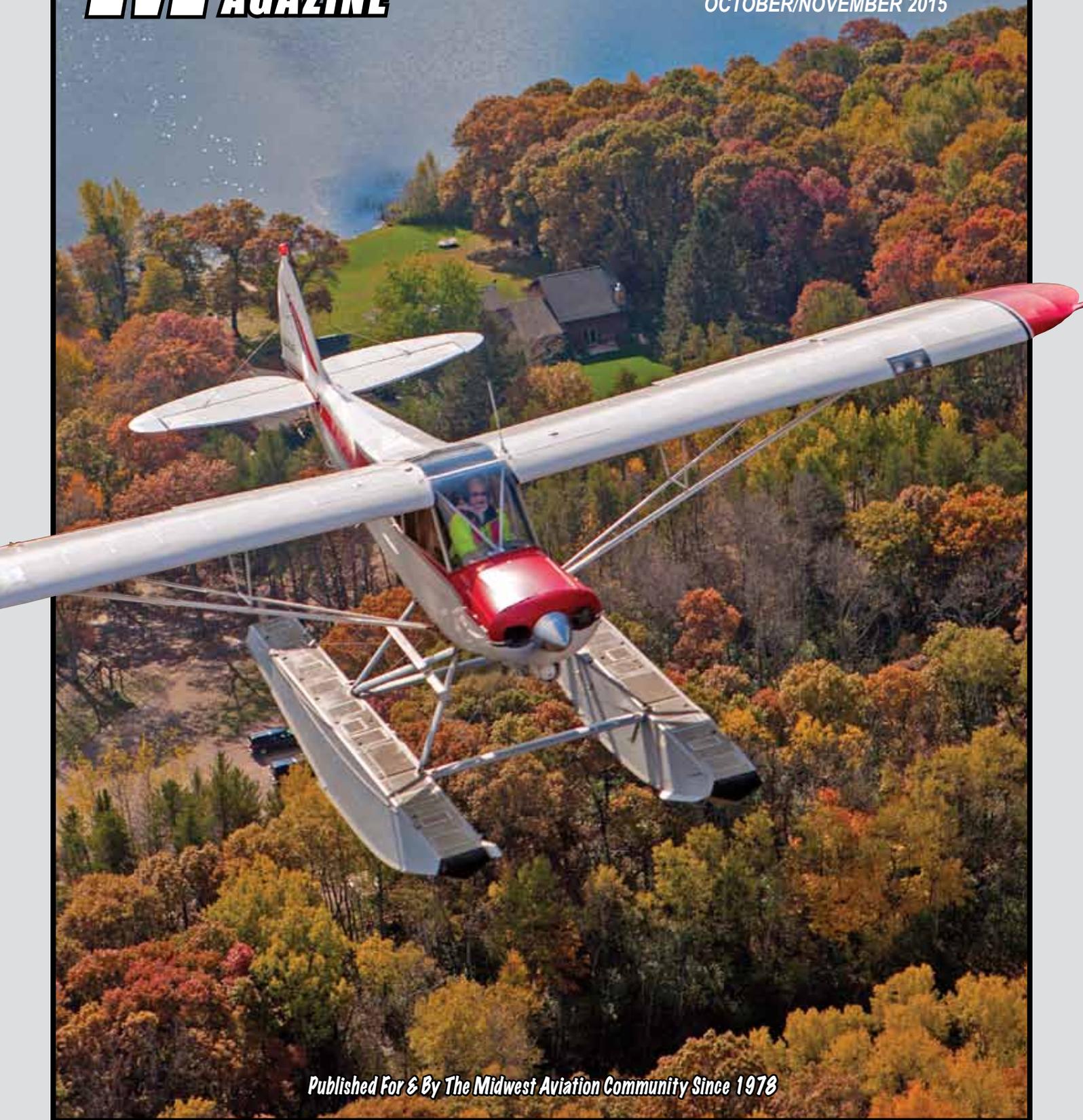


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The buzz about drones

There's a lot of talk about drones these days. And no wonder.

Every week we hear reports of drones getting too close to manned aircraft. In August, the FAA released a list of reports from pilots, air traffic controllers, and citizens about possible encounters with drones. The 765 reports covered Nov. 13, 2014 through Aug. 20, 2015. And those are just the ones reported to the FAA. When it announced the publication of the new list the FAA said it "wants to send a clear message that operating drones around airplanes and helicopters is dangerous and illegal."



No one seems to be able to put a solid figure on drone sales, but the numbers are big and getting exponentially bigger, with some drone makers reporting sales tripling from 2013 to 2014. Last year retail giant Amazon even launched a drone store. International drone conventions held in cities like Las Vegas are attracting thousands. And corporate applications for FAA waivers to operate commercial drones are skyrocketing.

In other words, drones are here to stay.

There's no doubt that this burgeoning technology will have ups and downs for general aviation. On the one hand, drone operations too close to manned aircraft pose a very serious safety threat. On the other, drones are introducing a whole new generation to the wonders of aviation, and some of those folks will make the leap to flying manned aircraft.

Regardless of how you feel about drones, you should know that AOPA is actively working on drone-related issues every day. We want to protect your safety as pilots while welcoming this new segment into the aviation community and inviting them to learn more about GA and all it has to offer.

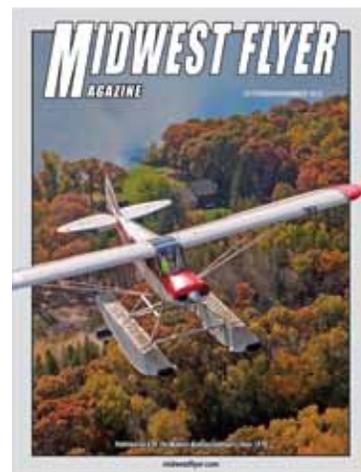
From helping to ensure that regulations for commercial drones will protect manned aircraft to working with drone and remote control associations and manufacturers to make certain drone pilots understand the rules and guidelines affecting their operations, AOPA is advocating for general aviation.

It's AOPA's mission to protect the freedom to fly. And that means making sure the skies are safe for pilots and their airplanes. Things are changing fast in the world of drones, with new technologies and uses emerging almost daily. But, no matter what comes next, you can count on AOPA to be there for you.

A handwritten signature in black ink, appearing to read "Mark R. Baker".

Mark R. Baker
President & CEO, AOPA

ON THE COVER: Doug Mansfield of East Gull Lake, Minnesota, flying his 1957 PA-18A-150 Super Cub on Wipline 2100A amphib floats over South Long Lake in Brainerd, Minnesota. *Brad Thornberg Photo*



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A Little Information & Education Can Go A Long Way In Avoiding Airspace Conflicts With Drones

by Dave Weiman



Earlier this year, I had heard there were 500,000 drones in the hands of hobbyists, but this week, there are reports there are now over a million. Regardless, it is fact that the number of unmanned aircraft systems (UAS) is increasing and we need to be concerned with how they can affect flight safety.

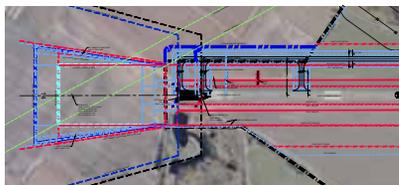
The other evening, I was out at our local airstrip about one hour before sunset and heard a humming sound, so I looked around and there about 300 feet above the ground and one-half mile from the approach end to Runway 9, there was a UAS hovering. With farms all around the airport, I suspected it was someone monitoring the condition of crops, and I was right. On my third telephone call I learned that our local farm cooperative was operating three drones in the county and I spotted one of them.

When I introduced myself to the crops sales manager

on the telephone, he seemed uninformed, but receptive to receiving additional information on how to avoid a conflict with airport traffic, so I followed up and emailed him some additional information. In return I received a prompt email from the president of the coop who was likewise receptive, and expressed interest in having staff attend a workshop being hosted by a local airport and fixed base operation.

Among the items I forwarded to the coop was a map and list of all public and private airports in the county with the names and telephone numbers of each manager and owner, so the next time they intend to operate within a 5 nm radius of an airport, they will hopefully pick up the telephone and call the airport. Special thanks to the Wisconsin Bureau of Aeronautics for providing me with the map and contact list of all public and private airports in the county.

While the Federal Aviation Administration continues to refine its requirements for recreational and commercial UAS operators, it would be prudent for us in the aviation community to be proactive in protecting our airspace by initiating dialogue with local farm cooperatives and other commercial UAS operators in hopes of avoiding conflicts at



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Congratulations to Earl Lawrence, former Vice President of Industry & Regulatory Affairs with the Experimental Aircraft Association (EAA), for being named the Director of the UAS Integration Office within FAA's Aviation Safety Division. Lawrence will lead the FAA's efforts to safely and effectively integrate UAS into the nation's airspace.

Lawrence was with EAA from 1994 to 2010, when the FAA hired him to be the Director of FAA's Small Airplane Directorate. In that position, Lawrence was responsible for 17 aircraft certification and manufacturing district offices in 21 states from Alaska to Florida.

When you attend the "Meet The FAA Administrator" forum at EAA AirVenture Oshkosh each year in July, and the Administrator introduces his top managers and you hear an applause, EAA members are applauding Earl Lawrence.

Joining Lawrence in the UAS Integration Office is Hoot Gibson, who is the Senior Advisor on UAS Integration, a position established to focus on external outreach and education, inter-agency initiatives and an enterprise-level approach to FAA management of UAS integration efforts. Gibson will report directly to the FAA Deputy Administrator.

Gibson previously served as Executive Director of the NextGen Institute, which provides professional services to the UAS Joint Program Development Office. He has also owned his own aviation consulting firm, and held numerous senior command and staff positions during his 33-year career in the U.S. Air Force. □



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Ask Pete!

by Pete Schoeninger



Pete Schoeninger

Q: Why do airliners usually NOT lower one wing (slip) into a crosswind when landing like light planes do? It seems they often touch down wings about level, but in a crab (sideways.) Their tires must take a terrible beating?

A: Some airliners have two or four engines hung under the wings. If a wing was lowered into a crosswind, it is very possible an engine would strike the ground. Tires are expensive, but engines cost lots more!

Q: An old timer told me that I should ALWAYS fill my fuel tanks at the end of day, to prevent condensation forming while in storage, and turning into water. Is that really true?

A: In the post World War II days, lots of training was done with airplanes, such as Piper J-3 Cubs, with small gas tanks and no readily accessible fuel drain. Those airplanes usually had one 12-gallon nose tank that provided a last drop range of about 3 hours. Keeping those tanks full when possible reduced the possibility of condensation (water) on fuel tank walls. Modern airplanes offer fuel tank drains and lots more fuel capacity, allowing a pilot to choose between lots of gas for a long flight, or more cabin capacity (people, baggage, etc.), but not both. If a person follows the manufacturer's recommendations for fuel draining and sampling, you should be okay. Many Cessna 172RGs have 6.0 hours of fuel capacity, and some Piper Cherokees have 5.5 hours of fuel capacity. A friend of mine owns a Cessna 421C, which can

carry up to 1600 lbs of fuel (useful load is 2100 lbs, leaving him only 500 lbs in the cabin with all tanks full.) If you constantly carry full fuel in these and other airplanes, you are limiting your cabin load, and hurting performance dragging around unneeded fuel much of the time. The other reason to top off your tanks in aircraft, such as Cessnas that have "fuel bladders," is to keep the bladders moist and flexible, rather than dry and brittle that will reduce their life span.

Q: Recently, I saw a guy get a jumper cable start from a truck in his Piper Arrow, and then he took off on a long IFR night flight. The lineman who jumpstarted the aircraft told me the pilot admitted he had left the master switch on after a previous flight, and the battery had drained down to nothing. Was immediately taking off a wise decision on the part of the pilot?

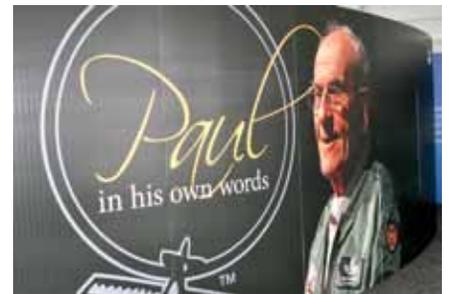
A: NO! Right after engine start from the jumpstart, the alternator probably was providing enough electrical power to run radios, lights, etc., but if the alternator conked out, there would be almost no reserve power in the battery to navigate to a suitable airport, power the landing light, etc. A safer course of action would be to remove the battery from the airplane and place it on a suitable charger until fully charged (it can take many hours to completely recharge a dead aircraft battery). My advice is to take the time and do it right.

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 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 an 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.

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May A Pilot Continue To Act As Pilot In Command (PIC) Despite A Lapse In § 61.58 Currency?

by Gregory J. Reigel
 Attorney At Law
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If you fly an aircraft that is type certificated for more than one required pilot flight crewmember or is turbojet-powered, you know that 14



Greg Reigel

C.F.R. § 61.58(a) requires that you have regular proficiency checks. Specifically, within the preceding 12 calendar months, you need to have completed a proficiency check in an aircraft that is type certificated for more than one required pilot flight crewmember or

is turbojet-powered, and within the preceding 24 calendar months, you must have completed a proficiency check in the particular type of aircraft in which you will serve as pilot in command (PIC) that is type certificated for more than one required pilot flight crewmember or is turbojet-powered.

So, when do you actually need to complete each proficiency check? Well, if you complete the proficiency check in the calendar month before or the calendar month after the month it is due, Section 61.58(i) states that “the pilot is considered to have taken it in the month in which it was due for the purpose of computing when the next pilot-in-command proficiency check is due.”

This means you have a “grace month” within which to complete the

12- and 24-month proficiency check requirements. But, are you permitted to continue to act as a PIC in an aircraft that is type certificated for more than one required pilot flight crewmember or is turbojet-powered during the grace month after the proficiency check has lapsed?

The answer is “Yes.” According to the FAA in a recent Legal Interpretation, a pilot may continue to act as pilot in command of an aircraft that is type certificated for more than one required pilot flight crewmember or is turbojet-powered during the month after a Section 61.58 proficiency check is due. But keep in mind that when a pilot completes a Section 61.58 proficiency check during the grace month (either before or after the proficiency check is due), he or she



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is considered to have completed the proficiency check during the month it was due for the purpose of calculating the due date for the next Section 61.58 proficiency check.

Also, pilots and operators shouldn't use the grace month as a way to

regularly extend a 12-month proficiency check to a 13-month proficiency check. However, this interpretation is certainly helpful to those pilots who are unable to complete their recurrent training/proficiency check requirements in the month in which they are due.

EDITOR'S NOTE: Greg Reigel is an attorney with Reigel Law Firm, Ltd., a law firm located in Hopkins, Minnesota, which represents clients in aviation and business law matters.

For assistance, call (952) 238-1060 or Twitter: @ReigelLaw (www.aerolegalservices.com). □

INSTRUMENT FLIGHT

Flying With Accurate Flight Instruments

by Michael J. "Mick" Kaufman



Michael Kaufman

In this issue of *Midwest Flyer Magazine*,

I will be addressing the issue of "aircraft instruments" and their importance in

making a safe and accurate IFR flight. I would also like to show how an aircraft with poorly performing instruments, coupled with bad aeronautical decision-making, contributed to a fatal aircraft accident.

In the many years of helping pilots get an instrument rating and stay safe and current on instruments, I have put much emphasis on having good equipment in the aircraft. There are certain acceptable standards of performance for our aircraft instruments, some set by the Federal Aviation Administration and others recommended by industry.

Our transponder, altimeter, pitot static system and mode C encoder must be checked, certified and signed off every 24 calendar months. For instance, Federal Aviation Regulation (FAR) 91.411 has set the operating standard for altimeters used for IFR flight as having a maximum error of 75 feet. When aircraft are advertised for sale, a common description in the ad is that the aircraft is certified IFR.

How about the gyros; what is

acceptable for IFR flight?

An industry accepted precession for a heading indicator is 3 degrees in 15 minutes, which I find a large percentage

indicator to runway heading prior to take-off, fly for an hour and land on the same runway and see how much precession (drift) that the



A slaved heading indicator eliminates having to constantly make directional adjustments.

of heading indicators do not meet.

One of the first steps I take with a new instrument student is to find out what works in his airplane and what does not work. This gives us a chance to get it corrected early in training and if a repair or replacement is necessary, we are not in a rush with a flight check a few days away. Many of the newer aircraft have glass panels or a slaved horizontal situation indicator (HSI) or heading indicator that rarely poses any problems, but the older non-slaved units do.

My first test is to set the heading

instrument has. If it is excessive, it should be replaced. The problem is the replacement unit is often no better than the unit it replaced. Your best solution is to install a "slaved compass system" or an HSI. This was one of the best decisions I made when updating my Bonanza about 20 years ago, which had an old flat-faced A&N directional gyro. The cost for a used Century slaved heading indicator with a bootstrap at that time was about \$700 installed... same as a new non-slaved unit. If you looked at this same system today on the used market, the price seems

to start at around \$250.00 with one advertised near 6AMUs \$6,000.00 (*the seller is dreaming*). With so much older outdated equipment around, there are a lot of choices, but your installer will wonder why you do not install a state-of-the-art glass panel, as the installation cost on some of the older equipment would be money poorly spent.

You may have noticed in my above statement that I indicated to set your heading indicator to runway heading and not the magnetic compass. The magnetic compass is another instrument installed in our aircraft that is in many cases so far off, it is a joke. We are required to have a compass correction card in the aircraft per FARs, but with all of the electronics in modern aircraft, turning on one switch may cause a compass change of 30 degrees or more. Setting the heading indicator to the runway heading helps

prevent this, at least initially. Runways are marked to the nearest 10 degrees magnetic, so the largest error we could encounter would be 5 degrees. If you have an accurate magnetic compass, you are in the lucky minority. If you have an accurate vertical card compass, you are truly blessed, as they work great.

Several years ago while I was presenting safety seminars for the FAA Wings Program as part of the FAA Safety Team (FAAST), I developed a presentation that I titled "Hold My Beer and Watch This." The content and purpose of this presentation was to place emphasis on Aviation Decision Making (ADM), bringing out the five hazardous thought patterns that affect us not only as pilots, but in our everyday lives. The reason this became part of my column this month was influenced by a fatal accident involving a Mooney aircraft making an ILS

approach to the Norfolk, Virginia airport (KORF).

I can relate to poor ADM myself for making an icy night approach in my Bonanza to my home airport, Tri-County Regional, Lone Rock, Wis. (KLNR), in a snowstorm when returning from El Salvador with a fellow pilot. The weather 30 miles away in Madison, Wisconsin was clear.

When I use information on an accident or incident as part of my column, I would like to again emphasize that this is for educational purposes only and not a Monday morning quarterback critique. The other reason for including this accident was that there was a heading indicator or directional gyro (DG) that played a major role in this accident.

The pilot of Mooney NXXXXX decided to depart Key West, Florida (KEYW) at 8:30 p.m. EST for a night

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INSTRUMENT FLIGHT

IFR flight to his home airport of Suffolk Executive Airport in Virginia (KSFQ). The pilot made a planned fuel stop at the Palatka Airport in Florida (28J) and departed the final leg home at 11:57 p.m. The pilot planned for a 3.5-hour leg to his home airport, according to his flight plan, and the fuel on board showed 5.0 hours. The airplane was borrowed from a friend and there is no indication of how much this pilot had previously flown this airplane. We do know, however, that he had flown it to Key West, Florida several days prior.

After arriving at KSFQ, the pilot attempted to make an RNAV GPS 22 approach to the airport that was reported at or below minimums for the approach. Upon missing the approach at Suffolk, the pilot elected to fly the ILS 23 approach to Norfolk (KORF), which he missed the first time and crashed 2300 feet northwest of and abeam of the Runway 23 threshold on his second and fatal attempt.

There are several noteworthy items that were provided to me by a local Norfolk pilot, which I would like to note here with some of my own comments:

Upon being vectored to the Initial Approach Fix (IAF) for the RNAV GPS 22 into KSFQ, the pilot overshot the final to the southeast, and was given a heading to re-intercept. The pilot then said something to the effect of having a problem with his GPS approach plates. Whether that meant a problem programming his avionics or a problem bringing the plate up in whatever tablet device he was using (if he was using one) is unknown. In the event he was using paper, it could have been a problem finding the plate as he was bouncing around in turbulence.

The pilot made comments about his directional gyro precessing pretty bad while on his approaches into KORF and ended up using no-gyro vectors on his last and final approach.

Early on, the pilot reported his fuel quantity as about an hour and a half remaining. He would later correct this to actually having about a half-hour of fuel remaining.

A previous aircraft landing on Runway 23 at KORF had reported the localizer needle jumping around. Air traffic

control said that he was the first one to report it, out of several aircraft. The mishap pilot was next on the approach and also reported a “flickering localizer needle.” Although I doubt this was a factor, it was interesting, nonetheless.

After reviewing the above information, many of you would wonder why a pilot would decide to depart late at night into questionable weather in an aircraft that he should have known had some questionable equipment. Apparently poor fuel planning was involved as well. The first one of the hazardous thought patterns that came to my mind as defined by the FAA’s publication is as follows:

INVULNERABILITY: This thought pattern is perhaps the most dangerous. This individual thinks, “It won’t happen to me.” After encountering unexpected headwinds, this pilot flies past a good fuel stop “because things always work out.”

In future issues of *Midwest Flyer Magazine*, I will elaborate on this and four other hazardous thought patterns.

The issue of dealing with a precessing gyro is not easy to overcome, but I have some suggestions. As previously noted, I do not recommend resetting the heading indicator to the magnetic compass, as errors can be significant.

I flew an aircraft earlier today that had a magnetic compass perfect on a west heading and off 30 degrees on an east heading. When faced with this gyro situation, I recommend setting the heading indicator to the track information displayed on a GPS. The track information displayed on the GPS has wind factored in, which can be helpful; however, the pilot must remember to reset the gyro when turning more than 30 degrees due to a change in the wind correction angle. If the pilot involved in the fatal crash described here would have used this method and was capable of hand flying an approach, the flight may have had a better outcome.

Additionally, in extreme crosswinds on approaches, many autopilots will not work and may show this limitation in the autopilot supplement of the Pilot’s Operating Handbook. Good aeronautical decision-making, having knowledge of your aircraft systems, and being able to hand fly an approach when the autopilot cannot, is essential.

Keep your instrument flying skills sharp, and exercise good aeronautical decision-making, so you may enjoy the next issue of *Midwest Flyer Magazine*.

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. □

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Instrument Training For One & All

by Harold Green

We have all heard, or even participated in, discussions as to whether or not an instrument rating is a good thing. For those whose flying requires them to be at a specific place at a specific time, the issue is moot. They need an instrument ticket and they know it. For others, the choice may not be so clear-cut. Cost, time and general excuses like, “If I had an instrument ticket, I wouldn’t stay current and then I would get in trouble flying in conditions I couldn’t handle.”



Harold Green

The obvious response to this: “You can do that without an instrument rating.” In fact, having instrument capability makes you far safer and extends your flight envelope considerably. Yes, you can fly in weather that can present greater hazard unless the pilot uses good judgment. Exercising good judgment is part of instrument flying.

Even if you do not obtain an instrument rating, there are aspects of the training that will benefit any pilot.

There is another factor here also. As aircraft are equipped with more modern avionics, including GPS, glass cockpits and autopilots, it behooves us as pilots to know how to operate this advanced equipment, and the instrument ticket will help accomplish this.

Even today’s light sport aircraft tend to come with GPS, weather and

an autopilot. This equipment provides more capability than most aircraft of any type just 20 years ago. To have that equipment aboard the aircraft and not be able to utilize it in an emergency, would be a tragedy.

The focus of this article is to encourage the acquisition of an instrument rating, or at least some instrument training for those who, for whatever reason, choose not to obtain the rating at this time.

Some people seem to envision instrument flying as a continuous battle with the elements, wherein a struggling pilot with nerves of steel, heroically guides an ice laden airplane through a raging thunderstorm to a zero-zero visibility landing on to a short, ice-covered runway with fire trucks escorting them down the runway.

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The truth is far more mundane than this. In fact, instrument pilots avoid thunderstorms and ice with a vengeance. They have a detailed understanding of the structure and danger of these atmospheric beasts because of their training.

Here we need to make a distinction between Instrument Flight Rules (IFR) and Instrument Meteorological Conditions (IMC), and Visual Flight Rules (VFR) and Visual Meteorological Conditions (VMC). The names are self-explanatory, but define entirely distinct situations. Thus, in controlled airspace, one can legally fly IFR in VMC, but cannot legally fly VFR in IMC.

Most instrument flying is actually done in legal VMC, since the only time that can be logged as actual instrument time is defined in FAR 61.51g: "A person may log instrument time only for that time when the person operates the aircraft solely by reference to instruments under actual or simulated instrument flight conditions." On most IFR trips, the majority of time is conducted controlling the airplane with reference to visual attitude cues. Note: This does not mean that you can use visual cues for navigating since you most likely cannot see the ground. Typically the pilot climbs above a cloud layer into bright sunshine or between layers. Even though there is no visual reference to the ground, this time does NOT count as instrument time. Only that time incurred while in the clouds counts as instrument time. On a flight



lasting several hours, actual instrument time may only be a few minutes.

What are some advantages of having an instrument rating?

Well, obviously, it does permit the pilot to operate in weather not possible or legal for the non-instrument rated pilot. This means that you can fly more often than you would be able to otherwise without an instrument rating, whether for business or pleasure. In my

salad days, I flew my own airplane in support of my business. At first, I did not have an instrument ticket and my job completion rate while flying around a three-state area in the Midwest was about 84%. Later, with an instrument rating, my job completion rate went to 97% and expanded from the Midwest to the East Coast. In fact, my job completion rate was better than if I had flown on the airlines at the time.

One of the biggest paybacks of an instrument rating comes when the weather is marginal or just below marginal VFR.

We've all seen those days when the sun is shining into the haze, reducing visibility to the point that landmarks are virtually impossible to discern, even though the visibility is officially more than 3 miles. Flying under VFR rules in these conditions, while legal, is problematic at best and not safe.

Being on an IFR flight plan enables you to navigate via electronic means above the haze and towers on the ground, and execute an instrument

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It is true that GPS has taken some of the sting out of this situation, but still the loss of actual visual references while flying VFR can be unnerving.

While operating on an IFR clearance, air traffic control (ATC) will provide separation from other IFR traffic, advisories on VFR traffic, and tell you when to contact the tower or next controller, and avoiding a possible violation there also. A further advantage is that you no longer have to worry about Temporary Flight Restrictions (TFRs), violating restricted areas or other controlled airspaces. ATC will not let you into those areas.

There are also less obvious advantages accrued from IFR flight training. The first few hours of instrument training will most likely be how to establish the aircraft power, trim and configuration to do what you want it to do with minimum input from the pilot. The pilot learns how to adjust power to provide fixed airspeed descent and ascent, hold heading and altitude automatically, and generally use the airplanes' inherent design characteristics to full advantage. Once learned, these techniques stay with the pilot during VFR flight as well. It is not at all uncommon for new instrument students to report that the people they normally fly with tell

them how smooth they have become.

A further advantage accrues to those who are uncomfortable with radio communication. Instrument flying obviously requires frequent communication with ATC. Frequent exposure and guidance during training removes any mystery and terror from communicating with controllers.

If you know how to use an instrument approach chart, you can fly the approach when VFR to help you locate a strange airport or, even fly it to the runway. So long as you do it VFR with the knowledge and permission of the facility controlling the traffic and airspace involved, there is no reason why you cannot fly the approach.

As for the question of remaining current, bear in mind that there is a difference between being "legally" current and "proficiently" current. It is easy to maintain legal currency by flying six approaches and a holding pattern while using electronic navigation means every six months. Just remember that if you are under the hood, you need a safety pilot. As long as you are in visual meteorological conditions, the safety pilot does not need to be instrument rated. The only requirement is that he/she should be qualified to act as Pilot-In-Command in the aircraft and the weather conditions.

Then there is the question of where and how to obtain

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instrument training. There are several different ways to determine this.

First, there are concentrated courses in which the rating is achieved in a week or 10 days by concentrated flying and studying. This approach is best suited for those who cannot, for whatever reason, commit to periodic flying and studying over a period of several weeks or a month.

Second, there are programs in which the instructor will come to you and devote a week or so to helping you obtain your rating. This approach works best if you have your own airplane in which to conduct the training. This, as in the concentrated courses, requires you to devote practically full time to your training until you achieve the rating. Both of these approaches result in a short time to acquire your rating.

The third approach is to obtain your training through a Part 61 flight school. (In the interests of full disclosure, I

must point out that I teach in a Part 61 flight school, so I may be biased, and any comparison should be viewed in that context.)

Training at a Part 61 flight school will take you longer than the other two approaches. The offset to this is the fact that this is not necessarily a bad thing. Often this schedule fits the requirements of the student in that time can be scheduled at the student's convenience without extended time away from work or personal concerns. Personally, I like to have students conduct their training while the seasons transition between fall and winter or from winter to spring or from spring to summer because of the weather differences, particularly here in the Midwest. The student experiences the changes of weather, some extreme, while under the guidance of the instructor. This increases the opportunity to gain real life IMC flying.

It is entirely possible for a student to obtain their instrument rating without ever flying in IMC regardless of the training approach taken. It is also possible for pilots to obtain instruction in stages. For example, getting instruction in reading approach plates and executing the maneuvers therein is perfectly proper. It is not proper to use that knowledge to fly in IMC without an IFR rating and clearance.

Lastly, there is the nasty old "knowledge test." There are a variety

of ways to prepare for the instrument exam, just as there are for the private pilot exam. Of course, you need to obtain an instructor sign off before you can take the exam. The instrument knowledge test is quite comprehensive, but it is not rocket science. Most instructors have their favorite study materials, so just ask your instructor what he/she recommends. Then spend a few minutes a day studying and soon you will have the necessary background.

The purpose of all this discussion is not to encourage illicit IFR operations, but rather to point out that the use of basic instrument flying skills can be a great aid to safe VFR flying and to encourage those who can to move up to that complete instrument ticket.

The final point to be made is that whether or not you decide to pursue an instrument rating, the studying and training leading to it are worthwhile in their own right. Either way, you will become a smoother, safer pilot, armed with more knowledge of weather and the airspace system. With this ammunition, there is no longer any reason for the "I might not stay current, etc., etc." excuse.

EDITOR'S NOTE: Harold Green is a Certificated Instrument Flight Instructor (CFII) at Morey Airplane Company in Middleton, Wisconsin (C29). Readers can email questions and comments to: harlgren@aol.com or call 608-836-1711 (www.MoreyAirplane.com). □



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Beyond The Powder Air Racing Documentary Airs On PBS

The documentary film, "Beyond the Powder," made its world broadcast premiere on Western Reserve Public Media over Labor Day weekend. Western Reserve Public Media serves the northeast Ohio viewing area.

Beyond the Powder is a one-hour

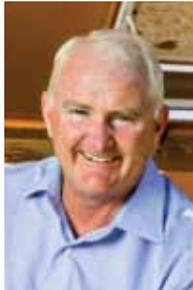
film documenting the 1929 Women's Air Derby, and the women who continue to fly the cross-country race today as the Air Race Classic.

Check your local PBS station for airing in your area or email: info@hemlockfilms.com (www.Hemlockfilms.com). □

Small Wins, Big Results

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

If you follow AOPA—in our magazines, newsletters, and websites for example—it’s easy to imagine that we spend all our time focusing on the big national issues that affect general aviation—things like FAA reauthorization and third-class medical reform. Believe me, those big issues do claim a great deal of our time and resources. But sometimes it’s the “little things” that can make a big difference for pilots, and we invest a lot in addressing those issues, too.



Mark Baker

AOPA is actively engaged just about everywhere decisions that affect GA are being made, whether it’s at the airport, local, state, or federal level. Many of the issues we deal with affect only a small portion of our members, but they’re still important because every loss is a little chip away at our freedom to fly. And every victory provides a little reinforcement that helps strengthen GA.

So what sort of smaller efforts has AOPA been engaged in lately?

In the course of just a few weeks, AOPA persuaded the FAA to delay its plans to switch to the ICAO flight planning form, got Mexico’s aviation authority to extend a deadline to require GA aircraft to carry 406 MHz ELTs, convinced the FAA to keep publishing WACs while working with stakeholders to find alternatives, and won a commitment from Customs and Border Protection (CBP) to collaborate on simplifying cross-border travel for GA. During that same brief period we saw California’s GA Caucus

grow; money returned to the Ohio aeronautical fund redirected toward airport improvements; and pilots in Nevada, Oregon, Washington, Missouri, Iowa, Texas, Michigan, and South Carolina benefit from pro-GA legislation in their states.

AOPA took an active role in making every one of these wins happen. We sent people to testify in state legislatures; meet with officials from the FAA, Mexico’s civil aviation authority, and CBP; educate lawmakers about pro-GA bills, and more.

Some of these issues may affect you—and if they do, you know why they’re important. Others may not impact you directly, but the ripple effects can be huge.

Take a South Carolina tax cut on

aircraft repairs and maintenance, for example. When a state cuts taxes, neighboring states feel pressure to follow suit or lose business as aircraft owners take their planes elsewhere for maintenance. Not only does the tax cut save money for owners and even renters in South Carolina, it encourages other states to cut taxes, too.

AOPA is here to protect the freedom to fly, and that means doing everything we can to keep airports open, reduce the cost of flying, prevent overregulation, welcome newcomers to aviation, and much, much more. It’s true that these issues won’t directly affect as many pilots as, say FAA funding or user fees, but they still matter. The next tax break we win or airport we save could be yours. □

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AOPA GREAT LAKES REGIONAL REPORT

Vibrant Aviation Community Comes Together In The Twin Cities

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

Just a few weeks ago, I was joined by nearly 50 of my colleagues from AOPA headquarters at AOPA's Great Lakes Regional Fly-In, August 21-22, 2015 at Anoka County – Blaine Airport in Blaine, Minnesota (KANE). Having worked in Minnesota for nearly 4 years in my position with AOPA, I am well aware of the amazing aviation community that exists in the state, but being able to show this amazing community to my Maryland-based colleagues was a true pleasure.

On Thursday evening, several AOPA colleagues and I were able to spend time with the Minnesota Aviation Trades Association (MATA) at Twin Cities Aviation, also at the Anoka County – Blaine Airport. Current MATA officers Greg Reigel, Alison Wynne, Dave Weiman, and Nancy Grazzini-Olson have done an incredible job strengthening the association's reach, not only across the state, but also across the country with their outreach to policymakers at all levels of government on behalf of Minnesota's aviation companies and service providers. AOPA proudly renewed its membership with MATA and looks forward to deepening our relationship as issues impacting our members arise. You can find more information at www.mata-online.org.

Also on Thursday evening, I was able to spend time with leaders from the Minnesota Department of Transportation Office of Aeronautics who joined us and spent time talking about MNDOT's proactive approach to growing aviation in the state. I left that discussion with an even greater respect and admiration for their staff in how they administer the state's airport grant funds, but also how they ensure proper zoning protections near airports, maintain a network of aviation weather stations, and even conduct outreach to elementary and high schools to promote aviation careers among the state's students, and much more. I cannot say enough positive things about the entire team at MNDOT-Aero and their dedication to pilots across the state.

On Saturday, a pancake breakfast was served by members of EAA Chapter 237, followed by AOPA President Mark Baker and Golden Wings Museum Founder Greg Herrick who

described some of the amazing aviation history represented in Greg's hangar. Throughout the day, visitors learned about AOPA's You Can Fly programs aimed at getting more people flying by reinvigorating lapsed pilots and barriers to entry, seaplane training, aviation decision-making, flight service station operations and many other great seminars and exhibits.

Wrapping up the day, I was able to join Mark Baker on stage for a Pilot Town Hall update on state and local issues around the region. In case you were unable to join us in Blaine, I wanted to share with *Midwest Flyer Magazine* readers some of those topics as well.

First, I described a recent uptick in attempts by airport management to drive away or limit access to several federally-funded, public-use airports. AOPA and the FAA find most of these situations completely unacceptable and AOPA is going to bat for the aviation communities in Michigan, Minnesota, and Illinois that are improperly being denied access to public airports.

Second, I was able to describe our ongoing work before state legislatures in the region. So far this year, AOPA has been instrumental in preventing an aircraft registration fee increase of nearly 50% annually in North Dakota. In Ohio, AOPA and the Ohio Aviation Association secured an increase of more than \$5 million annually for the state airport grant program, while preventing attempts to divert that additional allocation to non-aeronautical uses.

Finally, I was able to share some insight into ongoing aviation issues in the Michigan Legislature, as several committees are debating the future of airport funding, marking of Meteorological Evaluation Towers, and liability relief for private airport owners. AOPA remains optimistic that lawmakers will approve these measures prior to adjournment in December.

Also worth mentioning is the creation of several new airports in the region – something you don't hear much of lately.

In Minnesota, the Lake in the Woods County Board unanimously approved a resolution to formally select a new site for a proposed new paved runway in the Northwest Angle area of Minnesota. Earlier this year, I traveled with MNDOT officials, Recreational Aviation Foundation Minnesota Liaison Kirk Hiner, Albert Lea Airport Manager Jim Hanson, and others to Baudette to discuss not only the economic development and tourism potential for a new airport, but also the emergency medical and law enforcement needs the airport would support.

CONTINUED ON PAGE 30

Contact Bryan Budds @ bryan.budds@aopa.org



AOPA CENTRAL REGIONAL REPORT

General Aviation Means Business!

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

by Yasmina Platt

Manager, AOPA Central Southwest Region



Yasmina Platt

We all know that general aviation (or simply "GA" as we often call it) offers a uniquely efficient means of moving people and goods between communities that no other mode of transportation can. We also know that, in addition to being a fun recreational activity and providing tourism opportunities, it also creates jobs, trains the next generation of pilots, aids law enforcement, increases productivity, and provides life-saving services, among other things.

Through a network of over 5,200 public-use community airports and more than 14,000 privately owned landing facilities nationwide, GA forges links between thousands of businesses, their suppliers, and their customers. Only about 10 percent of the nation's airports have commercial service, making general aviation an integral part of this country's important transportation system.

General aviation fuels the economy:

- GA supplies \$219 billion in total U.S. economic output.
- GA creates 1.1 million jobs across a broad range of disciplines, including flight crews, aircraft manufacturing and maintenance, avionics development and installation, flight instruction, airport operations, and support services.

• GA increases productivity, allowing business travelers to reach multiple destinations in a single day and conduct meetings and work while enroute.

• An estimated 65 percent of GA flights are conducted for business and public services, many of which are located in or need access to smaller communities that do not have airline service.

General aviation unites the nation:

- GA connects 170 million passengers each year to thousands of cities and towns.
- GA brings the necessities of life to all communities, many of which are isolated with no other reliable access to the outside world.

Every citizen benefits from general aviation:

- GA provides emergency medical flights through medevac operations and volunteers who fly patients to distant locations for specialized treatment.
- GA includes airborne search-and-rescue, disaster relief, firefighting, emergency evacuation, and law enforcement activities.
- GA is critical to agriculture, fishing, pest control, forestry, and wildlife management.
- GA is vital to monitoring and maintaining infrastructure, including oil, water, and gas pipelines, as well as electrical and telephone lines.
- GA informs the public through airborne news, traffic, and weather reporting.
- GA initially trains and provides experience, developing jobs for the majority of new airline pilots.

While I'm preaching to the choir because most of us know a lot of these facts, we need to make sure the

public and decision-makers know this information as well.

I would like to encourage you to set a simple goal for yourself: schedule a meeting with your mayor, your city council member, your county commissioner, your legislators (state and/or federal), or your chamber of commerce, to educate them about the importance of general aviation. If you want to be really ambitious, you can also organize an informational event and invite all those folks in addition to the public, and members of your local church, Rotary Club, and book club.

But, don't worry; you're not alone! We have a lot of resources to help you at AOPA (*like this article*) and you can always send me an email and I can send you some examples of PowerPoints, etc.

The first resource I want to mention is our regional page: www.aopa.org/central-southwest-rm. We have a lot of good information on there, but for this challenge and topic, your best bet is going to be the blog titled "Importance of GA To Your State and Individual Airport." It includes a one-pager and links to economic impact studies for each of the states in the Central Southwest Region (to include Kansas, Missouri, Nebraska and Iowa), and most of those studies also include information about each of the airports in the state's airport system plan.

Good luck and please share your knowledge of GA with others! It's definitely one of the better ways to share the multiple benefits of our wonderful industry and keep airports open!

I look forward to hearing from you!

@AOPACentralSW,

yasmina.platt@aopa.org



Stay up-to-date with Yasmina www.twitter.com/@AOPACentralSW

EAA AirVenture Oshkosh – Better With Age



B-25 Mitchell Bomber "Panchito."
Greg Reigel Photo

by *Dave Weiman*

The way an event like EAA AirVenture Oshkosh keeps getting better and better each year is with a lot of behind-the-scenes hard work and creative thinking on the part of the staff at the Experimental Aircraft Association (EAA); cooperation from thousands of people, including volunteers, vendors and the media; and innovation from people who think outside the box. It's a time to see old friends and meet new ones... to introduce our children and grand children to the marvels and excitement that attracted us to aviation...to explore new products and services and make purchases...and to reflect on the past, and look forward to the future. Here are some of the activities we covered at EAA AirVenture Oshkosh 2015, as EAA celebrated its 63rd annual fly-in convention, July 20-26 at Wittman Regional Airport in Oshkosh, Wisconsin.

Peggy and I arrived in Camp Scholler the Friday before Monday's opener to set up camp, and to prepare for the week ahead. Once in our trailer, we spent several hours going over the

program, press releases and records to plan our daily schedules. We knew what things had to be done, and what we wanted to do for fun!

Bob Hoover Makes Special Appearance



Robert A. Hoover
Dave Weiman Photo

We always look forward to seeing those people who have made many contributions to aviation, such as Jack Pelton, who continues to volunteer his time as chairman of EAA; aircraft designer and builder, Burt Rutan, who challenges all of us to be the best we can at whatever we do in aviation; Sean D.

Tucker – another person who donates countless hours to EAA as the chairman of EAA Young Eagles, and as an airshow performer; and of course aviation icon, Robert A. "Bob" Hoover.

This year, Hoover, 93, was promoting a new documentary on his life called "Flying the Feathered Edge: The Bob Hoover Project." The film was previewed on Sunday, July 19 in the EAA Fly-In Theater, sponsored by Ford Motor Company. Special thanks to Ford for sponsoring this venue, as well as for its support of the outdoor concerts on Boeing Plaza, and of course, Boeing for sponsoring the plaza



C-47 "That's All, Brotha."
Dave Weiman Photo

where we all gathered to see the B-52H Stratofortress, B-29 Superfortress



James "Pee Wee" Martin jumped with the 101st Airborne Division on "D-Day" in Normandy, France, June 6, 1944. The C-47 "That's All, Brother" led the invasion, and is currently under restoration by the Commemorative Air Force. Once restored, Pee Wee hopes to make one more jump.

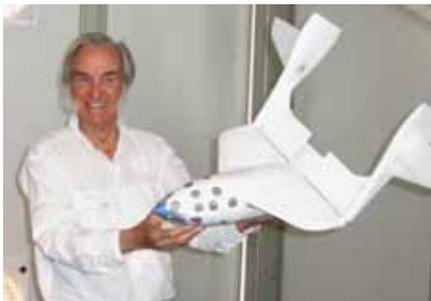
Dave Weiman Photo

"FiFi," Airbus A350, C-47 "That's All, Brother," F-22 Raptor, and F-35A Lightning II.

Director and producer, Kim Furst, and Sean D. Tucker, joined Hoover on stage to introduce the film to those in attendance.

In this inspiring 86-minute film, Hoover tells his life story as an Air Force fighter pilot, experimental test pilot, and airshow performer. The film features conversations with pilot/actor Harrison Ford and Tucker, with appearances by Neil Armstrong, Carroll Shelby, Dick and Burt Rutan, Clay Lacy and other aviation notables.

Burt Rutan Back Building Radio Control Airplanes



Burt Rutan with his SpaceShipOne radio control model airplane. *Dave Weiman Photo*

Speaking of Burt Rutan, he is back to building model airplanes, and has a new company, "RutanRC." The company is developing a series

of radio control model aircraft based on the innovative designs of Burt Rutan. Plans are to create and market the aircraft beginning with the Ansari XPrize-winning White Knight and SpaceShipOne, then add other designs that could include the Ares, Boomerang, LongEZ, the canard motor glider Solitaire, Voyager, Defiant, and Catbird – even his yet-to-be-seen latest design, the SkiGull.

Leading the company are Dan Kreigh, who worked with Rutan as an engineer at Scaled Composites, and Jeff Corsiglia, who led research and development for AirHogs, creating such firsts as HELIX +4, SharpShooter, and other RC hits. Rutan will be an adviser on design and functionality, as well as an ongoing source of innovation.

The model airplanes will retail for \$299. Product delivery is projected for November 2015. Contact the company directly at www.RutanRC.com.

ICON Donates First A5 To EAA Young Eagles

ICON donated its first A5 Special Light Sport Aircraft (S-LSA) amphibian to receive an airworthiness certificate to EAA Young Eagles to be auctioned off at the Gathering of Eagles fundraiser at EAA AirVenture 2016. EAA Young Eagles Chairman Sean D. Tucker and EAA Chairman Jack Pelton accepted the aircraft on behalf of the program from ICON CEO Kirk Hawkins at



Sean D. Tucker graciously accepts the first ICON A5 amphibian aircraft as a gift to raise money for the EAA Young Eagles program.

Dave Weiman Photo

ceremonies held July 20, 2015 during AirVenture.

Gathering of Eagles Fundraiser

On Thursday, July 23, 2015, EAA Chairman Jack Pelton introduced the crew of Apollo 13 – Jim Lovell, Fred Haise, Milton Windler, and Bill Reeves – at the annual Gathering of Eagles event held in the Eagle Hangar at the EAA AirVenture Museum. One thousand aviators and aviation enthusiasts attended.

Auctioned off was a one-of-a-kind Ford Mustang, with a design inspired by the Apollo 13 mission and crew, which sold for \$230,000. Two other unique auction lots, an Alaskan Adventure donated by ConocoPhillips, and a flight experience with Red Bull Helicopter pilot, Chuck Aaron, each had winning bids of \$50,000. In all, \$2.2 million was raised for EAA youth educational programs. Aaron is retiring from performing his Red Bull

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(L/R) An F-22 Raptor parked alongside a B-52H Stratofortress.
Dave Weiman Photo



Lockheed Martin F-22 Raptor
MGN Photo by Mike Nightengale



Airbus A350
MGN Photo by Mike Nightengale

A U.S. Air Force F-35A Lightning II Joint Strike Fighter from the 33rd Fighter Wing, Eglin AFB, Fla. The aircraft made its first U.S. civilian air show appearance at EAA AirVenture Oshkosh 2015.

(U.S. Air Force Photo/Master Sgt. John Nimmo)



B-29 Superfortress "FiFi."
MGN Photo by Mike Nightengale

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Helicopter aerobatic routine at the end of the 2015 season to spend more time with his family.

In addition, on August 6, 2015, it was announced that Ken Regalado of Rochester, Michigan, won the grand prize from this year's Young Eagles raffle: a red 2015 Ford Mustang GT convertible, donated by the Ford Motor Company and Kocourek Ford of Wausau, Wisconsin.

Apollo 13 Mission Remembered

EAA commemorated the 45th anniversary of Apollo 13, Wednesday, July 22 in Theater in the Woods. Appearing on stage was flight director Gene Kranz, astronauts Jim Lovell and Fred Haise, and other team members from what was called a successful failure of the aborted moon mission. David Hartman hosted the program.

F-35 Lightning Arrival Show

All eyes looked toward the sky when the Lockheed Martin F-35A Lightning

arrived during the afternoon air show on Wednesday, July 22. Other acts included an impressive demonstration by an Airbus A350; the Patriot Parachute Team (former Navy SEALs); Patty Wagstaff (Extra 300L); Warbirds of America's 70th Anniversary Victory In The Pacific performance featuring Tora Tora Tora and the Texas Flying Legends; Eagles Skydiving Team (108 jumpers); U.S. Air Force F-22 Raptor demo, plus its Heritage Flight with a P-38 and P-51.

At the airshow, the Eagles Over Oshkosh Skydiving Team made a three-point skydive on its first record attempt over AirVenture. Unfortunately, there was a mis-grip on the second point and the FAI judges couldn't award a world record. However, the skydivers did set a new Wisconsin large skydiving formation record with 108 of the world's best skydivers from 15 nations and 23 states. The previous state record was a 30-way formation set in 2011. Through this exposure at EAA AirVenture Oshkosh, the Skydiving Museum & Hall of Fame was able



The Wall of Fire from the 1941 Pearl Harbor reenactment during an afternoon airshow.
Greg Reigel Photo

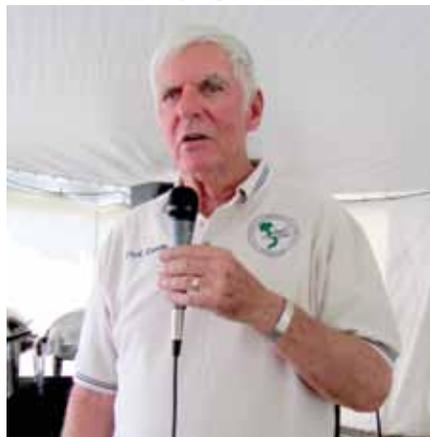
to broadcast its world-class activities to hundreds of thousands of aviation enthusiasts.

Rockwell Collins Night Air Show

The Rockwell Collins Night Air Show took place both Wednesday and Saturday night. Featured acts included the Goodyear Airship Wingfoot One; Eagles Skydiving Team (108 jumpers); AeroShell Aerobatic Team (T-6s); Luca Bertossio (Swift S-1 glider); John Moody (EZ Riser); Bob Carlton (SubSonex JSX-2 jet); Paul Stender (Jet

School Bus); Julie Clark (T-34); Jerry Kerby (RV-8); Gene Soucy (Firecat); and Matt Younkin (Twin Beech). The show closed with fireworks and the Wall of Fire.

Dick Rutan Shares Flying Experiences With Flying Rotarians



Dick Rutan
Dave Weiman Photo

The International Flying Rotarians celebrated their 50th anniversary at EAA AirVenture Oshkosh, followed by



Goodyear Airship "Wingfoot One."
Dave Weiman Photo

a 10,000 Lakes Fly-Out to Minnesota. On Thursday, July 23, 2015 at Oshkosh, the group held a luncheon with guest speaker, Dick Rutan, who shared some of his experiences growing up with his younger brother, Burt; his career in the Air Force; and his non-stop, round-the-world flight with Jeana Yeager in "Voyager."

Rutan flew 325 missions in Vietnam, and on his 105th mission, his North American F-100D Super Sabre was hit. Rather than eject right away, he put the Sabre into afterburner so he could make the coast before running out of fuel. When Rutan finally ejected,

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EAA AIRVENTURE OSHKOSH

American forces were there to pick him up right away. He ejected from another aircraft – this time over England – when his aircraft experienced an engine failure.

Rutan was awarded the Silver Star, five Distinguished Flying Crosses, 16 Air Medals, and a Purple Heart during his Air Force career.

Something Rutan's mother told her two sons stuck with them throughout life: *"If you can dream it, you can do it, and you only fail if you quit."*

So after years dreaming of flying around the world nonstop, Dick Rutan did just that when he built "Voyager" with his life savings and he and Jeana Yeager took off from Edwards Air Force Base on December 14, 1986.

Rutan and Yeager did not have a predetermined route, but rather flew in a westerly direction for 26,366 statute miles at an average altitude of 11,000 feet. Rutan said they avoided Vietnam and some other unfriendly countries, and after flying over Kenya airspace, they were ordered to return and land, but kept on going.

The flight ended 9 days, 3 minutes and 44 seconds later back at Edwards Air Force Base on December 23, setting a flight endurance record. The flight also broke a previous flight distance record set by a U.S. Air Force crew flying a Boeing B-52 that flew 12,532 miles in 1962.

When Rutan and Yeager landed at Edwards, they only had 18 gallons of fuel remaining, which was one-half of 1% of the total fuel they had on takeoff.

Following the flight, Rutan and Yeager had dinner at the White House with President Reagan and his wife, Nancy, and Voyager went to the Smithsonian Air & Space Museum in Washington, DC, where it remains on display to this day.

Rutan remained active as a pilot, but in 1992, he ran as a Republican against Democratic Congressman George Brown, Jr. in California's 42nd Congressional District. Rutan ran on a platform that called for reforming Congress and lowering taxes. Brown prevailed with 79,780 votes (50.7%) against Rutan's 69,251 votes (44%). Fritz Ward, a Libertarian, received 8,424 votes (5.3%).

The Rutan family is originally from France and came to America through England to reach the new world. They made that voyage on the "Mayflower" in the 1600s, settling in Pennsylvania.

Meet The FAA Administrator Forum

A year after announcing steps being taken to revise third-class medical certification requirements, no specific proposal has yet been developed, FAA Administrator Michael Huerta told the audience at the annual Meet The FAA Administrator session at EAA AirVenture Oshkosh, Thursday, July 23.

"The pilot's perspective is not the only perspective, and we need to keep this conversation going," said Huerta. "We have talked to DOT, we have been working with Congress... what we want is a lasting policy."

Huerta went on to discuss FAA's efforts to incorporate drones into the National Airspace System with an influx of non-aviation people participating.

In talking about the modernization of the air traffic control system, Huerta asked the crowd, "What do we want? How do we set priorities? How do we pay for it?"



FAA Administrator
Michael Huerta
Dave Weiman Photo

Coffee & Donuts At AOPA Pavilion



Mark Baker with a Cessna 172 Skyhawk remanufactured by Yingling Aircraft. Baker feels that if there are affordable aircraft, there will be more flying clubs and general aviation will grow.
Dave Weiman Photo

A lot of AOPA members showed up at the AOPA Pavilion for coffee and donuts on Friday, July 24, 2015 for an excellent town hall meeting. Featured speakers included AOPA President & CEO Mark Baker; Vice President of Communications, Katie Pribyl; and Senior Vice President For Government Affairs, Melissa Rudinger. U.S. Senator James Inhof was a special guest, and discussed briefly the Pilot's Bill of Rights II amendment to the Transportation Bill.

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Katie Pribyl
Dave Weiman Photo

Baker opened the meeting by discussing the issues that concerns AOPA the most, such as third class medical reform, building the pilot population through such initiatives as the Rusty Pilot Program, and

trying to lower the cost of flying by helping to establish flying clubs, and encouraging clubs to buy old, but rebuilt aircraft, like Yingling Aircraft's remanufactured Cessna 172 Skyhawks.

Baker said that AOPA's regional fly-ins are a success, with between 2,000 to 3,000 people attending each, and 500 to 600 aircraft flying in.

Pribyl discussed AOPA's Flying Club Network and Flying Club Finder,

the organization's Airport Support Network, Member Assistance Hotline, and the high school STEM program. AOPA hopes to build aviation programs in high schools, similar to the Future Farmers of America club concept.

Rudinger addressed "NextGen" and the ADS-B requirement for 2020. She said that AOPA is looking at lowering the average price point to equip an aircraft from the \$6,000 to \$8,000 it was in 2010, to \$2,000 per aircraft. To accomplish this, AOPA got avionics manufacturers to work in this direction, and in the 8 months since, the price appears to be going down.

Rudinger also discussed Unmanned Aircraft Systems (UAS) and what they mean to the manned aircraft community. She said the proposed rule does not restrict access or require equipment for GA aircraft. "Recreational (UAS) operators is where the problem is, not commercial," said Rudinger. "We think education is the way to go. Any entry into aviation is

a good thing." Rudinger said there are 200,000 drones being sold per month.

EAA & AOPA Fire Back At Airline Pilots Union

After years of work on the part of General Aviation organizations and their members to convince the Federal Aviation Administration and Congress to change third class medical requirements, the Air Line Pilots Association (ALPA) sent a letter to all members of the U.S. Senate urging them to reject an amendment to a transportation bill offered by Sen. Joe Manchin (D-West Virginia) and Sen. John Boozman (R-Arkansas) that would reform the requirements.

The Experimental Aircraft Association and Aircraft Owners & Pilots Association fired back July 25, 2015 during AirVenture with letters of their own, pointing out to Congress the many false and unsubstantiated claims made by ALPA. This was the first time

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ALPA has expressed any position regarding the bipartisan congressional effort that EAA and AOPA has spearheaded for the past four years, and it is believed the organization did so for political posturing.

“It isn’t about safety, as ALPA claims, as much as scoring political points,” said EAA Chairman Jack Pelton. Pelton urged current and past ALPA members who also fly recreationally to let their union know they object to the organization’s letter.

FAA rulemaking is currently stalled in the Department of Transportation, and the Pilot’s Bill of Rights II developed by Sen. Jim Inhofe (R-Oklahoma), and now the Manchin-Boozman Amendment to the transportation bill in the Senate, are in the works!

GA pilots are urged to contact their U.S. Congressmen and urge the passing of the bill.

Airshow Pays Tribute To Vietnam

The airshow on Friday, July 24, 2015, featured rare aircraft that fought in the Vietnam War and a mock air battle. Other performances included the Goodyear Airship “Wingfoot One;” Nicolas Ivanoff (Edge); Eagles Skydiving Team (108 jumpers); Stearman Formation; Vicky Benzing (Stearman); AeroShell Aerobatic Team (T-6s); Peter Davies (Calidus Autogyro); Greg Koontz/Alabama Boys (Piper J-3 Cub); Mike Goulian (Extra 330SC); Jeff Boerboon (Sasquatch); Team Aerostars (Yak 52 formation); and Warbirds of America’s Vietnam reenactment.

Old Glory Honor Flight Arrival

Yellow Ribbon Honor Flight III operated by Old Glory Honor Flight is a one-time opportunity for Vietnam veterans to visit, at no cost to them, the memorials in Washington D.C. that were built to honor their service and recognize their many sacrifices. The Honor Flight during AirVenture departed Oshkosh the morning of Friday, July 24 and returned that evening. Among the veterans onboard was retired Wisconsin Bureau of Aeronautics Director Bob Kunkel.



ForeFlight and Appareo Systems have teamed up to provide pilots with useful and affordable flight tools that use iPad computers. Appareo Systems manufactures the Stratus 1S and 2S portable GPS weather and traffic monitoring devices that work with ForeFlight programs.

Dave Weiman Photos

Foreflight & Appareo’s Stratus 1S & 2S

With continuous updates from Foreflight Mobile, and in their partnering with Appareo Systems, it is no wonder their booths were among the most popular during AirVenture.

The Stratus 1S and 2S portable devices from Appareo give pilots easy situational awareness for a fair price. The devices are pocket-sized wireless receivers that sit on the dash of your airplane. Through your iPad, you get subscription-free weather, GPS information, back-up attitude and ADS-B traffic – all integrated with ForeFlight Mobile. The Stratus 1S and 2S sell for \$549.00 and \$899.00 respectively (www.appareo.com), and can be ordered through Sporty’s Pilot Shop. The devices were a sell-out not once, not twice, but at least three times during AirVenture.

Aviation Gateway Park

A brand-new neighborhood of flight called “Aviation Gateway Park” sponsored by Piper Aircraft brought together imagination, ingenuity, and possibilities in one area on James Ray Boulevard, just northwest of the FAA control tower.

“Aviation Gateway Park and its four different venues introduces exciting flight innovations, new technology, and aviation-based start-up companies,” said Dave Chaimson, EAA’s vice president of marketing and business development. “Through all its activities, it offers numerous ways to engage with aviation ranging from hands-on experiences to career exploration.”

Aviation Gateway Park is an innovation center, presented by the National Air Traffic Controllers Association (NATCA). World-class organizations such as NASA’s special 100th anniversary activities, SLS/Orion, Lockheed Martin (with its F-35 simulator), Terrafugia’s flying car, the “Drone Cage” presented by Embry-Riddle Aeronautical University,

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Education/Career Center with more than 25 university aviation programs and airline representatives, Forums Area sponsored by NATCA, and the University of Wisconsin Oshkosh AeroInnovate program that features five innovative start-up aerospace companies, made the park a great addition to the fly-in.



A view from the air traffic control tower during EAA AirVenture Oshkosh 2015, Wittman Regional Airport, Oshkosh, Wis. *Best seat in the house!*
Greg Reigel Photo

New Exhibits At EAA AirVenture Museum

A trip to AirVenture would not be complete without a visit to the EAA AirVenture Museum, where “Wood and Canvas,” the World War I aviation art of James Dietz, was debuted.

Through his meticulous attention to detail, Dietz provides each scene with historical accurate aircraft, vehicles, settings, and insignia. This exhibition of 41 images highlights his extensive work with World War I aviation that is commemorating its 100th anniversary. The exhibit is open in the museum’s Gorman/Hansen Gallery through December 2015.

Also at the EAA AirVenture Museum is a new exhibit about one of the most distinguished bomb groups of World War II, the 345th Bombardment Group “Air Apaches.” The 345th helped develop the technique of low-level bombing and strafing in the Pacific Theater. Their heavily armed B-25 Mitchell Bombers blazed a trail from Australia north to the Japanese home islands. Artifacts and videos tell the stories of the brave crews who flew these unforgiving treetop-level missions. A special area honors those who made the ultimate sacrifice.

EAA Elects New Board of Directors

Six Experimental Aircraft Association (EAA) members were elected to join the organization’s 33-member board of directors to represent EAA’s 190,000 members. The election was held at the annual EAA membership meeting on July 22, 2015, during AirVenture.

A new addition to the board is Lou Seno (EAA 31489) of Harbor Springs, Michigan. He is Vice President of Corporate Relations and Government Affairs at Embry-Riddle Aeronautical University headquartered in Daytona Beach, Florida. In addition to his leadership role at Embry-Riddle, Seno is Chairman Emeritus of Jet Support Services Inc. (JSSI), and serves on the board of the General Aviation Manufacturers Association (GAMA). He has attended the EAA fly-in convention annually for more than 60 years and has worked with Embry-Riddle since 2001. He will serve a three-year term on the board.

EAA directors re-elected to the board include:

- Joe Brown of Piqua, Ohio (EAA 795555)
- Barry Davis of Carrollton, Georgia (EAA Lifetime

389226)

- Darren Pleasance of Bend, Oregon (EAA 582487)
- Dan Schwinn of Melbourne, Florida (EAA 360170)
- Alan Shackleton of Sugar Grove, Illinois (EAA Lifetime

189346)

All re-elected members will also serve three-year terms.

For information on EAA AirVenture Oshkosh 2015, refer to www.eaa.org/airventure, and be sure to read future issues of *EAA Sport Aviation* and *Midwest Flyer Magazine* (www.midwestflyer.com). □

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EAA AIRVENTURE OSHKOSH



(L/R) Bill Read of Wag-Aero, Inc., Lyons, Wis., with Wisconsin Governor Scott Walker.
Wag-Aero Photo



(L/R) Tori Ballweg, Paul Valenstein and Nicki Paulson of Wisconsin Aviation, with locations in Madison, Watertown and Juneau, Wisconsin.
Dave Weiman Photo



A Cessna Caravan and Wipaire "Boss 182" on Wipline floats.
Dave Weiman Photo



Doug Evink of Tanis Aircraft Products, Blaine, Minn.
Dave Weiman Photo



Teresa De Mers of Lightspeed Aviation, Lake Oswego, Oregon.
Dave Weiman Photo



Airshow announcer, Danny "Hollywood" Clisham of Ann Arbor, Michigan, celebrated his 50th anniversary announcing airshows (1965-2015) during EAA AirVenture Oshkosh – an event he has announced for decades. Clisham is the recipient of the Bill Barber and Art Scholl awards for showmanship, and was inducted into the Air Show Hall of Fame in 2007. In addition, Clisham is a member of the Screen Actors Guild as an actor, stuntman and aerial film coordinator; set numerous speed records as an American Airlines pilot; and was the test pilot for Evergreen International in converting a Boeing 747 into a water bomber.
Dave Weiman Photo

Kurt Hartwig of Eagle Fuel Cells, Eagle River Union Airport, Eagle River, Wis.
Dave Weiman Photo



Jerry Slegler of Sturgeon Bay, Wis., has been performing polka music as "Jerry's One Man Band" at the corner of Knapp Street and Vern Avenue during EAA AirVenture Oshkosh for the past 26 years. The 2015 fly-in may have been Jerry's last year performing, due to family health issues.
Dave Weiman Photo



(L/R) Nancy Barber, Jim Freeman and Terry Peed of Helicopter Specialties, Inc., Southern Wisconsin Regional Airport, Janesville, Wis.
Dave Weiman Photo



A Kid's Report of KidVenture, Oshkosh, Wisconsin



Working very hard shaving and sanding a wooden propeller blade for an airplane.



Exploring circuits by starting and stopping a fan in the air.



I am learning to cut and strip wire by making a souvenir bracelet.



Learning how an aircraft engine runs.



Taking apart an aircraft engine and having to be real careful that I don't drop anything inside it.

Flying a red remote control airplane for the first time.



by The Midwest Flyer KidVenture Reporter

OSHKOSH, WIS. – One of the more popular attractions at EAA AirVenture Oshkosh for families is “KidVenture.” Located at Pioneer Airport, next to the EAA AirVenture Museum, KidVenture encourages children and teens to explore areas in aviation, including flying and building model aircraft, through hands-on activities, speakers, simulators and demonstrations. Volunteers who work at KidVenture like kids and want to share with them their excitement in aviation. Once a kid attends KidVenture once, he/she will surely be back the following year.

This report of KidVenture 2015, July 20-26, is by a 6-year-old from Madison, Wisconsin. This is his second year at KidVenture, and he plans to return and participate in KidVenture 2016, and keep working his way through the various project levels based on his age and previous year's accomplishments.

Whether in pre-school or high school, your kid will enjoy KidVenture!



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An ADS-B Update

by Woody Minar

As AOPA President Mark Baker recently wrote, “If you’re confused by the ADS-B Out mandate, you’re not alone. Most aircraft owners know that the FAA has set a 2020 deadline to equip aircraft for ADS-B Out in order to fly anywhere a Mode C Transponder is required today. But, beyond that, it can be hard to figure out exactly where to go from here.”

I attended a panel discussion at the AOPA Activities Tent at EAA AirVenture Oshkosh in July. The panel was comprised of four industry representatives and Melissa Rudinger, AOPA Vice President of Government Affairs. Here are the highlights from that discussion:

- The 2020 date is FIRM. The FAA is hitting their deadlines and target dates since this mandate went into effect five years ago. The FAA and industry are committed to meeting the January 1, 2020 deadline.
- The panel talked about installing Mode S, Universal Access Transceiver (UAT), or both. The panel recommended getting a 1090 Mhz data link versus 978 Mhz for the simple reason that Europe is going this route, and if you want to travel outside the United States, you will most likely need 1090. Canada and Mexico haven’t committed, yet.
- One size doesn’t fit all. It depends



Melissa Rudinger

on what avionics are in the aircraft. The decision on 1090 vs. UAT really is an individual choice based on preference and flying habits. Many pilots are opting for a dual band solution (both 1090 and UAT). It is something to discuss with your avionics shop when you are making a purchasing decision. One should consider two antennas to ensure that you will be seen. Having one antenna may not be sufficient, but you will want 360 degrees “cone of site.”

- The question was asked, “When should I do it?” The answer was this year or next year. There are some shops that have a six-month waiting list, already. If you wait, it will be harder to find a shop that will have time to do it. Consider doing it at the next

annual. The panel said that there are 240,000 planes that will require ADS-B and that 1,700-1,800 planes a year are being updated. At the current rate, all planes will not have ADS-B in time. No ADS-B installed by January 1, 2020 and the plane is grounded from flying where a transponder is required today. AOPA has been pushing for a price point of \$2,000 for ADS-B Out.

• Garmin’s ADS-B Solutions at <http://www.garmin.com/us/intheair/ads-b> and the AOPA <http://www.aopa.org/Pilot-Resources/Aircraft-Ownership/Technology/ADS-B/ADS-B-Selector> provide assistance to help determine what you need. AOPA will also be writing many articles on ADS-B to educate us.

EDITOR’S NOTE: Woody Minar is a Designated Pilot Examiner (DPE), MCFI, CFII, MEI, and CFI-G at L.O. Simenstad Municipal Airport (KOEO), Osceola, Wisconsin (KOEO). □

AOPA GREAT LAKES REPORT FROM P. 18

In Michigan, Lake Michigan is home to a newly opened airfield on North Fox Island. The airstrip, which had previously been open to the public but later sold to the Michigan Department of Natural Resources and was closed recently, saw its first general aviation aircraft return to the airport in several years. The new public-use airstrip identified as 6Y3 is the result of tireless work by Recreational Aviation Foundation Michigan Liaison Brad Frederick and many volunteers that supported the opening and continued maintenance of the airstrip. When you visit, remember anything that comes with you, has to leave with you as well!

Right now, it is an exciting time in the Great Lakes Region. We have lawmakers taking an interest in aviation policy, state aviation offices expanding their work, aviation organizations strengthening the industry, and I am pleased AOPA can play its role in bolstering the thing we love so much – aviation!

If you have any questions on these issues or issues in your area, please let me know! bryan.budds@aopa.org □

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AirVenture 2015... New Challenges & Technology For General Aviation



Rutan VariEze
Larry LaMalfa Photo

by Jim LaMalfa

I have attended EAA's annual fly-in with my family since 1972. It was then, and is now, a showcase for everything old, new and yet to come in General Aviation.

In 1972, we visited for a day, then came back to camp in 1973 on what is now the "fly market." This was the year when air traffic was kept in a holding pattern until the air show ended as a storm front was moving in. As we looked out over Lake Winnebago, we could see landing lights of aircraft stretching out on final for Runway 27, looking like a steady flow of freeway traffic at night. We could hear the controllers advising aircraft landing short and long, simultaneously. There were no accidents, a credit to pilots and controllers.

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Back then, controllers used to work their vacation time for the privilege of working during AirVenture – at no charge to EAA. Today, EAA must pay the FAA \$500,000 a year to cover “travel time” for controllers, one of the challenges I am referring to in the title of this article. Another challenge is the plan to privatize air traffic control and pass the cost on to the aviation community. EAA and AOPA have continually worked to ensure that General Aviation does not get taxed out of existence. All that said, we can now review – and enjoy – some of the educational and fun events that took place at EAA AirVenture Oshkosh 2015, July 20-26.

ADS-B In & Out

Our brothers in the nautical world have been using satellite navigation since the 1980s when the U.S. Defense Department first permitted it to be used by civilians. General Aviation began replacing Loran C in the late 1980s with GPS. All ships at sea have coded identifications, three in number, whereas pilots use their aircraft registration numbers and squawk an assigned transponder code to controllers.

In 2014, the FAA published Rule 14 CFR Part 91, which requires all aircraft operating in airspace A, B, C, D and E to have Automatic Dependent Surveillance – Broadcast (ADS-B) Out transponders by 2020. Above Flight Level 180, ADS-B In will also be required. Below 2500 feet above ground level (AGL), ADS-B Out will not be required. Aircraft not certified with electrical systems, such as antique aircraft, gliders and hot air balloons, will also be exempt from the rule.

ADS-B Out is when air traffic control can see an aircraft on their equipment... ADS-B In is when the pilot can see other aircraft on their equipment. As most of us know by now, NextGen, or satellite technology, will eventually phase out ground-based radar.

And while ADS-B Out requirements will not go away, the good news is, prices are falling as seen at EAA AirVenture Oshkosh, and will continue to fall, says Jim Zanino of Bendix King. Refer to the “Pilot’s Guide To Avionics” to learn more about what NextGen avionics are available, names of installation facilities, etc.

The airshow at AirVenture this year featured flybys of all of Burt Rutan’s designs on Tuesday, July 21, 2015, as this was “Burt Rutan Day.” Rutan’s first design, the Vari Vigen, appeared on the cover of Sport Aviation in 1972, but no example was flown at AirVenture 2015. However, the VariEze, now considered an antique, was, as well as a Quickie, Defiant, the Xcor rocket, Long-EZ, Beech Starship, Catbird and Boomerang.

The first record set in one of Rutan’s composite pushers was accomplished in 1975 when Dick Rutan piloted a VariEze from Wittman Regional Airport to Menominee Twin County Airport in Menominee, Michigan, setting a world distance record for aircraft in its weight class. That was the first time I met Burt Rutan, and helped to recruit observers at Enstrom Helicopter in Menominee, Michigan, to verify the flights, which consisted of a continuous loop from Oshkosh to Menominee and back. My son, Larry, and I witnessed history in the making, as aircraft made the turn at Menominee, right before our eyes!

Aircraft On Boeing Plaza



Avro Lancaster
Larry LaMalfa Photo

Owned by the Canadian Warplane Heritage Museum, a beautifully restored Avro Lancaster was parked amidst its contemporaries, including a B-17 Flying Fortress featuring insignia from the U.S. Eighth Air Force bomb group used during World War II to destroy Nazi Germany’s industrial infrastructure. Also on display was a Boeing C-47 “That’s All, Brother,” which was found at Basler Flight Service, Oshkosh, Wis., destined to become a Basler Turbo Conversion.

Research revealed that “That’s All, Brother” led a formation of more than 800 aircraft that dropped 13,000 paratroopers behind enemy lines. The aircraft was named “That’s All, Brother” as a personal message to Adolf Hitler that with the Allied invasion of Europe, his plans to take over Europe were over.

After returning from the initial drop of the 101st Airborne Division paratroopers on D-Day, June 6, 1944, “That’s All, Brother” towed a glider to Normandy, carrying essential supplies and troops of the 82nd Airborne Division into the heart of the battle. Parts for many of the gliders, including Waco CG 14 and 16s, were built in the Upper Peninsula



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of Michigan at Menominee (fuselages) and Iron Mountain (wings).

“That’s All, Brother” remained on combat status throughout the European campaign, participating in Operation Market Garden, the relief of Bastogne during the Battle of the Bulge, and the crossing of the Rhine River. After the war, the aircraft passed through 16 civilian owners and its story was forgotten until now.

Also on display at EAA AirVenture Oshkosh was a Lockheed B-52H Stratofortress from the 307th Bomb Wing, Barksdale Air Force Base, La., an aircraft that entered service in 1955 and is still on active duty, today.



de Havilland DH-98 Mosquito
Jim LaMalfa Photo

World War II British aircraft on display included EAA’s Mosquito and a restored DH-98 Mosquito flown to Oshkosh by the Military Aviation Museum in New Zealand. The “Mossie,” as it was affectionately dubbed, was an all-wood interceptor and ground attack aircraft powered by two Rolls Royce 225 1680 hp engines, which had a top speed of 378 mph. The British warbirds flew during the Thursday, July 23, 2015 airshow.

Airbus returned to AirVenture 2015 with its A350, demonstrating slow flight prior to landing on Monday.

Airbus scheduled the A350 to fly at various U.S. airshows this summer, as it is in competition with Boeing’s 787



Dave Weiman Photo

Dreamliner.

A replica 1919 Junkers F13 was parked next to the Airbus A350, and is owned by RIMOWA Flugzeugwerke AG. The aircraft was the first corrugated aluminum single-engine airliner. Ford also built a corrugated aluminum skinned trimotor, and Junkers followed the F13 with the Trimotor 52, used at first by commercial airlines, and then, as a military transport during World War II.

Rotary-Winged Aircraft

Enstrom Helicopter of Menominee, Mich., was present with two models of helicopters on display – the two-place 480B Rolls Royce powered helicopter, and the 480B jet turbine three-place helicopter. Also on display was a seven-place jet-powered Airbus helicopter.

Warbird Interview Circle

A beautifully restored F4U Corsair was on display, as was a P-51 razorback Mustang with a Malcolm Hood Canopy. A Curtiss Helldiver, number 32, was parked just down the line from the Corsairs, and is owned by the Commemorative Air Force (CAF).

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Boeing PB4Y-2 "Privateer"
Jim LaMalfa Photo

Just north of the Naval aircraft sat several North American B-25 Mitchell Bombers, including "Panchito," bristling with 50 caliber machine guns.

A very rare bomber used for anti-submarine patrol during World War II was a Boeing PB4Y-2, a modified Consolidated B24. The "Privateer," as it was called, was used for anti-submarine patrol in 1944 and continued in service until 1955. Among the restored World War II vintage trainers at the north end of Wittman Regional Airport were a number of North American AT6 Texans and its predecessor, the Ryan PT22. Also parked in the Warbirds of America tiedown area was a Grumman TBF Avenger torpedo bomber, which carried a crew of three.

Civilian Aircraft

Aircraft from Piper, Cirrus, Cessna, and American Champion were much in evidence with large displays of their most popular models.

The Cirrus "Perception" is a sensor-capable special mission aircraft, based on Cirrus' General 5 SR22/SR22T, which is configured for various applications, such as aerial surveillance. Cirrus also displayed its 6,000th certified aircraft ever built – a gorgeous SR22, distinctively painted in yellow, black and silver. As for progress on certifying the Cirrus SF50 "Vision" personal jet, I was told that it is on schedule, and Cirrus has 500 orders. Pretty exciting stuff!

Champion Aircraft Company is alive and well, as evidenced by its utility class "Scout" and aerobatic "Extreme" on display.

If you want sea level performance at all altitudes, you need to look into the "Turbulence" turbo-powered MP, or install a TP 100 turboprop made by Dimech Turbine Solution, Inc. I've seen them installed in Super Cubs!

I.C.P Aviation displayed its diminutive light sport aircraft, "Savannah S."

Arion Aircraft displayed its light sport aircraft, "Lightning," which is available ready to fly or as a kit.

Kit Aircraft

RANS aircraft displayed its S-7S "Courier" and BD displayed the aluminum fuselage for a BD-4X folding wing, towable homebuilt. Zenith displayed a CH 750 "Cruzer," featuring a quick-build kit.

Every field of human endeavor is subject to changes and challenges and private aviation is no exception. Organizations, such as EAA and AOPA, are there to help and educate us. Attending EAA AirVenture Oshkosh every summer is just plain FUN, and I encourage you to join me in 2016! ☐

National Geographic Studios Presents "Living In The Age of Airplanes"

OSHKOSH, WIS. – National Geographic Studios has an immersive new giant screen film experience that offers a fresh perspective on the modern-day miracle most people take for granted: flying. Using spectacular aerial and nature photography, "Living In The Age of Airplanes" carries audiences across 200,000 years of history and around the globe on an epic journey to 95 locations in 18 countries spanning seven continents to remind us how, in a single century, aviation has changed our world forever.

The world premiere of "Living In The Age of Airplanes" took place at the Smithsonian's National Air and Space Museum in Washington, D.C., on April 8, 2015. A special viewing

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was presented during EAA AirVenture Oshkosh in Oshkosh, Wisconsin in July and *Midwest Flyer Magazine* was there.

The film was passionately narrated by pilot/actor Harrison Ford through every breathtaking scene. Pilots interested in fostering and safeguarding aviation will appreciate the film's appeal to general audiences, and its reminder of how aviation affects everyone's life.

Produced and directed by Brian J. Terwilliger ("One Six Right"), "Living In The Age of Airplanes" features an original score by Academy Award®-winning composer and pilot James Horner ("Avatar," "Titanic") and cinematography by Andrew Waruszewski.

The film highlights the astonishingly rapid advancements that



have led to a world in which 100,000 flights take off and land every day.

Terwilliger was on hand at the preview at Oshkosh to get feedback from reporters and to answer questions. He is a private pilot and owns a Cessna 182 Skylane.

"Since we were all born into a world with airplanes, it's hard to imagine that jet travel itself is only 60 years old, just a tick on the timeline of human history," said Terwilliger. "With this film, we want to reignite people's wonder for one of the most extraordinary aspects of the modern world."

For a full list of theaters or to view the trailer, visit www.airplanesmovie.com. Also visit www.terwilligerproductions.com. □

EAA Chairman Comments On Success of EAA AirVenture Oshkosh 2015

OSHKOSH, WIS. – EAA Chairman Jack Pelton, one of the volunteers at EAA AirVenture Oshkosh 2015, told reporters at his closing day press conference, July 26, 2015, at Wittman Regional Airport, that the event exceeded their expectations on many levels.

"With near-perfect weather for the entire event, we filled Wittman Regional Airport and our convention site to capacity with aircraft, campers and cars by mid-week," said Pelton. "The depth and variety of our features and attractions ensured something for



Jack Pelton

every aviation enthusiast. Whether it was the static displays and the number of 'firsts' at AirVenture, such as the B-52, F-35, and A-350, or the packed exhibits, forums and workshops across the grounds, everyone left knowing that aviation is alive and well in Oshkosh and around the world. The spirit of aviation is strong and the culture of EAA was on full display all week."

There were approximately 550,000 people in attendance with a total attendance increase of approximately two percent.

Pelton: "Our final attendance figure

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continues to demonstrate strong excitement and renewed optimism for the wide variety of aviation activities offered throughout the week for our members and guests. Highlights included the very popular day and night air shows, the Apollo 13 crew presentation and the return of legendary designer Burt Rutan. The EAA Young Eagles program took delivery of ICON Aircraft's first production A5, and the premiere of EAA's new Aviation Gateway Park drew standing room-only crowds to investigate new aviation innovations, including exhibits and demonstrations on drone technology.

"On Thursday alone, there were more than 3,100 aircraft movements (takeoffs and landings) over 14 hours, the highest total in at least three years. You could sense the buzz among the attendees, exhibitors and our 5,400 volunteers whose work made the event possible."

More than 10,000 aircraft arrived at Wittman Regional Airport in Oshkosh and other airports in east-central Wisconsin.

There were 2,668 showplanes (up 1 percent over 2014) – including 1,031 homebuilt aircraft, 976 vintage airplanes, 350 warbirds, 130 ultralights and light sport aircraft, 101 seaplanes, 30 rotorcraft, and 50 aerobatic aircraft.

There were more than 800 commercial exhibitors, including more than 140 new exhibitors.

There were a total of 1,048 forums and workshops attended by more than 75,000 people.

Nearly 600,000 AirVenture web sessions were held from

around the globe, 40,000 downloads of the EAA AirVenture app; AirVenture social media posts reached 82 countries; and EAA's 1,000 photo uploads were viewed nearly 8 million times.

There were 2,299 visitors registered at the International Visitors Tent from a record 80 nations, with 485 visitors from Canada, 266 from Australia, and 204 from Germany, comprising the top three represented nations. (NOTE: Actual international counts are higher, as these are self-reported figures collected at the International Visitors Tent alone.)

There were 970 media representatives on-site, from five continents.

Pelton commented on what's ahead for EAA AirVenture Oshkosh 2016, July 25-31, 2016:

"We're not resting, as we're already planning for 2016, with more details available as soon as they're finalized over the coming months. There were aircraft in process that couldn't make it this year, including Burt Rutan's new SkiGull and the B-29 'Doc,' that we hope will make an appearance next year. In addition, it's the 30th anniversary of the iconic RV-6 design. We'd like to have a big reunion of these airplanes at Oshkosh. And, of course, there will be plenty of other highlights that you can only see at Oshkosh. Based on the momentum from this year's fly-in, AirVenture 2016 is already one to eagerly anticipate!"

Information updates will be posted at www.eaa.org/airventure as they become available. □

EAA & IMC Sign Letter of Intent

OSHKOSH, WIS. – EAA and the IMC Club signed a letter of intent, July 20, 2015 regarding EAA's possible acquisition of the IMC program. IMC Club, through its worldwide chapters, provides organized "hangar flying" focused on building proficiency in instrument flying. The IMC Club concept is to bring together IFR-rated pilots who fly in real-world "actual IMC" and provide them an opportunity to share stories, network with the larger pilot community, and gain valuable insights and tips for their IFR flying.

Continuing the IMC program in connection with EAA might include such components as providing EAA chapters with the ability to incorporate IMC programming; monthly scenarios within IMC programming that would facilitate discussion and learning; and shared resources within EAA membership and chapter affiliation that would increase the reach and impact of IMC programming. □

Harrison Ford Scholarship Recipient Solos

HARTFORD, WIS. – Jordan Paulson, EAA 1083097 and recipient of the 2015 Harrison Ford Scholarship administered by the Experimental Aircraft Association, completed his first solo flight August 15, 2015 at Hartford Municipal Airport, Hartford, Wis. The flight training scholarship is awarded to youth interested in aviation, and can be applied at whatever level the need exists.

Jordan, 18, interned with EAA in 2014 and was the youngest person hired to refuel airplanes by Orion Flight Services during EAA AirVenture Oshkosh 2013. He plans to attend the University of North Dakota to study aviation management and eventually become a commercial pilot. □



The 2015 Chicago Air & Water Show



Team AeroDynamix

by Larry E. Nazimek

The 57th annual Chicago Air & Water Show, one of the largest free admission events of its kind, was held along Chicago's lakefront, August 15-16, 2015. Some two million spectators, in buildings and along the lakefront, took in the show. Aircraft fly out of the Gary/Chicago International Airport, except for the Chicago Fire and Police helicopters, based at Chicago's Calumet Park.

Unfortunately, this year's show will be remembered for the tragedy that took place at Saturday's show. In a combined jump with the Army's Golden Knights and the Navy's Leap Frogs, SFC (promoted posthumously to MSgt) Corey Hood and SO1 Timothy Holland collided at approximately 120 mph while performing a "bomb burst." Hood, a 14-year Army vet having served five tours in Afghanistan/Iraq, was knocked unconscious. His reserve parachute deployed automatically, but instead of landing on the lakefront, he drifted to the west until he struck a high-rise, after which he fell 20 stories to the ground. He went into surgery, but died the following day. Holland, who was able to land on target on the beach, sustained a broken leg, but was later able to speak with reporters. There were no parachute acts at Sunday's show.

The Breitling Jet Team performed as a part of their debut tour of the U. S. The French team consists of seven L-39 Albatros jet fighters flown by highly experienced former military pilots. They describe their act as a European type of performance, emphasizing precision and elegance. One surprise the team had was the release of flares in their final pass toward the crowd.

Other acts this year included the AeroShell Aerobatic Team, the Aerostars in their YAK-52TWs, Dave Dacy in his Super Stearman, Firebirds Delta Team, Matt Chapman,



Team AeroDynamix Pilots

Sean D. Tucker/Team Oracle, Team AeroDynamix 10-plane formation, and Bill Stein, whose performance was enhanced by the paint job on his Zivko Edge 540, which makes it appear to change colors. The Warbird Heritage Museum Foundation's A-4 Skyhawk also performed an impressive demonstration equal to that of any modern-day military jet performance.

The "water" part of the show included a Coast Guard boat and an air/sea rescue with the Chicago Fire Dept. and Police helicopters. □

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Strong Counts & Good Demos At AOPA's Great Lakes Regional Fly-In



by Dave Weiman

The official tally at the AOPA Fly-In, August 21-22, 2015 at Anoka County – Blaine Airport in Blaine, Minnesota (KANE), was 2,713 people, 161 aircraft and just shy of 1,000 cars, according to AOPA officials.

The weekend event began with a barbecue at Surfside Seaplane Base (8Y4), 5 miles west of KANE in Lino Lakes, Minn., where dozens of seaplanes and hundreds of AOPA members converged for live music, pilot camaraderie and floatplane demonstrations.

A Grumman Albatross amphibious aircraft first flew into Rice Lake for some repeated dips in the water, by a skilled pilot, who handled the twin-engine transport as most would a single-engine airplane.

Christopher Cater of Great Lakes Cubs LLC of Cadillac, Michigan, performed an impressive demonstration in a Cubcrafters “Carbon Cub...” so impressive that at least one pilot who was with us at dinner was ready to sell his 30-year-old airplane and put down a down payment.

This airplane is the most rugged and exciting aircraft we

The pilot of this “Carbon Cub” put on a brilliant demonstration at the AOPA Fly-In barbecue, August 21, 2015, at Surfside Seaplane Base, Lino Lakes, Minn. The aircraft was flown by Christopher B. Cater, owner of Great Lakes Cubs, Cadillac, Michigan (www.greatlakescubs.com).

have seen in the Light Sport Category. And if you thought that Light Sport was just for budget-minded beginners or for veteran pilots waiting for an elimination of the Third Class Medical, think again. On wheels or floats, the Carbon Cub SS has great performance.

The Carbon Cub SS is a thoroughly modern, high-performance airplane that has taken the fundamentally superior design of the Piper Super Cub and reinvented it using 21st Century materials, such as carbon fiber and computer-aided design technology. This has resulted in the aircraft having 50 percent fewer parts and being 250 pounds lighter than a similarly equipped Super Cub.

Mounting a lightweight 180 horsepower engine to the airframe results in a horsepower-to-weight ratio of 0.1364 or just 7.33 lbs/hp (compared, for example, to a Cessna 172R's 15.33 lbs/hp). That results in a sea level climb rate of 2,100 feet per minute (compared to 650 fpm for a 172). Accordingly to the manufacturer, no other LSA takes off or lands in a shorter distance, with better low-speed manners. Once reaching 10,000 feet MSL, it can still climb at over 1,100 feet per minute.

If you are concerned about the safety of an LSA, don't be. The Carbon Cub SS is inherently safe due to its extraordinarily slow stall speed. Vortex generators have been added to the fundamentally sound wing shape, which significantly increases low-speed maneuverability.

The airframe, while lightweight, is super-strong, and forms a protective cage around the occupants. It has been tested to greatly exceed the requirements for an LSA. The cabin's reinforced harness attach points are actually the strongest parts of the airframe, according to the manufacturer. The



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A Grumman Albatross based at Anoka County - Blaine Airport (KANE) in Blaine, Minnesota, made several touch and goes on Rice Lake during the AOPA Fly-In barbecue, August 21, 2015, at Surfside Seaplane Base, Lino Lakes, Minn.



(L/R) AOPA President & CEO Mark Baker recognized Bruce Hanson, owner of Surfside Seaplane Base, Lino Lakes, Minn., and Waldo Anderson, longtime flight instructor and former director of the University of Minnesota Flight Department, for having trained literally thousands of pilots in the Twin Cities metropolitan area.



FAA Designated Flight Examiner and *Midwest Flyer Magazine* Contributing Editor, Woody Minar of Osceola, Wis. (left) and Bruce Hanson, owner of Surfside Seaplane Base, Lino Lakes, Minn. (right), congratulate Collin Otis of Bridgeville, Penn. (center), on successfully passing his flight and oral examinations for his seaplane pilot certificate. Otis is an executive with Target Corporation, which is headquartered in Minneapolis, Minn.



(L/R) Daniel J. Boivin, Chairman of the Metropolitan Airports Commission (MAC) in St. Paul, Minnesota; Jack Pelton, Chairman of the Experimental Aircraft Association (EAA), Oshkosh, Wis.; Greg Herrick, owner of Golden Wings Museum, located at Anoka County - Blaine Airport, Blaine, Minn.; and Jeffrey Hamiel, Executive Director of the Metropolitan Airports Commission.



(L/R) AOPA President & CEO Mark Baker on stage at Golden Wings Museum with museum owner, Greg Herrick, who shared some of the history of the aircraft in his museum.



Terry J. Baker of the American Aviation Heritage Foundation in Blaine, Minn., with World War II Women Airforce Service Pilot (WASP) Elizabeth Wall Strohfus. The foundation is currently engaged in an historically significant project to restore a Vultee BT-13 "Valiant," which was a basic trainer during World War II. Upon completion, the aircraft will be presented to the National WASP Museum at Avenger Field, Sweetwater, Texas, where it will help tell the story of the brave women who flew virtually every type of military aircraft in the U.S. Army Air Force inventory in service to their country.

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(L/R) Darlene Dahlseide and Rachel Obermoller of the Minnesota DOT Office of Aeronautics provided information on programs for pilots and airports.



AOPA members gathered around the Academy College booth to explore careers in aviation.

pilot's carbon fiber seat was designed for protection, as well as comfort.

Kits for the Carbon Cub EX-2 start at \$75,000. You can buy a Carbon Cub SS with a 180 hp engine ready to fly for \$184,990. The Carbon Cub FX is an extension of the Carbon Cub EX-2 kit and is in the builder assist program for \$219,990. The FX includes a number of standard options, such as extended baggage with baggage door, 40-gallon long-range tanks, and an upgraded tailwheel. When completed, the FX is certified Experimental Amateur Built (EAB) and comes with a full factory warranty.

For additional information on all models of the Carbon Cub, call 231.633.UFLY (8359) or email chris@greatlakescubs.com.

Back at KANE on Saturday, there were tents set up for informational, educational and commercial exhibitors, and stages for speakers and seminars – similar in format as the former AOPA Expo, but just more condensed to fit the venue of an airport, versus a convention hall. Attending a one or two-day regional fly-in is a fraction of the cost of attending a four-day national convention when you consider registration fees, travel and lodging, so it is no wonder member attendance is much greater.

AOPA President Mark Baker was on stage at Golden Wings Museum with the museum's founder, Greg Herrick, to talk about Herrick's collection of rare and historic aircraft and some of their travels together over the years. (KANE is

Baker's home airport when not in Frederick, Md., and where he learned to fly.)

The 45,000 square-foot museum features close to 30 unique and one-of-a-kind aircraft from America's Golden Age of Aviation (1920s-1930s). Among rarities are NASA's first aircraft, a stainless steel amphibian and the first airplane in which a pope ever flew in.

One of six trimotors in the collection is a 1927 Ford Trimotor, which is America's oldest existing airliner. Charles Lindbergh and Amelia Earhart are among the many notable aviators who have flown some of these unique and rare aircraft. Truly a one-of-a-kind collection of this era and one the Twin Cities can be proud to have at one of its seven airports (www.goldenwingsmuseum.com).

Baker returned to the stage in the afternoon with AOPA Great Lakes Regional Manager Bryan Budds to brief us on both national and regional issues. (See the AOPA Great Lakes Regional Report elsewhere in this issue of *Midwest Flyer Magazine* for additional coverage.)

Also attending the fly-in was EAA Chairman Jack Pelton, and Jeff Hamiel, Executive Director of the Metropolitan Airports Commission. Newly appointed Anoka County – Blaine Airport Manager Glenn Burke made sure the airport was meeting the needs of pilots flying in. Strong southwesterly winds surely kept many pilots from flying in, but the location was an easy drive for thousands of pilots who live in the Twin Cities metro and western Wisconsin. A number of AOPA members from Illinois and Indiana either flew in themselves or commercially like they did for the annual AOPA Expo.

When Peggy and I departed KANE, we found the departure procedures well thought out by AOPA officials and Minneapolis Air Traffic Control and hassle free! Once we climbed to 9000 MSL, we no longer experienced the strong headwind we experienced on the ground and landed back in the Madison, Wisconsin area in 1 hour 45 minutes, beating the 5-hour drive and traffic on Interstate 94.

Brothers Randy and Dick Cross and their crew at *Cirrus Flight Operations* provided exceptional service during the fly-in with both full and self-service 24-hour fuel, tie-downs, car rental and lodging assistance when requested (www.cirrusflight.com). □

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Navy League Holds AirVenture Aviation Celebration

Maj. Roger A. Fetterly, USMC (Ret.) Receives Aviation Excellence Award

by Ed Leineweber

The Madison, La Crosse, Green Bay and Glenview councils of the Navy League of the United States, along with the Hangar One Foundation, held their 5th annual *All Sea Services Aviation Celebration*, July 23, 2015 on the back patio of the Charcoal Pit Restaurant, located along the Wittman Regional Airport fence, as the daily EAA AirVenture Oshkosh airshow swirled in the skies overhead. The 50th Anniversary Commemoration of the Vietnam War was the theme this year.

Each year, this group of Navy League organizations honors an individual who has made a significant contribution to aviation, whether military, civilian or both. This year's award recipient is Maj. Roger A. Fetterly, USMC (Ret.).

Major Fetterly, now 79, was born on the family farm in Marinette County, Wisconsin, and enlisted in the Marine Corps in 1954 at the age of 18. Upon his return from assignment in Korea, he was selected for Naval Flight School and was commissioned as a Second Lieutenant in 1958. Major Fetterly flew Marine Corps attack helicopters on combat missions from Da Nang Airbase and aircraft carriers in the South China Sea through two Vietnam tours.

After his return from Vietnam, Major Fetterly completed his college bachelor's degree and later a master's degree in Administration, majoring in Business Financial Management. He retired from active duty in 1977 after 23 years of military service, having flown a dozen different military helicopters and airplanes.

During his military career, Major Fetterly was awarded 25 Air Medals for flying 500 combat missions in Vietnam, in addition to many other military honors, including the Vietnam Service Medal with bronze star.

Upon retirement from active military duty, Major Fetterly began a 21-year career with the State of Wisconsin Department of Administration, from which he retired in 1998. He has been active in local government in his Sun Prairie community, serving on the school board and town planning commission, the latter of which he currently chairs. He is a life member of many military veterans' organizations and has served them in various capacities over the years as an officer, director or liaison.

Major Fetterly continues his interest in aviation as a member of the UW Flying Club, where he serves on the Board of Directors and as the Aircraft Maintenance Officer. He is an EAA member and active Young Eagles participant.

The 2015 Navy League Aviation Excellence Award recipient lives with his wife, Frances, in the Town of Sun Prairie, a few miles northeast of Madison. They also maintain



Major Roger A. Fetterly, USMC (Ret.), the Navy League's 2015 Aviation Excellence Award recipient.

the Century Farm in Marinette County where Major Fetterly was born, which has now been in the family for over 120 years. They have two adult children.

The Navy League of the United States is composed of local councils of citizens supporting the sea services – Navy, Marine Corps and Coast Guard. It has three missions: to enhance the morale of active-duty personnel and their families, inform Congress and the American public on the importance of strong sea services, and support youth through programs such as the Naval Sea Cadet Corps, Junior ROTC and Young Marines that expose young people to the values of our sea services. The Madison council's website provides additional information: <http://www.madisonnavyleague.org/>

Plan to attend next year's Navy League Aviation Celebration, usually held on the Thursday afternoon during AirVenture week. The Navy League of the United States is a great organization doing great work, and needed more now than ever. □

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Heavy Bombers Weekend Brings Back Memories



EAA's B-17 "Aluminum Overcast."
MGN Photo by Mike Nightengale



The B-29 Superfortress "FiFi."
MGN Photo by Mike Nightengale

by Mike Nightengale

MADISON, WIS. – EAA Chapter 93 hosted its third annual Heavy Bombers Weekend, July 17-19, 2015 at Wisconsin Aviation, Dane County Regional Airport, Madison, Wis. The event has set itself apart from regular airshows with a strong emphasis on vintage aircraft tours, airplane rides in World War II military and vintage aircraft, and honoring

war veterans. There are no aerobatic performances. A hangar dance is held Saturday night with a large 1940s swing band.

U.S. Airways First Officer, Jeff Skiles of Oregon, Wis., copiled the B-29 "FiFi." Skiles and U.S. Airways Captain Chesley "Sully" Sullenberger are best known for making an emergency water landing on the Hudson River on January 15, 2009, when the Airbus A320 they were flying lost power on takeoff following a bird strike (U.S. Airways Flight

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1549). EAA's B-17 "Aluminum Overcast," and EAA's Ford Tri-Motor, also gave rides to the public.

A star of the event was World War II veteran Arnold (Arnie) Willis, who shared some stories from when he was a tail gunner on a B-17 as a member of the 303rd "Hells Angels" Bomb Group stationed in Molesworth, Cambridgeshire, England. After 35 combat missions over Germany, Willis returned to the United States in January of 1945 and

World War II veteran, Arnold Willis, reflects on his experiences as a crewman on the B-17 Flying Fortress. *MGN Photo by Mike Nightengale*



Looking through the machine gun turret in the nose of the B-17. *MGN Photo by Mike Nightengale*

completed a gunnery instructor course for B-29s in Laredo, Texas.

Tentative dates for Heavy Bombers Weekend 2016 are July 22-24 (heavybombersweekend.splashthat.com). □

Central County Airport (68C) Renamed Paul Johns Field

IOLA, WIS. – Central County Airport (68C) in Iola, Wis., known the world over for its multiple grass runways and Friday noon lunches, was renamed "Paul Johns Field" in honor of the veteran aviator who remains an icon at the airport. Dedication ceremonies were held August 14, 2015.

Paul Johns, 101, of Iola, has more flying hours, ratings, and hangar flying tales than most pilots could accumulate in 10 lifetimes.

Johns soloed in 1929 at age 15 in a glider after three 15-minute flying lessons. He went on to teach navigation and instrument flying for Pan American Airlines, and flew Pan Am Clippers on the San Francisco to Honolulu route. This, of course, was without GPS, VOR, or radar. Celestial navigation was the only reliable means of navigation for these flying boats on the long Pacific flights. The trips carried 3,800 gallons of fuel and 40 passengers, generally departed San Francisco before sunset, and arrived in Honolulu by sunrise.

Johns followed the Pan Am job with a corporate flying career in Wisconsin, and some acoustic research and development with Walker Exhaust in Racine, Wis.



(L/R) Archie Henkelmann, former chief instructor at Blackhawk Technical College in Janesville, Wis., with Paul Johns on August 14, 2015. *Photo by David Henkelmann*

He quit flying his experimental Kitfox at age 85, but at age 90, this tech-savvy aviator took a course in computer repair, and is not in the least intimidated by modern cyber-technology. He is also a licensed ham radio operator.

You can see Paul Johns at the airport most Fridays for its noon lunches (<http://centralcountyclub.org>). □

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Airport Farming - Rewards & Risks

by Hal Davis

WisDOT Bureau of Aeronautics

With autumn upon us, and winter fast approaching, it may seem like an odd time to talk about farming. However, these next few months between farming seasons are the perfect time to evaluate farming operations on your airport.



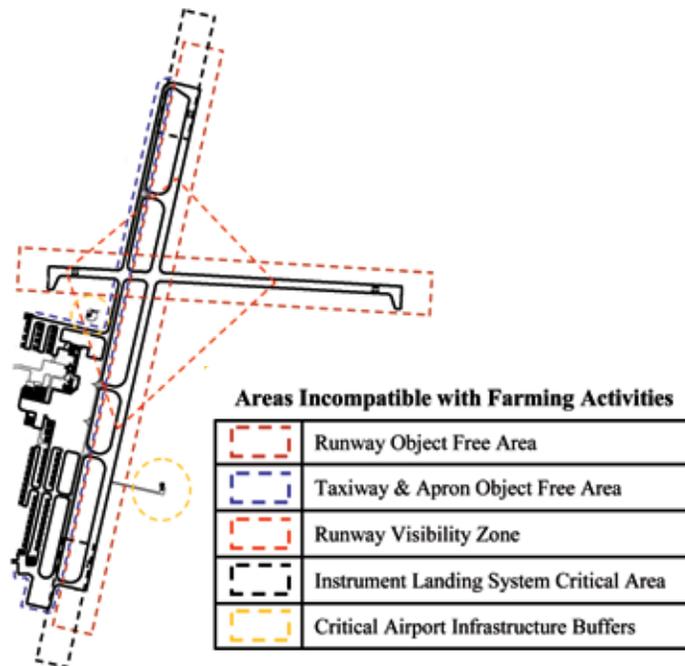
Hal Davis

For those of us who have flown around the Midwest, you've probably seen first-hand that farming is fairly common on airports in this part of the country. In Wisconsin, about half of our airports use airport land for farming purposes.

Renting airport land to local farmers certainly has its benefits. First, it can be a source of revenue to help offset operating expenses for the airport. Secondly, it reduces the amount of undeveloped green space that an airport would otherwise need to maintain. On the other hand, if not controlled properly, on-airport farming can easily cause more harm than good. In order to maximize the benefit and minimize harmful effects of on-airport farming, two important considerations need to be made.

The first is "location." Many unpaved areas on airports serve vital aeronautical purposes. To the untrained eye, however, these areas look like ideal farming locations. It's important that these critical areas be identified to ensure that farming activities do not conflict with the aeronautical purposes they serve. Specifically, Federal Aviation Administration (FAA) Advisory Circular 150/5300-13A prohibits farming activities in object-free areas. Object-free areas provide a buffer of clear land around runways, taxiways and aprons in the event an aircraft leaves the pavement. They also ensure adequate wingtip clearance for larger aircraft.

Farming activities must also be kept clear of critical airport infrastructure. If allowed too close, crops can obscure lights and signs or may disrupt navigational aids or weather stations. Airports with an instrument landing system (ILS) must be especially careful to keep ILS critical areas free of farming activities. Under no circumstances should any farming



activities occur in the localizer or glide slope critical areas or the approach light area.

In addition, inviting the use of farm equipment near critical airport infrastructure increases the chances of accidental damage. Finally, tall crops and farm equipment may obscure the view of pilots and air traffic control personnel.

Airports with intersecting runways should avoid planting any crops within the runway visibility zone. This area requires direct line of sight between any one point five feet above the runway centerline to any point five feet above the crossing runway centerline within the zone. Because most farm equipment is taller than five feet, there are very few circumstances in which the terrain or farming methods would allow any farming to occur within the runway visibility zone. In addition, airports with air traffic control towers should ensure that crops and farm equipment do not block the tower's line of sight.

The figure to the right illustrates the general locations

of object-free areas, ILS critical areas, runway visibility zones and other areas where farming activities are prohibited at a generic airport. For the dimensions and locations of these areas at your specific airport, please reference your airport layout plan or contact the Wisconsin Bureau of Aeronautics (BOA).

Secondly, an airport must consider the effects farming activity may have on local wildlife.

According to the Federal Aviation Administration (FAA), most, if not all, crops can attract hazardous wildlife activity during some phase of production. Therefore, airports should take great care in determining which crops are permissible on the airport. In general, crops, which produce a food source for local wildlife, should be avoided. This includes most grain crops such as corn. In some cases, airports may require their farmers to utilize special cultivation techniques or modify normal farming activities to mitigate the attraction of hazardous wildlife. For example, an airport may require a farmer to plow under any waste material within 24 hours of harvest. In addition, airports should monitor farming activities to ensure standing water is not created or contributed to which can also attract hazardous wildlife to the airport environment.

Throughout the farming operation, the airport should remain vigilant of increases in hazardous wildlife activity. If an increase is identified due to the farming activity, the airport should immediately take steps to reduce the hazard or terminate the farming activities altogether. Of course, executing this type of control over the farming activities requires a formal agreement.

Any farming activities should be conducted under a written lease agreement between the airport and the farmer. This is to ensure the airport is properly protected and retains sufficient control over airport property. Like any other lease agreement, a lease for farming activity should establish the rental fee, duration of the agreement and limitations on how the land will be used.

FAA requires the airport to be compensated at a fair market value rate for any non-aeronautical use of airport property. Farming activities are no exception. Fair market value is dictated by the local value of leased farmland. While there may be multiple methods of determining fair market value, perhaps the best method is to competitively bid the lease. This method guarantees the airport receives the maximum compensation given the local market. It's also



Farming in and around airports can be profitable, but tricky due to safety concerns. WisDOT Photo

important to note that all revenue generated from farming leases must remain with the airport to be used exclusively for airport purposes.

As with most lease agreements on the airport, the shorter the term, the better. This helps the airport maintain short-term control over farming activities. Not only does this make good business sense, but preserving rights and powers is a required federal grant assurance. Ideally, farming leases should be renewed annually

to provide the airport with maximum flexibility to adjust the rental rate and reassess the impact of the farming on airport operations and development. For further control, the lease agreement should also contain an escape clause in case the leased property is needed prematurely for airport development or the farming activity has an unexpected adverse effect on airport activity. It is also important that the lease specify limitations and expectations related to the use of the airport property for farming.

For instance, the lease should specify the exact location of the farming and which crops are allowable. It is also important that farm equipment be managed properly when on the airport. The lease should detail the access route and security requirements. Additionally, the lease should address the temporary parking of equipment and the storage of harvested crops on the airport.

Finally, the lease should protect the airport in the event farming activity causes damage to airport surfaces. As previously mentioned, farming equipment can cause accidental damage to airport infrastructure and can also leave behind ruts or spread foreign object debris (FOD) onto airport pavements.

Even if the farming operation at your airport has gone on for decades without incident, there's no harm in taking this time to re-evaluate its impacts on the airport.

For example, it is very common for farmers, whether on purpose or by accident, to encroach into safety critical areas, especially if they are not permanently marked. As I've discussed, there are many considerations to be made when evaluating on-airport farming. Luckily, the Wisconsin Bureau of Aeronautics is here to help. We can provide guidance on siting the farming activities, the effects the farming may have on wildlife and can even provide a template for the lease. ***If you have any further questions or would like assistance,***

please call me at 608-267-2142

or email: howard.davis@dot.wi.gov □



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Cassandra Isackson, Director

Dan McDowell, Editor

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Heads Up For Migrating Waterfowl & Drones

by *Cassandra Isackson*

Director, Minnesota DOT Office of Aeronautics

Summer is over! As thoughts turn to installing winter fronts and changing floats for skis, we here at MnDOT Aeronautics are NOT hibernating. As always, aviation safety is our key concern.

When aircraft are readied for winter flying, remember to keep a sharp watch for migrating ducks, geese, and other birds. These days “other birds” are likely to include several different mechanical species referred to as unmanned aircraft systems (UAS), unmanned aerial vehicles (UAV), or drones.

About the size of a duck or goose, most low-flying drones weigh in at 10 pounds or less. It is extremely difficult for a small drone to be seen from a piloted aircraft, especially when the pilot is focused on the takeoff or landing phase of flight.

Sadly, many non-pilots simply buy a drone and start flying it. Staying away from active airspace is left entirely to the untrained or unaware operator, presenting a significant hazard where piloted aircraft are flying. Some newer drones use geofencing software to avoid designated no-fly zones, but very few have that capability built in. Additionally, most drones



Cassandra Isackson

do not have transponders and are not in radio contact with piloted aircraft or air traffic control.

Although many would prefer to ban drones outright, they are in fact aircraft with multiple uses, adding value to our growing aviation community.

In Minnesota, aviation laws on the books since the 1930s include drones in the definition of aircraft. This requires any UAV with an N number to be registered and insured in our state.

We continue to work hard providing safe operational rules and guidelines for drone operators, and to inform existing aviators of changing technology in unmanned flight.

Learn more about unmanned aircraft systems and unmanned aerial vehicles.

Share your knowledge of airspace with friends and acquaintances that may plan a drone purchase as a holiday gift this season.

Brief your passengers to be extra eyes in the sky when you fly.

Spotting a rogue drone, like flight in seasonally changing weather, requires your proper planning and pre-flight briefing.

Maintain awareness and eyes out of the cockpit during all phases of the flight, especially at the beginning of the trip – and on that last turn to final.

Your aviation safety is our priority! □

Prepare Now For The Grasp of Winter

The rapidly lengthening shadows grow all around as the sun quickly seeks solace from the cold while sliding below the horizon. Its fading pale hues of pink and orange quickly give way to the ever-increasing bands of dark blue.

The piercing cold wind seems to go through everything whether made of metal, wood, or flesh. Nothing can stop it. The wind feels as if it is swirling, coming from every direction at once. It's as though nothing can escape the numbing cold grasp of winter.

Minnesota and Wisconsin have inordinately long winters, or so it often seems. But most inhabitants of this region either love it or fly south to avoid the cold season. Those that stay seem to revel in the crystal clear, yet frigid days when breathing outside air is almost painful! They look forward to being outside and enjoying the snow, ice and yes, the cold. They see some of the beauty that abounds in winter, but too many miss its exquisite beauty that can only be seen from the vantage point of flight.

Flying in winter does require knowledge and use of some different skill sets, like taxiing on ice or snow packed taxiways and runways, or preheating the aircraft, or deicing the plane before flight, for instance. However, the few extra elements added to the preparation for a winter flight are minimal compared to the joy and pleasure that flight will bring to you. But is that all one must do to be prepared?

There is no excuse for failing to properly prepare your aircraft and yourself for flight at any time, and tailoring those preparations to meet the environmental conditions you may, or will face. You have a complete checklist for you aircraft, but few people actually make and use a personal checklist. If you think about where you plan to fly, the season, and the expected weather conditions you will or could encounter, it should bring to mind a number of items you should plan to take with you “just-in-case” or for that situation or unusual, unpredictable incident.

Think about this.

What if your aircraft heater fails 75 miles from your intended destination?

What if you lose electrical power to your panel?

What if your engine quits and you have to make an emergency landing miles from the nearest airport or town?

What would you need to have with you to survive?

Allowing the assumption that you landed the aircraft safely and no one was injured (besides the mental trauma of the emergency itself), you are now faced with a significant survival situation. Assume also that just before landing you spotted a farm house about one mile from your emergency landing location.

Do you have adequate footgear to protect you from cold?

Are your gloves dry and will they protect you properly for the one mile trek to the farm house?

Do you have a compass so you can take a bearing on that house?



MNDOT Photo by Dan McDowell

Bear in mind that walking can become extremely hazardous due to icy conditions, snowfall accumulation, low visibility, or extreme cold.

It is important to note here that the National Weather Service says, “Individuals suffer cold injuries, such as frostbite or hypothermia, from being outside too long and by not being well protected from wind and cold.”

If you have to walk through a wooded area, is it level?

What if you step into a stream or pond that was covered with snow and you couldn't see it?

Do you have a quality flashlight with fresh batteries?

Do you have water, food, any type of temporary shelter? Are you carrying waterproof matches?

Did you bring a first aid kit?

Do you have a portable radio or fully charged phone?

How will you call for help, and how long can you wait for help before your situation becomes critical?

This article is not meant to tell you what to do, but rather to provoke within you serious thoughts about your personal preparations for winter flying (and driving too). Remember, the longest mile you may ever walk will be that one in the dead of winter when you have an emergency you are not prepared to handle.

There are a number of excellent books available today about survival preparations and techniques. Get several and read them thoroughly. Develop a personal checklist. Build and take with you a seasonally adjusted and inspected survival pack. You never know when it might make the difference in a large inconvenience and a gross nightmare. Then if you are caught in the grasp of winter, you'll be prepared to survive and continue to enjoy the beauty winter has to offer! □

Minnesota Aviation Trades Association Holds Annual Membership Meeting & Barbecue

BLAINE, MINN. – Members of the Minnesota Aviation Trades Association (MATA) held their annual meeting, August 20, 2015 at Twin Cities Aviation, Anoka County – Blaine Airport, Blaine, Minnesota. A catered barbecue dinner preceded the meeting with members and invited guests.

Officers present included Greg Reigel, president; Alison Wynne, vice president; Nancy Grazzini-Olson, treasurer; and Dave Weiman, secretary. Board members Dick Cross and Doug Evink were also present, along with members at large. Among special guests were Rick Braunig and Kathy Vesely of the Minnesota Department of Transportation Office of Aeronautics; Katie Pribyl and Bryan Budds of the Aircraft Owners & Pilots Association; Gary Schmidt, Joe Harris and Glenn Burke of the Metropolitan Airports Commission; and Gary Black of Cirrus Aircraft. MATA member and former board member, Bill Ahmann, and his staff at Twin Cities Aviation, hosted the event.

Greg Reigel discussed the accomplishments of the organization over the past year including, but not limited to an active and engaged board of directors, which has met all of its stated objectives, which were to 1) hold scheduled and meaningful board meetings, every two months; 2) work on “advocacy” at both state and federal levels; 3) engage in joint efforts with the Minnesota Business Aviation Association (MBAA) and Minnesota Council of Airports (MCOA), including meeting with congressional delegates in Washington, and legislators at “Minnesota Aviation Day At The Capitol;” 4) meet quarterly with representatives of the Metropolitan Airports Commission (MAC) to discuss its initiatives and member concerns; 5) complete a new website and Facebook Page; and 6) reinstate MATA’s scholarship program.

Reigel added that work is underway by MATA, MCOA and MBAA to create a state aviation caucus and underscored

the importance of member recruitment by all members, noting the work being done by their board of directors. Nancy Grazzini-Olson reported that membership had increased over 2014.

Alison Wynne chaired the MATA Scholarship Committee and noted that eight students from five member businesses applied for the \$2,000.00 scholarship. The person named this year’s recipient was Caitlyn Brady, a student at Minnesota State University – Mankato, who aspires to become a commercial pilot.

Elected to the board was Butch Detjen of Airways Aviation Center, Inc., Grand Rapids, Minnesota; and Dave Lessard of St. Paul Flight Center, St. Paul Downtown Airport, St. Paul, Minn. Both board

members were elected to three-year terms.

Members pledged their support of “Minnesota Aviation Day At The Capitol” held each spring with the Minnesota Business Aviation Association, and the Minnesota Council of airports. The date is to be announced.

Under new business, Gary Schmidt of the Metropolitan Airports Commission (MAC) introduced newly appointed Anoka County – Blaine Airport Manager Glenn Burke. Burke comes to MAC with 21 years of experience as manager of South St. Paul Airport – Fleming Field. He is originally from the state of New Jersey, and received his Bachelors of Science Degree in Aviation Management at the University of North Dakota. The Burkes have five children – two in high school, two in college, and one out of college. Burke has supported MATA over the years in providing meeting room space at Fleming Field, and as an active member and past president of the Minnesota Council of Airports.

For additional information on the Minnesota Aviation Trades Association, refer to its website at www.mata-online.org, or contact **Nancy Grazzini-Olson at 952-851-0631 extension 322**, or email ngo@thunderbirdaviation.com. □



MATA President Greg Reigel presents scholarship recipient, Caitlyn Brady, with a scholarship check and award certificate. *Dave Weiman Photo*

Minnesota Trades President Asks U.S. Senator To Support Pilot's Bill of Rights II

HOPKINS, MINN. – In an August 19, 2015 letter, the president of the Minnesota Aviation Trades Association (MATA), Gregory J. Reigel of Reigel Law Firm, Hopkins, Minn., asked U.S. Senator Amy Klobuchar of Minnesota to support the *Pilot's Bill of Rights II*. The letter followed a meeting in which he and representatives from the Minnesota Business Aviation Association and Minnesota Council of Airports discussed aviation issues with several of the Senator's staff members.

Reigel's letter first briefed Senator Klobuchar on General Aviation in Minnesota noting there are 7,000 General Aviation (GA) aircraft registered in the state, operating from Minnesota's 135 public-use airports, 80 heliports and 48 seaplane bases. Reigel further pointed out that of Minnesota's 135 airports, 126 do not

have commercial air/airline service, emphasizing the role GA plays in connecting all communities with the world.

Reigel noted that the 126 General Aviation airports add more than \$433 million to the Minnesota economy, annually, and that Minnesota's GA industry employs nearly 4,000 people that produce approximately \$184 million in labor income, including Duluth-based Cirrus Aircraft, the second largest manufacturer of piston aircraft worldwide.

The letter went on to inform Senator Klobuchar that the GA industry is facing, and will continue to face, a shortage of pilots and aircraft technicians. To help reduce that shortage, the *Pilot's Bill of Rights II* (PBOR2) has been introduced and is working its way through Congress.

PBOR2 legislation would make improvements to the Pilot's Bill of Rights (Public Law 112-153) that overwhelmingly passed the Senate and the House a few years ago by addressing a number of issues important to all segments of General Aviation.

"One of the key issues of PBOR2 includes expanding upon a current and successful FAA third-class medical exemption for certain General Aviation pilots," Reigel explained to the senator. "PBOR2 will allow more pilots to fly without a third-class medical certificate, saving both pilots and the federal government millions of dollars each year without decreasing safety! PBOR2 will benefit the entire GA industry from aircraft manufacturers to flight schools to maintenance facilities. For these reasons, the Minnesota Aviation Trades Association urges you to sign on as a cosponsor of PBOR2."

Reigel continued: "Additionally, as you debate the FAA's upcoming

CONTINUED ON PAGE 57

When Going It Alone Is Not An Option, Membership In The Minnesota Aviation Trades Association Is.

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The Rotec Radial Engine – A Perfect Match For The Aerolab LoCamp



Rotec's Paul Chernikoff is a happy man because radial engine enthusiasts at EAA AirVenture Oshkosh 2015 loved his R2800 and R3600 110 and 150 hp creations.

by Ed Leineweber

It has been said that *form follows function*; that is, a machine looks the way it does as a result of what it is intended to do. Fair enough. But let's face it – between the designer's concept and the final product, there is usually room to add a pleasing degree of *elegance*. In light aviation in particular, some airframe and engine designers are truly artists, and others are, well, just engineers.

In my years of involvement with the Aerolab aircraft, designed by now-retired Al Italia Captain Francesco Rizzi, the comments heard most frequently from pilots and non-pilots alike mention the striking beauty of this thoroughly modern rendering of an old fashioned, 1930's-looking aircraft. The second reactions, usually from pilots and other knowledgeable sport aviation enthusiasts, often mention the extent of the use of modern construction techniques and materials in producing the Aerolab LoCamp kit, the first kit of the Sport Camp series to be offered for sale (www.aerolabusa.com). No surprise then that the Aerolab LoCamp would find its ideal powerplant in the Rotec Aerosport line of sport plane 110- and 150 hp radial engines.

Much has been written about the creation of Australia-based Rotec Aerosport and the development of the R2800 and R3600 radial engines, including the background of Paul Chernikoff, the self-taught engine designer, and his unlikely but successful efforts, along with his father, Jim, and brother, Mathew, to create a company on a shoestring budget to bring



Ed Leineweber of Aerolab feels that his Rotec R2800 radial engine is the perfect powerplant for his kit-built LoCamp N527CL.

The Aerolab LoCamp prototype is powered by the Rotec R2800 radial engine.

these engines into production and world-wide distribution in only a few years following their 2000 start. A concise summary of this history can be found on the Rotec website: www.rotecaerosport.com.

Less has been written about the engines themselves, and the astonishing demand they revealed for the return of a beautifully designed nostalgic rendering of the round engines of the past, once the dominant engine configuration in all of aviation. And not much has been written about the Chernikoffs' talent in producing these engines using classic radial

architecture, but with modern design techniques, construction materials, technical enhancements and production machinery.

Like the Aerolab products, the Rotec radials are romantic throwbacks to an earlier era, but also are cutting-edge examples of what can happen when designer artistry encounters state-of-the-art production capability. How fortunate that Rizzi and Chernikoff created products that seemed to be made for each other, inspired apparently from the same aeronautical passions and affections!

Radial Engines Emerge

Most of us, not expert in the evolution of engine design or aircraft engine history, might tend to think of radial engines as the earliest aircraft powerplants, but this is not so. Of the round engines, the rotary engines came first, powering many of the WWI fighters. In this configuration, the crankshaft is

bolted to the airframe, while the cylinders and crankcase with the propeller affixed, revolve around the anchored crankshaft. Among the complexities of this design was one shining advantage: the air-cooled engine made its own cooling airstream!

Another early configuration was the in-line, liquid-cooled powerplant in which all of the cylinders are arranged in one row, either erect or inverted. Similar concepts included the Vee, with two banks of multiple liquid-cooled cylinders arranged 45, 60 or 90 degrees apart, and X and W engines, with three and four in-line banks arranged around the crankshaft. With the eventual successful development of air-cooling technology, the familiar horizontally-opposed “flat” engines, with two banks of cylinders positioned 180 degrees apart in the horizontal plane, came to dominate light aircraft engine production.

The need for liquid cooling imposed a practical limit in early engines with one or more rows of cylinders arranged in banks, mostly due to the weight penalty imposed by the necessary additional plumbing, water jacket and high-drag radiators, and the coolant itself. Air cooling was not effective in larger engines with four, six or more cylinders in a bank due to the inability to get cooling airflow to the more aft cylinders.

Radial engine configuration, in which the crankshaft rotated within a stationary crankcase affixed to the airframe, came into its own during the 1930s and '40s due to the several advantages it presented compared to other engine configurations. These advantages are still present in today's modern radial engine.

First, the radial engine design is very conducive to air cooling since the cylinders are out front in the airstream. Even with a second row of cylinders behind the first, the aft cylinders can be arrayed in the gaps between the front row and get an adequate share of cooling air as well. (Large radial engines, with multiple rows of cylinders emerged as baffling, cowling and other cooling technologies were developed.) Without the need for a liquid-cooling system, the radials enjoyed a natural power-to-weight advantage.

Radial engines present a relatively large frontal area to the airstream, as compared to other configurations, especially the horizontally opposed flat engines, and this can be seen as a disadvantage as well as the source of their engine-cooling advantages. This drag penalty can be reduced somewhat in slower high-drag airplanes through the use of speed rings and other cowling techniques, and eliminated entirely in larger, sleeker aircraft, as was dramatically demonstrated by their use in the very fast WWII fighters, such as the F4U Corsair, F6F Hellcat and P-47 Thunderbolt, all three powered by Pratt & Whitney R2800 2,000 hp Double Wasp radials, and each capable of speeds in excess of 400 mph.

Another advantage of the radial design in a single-row configuration is the short overall length of the engine. Since the crankshaft is short, with only a single throw, it needs fewer main bearings and can be made quite strong without

a weight penalty, increasing the durability of the engine while decreasing its weight. The crankshaft main bearings are on each side of the throw and are usually ball or roller bearings, rather than the plain bearings found in most other configurations. The connecting rods are of the articulating type, where the master or “mother” rod has a large crankshaft bearing and all rods are pinned, or linked, to this master rod bearing with knuckle pins. (You Tube has several very good animations and cut-away videos of such a configuration in action.)

A radial engine does not have a camshaft per se, but uses one or more cam rings to actuate the overhead intake and exhaust valves of the 4-stroke setup through the use of conventional pushrods and rocker arms. The cam ring has four lobes and turns counter to the crankshaft and at only one-eighth of the crankshaft speed, since each valve is actuated four times for each cam ring revolution, which allows for eight crankshaft revolutions.

The Rotec Radials

Smaller radial engines of the past were conventionally carbureted and usually not fuel injected. The Rotec engines come with the same Bing constant-pressure altitude-compensating 40 mm carburetor used on the popular Rotax 912 series of engines, and employ an automotive-type choke but no mixture control. Rotec's recent development of throttle body injectors, however, has made it possible to improve the delivery of the fuel charge to these engines while employing a much simpler design.

The Rotec radials employ a planetary speed reduction unit (PSRU) to reduce engine to prop speed by a ratio of 3:2. This facilitates getting more horsepower from a smaller engine, while still allowing the use of a larger, slower-turning propeller. The PSRU is located in the nose hub of the engine and employs epicyclical gearing that allows the prop to rotate on the same axis line as the crankshaft.

A Rotec 110 hp R2800 can swing a 76-inch wooden propeller with a 60-inch pitch at 2,400 rpm while the engine turns at its 3,600 rpm rated engine take-off speed. Some might disparage the use of PSRUs to develop more horsepower, but engine gearing has a long and successful

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history. (The Lockheed Super Constellation used PSRUs in the noses of its four Wright Cyclone radials.)

Rotec engines demonstrate their modernity in several additional respects. First, the parts are CNC machined from billets rather than made from castings, except for the cylinder heads, rocker box covers and center intake manifold, which are the only cast parts on the engine. The starter solenoid is integrated into the starter unit, and the voltage regulator is integral to the alternator. Dual ignition is supplied to the auto-style spark plugs by a self-energizing magneto and a Hall Effect electronic ignition module. The engine will operate on avgas, but with its 8.5:1 compression, it prefers 100LL avgas, since it does best on a fuel with a RON of at least 97. The valve train is conventional with dual cam rings and roller tappets. At 80% power, the R2800 burns 5.8 gallons per hour. Oil must be of the semi-synthetic type and have the additives necessary to properly lubricate the PSRU. Aeroshell 15W 50 is one example.

The Rotec website contains a wealth of additional information about the R2800 and R3600 engines, including FAQs, technical data and customer service information.

Anyone contemplating operating a flight engine of relatively new design and production will be very interested in the accumulating field experience. Approximately 1,400 Rotec radials have been shipped as of EAA AirVenture Oshkosh 2015, according to Paul Chernikeeff. Since this production stream has been at a rising annual rate, most of the engines have been shipped in more recent years, with only a few of the oldest examples reaching the 1,000 TBO set by the company. Several service bulletins were issued concerning the early engines, and many have been upgraded to incorporate those changes. Chernikeeff recommends that anyone contemplating buying a used engine to check with him via the website contact information so the prospective buyer can confirm whether or not recommended upgrades have been accomplished.

The company does not operate a U.S. service center, but rather encourages operators to communicate directly with

the factory and promises prompt and cooperative technical support. While many U.S. operators would prefer a state-side service presence and available factory-certified mechanics, the wonders of our modern transportation and communication age makes Rotec's approach feasible. As popular as the Rotec radials have proven to be, they remain a specialty item in a very small industry. There is only so much margin to spread around.

Fortunately, their history over the past 15 years has shown that the Rotec radials are very easy to work on, especially given their classic, time-tested architecture. Paul Chernikeeff believes that anyone with decent mechanical skills and some instruction from the company can easily maintain their engine, and even overhaul it, if necessary. Rotec also offers an option for a factory overhaul for a flat \$5,000, plus shipping and related charges and fees. Having gone this route myself, I can report fully satisfactory results and at a total cost well below any other aircraft engine factory overhaul, even with shipping.

The reality is that total Rotec engine volume will never approach that of the Continentals and Lycomings of the past, nor even the numbers of the ubiquitous Rotax engines that power most Special Light Sport Aircraft (S-LSA) of today. But as the numbers of Rotec radials in service grow slowly but steadily over time, so will maintenance opportunities as well.

The beautiful Rotec radial engines are not for every pilot or every sport airplane, but they are the perfect match for many, including the Aerolab LoCamp. If you are a lover of old fashioned aircraft powered by old fashioned engines, but want a machine that is as new as tomorrow, check out the artistry and engineering to be found in the Aerolab/Rotec match-up. *EDITOR'S NOTE:* Ed Leineweber is the managing member of Golden Age Aeroworks, LLC, d/b/a Aerolab USA, the U.S. distributor for Aerolab Manufacturing, Inc. He is a retired circuit court judge now practicing primarily aviation- and business-related law (www.leineweberlaw.com). Leineweber is a CFII and FAA-licensed aviation maintenance technician (LSRM), and the former owner of two FBOs. He is also the builder of the first production Aerolab LoCamp kit, N527CL. □

Piper Aircraft R&D & Sales



Piper Meridian M500

Dave Weisman Photo

OSHKOSH, WIS. – At a press briefing held during EAA AirVenture Oshkosh, July 20, 2015, Piper President and CEO Simon Caldecott announced that Piper Aircraft and Hartzell Propeller are collaborating on the certification of a five-bladed composite propeller for the Piper Meridian and M500 through a Supplemental Type Certificate (“STC”). Achievement of the STC for both Piper products is anticipated by the end of fourth quarter this year.

Piper Aircraft is also collaborating with Garmin on the development of “Piper Pilot,” the Piper-specific avionics app based on Garmin Pilot for iPad and iPhone. The first phase of Piper Pilot allows pilots to file their flight plans and receive full en route navigation on an interactive map. Piper Pilot offers 3D Vision, aviation weather, flight plan filing, advanced

traffic and weather, and pilot logbook. Piper Pilot is integrated into the cockpit and connected with the certified avionics.

Piper will deliver three new twin-engine piston-powered Piper Seminoles to the University of North Dakota. The first of three Seminoles was accepted at AirVenture. The remaining two aircraft were delivered to UND following AirVenture at an acceptance ceremony in Vero Beach, Florida. The pilot training aircraft will join the aerospace program's training fleet of more than 120 aircraft.

Also following AirVenture, Piper delivered three single-engine complex Piper Arrow trainers to the University of Dubuque, Dubuque, Iowa.

During AirVenture, FlightSafety International signed an agreement to purchase 20 single-engine Piper Warriors and six (6) single-engine Piper Arrows. The new aircraft will begin



Piper President & CEO
Simon Caldecott

Dave Weirman Photo

to enter service at the FlightSafety Academy in Vero Beach, Florida later

this year.

Piper announced that it will deliver a new Piper Arrow to the Aeronautics Division at Kent State University's College of Applied Engineering, Sustainability and Technology in Stow, Ohio.

The full line of Piper aircraft was displayed at AirVenture, as well as a mockup of Piper's latest product, the M600. The M600 features a new, clean sheet design wing and a sophisticated Garmin G3000 touchscreen-controlled glass flight deck. The M600 seats six and is powered by a Pratt & Whitney PT6A-42A 600 shp engine. The aircraft has a maximum cruise speed of 260 KTAS, a max range of 1,300 nm, and a max payload of 1,200 lbs.

The Piper Meridian M500 features the latest in Garmin G1000 avionics, enhanced safety features, and a number of other significant product improvements. □

1000th RV12 Delivered!



RV-12

AURORA, OREGON – On August 27, 2015, the shipping department at Van's Aircraft Inc. loaded its 937th RV-12 kit empennage package onto the shipping dock, where it was picked up by a customer from Washington state.

What's the significance of number 937? Well, combined with the S-LSA "fly-away" RV-12s the company has constructed, the total number of RV-12 empennage kits produced and sold now totals 1,000.

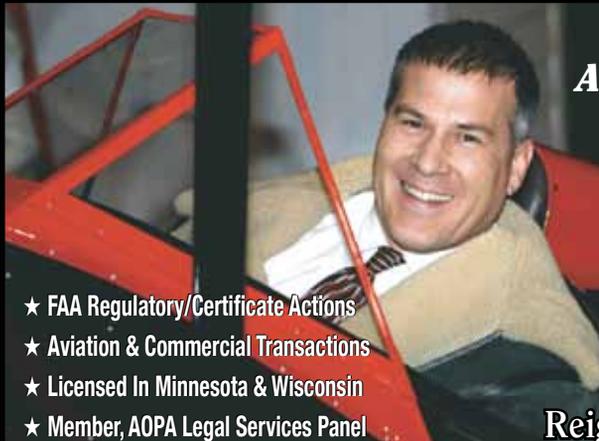
This is the sixth RV design to exceed 1000 sales – four designs have exceeded 1000 completions. The number of flying RVs now totals 9,178 of which 407 are RV-12s. □

Cirrus Vision SF50® Personal Jet Enters Final Stages of Certification



Cirrus Vision SF50®

DULUTH, MINN. – Cirrus Aircraft announced August 25, 2015, the FAA issued Type Inspection Authorization (TIA) for its Vision SF50 personal jet, marking another significant milestone in the aircraft's certification program. TIA initiates formal FAA flight evaluation of the Vision SF50 type design, airworthiness, performance and handling properties. This TIA allows Cirrus to move forward with FAA Conformity Inspections and Certification Flight Tests with an FAA pilot on board the aircraft, one of the final elements needed for Type Certification (www.cirrusaircraft.com). □



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Boeing 787 Dreamliner

Boeing Aircraft Photo

by Tyler Beckman

The aerospace industry never ceases to be on the cutting edge of technology! If you want to know or see the future of technology in engineering and design, look no further than in the aerospace industry because it usually starts there. When we think of the word “aerospace,” we envision



Cirrus Vision SF50

Cirrus Aircraft Photo

NASA’s space shuttle launching from Cape Canaveral with all its aerodynamic curves and its powerful rocket boosters. Herein lies the challenge given to all engineers and aerospace companies that produce these amazing machines.

Early Aircraft Structures

Early scientists, inventors,

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and engineers were challenged with making the materials of their day take flight through the sky. The Wright Brothers and others during their time became successful with a combination of lightweight wood, fabric, and the internal combustion engine. Power generated by an internal combustion engine was definitely crucial at this time in history. As time went on, these early structures proved to fall behind as aircraft began flying higher, moving faster, and flying longer. To do these things, aircraft had to become lighter and stronger.

Wood and fabric took the airplane only so far, and engine technology became increasingly powerful. Fabric and wood just cannot withstand the forces produced by these higher power engines, nor can they provide a suitable pressure vessel for a pressurized cabin. So aluminum came on the scene. Lightweight, easily formable, and strong were all the characteristics needed to fly faster, higher, and carry a lot of weight in passengers, cargo and fuel.

Aluminum and its various alloys have their birthplace from World War I and II. Like the rest of the aerospace technology, many aircraft, rockets, and satellites have been designed and produced around this lightweight material. Aluminum came into the aerospace industry and has been the go-to material for many years, and I believe it will continue to be so.

Future Aircraft Structures

Today, we see aircraft made from a mixture of structures, which is a sign that aircraft companies are researching and designing lighter weight components. We all know about the new passenger aircraft rolling off the assembly lines with Advanced Composite materials, which make up greater than 50% of a structure. Examples, such as the Boeing 787 and the Airbus A350, Cirrus SR-22, Cirrus Vision SF50, the Learjet 85, all use composite materials. Even the engines of these aircraft are using advanced composites within the internal

components where titanium has been the primary material used for years in jet engines.

What are these composite materials? Aramid (Kevlar) fiber.

A scientist at DuPont by the name of Stephanie L. Kwolek developed Kevlar in 1965.

Kevlar is an interesting material. The applications of the material I think are the most interesting. Kevlar has been used to make cut resistant gloves; it has been woven to make bulletproof vests; and it has been used where flame resistance is a desired characteristic, such as for firefighting gear.

My experience working with Kevlar comes from a small unmanned aerial system (sUAS) we fly in our Certificate of Authorization (COA).

Northland Community & Technical College (NCTC) received the COA from the FAA in 2014 to fly sUAS in Roseau County, Minnesota for agricultural research purposes at NCTC. It is called the "Sentera Phoenix," sold by Sentera, which is a Minneapolis, Minnesota-based company. Most of the structure, wings and fuselage uses Kevlar. The internal bay is reinforced with carbon fiber to give it strong internal bracing where the battery and sensors mount.

Carbon Fiber

Carbon fiber is advancing by leaps and bounds in many industries. Carbon fiber is considered to have the greatest strength-to-weight ratios compared to Kevlar and glass.

An intriguing part on aircraft where carbon fibers are being used is the first stage fans on high bypass turbo fan engines. For example, the GENx engine has carbon fiber composite fan blades, which are laid up by hand and placed into an auto-clave for cure. Each blade is rigorously tested before being installed on a new engine. According to GE, they are seeing 15% better fuel consumption with these blades installed.

Ceramic Matrix Composites

Ceramic Matrix Composites (CMCs) are being researched and developed by General Electric, which would have excellent weight savings in the hot section of a jet engine. Metals have dominated this area of the engine over the years, but CMCs may prove to be a formidable competitor.

Ceramic is a brittle substance that can withstand extremely high temperatures. GE has figured out an advanced process to produce engine parts that can withstand the extreme requirements in a jet engine.

What This Means To Aerospace Education

An understanding is needed by technicians to know the material and the structures that these materials make. The following questions will need to be answered to repair aircraft structures:

What material is the fiber made out of?

What style of weave was the fiber used to construct?

What orientation is the weave fabricated?

What matrix system was used to encapsulate the fibers?

The list goes on with the technical knowledge in this field.

One of the most important questions technicians need to ask is, can I repair this part?

There is no need to be overwhelmed by these questions, and if you lack experience in these areas, please know there are several options out there to get you up to a faster airspeed.

At Northland Community & Technical College, we have been training FAA mechanics with ratings in Airframe and Powerplant for over 50 years. This program provides the skills of having a good aviation maintenance technician foundation. NCTC also offers a certificate in Unmanned Aerial Systems Maintenance, which provides additional training built upon the solid foundation of having an FAA mechanic certificate with Airframe and

Powerplant ratings. If you have been keeping up with aviation news, you may have noticed quite a few articles about the decline in the number of aircraft mechanics entering into the workforce. We need your help with this.

NCTC actively recruits for the

program, but even if we turn out the students we have, it will still not be enough for what the industry needs.

There is a strong future in the aerospace industry and you can be part of it.

EDITOR'S NOTE: Northland

Aerospace is a collaborative partnership between Northland Community and Technical College (NCTC) of Thief River Falls, Minnesota and the Northland Aerospace Foundation (NAF) of East Grand Forks, Minnesota. NCTC is the educator and NAF helps it operate "at the speed of business." □

REIGEL/KLOBUCHAR FROM PAGE 49

Reauthorization, please keep in mind the GA industry's need for a multi-year reauthorization that will sustain funding for multi-year projects. The FAA, and ultimately GA, need committed, long-term funding, rather than a string of continuing resolutions that only perpetuate uncertainty and insecurity within the entire aviation industry.

"Futhermore, Congress and the

FAA need to retain authority over Air Traffic Control (ATC) and the National Airspace System (NAS). Transferring control of these air transportation systems to a 'private entity' funded by user fees (which have been repeatedly rejected by Congress) would not result in efficiencies or benefit the public. Rather, such a transfer would add bureaucracy and cost which would unduly burden and stifle the GA industry."

Reigel concluded his letter by thanking Senator Klobuchar for being a member of the General Aviation Caucus and for supporting General Aviation, and offered to discuss these issues further at her convenience.

EDITOR'S NOTE: All pilots, airport managers and aviation business owners are urged to likewise contact their U.S. Senators and Representatives and encourage their support of the Pilot's Bill of Rights II (PBOR2). □

South Dakota Aviation Businesses Oppose Creation of Air Traffic Control Corporation

WASHINGTON, DC – In a September 8, 2015 letter to the Chairman of the Senate Commerce Committee, Senator John Thune (R-SD), South Dakota aviation businesses expressed opposition to using the upcoming FAA reauthorization legislation to create a user-fee funded

air traffic control corporation, stating, "It will undermine the National Air Transportation System by denying rural America access to cutting-edge technology and hinder South Dakota's economic development."

The letter concluded by stating, "The upcoming FAA reauthorization

presents many opportunities to improve operations at the FAA and make it easier for aviation businesses to interact with the agency. However, separating air traffic control from the agency's regulatory functions risks undermining aviation safety, jobs, and investment for all South Dakotans."

The letter to Senator Thune follows a briefing with South Dakota businesses by NATA President Tom Hendricks on the status of FAA reauthorization. □

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2015

OCTOBER 2015

- 2 DAYTON, OHIO - National Aviation Hall of Fame 53rd Annual Enshrinement.
<http://www.nationalaviation.org/2015/06/annual-enshrinement-dinner-ceremony/>
- 3 MARSHALLTOWN (MIW), IOWA - Breakfast 7-11am. 641-752-0012.
- 3* ELKHART (KEKM), IND. - Elkhart Warbird Gathering & Airshow.
- 3* CAMP DOUGLAS, WIS. - IFR-VFR Seminar & Volk Field Open House at Volk Field. Pilots call 1-800-972-8673.
- 10 TULLAHOMA (THA), TENN. - **AOPA Fly-In at Tullahoma Regional Airport. To read more about the AOPA Fly-In go to www.midwestflyer.com/?p=8264. RSVP to attend by going to www.aopa.org/Community-and-Events/AOPA-Fly-In/2015/About**
- 10* DEKALB, ILL. - USO Dance 7:30-11:30pm. 630-272-3122.
- 11 POPLAR GROVE (C77), ILL. - Pancakes, waffles, eggs, sausage, coffee, milk & juice breakfast 7am-Noon.
- 11* MT. MORRIS, ILL. - Lunch 11am-3pm at the Ogle County Airport. 815-732-7268.
- 16-18* MT. VERNON, ILL. - Balloons over Mt. Vernon Fly-In. 618-242-7016 www.mtvernonairport.com
- 17* OXFORD (IA24), IOWA - Green Castle Airport Aero Club Pumpkin Splat (pumpkin drop) 11am-4pm. 770-833-1502.
- 17* ST. PAUL (KSGS), MINN. - Plane 'n Paws' Open House 11am-4pm at the CAF Hangar - Fleming Field. 651-306-1456. info@navion.com For more info: <http://sierrahotelaero.com/paws>

- 24* MT. PLEASANT (KMPZ), IOWA. - Breakfast 7-10am. 319-385-8122.

NOVEMBER 2015

- 7 CLEVELAND (BKL), OHIO - Pancake Breakfast and Book Sale 8:30am-1pm.
- 13-14 BLOOMINGTON, ILL. - Biennial Flight Instructor Refresher Clinic at Parke Hotel & Convention Center. Contact Linda Schumm 217-785-4215. Linda.Schumm@Illinois.gov
- 17-19 LAS VEGAS, NEV. - NBAA 2015 Business Aviation Convention & Exhibition. www.nbaa.com.

2016

JANUARY 2016

- 20-22 SEBRING, FLA. - U.S. Sport Aviation Expo. www.sportaviationexpo.com

MARCH 2016

- 10-12 NASHVILLE, TENN. - Annual International Women in Aviation Conference at the Gaylord Opryland Resort. www.wai.org
- 21-22* BROOKLYN CENTER, MINN. - 2016 MN Aviation Maintenance Technician Conference at the Earle Brown Heritage Center: 651-234-7248.

APRIL 2016

- 20-22 BRAINERD, MINN. - 2016 Minnesota Airports Conference at Madden's On Gull Lake (www.mnairports.org).
- 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. For additional info contact bob@thewisconsinriver.com.

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.
- 11-14* MIMINISKA LODGE, ONTARIO - 2016 Canadian Fishing Fly-Out. 3-Night/2-Day Trip.

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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.picadillylillydiner.com

Public Airports & Aerial Applicators Are Vital To Nebraska's Farm Economy

by Russ Gasper
Nebraska Dept. of Aeronautics

When it comes to agricultural receipts, bigger is not better and size does not matter. Nebraska and Iowa rank in the top four in the U.S. in agricultural receipts for all commodities, along with California and Texas, but Nebraska and Iowa are not in the top 10 when it comes to total area. Table 1 below shows that Nebraska and Iowa are much smaller in size; however, Nebraska and Iowa are able to compete with the big guys (i.e. Texas and California) for the top producers in U.S. agricultural receipts for all commodities.

TABLE 1

State	NE	IA	TX	CA
U.S. Rank by Ag Cash Receipts	3	2	4	1
All Agriculture Cash Receipts, \$Billion	23	31	22	4
U.S. Rank by Size	16	26	2	3
Size, Square Miles	77,421	56,272	268,272	163,696

A major commodity for agricultural receipts is crop production. In Nebraska, three of the top five agricultural commodities are crops: corn, soybeans and wheat. These are also Nebraska's main exported crops. It is estimated that in Nebraska, every dollar in agricultural exports generates \$1.34 in economic activity. Nebraska's \$5-6 billion in agricultural crop exports translates into approximately \$7-\$8 billion in additional economic activity, which is approximately 35% of all agricultural cash receipts. These facts and figures may not be surprising to most Nebraskans, however, many Nebraskans overlook the contributions of aerial applicators and the 80 public-use airports that support applicator activity to make Nebraska a leader in agriculture on a national level.

The Nebraska Department of Agriculture has 436 applicators registered to do business in Nebraska. The other leaders in agriculture have comparable numbers of applicators registered in their states. However, it should be noted that Nebraska has the fewest number of public-use airports (See Table 2).

TABLE 2

State	NE	IA	TX	CA
Public-Use Airports	80	116	297	243
Aerial Applicators Registered with State's Ag Dept.	436	333	443	458

Nebraska's 436 aerial applicators represent a small portion of Nebraska's population working in agriculture. It is estimated that one in four jobs in Nebraska are related to agriculture, which would be 250,000 jobs, as Nebraska has approximately 1,000,000 people employed in the state. In recent years, more and more farmers are using aerial applicators to control diseases and pests. The reason for the increasing use of aerial applicators is threefold: 1) maximized crop yields, 2) improved flight technology, and 3)



Mike Hamernik Photo

development of fungicides.

Aerial applicators have the capability of applying products at the right time, at the right place and in the right amount, to maximize crop yields. In addition, aerial applicators have several advantages that include the capability to treat more acres per day than ground rigs; the capability to make extensive applications in narrow, busy treatment windows, especially if weather/soil conditions are unfavorable; they cause less crop damage, which is estimated to be 1.5-5% of crop yields; and they cause no soil compaction, hence preventing soil runoff. The National Agricultural Aviation Association (NAAA) has indicated:

- The average aerial applicator has 21.3 years of experience.
- Aerial applicators have a commercial pilot certificate, and must meet requirements of FAA regulations Part 137, which allows low-level aviation operations.
- 87% of the aircraft used are fixed-wing; the remaining 13% are rotorcraft/helicopters.
- Of the combined fleet, 67% are turbine powered and 33% are piston-powered engines. (At the 2015 NATA Nebraska conference it was reported that 94% of ag operations are done with fixed-wing aircraft, while 3% is done by helicopters and 3% by other means.)
- Aerial applicators account for just under 20% of all applied crop protection products on commercial farms, and 100% of forest protection applications.
- Applicator's most commonly treated crops are corn, wheat/barley, soybeans, and alfalfa.

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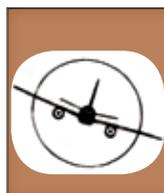


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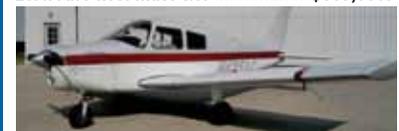
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In recent years, there has been an explosion in the growth of aerial applicators due to the development of fungicides that are designed to be applied to the corn tassel. In addition, advances in flight technology allow for more timely, efficient, and effective application of protection products. The University of Illinois conducted a study that recorded a yield increase of 18.6 bushels per acre with aerially applied fungicides. However, on average retailers report that their customers are indicating increases of 7-10 bushels per acre.

During the spring and summer of 2015, all 80 Nebraska public-use airports replied to questions regarding 2015 aerial applicator activities at their airport. Based on the responses, 66 of the public-use airports (82.5%) indicated that they anticipate applicator aircraft using their facility for base operations, fuel, and/or maintenance. The combined total of aircraft using the 66 airports is anticipated to be 321. The use of public-use airports in Nebraska by aerial applicators is very significant and somewhat surprising, because the industry's general thinking is that aerial applicators operate off privately owned airfields.

Based on NAAA data, Nebraska appears to be within the national trends/norms for aerial applicators. Therefore, using the national trends with information collected within Nebraska and applying similar lines of thinking to other states, Nebraska is a leader in resourceful use of limited valuable assets (i.e. public-use airports and aerial applicators). Table 3 illustrates a similar line of thinking applied to the other top agriculture states.

TABLE 3

State	NE	IA	TX	CA
Aircraft Using Public-Use Airports	321	245*	326*	337*
82.5% Public-Use Airports	66	96*	245*	200*
Aerial Applicator Aircraft Per Airport	4.9	2.6*	1.3*	1.7*

*Indicates correlated value based on Nebraska data

Based on USDA data, approximately 8,800,000 acres of corn are planted annually in Nebraska. If an acre produces 160 bushels of corn, approximately 1,400,000,000 bushels of corn are produced annually in Nebraska (See Table 4). Assuming aerial applicators treat 15% of the corn crop, we can estimate that 211,200,000 bushels of corn receive an aerial treatment. Based on a study by Purdue University,

crop loss due to ground trample from ground applicator rigs could range from approximately 1.5% to 5.0%. Therefore, if the same 211,200,000 bushels were not treated by aerial applicators but treated with ground rigs, and it is assumed that 3% crop loss occurs (6,366,000 bushels), it is estimated that \$25,464,000 is lost in crop yields. If the amount lost was in exports, approximately \$34,000,000 would be lost in additional Nebraska economic activity. Based on crop production, aerial applicators provide significant financial advantages from an economic/business standpoint.

TABLE 4

	Aerial Applicator	Ground Rig
Totaled Area Planted	8,800,000 acres	8,800,000 acres
Average Yield	160 bushels/acre	160 bushels/acre
Average Total Yields	1,408,000,000 bushels	1,408,000,000 bushels
15% Treated	211,200,000 bushels	211,200,000 bushels
Loss Due to Crop Trample (3%)	0 bushels	6,366,000 bushels
Total Yields	211,200,000 bushels	204,834,000 bushels
Total Cash Receipts (\$4.00/bushel)	\$844,800,000	\$819,336,000

From a farmer's standpoint, applying treatments (fungicides, pesticides, etc.) with aerial applicators also indicates substantial financial advantages if crop loss is part of a farmer's cost equation (See Table 5).

TABLE 5

Aerial Applicator	Ground Rig
160 bushels/acre	160 bushels/acre
\$4.00/bushel	\$4.00/bushel
Crop \$640/acre	Crop \$640/acre
Treatment \$9.00/acre	Treatment \$7.00/acre
Trampling 0%	Trampling 3%, \$19.20/acre
Total \$9.00/acre	Total \$26.20/acre

The next time you are asked, "Why does our community support this small general aviation airport?" you can reply with "This small airport is a valuable asset for the community in the role it plays in the agricultural economy of the state." Nebraska airports and aerial applicators are prime examples of how they can work in harmony with one another to maximize lesser resources while maintaining national leadership in crop output.

EDITOR'S NOTE: Russell F. Gasper, P.E., is the Division Manager at the Nebraska Department of Aeronautics. □

Ulteig Names Doug Jaeger CEO

FARGO, N.D. – Ulteig, one of the nation's largest engineering design firms, has announced that it named Doug Jaeger to the position of chief executive officer effective June 15, 2015. Jaeger succeeds Eric Michel who will remain an advisor to the company.



Eric Michel □

K-C Aviation Cofounder Dies

OLATHE, KAN. – William Ralph Emery, 73, cofounder of K-C Aviation, and founder of Aviation Concepts, died August 7. Emery was born Nov. 5, 1941 in Dallas, Texas, and started out working at Executive Aircraft Service for his father, which was a division of Cooper Airmotive, which is now Aviall. K-C Aviation was later acquired by Gulfstream and today has locations in Olathe, Kansas; Chesterfield, Mo.; and Long Beach, Calif. □



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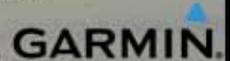
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