilot Certificates, Photo IDs & CFI Student Pilot Endorsements

WASHINGTON, D.C. – The Federal Aviation Administration just issued a final rule on a notice of proposed rulemaking they issued in 2010 in regards to the issuance of student pilot certificates. This action requires applicants to apply for a student pilot certificate through a Flight Standards District Office, designated pilot examiner, airman certification representative associated with a pilot school, or certified flight instructor. Aviation medical examiners (AMEs) will no longer issue a combination medical certificate and student pilot certificate. Student pilot certificates will be issued on the same medium as other pilot certificates and will have no expiration date. All student pilot certificates issued before the effective date of this final rule will expire according to their terms unless they are replaced by another pilot certificate. This final rule responds to section 4012 of the Intelligence Reform and Terrorism Prevention Act and facilitates security vetting by the Transportation Security Administration of student pilot applicants prior to certificate issuance.

CONTINUED ON PAGE 62

Honda Aircraft Receives Type Certification For HondaJet

GREENSBORO, N.C. – Honda Aircraft received type certification for the "HondaJet" from the Federal Aviation Administration (FAA) on December 8, 2015. The FAA presented the type certificate to Honda Aircraft Company President and CEO Michimasa Fujino before 2,000 people at its Greensboro, N.C. headquarters, including FAA Administrator Michael Huerta, government representatives, community leaders, HondaJet dealers, suppliers, and Honda Aircraft associates.

"Achieving FAA type certification for the HondaJet is a monumental milestone for Honda," said Fujino. Total flight hours exceeded 3,000, with testing conducted at more than 70 locations across the United States.

The HondaJet's innovative over-the-wing engine mount configuration, natural-laminar flow wing and composite fuselage makes it a higher performance, more fuel-efficient and more spacious light jet. The HondaJet is the fastest jet in its class at 420 knots (483 mph) and the most efficient.

With type certification achieved, Honda Aircraft is now ramping up production with 25 aircraft on the final assembly line with a total workforce nearing 1,700 people.

HondaJet Midwest is the Midwest's distributor for Honda Aircraft Company with offices in Des Moines and Chicago: John Lowe, Chairman; Don Jay, President; and Chris Siberz, Vice President of Sales. For additional information call 800-622-8311 (www.hondajetmidwest.com). ❑

Mooney Achieves First Flight of M10T POC

CHINO, CALIF. – Mooney International Corporation has successfully completed the first flight of the M10T Proof of Concept (POC) aircraft. The first flight was performed by test pilot Len Fox on December 23, 2015 near Chino, California. The M10T is Mooney's highly innovative, new design, carbon-fiber, three-seat, fixed-gear aircraft, powered by the Continental Technify CD-135 jet-A engine. Mooney has offices in Kerrville, Texas and Chino, Calif. ❑

Piper Sells First Diesel Archer In Scandinavia

ODENSE, DENMARK – Piper Aircraft, Inc. announced December 8, 2015, the first sale of a factory new diesel engine Archer DX in Scandinavia. Billund Air Center (BAC), a leading flight school in Denmark, has taken possession of the aircraft.

"The Archer DX's technology and excellent fuel economy is absolutely perfect for flying schools," said Bjarne Jorsal, owner and operator of European Aircraft Sales. The diesel-powered Archer has low operating costs, and is equipped with a Garmin 1000 all-glass cockpit.

For additional information, contact Des Moines Flying Service or Chicago Piper at 800-622-8311 (www.dmfs.com). ❑

Cirrus Hiring For Vision Jet Production

GRAND FORKS, N.D. – The Duluth, Minnesota-based manufacturer, Cirrus Aircraft, is actively seeking employees for its Grand Forks, North Dakota plant to fulfill orders for its Vision SF50 personal jet. The composite parts to be manufactured in Grand Forks include the cabin and wing. The Grand Forks plant also manufactures composite parts for the ICON A5 amphibian aircraft (www.cirrusaircraft.com). ❑

WATA Difference

WISCONSIN AVIATION TRADES ASSOCIATION

Lone Rock, Wisconsin, USA and Milan, Italy... The First Aerolab LoCamp Kit Takes Flight

Francesco Rizzi, founder of Aerolab Manufacturing, Inc. and designer of the Sport Camp series of Experimental/Amateur-built kit aircraft, and Ed Leineweber, managing member of Golden Age Aeroworks, LLC, d/b/a Aerolab USA, distributor of Aerolab products in the United States, recently conducted the first flights of the first Aerolab aircraft built from a production kit.

LoCamp N527CL, flown by Ed Leineweber, lifted off the runway at Tri County Regional Airport (KLNR) in Lone Rock, Wis., in early December after an extensive period of taxi-testing and minor adjustments. "When the moment finally arrived, everything fell perfectly into place," said Leineweber, "The airplane flew beautifully, without a single squawk. The controls were light and harmonious, and the 110 hp Rotec R2800 radial engine, enthusiastically responded to throttle input. If I was drawing an analogy to a living creature," Leineweber concluded, "it would be to a fine, well-mannered, but spirited horse."

Having both survived two test flights, it's time for a photo of the man and his machine. Ed Leineweber of Golden Age Aeroworks, LLC, with the first Aerolab "LoCamp" aircraft built from a production kit.

While obviously appealing to nostalgic impulses, the Aerolab LoCamp is a state-of-the art aircraft under its 1930s-looking skin. Comprised of a CNC laser-cut and TIG welded steel fuselage and tail section, aluminum spars and ribs, push-rod controls and electric flaps and trim, the kit comes nearly complete except for paint, chemicals and glue, instruments and an electrical system. The covering package includes fabric, finishing tapes, inspection rings and fabric rivets.

Designed to be powered by the Rotec R2800 110 hp radial engine, the LoCamp is expected to cruise at 106 mph, stall clean at 45 mph, and flaps down at 41 mph. The empty weight of N527CL is 928 lbs. Sea level rate of climb is expected to be about 800 fpm. Range with full fuel at 1,320 lbs. gross weight calculates out to 523 statute miles, with a 30-minute reserve. (Additional specs and dimensions are posted on the company's website, www.aerolabusa.com, including a link to the Rotec Aerosport site.)

The company plans to exhibit LoCamp N527CL in the Rotec Aerosport booth at Sun 'N Fun 2016 in Lakeland, Florida in April. Meanwhile, Phase 1 test flights will continue.

LoCamp kits are currently available through Aerolab USA (www.aerolabusa.com). ❑

EPS Runs Their First Pre-Production Engine

NEW RICHMOND, WIS. – Engineered Propulsion Systems (EPS) mounted its first in a series of pre-production diesel engines on a test stand on September 20, 2015. Based on data collected from two earlier "concept engines," EPS initiated a number of refinements in the design and assembly of its pre-production

engines. After extensive tests on their Mobile Engine Test Laboratory in the U.S. and a Dynamometer facility in Germany, the engine will be shipped to Mojave, California and mounted on an EPS-owned Cirrus aircraft, where it is expected to satisfy certification criteria. Aeronautical engineer, Dick Rutan, will be conducting the flight tests. ❑

Wag-Aero Creates New User-Friendly Website

LYONS, WIS. – Wag-Aero has launched a new user-friendly website: **www.wagaero.com.** Check it out on your smart phone, tablet or computer! Shop the entire 124-page catalog online at **onlinecatalog.wagaero.com** and see an extensive selection of quality aircraft parts and services to fulfill your every aviation need. Wag-Aero offers same day shipping on most items.

For over 54 years, Wag-Aero has been a worldwide manufacturer and distributor of aircraft parts for the general aviation and light sport aircraft industries. Their website features a full line of instruments, wheels and brakes, tires, covering materials, engine mounts, exhaust systems, seat belts and shoulder harnesses, consumables, ELTs, ground support equipment, lighting, fuel tanks and components, windsocks and windsock frames, and runway lights, as well as replacement FAA/PMA parts for Aeronca, Cessna, Piper and Taylorcraft. Wag-Aero also supplies components for three unique homebuilt aircraft: the Sport Trainer, the Wag-A-Bond and the Sportsman 2+2. Aero Fabricators, a division of the Wag-Aero Group, is a certified repair station for engine mounts, seat belts and exhaust systems.

Contact Customer Service at *1.800.558.6868,* or e-mail **wagaero-sales@wagaero.com** for assistance. Wag-Aero welcomes suggestions to improve your shopping experience. ❑

New Airborne Cinematography System Designed & Built In The Midwest

BUFFALO, MINN. – Have you ever tried to shoot video footage from a moving car? How about video footage from an airplane in turbulence? If you have, you know that it is next to impossible to obtain high quality, consistently smooth footage, especially with telephoto lenses.

James Aarestad

James Aarestad, an aerial photographer from Buffalo, Minnesota, learned this when he was trying to shoot video footage out the side window of a Cessna 172. "I figured it would be easy to film out the side window," Aarestad explains. He quickly realized that this was not possible to do well.

"No matter how carefully I held the camera, even with image stabilization, it was impossible to shoot quality video footage from a moving Cessna while circling above the target," said Aarestad. "The video quality was poor and my field of view was severely restricted with the wing strut and landing gear in the way. I ended up not charging my customer because the video footage was not up to my standard."

This led Aarestad on a yearlong endeavor to design and build a low-cost aircraft video stabilization system. As he puts it, "I wanted to develop a system able to do 80 percent of what the multi-million-dollar helicopter video systems can do for a fraction of the price."

The first step was to determine which type of airplane would be the best platform for precision airborne filming. After looking at dozens of airplanes, he eventually decided a camera system could be attached to the outboard portion of the wing strut of a Cessna 172. This would allow for a completely unobstructed view looking straightforward with no obstructions to the field of view. A Cessna 172 would also be the least expensive and safest aerial video platform for 95% of the video he wanted to shoot.

Over the next 12 months, Aarestad designed and built a self-contained removable camera pod that clamps to the wing strut. The size, shape, and weight of this system all had to be carefully considered as these factors affect flying characteristics. Designing the internal components of the camera pod was just as challenging as designing the outside. Wiring up all of the electronics within the camera pod was extremely tedious work.

"I would spend months in the garage just working on the camera controls, much of which was based on trial and error. I would often take three steps forward and two steps backwards, having to redesign the entire system after discovering a problem," he explains. Mitigating and eliminating aircraft vibration to the camera was by far the hardest part of the entire project. This process took hundreds of hours of research and trial and error experiments in his garage. The smallest airframe vibrations had to be eliminated, because otherwise the footage would be blurry.

Cinematographer, James Aarestad, mounts his camera on a three-axis gyroscopically stabilized gimbal, which keeps the camera steady to within .001 degrees.

Finally after six months of building, the system was ready to undergo an extensive FAA certification process, including structural load tests, aerodynamic calculations and a lot of paperwork (the FAA does not allow aircraft modifications like this without going through an extensive certification process). Eventually, Aarestad obtained FAA field approval for flight operations in June of 2015 on his C-172.

Inside the pod, the camera is mounted on a three-axis gyroscopically stabilized gimbal, which keeps the camera steady to within .001 degrees. Using state-of-the-art accelerometers, and brushless gimbal control motors, the system can film in 4k resolution in moderate turbulence and achieve perfect results. The entire system is wirelessly controlled from the cabin, with a live video feed to the operator for composing shots. The end result is an airborne cinematography system that rivals the multi-million-dollar helicopter systems.

"This system works great! I can now provide my customers with low cost, high-quality video footage for an affordable price," Aarestad explains. The potential uses for this service are seemingly endless, with applications like real estate marketing, filming for the motion picture industry, power line/pipe line patrol, insurance claims documentation, property showcasing, construction progress, crop surveys, wetland studies, live high definition video broadcasting for sports events, and many others. For additional information call Eagle Eye Photos LLC at 952-882-8570 (www.blimpguy.com). ❑

Wipaire Announces Return of Ben Wiplinger Memorial Seaplane Rating Scholarship


Ben Wiplinger

SOUTH ST. PAUL, MINN. – Following a hugely successful introduction, Wipaire is pleased to announce the return of the Ben Wiplinger Memorial Seaplane Rating Scholarship. The scholarship was established in 2015 in celebration of Wipaire's 55th anniversary and Ben Wiplinger's contributions to aviation.

"The response to the scholarship last year was beyond our expectations," said Chuck Wiplinger, President and COO of Wipaire, Inc. "We're excited to bring the scholarship back for 2016. It's a way for us to give back to our industry, to invest in the growth of the seaplane community, and to honor my grandfather and his vision."

Ben Wiplinger, founder of Wipline, Inc., began his aviation career by building a Pietenpol Air Camper. He worked as a machinist, auto body technician, and aircraft mechanic before later serving in the Army Air Forces as a mechanic. After the war, Ben returned home to South St. Paul and began converting ex-military aircraft into executive and corporate aircraft with his business, Wiplinger Aircraft Service.

Ben purchased his first seaplane in 1951 and wanted to become a dealer for EDO, then the largest aircraft float manufacturer in the world. Ben's application was not approved, so he sold Wiplinger Aircraft Service and set out to build his own floats, establishing Wipline, Inc. in 1960.

When Ben passed away in 1992, he left the company, now known as Wipaire, to his son Bob, who today serves as the Chief Executive Officer. Ben's grandson, Chuck, now works alongside Bob as President and Chief Operating Officer.

The scholarship is valued at $1,500 and will be paid directly to the winner's designated flight school. Applicants must hold a sport pilot certificate or higher, and must submit the application form and a 500-word essay that includes why the applicant would like to learn to fly seaplanes, and how the scholarship will help in career or aviation industry aspirations. Applicants must also submit copies of their pilot certificate and medical (if applicable), and must be a legal resident of the United States or Canada, excluding the province of Quebec. The application form may be downloaded at www.wipaire.com/scholarship and will also be available at Wipaire displays at trade shows.

Due to the number of applications received, applications will not be returned or acknowledged. Applications must be received by May 31, 2016 (www.wipaire.com). ❑

Aeronautics Report

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Airport Cooperative Research Program

by Hal Davis
WisDOT Bureau of Aeronautics


Hal Davis

An airport manager often has a wide range of responsibilities, from managing hangar lease agreements and wildlife hazards to plowing snow. As knowledgeable, capable and independent as most airport managers are, I'm sure many would appreciate a little help every now and then. Fortunately, the Airport Cooperative Research Program (ACRP) is continually working to make the lives of airport managers easier.

Sponsored by the Federal Aviation Administration and managed by the Transportation Research Board, ACRP's purpose is to provide practical solutions to common problems shared by airports of all sizes. To date, ACRP has completed or begun work on 470 research projects. Each research project involves the collaboration of multiple types of stakeholders, such as airports, consultants, regulatory agencies and professional associations. General subject areas include airport design, construction, maintenance, operations, safety, security, policy, planning, human resources, and administration.

To view all this great research, visit www.trb.org/acrp. With hundreds of projects, synthesis, legal research digests and more to choose from, the amount


This time of year, snow removal is a common challenge for many airports in the Midwest. ACRP Report 123 and Synthesis 67 both provide excellent information on this topic. In addition, an ACRP webinar on winter operations is also available. *Photo courtesy of Appleton International Airport*

SUBJECT	REPORT
Guidebook for Managing Small Airports	ACRP Report 16
Guidebook for Developing General Aviation Airport Business Plans	ACRP Report 77
Marketing Guidebook for Small Airports	ACRP Report 28
Guidebook on General Aviation Facility Planning	ACRP Report 113
General Aviation Safety and Security Practices	ACRP Synthesis 3
Preventive Maintenance at General Aviation Airports	ACRP Report 138
A Guidebook for Airport Winter Operations	ACRP Report 123
Airside Snow Removal Practices for Small Airports with Limited Budgets	ACRP Synthesis 67
Innovative Revenue Strategies- An Airport Guide	ACRP Report 121
Guidebook for Developing and Managing Airport Contracts	ACRP Report 33
Guidebook for Developing and Leasing Airport Property	ACRP Report 47
Survey of Minimum Standards: Commercial Aeronautical Activities at Airports	ACRP Digest 11
Conducting Aeronautical Special Events at Airports	ACRP Synthesis 41
Airport Response to Special Events	ACRP Synthesis 57
Guidebook for Addressing Aircraft/Wildlife Hazards at General Aviation Airports	ACRP Report 32
Airport Wildlife Population Management	ACRP Synthesis 39
Habitat Management to Deter Wildlife at Airports	ACRP Synthesis 52
Helping New Maintenance Hires Adapt to the Airport Operating Environment	ACRP Synthesis 49
Understanding Airspace, Objects, and Their Effects on Airports	ACRP Report 38
Achieving Airport-Compatible Land Uses and Minimizing Hazardous Obstructions in Navigable Airspace	ACRP Digest 14
Enhancing Airport Land Use Compatibility	ACRP Report 27
The Impact of Regulatory Compliance Costs on Small Airports	ACRP Report 90
Aircraft Noise: A Toolkit for Managing Community Expectations	ACRP Report 15
Unmanned Aircraft Systems (UAS) at Airports: A Primer	ACRP Report 144
A Guide for Compliance with Grant Agreement Obligations to Provide Reasonable Access to an AIP-Funded Public Use General Aviation Airport	ACRP Digest 23

of information can be overwhelming at first. To help, here's a list of 25 reports that I would recommend, especially for general aviation airport managers. All of the publications can be instantly downloaded for free or hardcopies can be purchased and mailed.

ACRP also hosts free informational webinars as well. A list of upcoming webinars can be found by clicking "ACRP Webinars" on the left-hand side of the ACRP homepage.

Don't see any that address an issue you're currently dealing with? Recordings of past webinars can also be viewed at any time, for free. Past webinar topics include: Topics of *Special Concern for General Aviation Airports, Airport Wildlife Management, Safety and Financial Impacts of Airport Winter Operations, Aeronautical and Non-Aeronautical Event Planning at General Aviation Facilities, Managing Small Airports,* and many more!

Beyond benefiting from completed research projects, you can also submit a research idea or suggest future webinar topics. ACRP wants to know what challenges face your airport, so let them know!

Want to get even more involved? You can also nominate yourself to serve on a future project panel or become an ACRP Ambassador.

Finally, I highly recommend you sign up for the TRB/ACRP e-newsletter. A link can be found at the top of the ACRP homepage. This weekly email from ACRP will include announcements for new publications as well as upcoming webinars.

Again, to take advantage of all that ACRP has to offer, visit www.trb.org/acrp. ❑

Drone Questions

by Hal Davis
WisDOT Bureau of Aeronautics

If the Federal Aviation Administration's (FAA) estimates were correct, there should now be about one million *more* drones buzzing through the air, thanks to the holiday season! More drones in the air will undoubtedly bring about more questions. *Do I need to register my drone? Where can I fly it? Do I need to notify the airport? If so, how do I notify the airport?* And from the airport manager's perspective, *Help! Someone wants to fly a drone near my airport…what do I do?*

After opening the Wisconsin Airport Reference Points data layer in Google Earth, simply click on an airport or heliport for a link to the FAA's airport master record database.

The best place to find the answers to these questions and more is www.faa.gov/uas.

Drone rules are quickly evolving. To make sure you have the most current information, it's always a good idea to start with the FAA.

Whether accessing www.gcr1.com/5010web directly or through the Wisconsin Airport Reference Point data layer, you can easily find airport owner and manager contact information for all airports and heliports.

However, if after reading through the FAA information you still have unanswered questions, feel free to give the Wisconsin Bureau of Aeronautics (BOA) a call at (608) 266-3351 or send me an email at howard.davis@dot.wi.gov. I'd be happy to talk through any number of questions and scenarios you might have. If I can't answer your questions, I'll make sure you get in touch with someone who can.

I would also like to take this opportunity to highlight two helpful resources for drone pilots. First, savvy pilots know that flying close to a nearby airport or heliport may require advanced notification.

Don't know how close you are to the nearest airport? BOA has a Google Earth layer, which depicts all of the public and private airports and heliports in Wisconsin. This data layer can be downloaded for free at: http://wisconsindot.gov/Pages/travel/air/airport-info/arp.aspx, or simply use your favorite Internet search engine to search keywords *Wisconsin Airport Reference Points.*

Second, we've heard from several drone pilots that do not know how to contact an airport or heliport once they recognize the need for advanced notification. The easiest method I know is to use the FAA's Airport Master Record database. This database can be found at www.gcr1.com/5010web. Contact information is listed for each facility.

Want an even simpler way? Remember that airport reference point data layer I talked about two paragraphs ago? Just click on one of the airports or heliports on the map, then click on the "FAA 5010" link toward the bottom of the pop-up and voilà, contact information! ❑

MINNESOTA
AERONAUTICS BULLETIN
www.mndot.gov

THE STATE OF MINNESOTA PROVIDES THIS TECHNICAL BULLETIN IN THE INTEREST OF AVIATION SAFETY AND TO PROMOTE AERONAUTICAL PROGRESS IN THE STATE AND THE NATION

Cassandra Isackson, Director **Dan McDowell, Editor**

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The Start of A Great New Year!

by Cassandra Isackson
Director, Minnesota DOT Office of Aeronautics


Cassandra Isackson

Days are getting longer; I even saw the sun for a moment on my way to work this morning. We don't want to wish away the "ski-plane" fly-in season, but there is a lot to look forward to as spring approaches. We continue to listen to you, your airport boards, and city/county leaders around the state as we attend **Needs Meetings.** What we learn about your airport helps MnDOT Aeronautics develop a more complete picture of the airport system needs across the state. We'll share that picture with our partners, including other MnDOT offices, the State Legislature, FAA, and the U.S. Congress. Transportation and Aviation will be hot topics at the state and national levels this year. Make sure your elected officials know how important your airport is to you, and what needs it has for the future. The best chance of success for our aviation future is when we all share the same vision – and work toward it together. **http://www.dot.state.mn.us/aero/airportdevelopment/needsmeeting.html**

April 20th to 22nd, the Minnesota Council of Airports (MCOA) will host the 2016 Minnesota Airports Conference at Madden's in Brainerd, Minnesota. This year's conference will be jam packed with information for airports of all sizes. It's a great opportunity to learn best practices for your airport, network with peers, speak one-to-one with specialty service vendors, check in with us, and learn about the latest technologies. There will be a session about unmanned aircraft systems (UAS) or drones that I don't want to miss and I think you'll feel the same way. Getting registered is a snap at **http://www.airtap.umn.edu/events/airportsconference/2016/index.html**. Don't worry; it won't be *all* work. Choose a job you love, and you'll never have to work a day in your life (Confucius). There'll be time for relaxed fun, good food, and great conversation!

Exactly a month later, also at Madden's, the Minnesota Seaplane Pilots Association (MSPA) will bring you its Spring Safety Seminar, May 20th to 22nd. Aircraft will be switching skis for floats for the splash-in. More details will be available at **http://www.dot.state.mn.us/aero/events/flyins-and-events.html**

Please remember that your Minnesota Aeronautics Office staff is here to help and advise you. We want to hear your questions and suggestions. Check out new ways to "Connect With Us" in the upper left corner of our home page at **http://www.dot.state.mn.us/aero/index.html**

I hope that you will continue to invite me to your airport meetings, so we can meet face to face and I have the opportunity to learn more about you, your airport, and your community. Together, we can have a great new year! ❑

Going Green Is A Win-Win!

It is now commonplace for businesses and industries to seek out new and different technologies that provide or produce greater efficiencies and lower costs. This saves the company money, while increasing efficiencies of production and operation. It also adds to the overall profitability of that company. But there is one more benefit that is not just good for that company or industry. In fact, it is actually good for the entire world. That is "green power."

Green power, or electrical power generation from renewable energy sources and technologies, provide the highest environmental benefit, and is produced from solar, wind, geothermal, biogas, eligible biomass, and low-impact small hydroelectric sources at a low to neutral carbon output.

Airports around the world are beginning to install large areas of solar panels to create electricity directly from the sun's light. Minnesota's own Minneapolis-St. Paul International

Airport (KMSP) is known around the world for being a consistent leader in adopting new ideas and adapting to new technologies, like solar power. In fact, on December 2, 2015, the Metropolitan Airports Commission (MAC) at KMSP proudly announced and showed off the largest solar power array in the state of Minnesota.

In a supporting MAC news release, Dennis Probst, executive vice president for MAC, said "We wanted to build"… a system (sic), "that would have a significant impact, not only on our bottom line, but in reducing greenhouse gas emissions due to the airport's use of carbon-based fuel sources."

The array completely covers the rooftops of two huge parking ramps at KMSP. The ramps are located just east of the center of the airport and are surrounded on either side by airline concourses and acres of concrete aircraft ramp. These arrays currently contain 8,705 solar panels capable of supplying three (3) megawatts of clean power to Terminal 1, or approximately 20% of the power used in that terminal. This system will eliminate carbon emissions by nearly 7,000 metric tons per year, according to KMSP officials. This reduction in carbon emissions would be like planting approximately 47,000 trees!

One of the benefits of a solar power generation system is the immediate savings on power costs. Over a relatively small period of time a system like this one could produce more power than may be needed at the airport, which could then be sold to the traditional power companies and thus make a profit for the airport.

If you want to see a close-up view of the roof-top arrays, go to: https://www.youtube.com/watch?v=pxmnZDjAEME.

So now it should be clear that going green is a win-win for the community, the airport, and the environment. ❑

Is It A Bird? Is It A Plane? No, It's An Aircraft!

by Tara Kalar
Associate Legal Counsel
MnDOT Office of Chief Counsel

With an anticipated million unmanned aircraft systems (UAS) sold over the holiday season, aviation is experiencing an unprecedented boost in "aircraft" ownership. Since the National Transportation Safety Board (NTSB) interpreted UAS as aircraft in the *Pirker* decision, the Federal Aviation Administration (FAA) has gleaned regulatory authority over UAS.

Most recently, the FAA instituted mandatory registration for all recreational UAS. UAS that weigh between 0.55 pounds and 55 pounds used for hobby must be registered with the FAA by February 19, 2016. That includes all model aircraft in existence prior to December 21, 2015. Registration results in a unique identifier for each operator; multiple aircraft can use the same registration number. Operators who register by January 20th, 2016 will be refunded the $5 registration fee. The MnDOT Office of Aeronautics does not register model aircraft.

Local airports have already begun experiencing an increase in calls related to UAS and MnDOT is ramping up education efforts so that local users and law enforcement can ensure legal operations and identify illegal ones. While the FAA is grossly under-funded to enforce all illegal operations, the FAA has indicated its willingness to fine operations that endanger the national airspace system.

As of yet, the FAA has not announced enforcement action against a recreational user, but the lack of information could be due to the FAA's policy not to comment on enforcements against individuals. In October 2015, the FAA announced a $1.9 million fine against a commercial operator who conducted 65 operations in congested and restricted airspace above New York and Chicago. As with other UAS fines, it is likely that this amount will be heavily negotiated downwards.

Law enforcement also faces challenges. When the public becomes concerned about a UAS, 911 is often the first call placed. When law enforcement arrives, it can be unclear to law enforcement whether the operation is legal or not, or if law enforcement has proper jurisdiction to enforce any laws. There have even been operators who push the line and try to test law enforcement's knowledge of legal operations by refusing to provide any information to law enforcement. As a general rule, if the operation looks illegal, it probably is. Aside from the FAA's jurisdiction over protecting the national

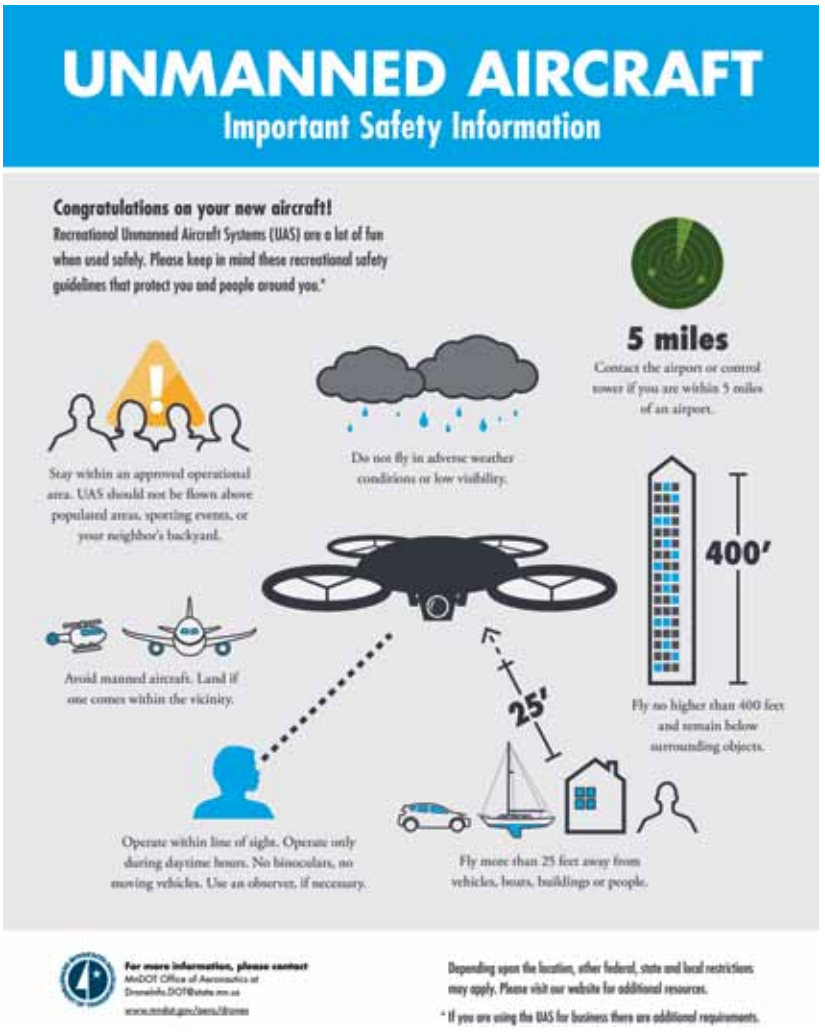
airspace system, existing law allows for prosecution if the facts supported trespass, nuisance, or careless or reckless operations, among other laws.

With all the change surrounding UAS operations happening rapidly, there is likely to be some fallout. A few days ago, the FAA shutdown every model aircraft club site within 30 miles of the Washington, D.C. airport. Over 36 model aircraft clubs were impacted; a few had been in existence for a long time. Fourteen (14) of the 36 sites were accredited by the Academy of Model Aircraft (AMA), meaning that the sites complied with safety requirements and were not within the radius of an airport. The FAA was concerned with the concentration of model aircraft and the potential impacts to the national airspace system.

The AMA has filed a petition for review of the FAA's Interpretive Rule that provides the underlying authority to regulate model UAS. Congress indicated its intent to step aside of regulating model aircraft in the FAA Modernization and Reform Act of 2012, Public Law 112-95. That law specifically prohibits new rules or regulations on model aircraft that are operated pursuant to a community-based organization's standard, such as the AMA. It remains to be seen what will become of that case.

As with all rapidly evolving things, it also becomes a challenge for local communities to act in lockstep with the technological advancements. Minnesota has seen relatively few local regulations. The City of Saint Bonifacius, Minnesota has banned drones altogether. Several communities have considered or are considering restrictions placed on the operator or imposing areas that are no fly zones. A prohibition on all UAS could have harmful effects because model aircraft operators often drive innovation for the technology that supports commercial use of UAS.

The FAA supports several tools to help a recreational user understand the where and when you can fly a UAS. Knowbeforeyoufly.org is a wealth of information and a good place to start for a new operator. The FAA has also produced an app called "B4UFLY" that will help users visualize their location in relation to airports and any flight restrictions. The app is still in beta test mode, but is anticipated to be released to the public in the near term.



In order to operate safely within the national airspace system, an operator must have some appreciation for the safety of manned aircraft. Generally, following the AMA guidelines will keep the operations safe:

- Fly below 400 feet and remain clear of surrounding obstacles.
- Keep the aircraft within visual line of sight at all times.
- Remain well clear of and do not interfere with manned aircraft operations.
- Don't fly within 5 miles of an airport unless you contact the airport and control tower before flying.
- Don't fly near people or stadiums.
- Don't fly an aircraft that weighs more than 55 lbs.
- Don't be careless or reckless with your unmanned aircraft. ❑

MnDOT Releases Guidance For Recreational Drone Purchasers, Users

ST. PAUL, Minn. – Did you purchase or receive a recreational drone this past holiday season? The Minnesota Department of Transportation offers some guidelines for operators of Unmanned Aerial Vehicles (also known as Unmanned Aircraft Systems or drones) to keep them and the people around them safe.

"Flying recreational drones can be fun. However, operators are responsible for the safe use of their UAV and for the safety of people who may be unaware a UAV is near them," said Rick Braunig, MnDOT aviation safety and enforcement

manager. "For instance, if that UAV has mechanical or control problems, it could go out of control and seriously injure innocent people or do damage to public and private property."

Braunig said drone operators should follow these guidelines to ensure public safety:

• Contact the airport or control tower if you are within five (5) miles of an airport.

• Stay within an approved operational area. UAV should not be flown above populated areas, sporting events or your neighbor's backyard.

• Do not fly in adverse weather conditions or low visibility.

• Operate within line of sight.

• Operate only during daytime hours. No binoculars, no moving vehicles. Use an observer, if necessary.

• Fly no higher than 400 feet and remain below surrounding objects.

• Fly more than 25 feet away from vehicles, boats, buildings or people.

• Avoid manned aircraft. Land if one comes within the vicinity.

The Federal Aviation Administration estimates that as many as a million drones were sold this past holiday season. The agency cited more than 650 incidents just this year where aircraft pilots encountered UAVs while in flight.

For additional information, go to: www.mndot.gov/aero/drones/ or contact Rick Braunig at 651-234-7230. ❑

Astronaut/Air Racer "Hoot" Gibson To Speak At Minnesota Airport Conference


Hoot Gibson

Hoot Gibson – naval aviator, astronaut, aviation accident investigator, and air race pilot – will speak at the Minnesota Council of Airports Conference on April 20, 2016 at Maddens Resort in Brainerd, Minn.

Gibson entered active duty with the U.S. Navy in 1969. He saw duty aboard the USS Coral Sea and the USS Enterprise, flying combat missions in Southeast Asia in the F-4 Phantom with VF-111. He also made the initial operational carrier deployment of the F-14 Tomcat with VF-1. Gibson is a graduate of the Navy Fighter Weapons School "TOPGUN."

Gibson's flight experience includes over 6,000 hours in over 50 types of civil and military aircraft. He holds an airline transport pilot license, multi-engine and instrument ratings, and has held a private pilot certificate since age 17. Gibson has also completed over 300 carrier landings.

Selected by NASA in January 1978, Gibson became an astronaut in August 1979 and flew five shuttle missions from 1984 to 1995.

Gibson participated in the investigation of the Space Shuttle Challenger accident, and also participated in the redesign and recertification of the solid rocket boosters.

Gibson left NASA in November 1996 and became a pilot for Southwest Airlines until he retired in 2006. He then went to work for Benson Space Company as Chief Operating Officer and Chief Test Pilot.

Gibson is currently an aviation expert witness and air racer. He has flown 111 different types of aircraft, including the MiG-21 owned by Air USA, Inc., and has become a regular competitor at the annual National Championship Air Races in Reno, Nev. In 2015, Gibson won the Unlimited Gold at Reno flying the P-51 Mustang "Strega."

Gibson is married to fellow astronaut, Dr. M. Rhea Seddon. They have four children, and live in Murfreesboro, Tennessee. ❑

EAA & Academy of Model Aeronautics Sign Memo of Understanding To Promote Flying

OSHKOSH, WIS. – The Experimental Aircraft Association (EAA) and Academy of Model Aeronautics (AMA) have signed a memorandum of understanding that expands the organizations' joint efforts to bring the possibilities of flight to more people. The new memo outlines areas where EAA and AMA will work together in program development, promotion, and advocacy. Other areas of emphasis will include youth education programs and visibility at major events, including EAA AirVenture Oshkosh and AMA Expo. ❑

SwitchBox – A Remote Control Device For Your Aircraft Preheater & More

by Dave Weiman

When ***"Foreflight"*** came out a few years ago, I was impressed with founders Tyson Weihs and Jason Miller – first for inventing the best pilot aid in the industry, then for selling us their app and service at a price everyone could afford. Tyson and Jason are also pilots and aircraft owners, so they understand the needs of fellow aviators and use the products they sell, themselves!

Another great product that saves aircraft owners time and money is the remote control ***"SwitchBox"*** that can turn on your aircraft preheater or other device with a telephone call or text message from your iPhone, iPad or Android.

Here in the Midwest and elsewhere in the upper half of the United States and throughout Canada, there is a real need for engine preheaters, but the problem has always been you either have to leave the preheater plugged in all of the time and risk engine corrosion, or make a special trip to the airport the night before each flight. A third option has been to inconvenience the airport manager or fixed base operator to plug in your preheater for you. I personally don't like either of these options, so when I heard about a device I could use to operate my preheater remotely using my iPhone or iPad, I was very interested.

The "SwitchBox" is highly recommended by aircraft owners who have written testimonials, and product reviews like this one. The leader in aircraft engine preheat systems, *Tanis Aircraft Systems,* has likewise given the system a thumb's up!

The device costs $299.99, and includes $3.00 of T-Mobile cellular time; a 10-foot antenna with a magnetic mount to ensure reception; mobile apps for your iPhone, iPad or Android device (available at the Apple or Google App Stores); and written instructions and a YouTube video to teach yourself how to use the device.

The SwitchBox comes pre-activated with a SIM card, online account and unique telephone number. All phone calls to your SwitchBox are free and will not subtract anything from your account balance. Text messages are $ .10 each through T-Mobile. To replenish the SIM card with more credit, you simply go to your online account at https://my.t-mobile.com, login using your phone number and password, and you are done! The minimum amount to add with T-Mobile is $10.00 for 90 days of service. Each month T-Mobile will subtract $3.00 from your credit and convert it to 30 messages for your use. Once your SwitchBox is activated, you receive a confirmation on your smart phone or iPad. You can also see your signal strength using the app.

The SwitchBox is well built with a heavy-duty plastic box with mounting bracket, and two heavy-duty 115-volt power cords. I use one line for my Tanis engine preheater, and the other for my battery maintainer. The SwitchBox will also work in conjunction with a cabin

Airforms Awarded Baffle Kit PMAs For Cessna 172RG, 177B, 177RG & Mooney M20B/C/D/J Aircraft

BIG LAKE, ALASKA – Amidst a torrent of recent new PMA announcements, Airforms Inc. has added engine baffles for the Cessna 172RG to its growing list of available replacement parts. The newly approved Cutlass RG baffles expand Airforms' engine baffle product line to over 60 aircraft models. Airforms was also recently issued PMAs for 1973-74 Cessna 177B and 1975-78 Cessna 177RG Cardinals, and Mooney M20B/C/D/J aircraft. For additional information, call 907-892-8244.

Switchbox Continued

heater to warm up your avionics or a portable air conditioner, such as the "IceBox," which is manufactured by the same people who manufacture the SwitchBox.

The SwitchBox can also work at home to turn on your heater, lights, and air conditioner, remotely from anywhere in the world!

If you are worried that you might cancel a flight and accidentally leave on your preheater or other electrical device, don't be. A custom timer can be set to turn off the SwitchBox after up to 18 hours of being turned on. You can also turn off your device manually with another telephone call or by sending another text message. The advantage of sending a text message, rather than calling the device, is that by sending a text message, you receive a confirmation message that the device is on or off.

The SwitchBox comes with a 1-year warranty on parts and labor, and a 30-day money back guarantee.

For additional information, go to www.SwitchBoxControl.com, and see the tutorial video at https://www.youtube.com/watch?v=3Qg3Y_LKZho.

SwitchBox Control is located in Providence, Rhode Island. Phillip Angert is in charge of sales, marketing and product development, and like the guys at Foreflight, he is also a pilot and aircraft owner: phillip@switchboxcontrol.com

For technical assistance, setup and support, email: support@switchboxcontrol.com

For T-Mobile Wireless customer support, email:

T-Mobile@ecustomersupport.com ❑

Model Building... Why It Is So Important

by Tom Biller

Tom Biller

Model aircraft building used to be a very common activity when I was young in the late '70s early '80s. My school actually had a model-building club that met during vacation times when kids were out of school (much to our parents' delight).

I got my start when I was 8 years old. My dad got me a B-29 Super Fortress for Christmas. Looking back, this probably wasn't the best kit for a beginner, so the task loomed large with a box of what seemed like a thousand pieces and a book of instructions that reminded me of a Sears catalog.

Needless to say, after being locked in my hangar (room) for about 4 hours one rainy Saturday, I emerged with a pile of glue somewhat resembling an airplane. Although it was a wreck and not even close to airworthy, I learned something… airplanes are pretty cool. Of course, like most any kid, I immediately thought of how cool it would be to fly. But as time went on and I got better at model building, I began to notice the details of how the parts went together and what the parts were used for. In a sense, I was teaching myself aircraft assembly, the reasons aircraft can fly, and more importantly, how they can land.

As I continued my newfound hobby, I sought out kits with more parts to get more realistic detail. I loved putting together the detailed parts like landing gear and especially the ones where you could move the wings (F-14 Tomcat). I started seeing how airplanes were put together and even what to call the major sections and parts. If you think about it, I was working with the manufacturer's manual (instructions), which was full of exploded view detail drawings.

I had to learn to follow these instructions to a "T" to make sure everything fit right and was installed in the right order (nothing worse than realizing your cockpit section had to have a piece installed BEFORE you finished the final assembly). I also realized there were proper tools for every job (i.e. an exacto knife for when you have to trim the excess plastic off the parts you remove from the holders, and sandpaper to smooth any rough areas before you can try and fit it to the airplane).

Don't even get me started on painting! My early attempts with the old glass jar enamel paints never seemed to turn out very well, and the models definitely did not look like the picture.

I had to learn about airbrush kits and taping off the other areas before painting, so I eventually got to the point of at least making the airplanes look respectable. I never did get the knack for the really small decals that come with the kit that add some amazing detail to the final product.

There were always so many things you had to think about as the chief aircraft engineer and the variety of aircraft seemed endless. Do I stick with the new sleek fighter jets, or do I go with a vintage World War II model? Do I keep the canopy open or closed; do I fold the gear up and mount it on a stand, or do I leave the gear down and hang it from the ceiling? So many decisions!

Another thing you learn is that not all models are created equal out of the box. Some models literally had pieces that would not fit together unless you made some modifications. So I was also involved with getting a 337-modification approval right off the bat! Luckily, I was the final approval authority, so my modifications were always approved and worked most of the time.

One consistent problem I noticed from aircraft to aircraft was the difficulty in getting the wings to stay together, as there never seemed to be enough glue points to keep them from bowing apart. I had to employ some advanced engineering techniques to get my wings airworthy and still look good, so I used rubber bands!! This simple technique fixed almost all of my design problems in this area, and allowed me to focus on other areas as my lay-ups were drying and bonding.

I can remember always getting different model kits for

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birthdays and Christmas, and unknowing people (like my cousins) would give me car models, or even a boat one time. Needless to say, these models collected dust and were never built for I was completely devoted to airplanes. I only wanted to build aircraft and found other kits to be way too easy or even just plain boring.

I did build a very complicated motorcycle once, but it still didn't do it for me. I almost exclusively went for military fighter-style aircraft and built many versions of them over the years. I quickly started to have favorites, like the F-4 Phantom, which was our nation's main fighter when I was a kid. I also adored (and still do) all of the World War II vintage models.

Coincidently, the F-4U Corsair is my favorite aircraft. Of course, as time went on and I got older, there simply wasn't time for such an intensive hobby anymore. Things like sports, girls, and jobs kind of got in the way of my engineering.

I always had a model in the design phase all through high school, the difference now being that it could take anywhere from 6 months to a year to actually finish it, if I ever finished it. I still maintained my love for airplanes, though, and ended up joining the U.S. Air Force right after graduation.

Of course, I chose aircraft maintenance – avionics to be specific. And wouldn't you know it, guess which aircraft I got to learn on? The F-4 Phantom! I absolutely loved that plane from a very young age, and here I was standing next to and on top of it. I never did get back to model building, though, as life does what life does and all manner of people and activities were always there to fill my time. I figured there would always be time to get back into it.

So here I am years later and feeling that old twitch to build again. One thing I like about the hobby is you are never too old or too young to do it. They make kits for all levels of ability to include very basic snap together models where no messy glue is required, to very expensive kits that are super detailed and require a lot of patience and skill to assemble and make them look authentic, as far as decals and paint schemes go. I was sad to see that they don't sell these kits at Walmart anymore, so you have to go to a hobby shop or order them online. Maybe for 2016, we can bring back the idea of model airplane building!

Pick up a model and build it, or better yet, start a club near you where you can build with others. After all, two engineers are always better than one. I think you will find it to be an enjoyable activity, as well as an exercise in patience. Pick one up for a young engineer in your life…a project that can be done together or even in a small group. Watch these kids really get into the building process and how they can accomplish a fairly difficult task once they get the basics down. Model building should never go out of style as it taps into the basic desire to build and explore different concepts while creating something you can eventually call your own. What kid wouldn't love the chance to engineer a new airplane from scratch and put the finishing touches on to show off their craftsmanship?

Now that I think of it, I don't have a single model left. With frequent moves (military brat), giving them away, and some of our neighborhood demolition activities, not a single aircraft remains. It's too bad, as I would love to look at them now to see how my skills progressed and the many varieties of planes I built.

There was one airplane I always wanted to build, but never got around to it for whatever reason…the P-51 Mustang. I think it's high time to get started on that one and perhaps re-launch a great hobby that taught me so much about aviation. I even thought it would be cool to build a collection of every aircraft I've worked on to display somewhere in the house with the wife's approval of course. Today, there are endless suppliers. Revell is the one that immediately comes to mind as a major source of almost any airplane you can think of. I imagine there are much better tools and kits available today as well.

There are even balsa wood models where you can actually cut your own pieces and put them altogether for a more hands-on approach. You can outfit them with working flight surfaces and even small engines, so you can fly them when you are done building. So next time you're at the toy store or one of the hobby shops, pick up a model airplane and give it to the young engineer in your life. Don't just leave it there... challenge that engineer to actually put it together and do a good job. Show interest, or better yet, actively help and offer advice during the building process. Who knows, that little engineer may be flying that plane or fixing it for real someday.

EDITOR'S NOTE: Tom Biller is an avionics instructor at Northland Community and Technical College in Thief River Falls, Minnesota. He can be reached at 1-800-959-6282 (www.northlandaerospace.com).

A Flying Fishing Adventure To Miminiska Lodge, Ontario, Canada

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(Photo taken at Pickle Lake, Ontario by Dave Weiman)

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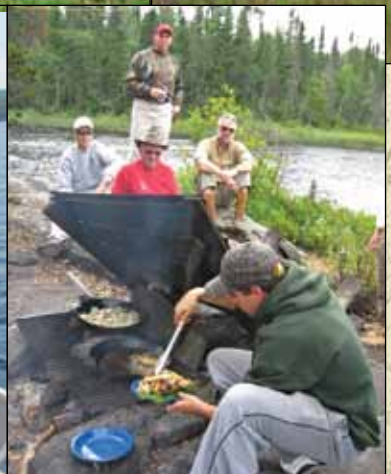

Calendar

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* INDICATES ANY NEW OR UPDATED CALENDAR LISTINGS SINCE THE PREVIOUS ISSUE.

FEBRUARY 2016

6* **OSHKOSH, WIS. -** EAA Skiplane Fly-In 10am-1:30pm at EAA AirVenture Museum's Pioneer Airport. *Pilots who wish to participate must receive approval and flight briefings from EAA prior to landing at Pioneer Airport.* www.eaa.org/en/eaa-museum/eaa-museum-events/eaa-skiplane-fly-in

6* **BRODHEAD (C37), WIS. -** Groundhog Chili Ski Fly-In 10:30am-1:30pm.

5-6 **DES MOINES, IOWA -** Midwest Regional Aircraft Maintenance Seminar at Holiday Inn Conference Center . iaaviation.com/index.html

16 **MADISON, WIS. - WisDOT Aeronautics Airport Engineer's Workshop at the Crowne Plaza Hotel. Register by January 31. Contact Tom DeWinter - thomas.dewinter@dot.wi.gov or 608-266-8073.**

20* **MIDDLETON (C29), WIS. -** Tom Rebholz Memorial Chili Fly-In 11am-2pm.

28 **WARROAD (KRRT), MINN. -** 38th Annual Ski Plane Fly-In & Breakfast. Ski Planes land on the Warroad River, wheel planes at the Warroad Airport (KRRT). Shuttle service available. 8am-Noon. Contact Dave Paulson 218-386-1818 or 218-386-2098. E-mail: dpaulson@ssbwarroad.com

MARCH 2016

2 **STEVENS POINT, WIS. - WisDOT IA Mechanic Refresher Seminar at the Holiday Inn Hotel & Convention Center. http://wisconsindot.gov/Pages/doing-bus/aeronautics/trng-evnts/mech-ia.aspx**

5 **GARRISON, MINN. - Iceport 2016 Fly-In On The Shores Of Twin Pines Resort on Mille Lacs Lake. 122.9 320-200-8050 - 320-692-4413. *Raindate 12th.* See Video of Past Fly-Ins *www.twinpinesmillelacs.com***

5* **OSHKOSH, WIS. -** EAA's Hops & Props at the EAA AirVenture Museum 7-10pm. www.eaa.org/en/eaa-museum/eaa-museum-events/eaa-hops-and-props-beer-festival-2016

8-9 **ASHBURN, VA. -** 2016 Air Charter Safety Foundation Safety Symposium at the NTSB Training Center in Dulles. 202-774-1515.

10-12 **NASHVILLE, TENN. -** Annual International Women in Aviation Conference at the Gaylord Opryland Resort. www.wai.org

16 **ST. PAUL, MINN. - 5th Annual Minnesota Aviation Day At The Capitol. For additional information contact GORDON.HOFF@COMCAST.NET**

19-20 **KENOSHA, WIS. - Wisconsin Flight Instructor Refresher Course (FIRC) at the Gateway Technical College Horizon Center. http://wisconsindot.gov/Pages/doing-bus/aeronautics/trng-evnts/firc.aspx**

21-22 **BROOKLYN CENTER, MINN. - 2016 MN Aviation Maintenance Technician Conference at the Earle Brown Heritage Center: 651-234-7248.**

APRIL 2016

5-6 **DEADWOOD, S.D. -** South Dakota Aiports Conference at The Lodge. April 5 (Tuesday) will be sponsor meetings, and April 6&7 will be the conference.

5-10 **LAKELAND, FLA. -** Sun 'n Fun.

20-22 **BRAINERD, MINN. - The annual Minnesota Airports Conference will be held at Maddens Conference Center. The conference, held in conjunction with the Minnesota Council of Airports annual meeting, also includes technical and safety presentations, an industry trade show, and an awards and recognition program. www.airtap.umn.edu/events/airportsconference/2016/**

30 **BLOOMINGTON, MINN. -** Minnesota Aviation Hall of Fame Induction Banquet at the Ramada, Mall of America Hotel. 800-328-1931. www.mnaviationhalloffame.org/award.html

MAY 2016

2-4* **OSHKOSH, WIS. - 2016 Wisconsin Aviation Conference at the Best Western Premier Waterfront Hotel & Convention Center (920-230-1900). For additional info contact bob@thewisconsinriver.com.**

4-5* **CARBONDALE, ILL. -** 2016 Illinois Aviation Conference at SIU Airport Campus. www.illinoisaviation.org

20-22 **BRAINERD, MINN. - 2016 Minnesota Airports Conference at Madden's On Gull Lake (www.mnairports.org).**

21 **BEAUFORT (MRH), N.C. -** Regional AOPA Fly-In at Michael J. Smith Field. www.aopa.org/Community-and-Events/AOPA-Fly-In/2016

22* **Brodhead (C37), Wis. -** Pancake Breakfast starting at 7am.

JUNE 2016

2-5* **JUNCTION CITY (3JC), KAN. -** 7th Annual National Biplane Fly-In celebration of all things with 2 wings held at Freeman Field.

5 **WILD ROSE (W-23), WIS. -** Pancake, eggs, sausage, applesauce & more Breakfast 8-11am. Pig Roast (Pork-Beef-potato salad-Beans & more) 11:30am till gone at Wild Rose Idlewild Airport. Rain or Shine. 715-513-0911.

19* **CANBY (CNB), MINN. -** Father's Day Airshow & Fly-In. Fly-In 7:30am-12:30pm Dad's Belgium Waffles. Airshow starts at 1pm. 507-828-0323.

JULY 2016

1-2 **PHILLIPS (PHB), WIS. - Fly-In/Float-In Airshow (Friday 7pm & Saturday 11am). Breakfast & Lunch before or after airshow on Saturday at Harbor View Pub & Eatery. Also band 8pm-Midnight.**

16 **WASHINGTON ISLAND (2P2), WIS. - 63rd Annual Washington Island Fish Boil Fly-In, 11:00 am to 1:00 pm, Washington Island Airport, Wis. (2P2). No fee for tie-downs or camping. Lodging also available: 920-847-2448 or 920-847-2147 (www.WashingIsland-wi-gov and www.WashingtonIsland.com). Sponsored by the Washington Island Lions Club.**

23-24 **Sioux Falls (FSD), S.D. -** "Power on the Prairie" Air Show.

25-31 **Oshkosh, Wis. -** EAA AirVenture Oshkosh, Wittman Regional Airport. www.eaa.org

AUGUST 2016

8-11 **Miminiska Lodge, Ontario - 2016 Canadian Fishing Fly-Out. 3-Night/2-Day Trip.**

8-13 **Miminiska Lodge, Ontario - 2016 Canadian Fishing Fly-Out. 5-Night/4-Day Trip.**

FOR MORE INFO ON CANADIAN FISHING FLY-OUT
EMAIL: info@midwestflyer.com

14 **Lino Lakes, Minn. -** Minnesota Seaplane Pilots Association Pig Roast, Surfside Seaplane Base. www.mnseaplanes.com

20 **Bremerton (PWT), Wash. -** Regional AOPA Fly-In at Bremerton National Airport. www.aopa.org/Community-and-Events/AOPA-Fly-In/2016

SEPTEMBER 2016

17 **Battle Creek (BLT), Mich. -** Regional AOPA Fly-In at WK Kellogg Airport. www.aopa.org/Community-and-Events/AOPA-Fly-In/2016

24* **Clinton (CWI), Iowa -** Fly Iowa with a Space County, USA theme to celebrate the county's history in aerospace and aviation.

26 **Eden Prairie (FCM), Minn. -** Chili Cook-Off/Feed & Open House at Modern Avionics 9am-1pm. Anyone interested in entering the chili contest, please call or email Gloria 952-941-2783 or gloria@modernaviationscom.

OCTOBER 2016

1 **Prescott (PRC), Ariz. -** Regional AOPA Fly-In at Earnest A. Love Field. www.aopa.org/Community-and-Events/AOPA-Fly-In/2016

For More Listings, Information & Updates Go To www.midwestflyer.com (Calendar Of Events)

Email your aviation calendar event - dates, city, state, airport ID and what kind of event – to info@midwestflyer.com

Airport Restaurants

Airport	Airport ID	Restaurant	Website
Dane County Regional Airport, Madison, Wis.	KMSN	Pat O'Malley's "Jet Room" Restaurant	www.jetroomrestaurant.com
Price County Airport, Phillips, Wis.	KPBH	Harbor View Pub & Eatery	www.harborviewonline.com
Tri County Regional Airport, Spring Green, Wis.	KLNR	Picadilly Lilly Airport Diner	www.piccadillylillydiner.com

Emery Air Launches Apprenticeship Program

ROCKFORD, ILL. – Emery Air, Inc., and the U.S. Department of Labor Office of Apprenticeship, have signed an agreement establishing a registered apprenticeship program at Emery's facility located at Chicago-Rockford International Airport. The program will provide on-the-job training for workers interested in earning their Airframe and Powerplant (A&P) Certificate.

Emery Air has served aircraft and airline owners and operators for over 55 years at Chicago-Rockford International Airport. For additional information contact Curt Drumm at 920-901-2200, cdrumm@emeryair.net (www.emeryair.net). ❑

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WANTED – aircraft paint shop or other aviation business seeking a location in east central MN. New beautiful hangar, public use airport, asphalt ramp/runway. Call **Brian at Eagle Air at 320-384-6667.**

HANGAR SPACE – Hartford, WI (KHXF). Space available in cold storage community hangar. $175/mo. for Cub-sized aircraft: **608-235-9696.**

MINNEAPOLIS FLYING CLUB SHARE FOR SALE: Yankee Flying Club (www.yankeeflyingclub.org) at Minneapolis Crystal Airport, Minnesota (KMIC). The club owns an SR-20, C-182RG and two C-172s. Reasonable monthly dues/hourly rates. Asking $3K OBO. **Call Greg 612-760-4060.**

RESTAURANT SPACE AVAILABLE (3,695 sq. ft.) at Southern Wisconsin Regional Airport (KJVL) in our newly remodeled terminal building in Janesville, Wisconsin. This airport is known for being an airfield with a restaurant for over 50 years. The space offers panoramic views of the three runways and is conveniently located between Janesville and Madison to the north, and Beloit and Rockford, Illinois to the south. For additional information contact **Ron Burdick at 608-757-5768.**

1982 CESSNA 421C, always USA owned, no damage, new paint and interior. Low and High-time engines, updated Garmin radios: $419,000. Contact **John at Gran-Aire, Inc. Milwaukee: 414-461-3222.**

CUSTOM MODEL AIRCRAFT, reasonably priced. Get a model of YOUR AIRCRAFT. Contact **Keith Oberg at airwaysgifts@juno.com or call 651-423-5111.**

HANGAR FOR SALE – Wisconsin – Dodge County Airport (KUNU) – 40W X 32D, Door 38'9"W X 10'H. $27,500. Contact **Mary at 920-386-2402 or Mary.Gasper@WisconsinAviation.com.** More details and photos available at **WisconsinAviation.com.**

50% OFF T-HANGAR RENTALS – La Crosse Regional Airport (LSE) is offering a 50% discount on first 12 months of hangar contracts. Discount applies to new 12-month leases, some restrictions apply. Availability at http://www.lseairport.com/hangar-rentals.php. Contact Managers Office: **608-789-7464 or gillettj@lseairport.com.**

AIRCRAFT APPRAISALS. Since 1996. Ron A. Reister. Midwest Aircraft Appraisal. **608-799-6634 or mwaircraftappraisal.com.**

APPRAISALS AND SALES – Gran-Aire Inc., a Cessna Sales & Service Center located in Milwaukee, Wisconsin, since 1946. **414-461-3222.**

INSURANCE – 64 years risk management serving aircraft operators and owners. Superior, empathetic service. Mid-Continent Aircraft Corp., Hayti, MO. **acinsurance@midcont.com. 1-800-325-0885.**

AVIATION BUSINESSES WANTED – Rice Lake, Wisconsin (KRPD). Restaurant or office space in new terminal. Avionics, Paint, Interior shops needed. Hangars and capital help available. Call **Mike at 715-458-4400.**

AIRCRAFT INSURANCE – We love "Midwest Flyers! **AircraftInsurance.com or 888-854-2387.**

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AIRCRAFT SALES

2005 Piper Saratoga SP – N121JT $359,000
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2006 Cirrus SR22 GTS - N128BV $219,000
2150 TTSN, 550 SMOH, SkyWatch, Stormscope, TKS, EMAX, CMAX, XM Weather, Tanis engine/floor heaters and more!
Price Reduced! Looking For Quick Sale!

2005 Cirrus SR20-G2 – N929TM $172,500
Only 440 TTSN! One owner, one service center since new, Avidyne Entegra with GNS-430/GNC-420, S-TEC 55SR Autopilot & more! NDH, September annual. A true 9 in and out!

1978 Piper Navajo C – N510CC $249,500
45 SFRM! 45 SPOH! Dual 530Ws! MFD, Century IV A/P, RDR-150 and XM Weather! Chart View. Excellent in and out! 9135 TT.

1979 Piper Navajo C/R – N56ND $299,000/Trade
Full Panther Conversion! 4-blade Q-tips, winglets, VGs, 6760 TT, 740/920 SMOH, known ice, A/C, oxygen, GNS530, KFC200 AP/FD/HSI, radar. Professionally operated & maintained.

1975 Cessna Citation 500 – N501GB $399,995
Someone is going to get lucky! 12,960 TT, 1140 SMOH, Beautiful P&I, Dual 530W, GDL-69, GMX-200 MFD, SkyWatch, 4-color VP radar, NDH, RVSM, much more! Was 135, needs inspections, will ferry to your domestic location!

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STUDENT PILOT CERTIFICATES FROM PAGE 39

This action withdraws the proposal for pilot certificates to include a photograph of the individual pilot. Section 321 of the FAA Modernization and Reform Act of 2012 supersedes section 4022 of the Intelligence Reform and Terrorism Prevention Act, which provided the basis for the proposed rule. The FAA intends to publish in the future a proposed rule that would implement section 321. Additionally, this action withdraws the proposal to implement fees for pilot certificates. ❑

Springfield Company Donates $850,000 To Lincoln Land Aircraft Maintenance Program

SPRINGFIELD, ILL. – Levi, Ray & Shoup, Inc. (LRS) has made a large financial contribution to assist Lincoln Land Community College expand its aviation maintenance program facilities at Abraham Lincoln Capital Airport in Springfield. LRS's contribution of $850,000 will be invested in the construction of new and larger classrooms, a computer lab and administrative office facilities adjacent to the existing facility. The facility's expansion will include a modern learning environment by replacing the existing modular classroom and office unit situated inside of the hangar, which consumes large amounts of shop floor space. The shop floor space will then be converted to new areas for additional hands-on practical exercises and technical instruction on various training

In honor and recognition of LRS's significant financial contribution, the newly expanded facility will be named the "Levi, Ray and Shoup, Inc. Aviation Center at Lincoln Land Community College." ❑

Kansas State University's Polytechnic Campus Receives First FAA Approval For UAS Commercial Flight Training

SALINA, KAN. – Kansas State University's polytechnic campus has set a new precedent in the unmanned aircraft systems (UAS) industry, becoming the first entity in the United States to receive approval from the Federal Aviation Administration (FAA) to provide UAS commercial flight training to both students and outside companies.

The authorization, which is referred to as a Section 333 exemption, allows Kansas State Polytechnic to create and conduct an extensive flight training program for unmanned aircraft systems. Previously, motion picture and television filming and aerial data collection have been given permission for commercial UAS operations; however, the approval has been limited to only training internally and in these two mission-specific areas alone. Kansas State Polytechnic's authorization is open to students both internal and external and is not restricted to any one particular application.

Students are required to have a private pilot certificate with instrument rating and will need a specific number of unmanned flight hours to complete the program. Just as professional pilot students can become certified flight instructors teaching their peers to fly, once a UAS student reaches a certain rating, he or she can act as an instructor in entry-level flight courses.

Another distinction of this FAA approval is being able to provide flight training to commercial partners.

To learn more about enrollment in the unmanned aircraft systems program, contact Michael Most at 785-826-2681 or mtmost@k-state.edu. To inquire about commercial flight training, contact Kurt Carraway at 785-826-2624 or kcarraway@k-state.edu. ❑

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