

# MIDWEST FLYER

**MAGAZINE**

FEBRUARY/MARCH 2017



*Published For & By The Midwest Aviation Community Since 1973*

midwestflyer.com



# The M-Class



## M600

1,441 nm | 274 ktas | 6 people



## M500

1,000 nm | 260 ktas | 6 people



## M350

1,343 nm | 213 ktas | 6 people



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## Come fly with me

AOPA's Fly-Ins have been a huge success—we've seen nearly 44,000 people and safely parked some 6,000 aircraft since they started three years ago—so we're making them even bigger for 2017, adding events, fly-outs, and a whole extra day of in-depth learning opportunities designed to refine your skills or teach you new ones.

This year we'll host four fly-ins around the country, landing in Camarillo, California, April 28 and 29; Norman, Oklahoma, Sept. 8 and 9; Groton, Connecticut, October 6 and 7; and Tampa, Florida, October 27 and 28.

Unlike past years, each event will last two days, with in-depth full-day seminars on topics like aircraft maintenance, mountain flying, or overwater flying beginning at 9 a.m. on Friday. The exhibit hall and aircraft displays will also open earlier, giving you the chance to browse the latest industry offerings beginning on Friday afternoon. That evening, relax and enjoy food and entertainment at the ever popular Barnstormers party before retiring to a hotel or, better yet, camping under the wing.

Saturday will be similar to past AOPA Fly-Ins, starting with a pancake breakfast and continuing with seminars, exhibits, aircraft displays, entertainment, food, and an association update from President and CEO Mark Baker.

If you've been out of flying for a while, be sure to take part in the free Rusty Pilots seminar on Saturday morning. The three-hour interactive seminar counts toward the ground portion of the flight review and includes the latest information about third-class medical reforms. Rusty Pilots is designed to make it easy to return to flying after any length of break, from a few months to many years. Since we launched the seminars in 2014 as part of AOPA's You Can Fly program, they've helped more than 2,500 pilots return to active flying status.

The fly-ins will conclude at 3 p.m. on Saturday, leaving time for an organized fly-out where pilots can enjoy nearby attractions or put the skills they've learned to work.

I hope you'll plan to join us for one or more of our expanded fly-ins in 2017. Airplanes, pilots, and fun—I can't think of a better way to spend a weekend!



Mark R. Baker  
President & CEO, AOPA



\*For more information on the Aircraft Owners and Pilots Association and the issues that affect your flying go to [www.aopa.org](http://www.aopa.org) today.



**ON THE COVER:** Brent Wiczek of Nisswa Marine, Nisswa, Minnesota, parked his Kodiak along the shore of a northern Minnesota lake on a beautiful winter day, to do some ice fishing.  
Brad Thornberg Photo

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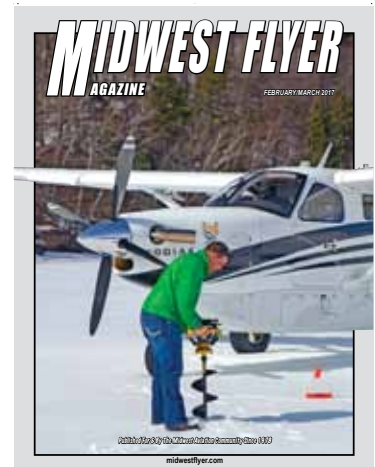
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## Friends & Partnerships Make For A Great Magazine!

by Dave Weiman

**W**e are happy to announce in this issue a partnership between *Midwest Flyer Magazine* and Connell Aviation Group of Cedar Falls, Iowa. The Connell family has a long history serving general aviation in the Midwest, and has resources that complement and expand our marketing services for advertisers.

From new advertising sales, to ad layout and design, and online services, we look forward to working with Connell Aviation Group, as we have since they began advertising with us two years ago. You can see examples of their advertisement design work on pages 9 and 27. (See article on pages 24-25 for details.)


If you enjoy reading about aviation history, you will enjoy an article by R.J. Reilly in this issue about his encounter with a Douglas DC-3 in La Crosse, Wisconsin in 1952, as well as a feature article on the Aviation Heritage Center of Wisconsin,



and their efforts to restore a DC-3 flown by North Central Airlines from 1953-1964. (See articles beginning on pages 29 and 31.)

Continuing our aviation history theme, is an article entitled "Vintage Beech Across The Big Pond" by Klaus Plasa, who shares his experience ferrying a 1942 Beech C45H across the Atlantic Ocean. (See article beginning on page 33.)

Columnists Pete Schoeninger, Greg Reigel, Mark Baker, John Beasley, Mick Kaufman, Harold Green, Hal Davis, Cassandra Isackson, and Frank Nix will entertain, inform and educate us with topics ranging from instrument flight, pilot proficiency, flight safety, aviation law, aircraft ownership and maintenance, and pilot health, to state and federal issues, as they do in each and every issue. We could not ask for a better editorial team to work with.

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# Ask Pete!

by Pete Schoeninger

**Q:** Pete, I saw a picture of an Ercoupe on skis. I have NEVER seen an Ercoupe on skis, so are skis approved for Ercoupes?

**A:** If you do an Internet search for Ercoupe type certificate data sheets, you will see that skis (Federal 1500) are allowed on Ercoupe model 415C. But interestingly, skis were not approved on the heavier 415D model at the time of certification.

There are many airplanes flying on skis where ski installation was not approved by the airframe company and the FAA. In this case, usually the ski manufacturer will obtain a Supplemental Type Certificate (STC) from the FAA, granting authority to install a particular make and model ski. Or in some cases (Cessna 170, for instance), the manufacturer will certify one make and model of ski when the airplane is certified. Later, ski manufacturers can (and have gotten) their skis approved.

**Q:** Have you ever landed on a frozen lake with skis or wheels? What should I know before I try it?



Pete Schoeninger

**A:** Yes, both. Be very careful. Check with some local pilots if at all possible and be very careful and walk the area you plan on landing on to look for hazards. Check with local pilots, ice fishermen, conservation wardens, snowmobilers, etc., who can warn you about springs or currents which may be hidden beneath very thin ice. Look on Facebook for "Midwest skiplanes," and talk to them and go to one of their gatherings. And if you do venture out, be sure to have a life preserver onboard, if not wearing one, and hone up on some emergency egress procedures, so you can quickly get out of your aircraft and out of the cold water should you break through the ice. It is just a matter of minutes before hypothermia can incapacitate you.

**Q:** In my Cessna 210, when I make my first power reduction from take-off to climb, the cylinder head temperature (CHT) and oil temperature gauges will reduce a little. But the exhaust gas temperature (EGT) gauge does not drop. Why?

**A:** There is not enough room to explain all of the ramifications, so you should spend some time with your engine owner's manual. In a nutshell, at takeoff power, you are running full power and full rich. At first power reduction to climb power, you lean fuel flow a little with your fuel flow gauge. Reducing power and leaning mixture

(from very rich, to rich) just a little changes exhaust volume, but maybe not exhaust gas temperature. This situation will vary with makes and models of engines and airframe installations.

**Q:** The engine in my 1978 Cessna 172 (Lycoming O-320 H2AD) holds 6 quarts of oil. The engine owner's manual specifically states that the minimum safe oil quantity is 2 quarts. But my mechanic and CFI tell me I should always have at least 5 quarts in the engine. Oil is not cheap...why carry more than necessary?

**A:** I agree with your mechanic and CFI for many reasons. Some conclude, if for some reason you develop a small oil leak, you can run for awhile before running out of oil, and hopefully get to an airport or at least a suitable emergency landing place. Engine oil helps remove engine heat, and more oil means oil can cool a little more before it is recycled thru the engine, again meaning lower oil temperatures.

**Q:** I have noticed that rural airport ramps and runways seem to have more snow and ice, and it seems to stay longer than on nearby streets. Why?

**A:** Three reasons: 1) Sometimes corrosive materials, like rock salt, are used heavily on roads to melt snow and ice, but are NOT used on runways because salt corrodes aluminum. 2) Almost any road has lots more car traffic (which compresses and melts snow and ice) than airplane traffic on a runway or ramp. 3) Relatively few voters use the airport, but everyone uses local roads, so there may be more political pressure to do a real good job on roads before airport plowing gets underway.

**Q:** I have been considering upgrading my Cessna 182 from a carbureted engine to a fuel-injected engine, but wonder if the cost of converting is worth it.

**A:** It all depends on how long you plan to keep your aircraft, and if you will be flying at airports with higher elevations than we typically see in the



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Midwest. There's no question that a fuel-injected engine is the better of the two engines. With no carburetor, you don't have to worry about carburetor ice. Fuel is also distributed more evenly among all cylinders, so the cylinder temperatures tend to be more even, and as a result, the cylinders tend to have a longer lifespan. The drawbacks, besides the cost of converting, is that fuel injected engines tend to start harder when the engine is hot – at least until the owner learns how.

**Q:** Automobile dealers frequently buy and sell cars at regularly scheduled auctions. Is there such a thing for airplanes?

**A:** The only regularly scheduled airplane auction I am aware of was in Cape Girardeau, Mo., and that ended about 30 years ago. It was useful for dealers and FBOs who maybe took something in trade or for an individual who wanted to “dump” their airplane at wholesale for a quick sale.

**Q:** As a follow up to my question about auto dealers, how can I buy a couple of airplanes at wholesale? I am an A&P mechanic with Inspector

Authorization and can do all of my own work?

**A:** You should let everybody in a 400-mile radius or so know that you are a wholesale buyer. But what that means is you must have cash or a line of credit ready to go on a day or two notice, and be willing to buy almost any brand/model, and in any condition. If FBOs or dealers call you a couple of times to make an offer on a trade in and you decline, they will stop calling you. When Jeff Baum and I were buying at wholesale (as we started Wisconsin Aviation 30-plus years ago), we bought Cessnas, Pipers, Beechs, Grummans, Aeroncas and Cubs, and some aircraft you have never heard of, in almost any condition. Some were real beaters and some were nice. And I have to admit that occasionally, we lost a few bucks doing it. But overall, it was a lot of fun, and we did alright.

**Q:** As a follow up to my question about selling my 182 and buying a 310, which you answered so brilliantly in the Dec/Jan 2017 issue of Midwest Flyer Magazine, I have found some 182s similar to mine advertised in the range of \$50,000 to \$60,000. I am going

to start advertising mine at \$62,500, unless you have a better idea?

**A:** If you price your 182 at the top of the heap of similar airplanes, there is little chance it will sell. Then after 45 days or so, it will become kind of “stale” on the market and to sell it, you will have to lower your price below the middle of the market to attract a buyer's attention. I would start advertising it in the middle of the pack or so, say \$55,000, and see what happens.

**Q:** I saw a 172 with a bit of duct tape over part of the front cowl openings. The owner says he does it every winter so the engine runs a little warmer. Would that be a good idea?

**A:** NO, NO, NO! Cessna, and other manufacturers, make and offer for sale airflow restrictors called “winter fronts.” They are carefully engineered to allow airflow throughout the engine, but at a slightly less volume. With “homemade” winter baffles, you could be creating hot spots on the engine, besides probably being illegal.

*EDITOR'S NOTE:* Contact Pete Schoeninger at [pete.harriet@gmail.com](mailto:pete.harriet@gmail.com) with your questions for this column or for consultation on aviation business and airport matters. Pete has four decades of experience as a line technician, airplane salesman (300 aircraft sold thus far), appraiser, snow removal supervisor, airport manager, and as the manager/co-owner of a fixed base operation. □



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## AOPA ASI Releases Video On Low-Altitude Maneuvering

FREDERICK, MD – The Aircraft Owners and Pilots Association (AOPA) Air Safety Institute (ASI) has released a video on maneuvering aircraft at low altitude. “Margins of Safety: Low Altitude Maneuvering” is the fourth and final ASI video in a series looking at maneuvering ([www.airsafetyinstitute.org](http://www.airsafetyinstitute.org)). □



# What Happens To A Certificate When The FAA Suspends Or Revokes It?

by Gregory J. Reigel

Attorney At Law

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**I**s a certificate suspension or revocation the end of the story for a certificate holder? Not usually. A certificate holder has some additional responsibilities, as well as liability exposure if he or she fails to fulfill those obligations. However, before we talk about the aftermath of certificate suspension or revocation, we should briefly discuss how a certificate holder can find him or herself in that position. Any certificate issued by the FAA



Greg Reigel

(e.g. airman, mechanic, medical, dispatcher, air carrier, repair station, etc.) may be suspended or revoked in a legal enforcement action. Of course, this assumes that the matter cannot be resolved through a compliance action under the FAA's new compliance philosophy. This typically means that the certificate holder charged with the alleged violation(s) was either unwilling or unable to comply.

Once the FAA has determined that legal enforcement action is appropriate, the FAA will either issue a Notice of Proposed Certificate Action ("NPCA") to the certificate holder seeking to suspend or revoke a certificate for alleged violation of the Federal Aviation Regulations (FARs), or it will issue an emergency order suspending or revoking the certificate. The difference

between the two is significant: the emergency order is effective immediately (e.g. the certificate is revoked as soon as the FAA issues it), while the NPCA is not.

Both an NPCA and an emergency order will provide a recitation of the facts supporting the FAA's allegations. The NPCA also includes a list of options from which a certificate holder may choose how he or she wants to respond to the NPCA. Under the first option, the certificate holder may elect to simply admit or concede the FAA's allegations and surrender the certificate to the FAA. The emergency order, on the other hand, requires the certificate holder to immediately surrender the certificate to the FAA.

Suspension or revocation of a certificate may also be imposed by a

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National Transportation Safety Board (“NTSB”) administrative law judge (“ALJ”) after the certificate holder has received a hearing on the merits of the allegations contained in the NPCA. In the case of suspension or revocation following a hearing, the ALJ will order that the certificate holder surrender the suspended or revoked certificate to the FAA. The FAA may also follow up with a letter to the certificate holder demanding surrender of the certificate. But, does the certificate holder really have to surrender the certificate? If the case is not appealed, the answer is “yes.”

If a certificate holder fails to surrender the certificate, the FAA can and oftentimes will try to assess a civil penalty against the certificate holder for failure to surrender the certificate

as required by the order of suspension or revocation. Under 14 CFR 383.2, depending upon the type of operator (e.g. individual, small business, air carrier, etc.), the civil penalties for failure to surrender a certificate can range from \$1,414 for an individual (and in some cases a small business) to \$32,140 per day.

So, what do you need to know if you find yourself in this situation? First, if you receive a NPCA or emergency order, you need to take action immediately (especially in the case of an emergency order where the time limits are very short) and, if you dispute the FAA’s allegations, you need to properly and timely appeal the order and request an evidentiary hearing.

Second, if your appeal is

unsuccessful and your certificate is suspended or revoked, you are required to physically surrender your certificate to the FAA. If you fail to do so, you risk being assessed a civil penalty that could potentially be very expensive. And, of course, if you receive an emergency order or NPCA and are unsure of your rights and responsibilities, contact an aviation attorney who can answer your questions and help you through the process.

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

## EDUCATION

### Wisconsin High School Flies STEM Plane!

Central High School student, Declan Steinke, has taken the controls of “Falcon One,” an RV-12, which was the school’s first homebuilt aircraft construction project. The project is part of the Westosha, Wisconsin high school’s STEM (Science, Technology, Engineering, Mathematics) program, one of many such programs throughout the U.S.

On November 15, 2016, Steinke flew Falcon One solo around the

Burlington, Wisconsin airport. Just a month earlier, Steinke also completed an intense training course and became the youngest known certified independent Rotax Maintenance Technician (iRMT) in the world. Under the leadership of the school’s aviation program director, James Senft, the school is now building its second homebuilt aircraft

Senft said: “On behalf of students involved in the aviation program, I



Declan Steinke

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# Autopilot Mismanagement & Meet The “Snitch”

by Michael J. “Mick” Kaufman



Michael Kaufman

After finishing my column for each issue of *Midwest Flyer Magazine*, I often wonder what I should write about in the next issue.

A few days after finishing the last issue, I received a phone call about a recent accident, and my investigation began with a new hot topic. A few days after that, I received another phone call from a reader, which started topic #2: “Meet the Snitch.”

## Autopilot Mismanagement

I call the first topic “Autopilot Mismanagement,” because it was pilot

induced and was the cause of three fatal accidents killing six people within a very short period of time. Two of those accidents were in Bonanzas and one involved a Cessna 182, and they all had different autopilots. The latest accident occurred in Concord, Calif., involving a Bonanza, and my company (BPT, Inc.) had just held a pilot recurrent training program there several weeks prior. The pilot of this fatal accident was not one of our program participants. The common denominator of all of these accidents involved “electric trim” with the pilot trying to override the trim.

The first accident occurred in the Orlando, Fla. area as a pilot with one passenger took off from a satellite airport and unknowingly climbed into the overlying Class B airspace. Air traffic control contacted the pilot on the radio to advise him of his altitude deviation, and the pilot began to push forward on the yolk to correct the

deviation and get below the airspace. The autopilot was on, and you may be able to guess what happened next. Before we continue with this sad story, let’s review some autopilot theory.

Most autopilots have two servos – one to control pitch and one to control roll – and some autopilots also have a yaw servo if the aircraft needs a little help to smooth out the ride in turbulence as my V-tailed Bonanza does. For this topic, we will be concentrating on that pitch servo and assume that the autopilot has electric trim. We need to mention that electric trim is not necessarily part of the autopilot as many aircraft have electric trim and no autopilot.

When electric trim is installed and integrated into the autopilot system, its purpose is to help the pitch servo overcome excessive force on the controls when needed. If we are trying to hold an altitude and the aircraft flies into

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some sinking air (sink happens, a glider pilot term), the pitch servo applies up elevator pressure to keep from losing altitude. If too much up elevator travel is needed, or if it should be needed for an extended period of time, such as reducing airspeed with the throttle by the pilot, the pitch servo then calls for help. The help comes from the electric trim as you can visually see the trim wheel move as it relieves the force on the pitch servo.

This is a good spot in the article to make a short topic change to teach a basic instrument skill. We can learn this trim concept from the autopilot when hand flying on instruments. Many times I see pilots, when hand flying the airplane, constantly re-trim the aircraft every time it feels slightly out of trim due to turbulence. Take note that the autopilot electric trim only comes into play when there is a great need to do so. The pilot should act much as the pitch servo does by pushing or pulling on the yoke to maintain altitude and trim only as the last resort.

In the accidents that we are talking about, the autopilot would need to be in a pitch or altitude hold mode. If the pilot were to push forward on the yoke to descend below the Class B airspace, the autopilot pitch servo would call for help and trim the aircraft nose up. This is what happened and, eventually, we have full-up trim and the pilot can no longer overpower the trim. We now have what is called a "trim tab stall," which in this case, most likely ended up in a spin,

followed by a crash in the lake.

All three of these accidents mentioned here occurred because of the trim control being all the way against the stop due to autopilot/electric trim mismanagement where the pilot could not override this condition. Each accident claimed two lives and could have been prevented.

A pilot needs to know the aircraft he/she is flying and the different ways to disconnect the autopilot or electric trim in case of a runaway. Most aircraft have a double safety feature on the electric trim when using it manually. This can be a split switch that requires the pilot to apply thumb pressure on both halves of the switch to activate the desired electric trim. Other manual electric trim switches require a push in the direction and a push downward simultaneously to activate. Another option not seen very often is a single button that has no up or down button, but trims to relieve pressure on the yoke. Using this system, the pilot simply pushes or pulls on the yoke and then pushes the single button and the trim relieves the pressure similar to the autopilot calling for help.

We must learn not to manually try to fight the autopilot as the electric trim will fight back and in the cases we just mentioned, the pilot lost. On some autopilots, if the autopilot is on and we manually touch the electric trim, the autopilot comes off line. On others, there is a separate button on the yoke, many times in red, that disconnects the

autopilot. Sometimes that disconnect button is on the instrument panel, which hopefully is in a good viewing position for the pilot.

If you have a "go-around button" as part of a flight director, it should also disconnect the autopilot (servos only). A circuit breaker for the autopilot or electric trim is another means of disconnecting, but I think it is a poor one, as finding it in an emergency situation is difficult, unless it is well marked. A good choice if you are not having good results would be to shut off the master switch. You will lose everything electric, but the engine will still run...at least on all of the airplanes I fly.

Learn your autopilot well and the test and disconnect methods. The FAA has set up guidelines for avionics shops, but they do not always follow them and sometimes they don't make sense, or there are installation mistakes.

### Meet The Snitch

The second topic, "Meet the Snitch," leads us into a third topic that will follow about airspace and altitudes. I remember from grade school that a snitch was someone who told the teacher on you when you did something wrong or naughty. Sometimes, the snitch remains anonymous, as I never found out who snitched on me in my fifth grade class.

I received a phone call from a reader in mid-November wanting some advice. The pilot received a phone call from a local FAA inspector a few days earlier claiming he violated airspace during an approach to Hagerstown, Md., six (6) months earlier. The pilot was flying his own personal twin-engine aircraft at the time, and the only thing he could recall after that much time had past, was that the approach was down to weather approach minimums.

The pilot was an AOPA member and had bought the legal protection plan through AOPA, so he called them for legal advice. AOPA legal protection told him he was the victim of the "snitch."



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The snitch, they explained, is a computer that analyzes the ADS-B data from the aircraft, and computer data on airspace, looking for errors. There was never a deviation reported by air traffic control of a violation. Upon receiving the initial call from the inspector, the pilot refused any comment until he got legal advice from an attorney. After receiving advice, the pilot called the inspector and asked if he was the victim of the snitch. The inspector's response was that he believed that is what the FAA is calling it.

What we know about the snitch, as of this writing, is that it has only been installed in Potomac Approach's airspace and targets aircraft with ADS-B equipment. The pilot had installed this new ADS-B equipment less than a year prior to the incident to comply with FAA's 2020 mandate. Any of our readers who have also been the target of the "snitch," are encouraged to contact me so we might have more information to pass on to our readers.

It is a sad scenario when an aircraft owner goes to the expense of installing ADS-B equipment to comply with FAA's 2020 mandate with the intent to improve airspace safety, only to become a victim of the equipment when there is clearly no intent to violate an airspace restriction. Let's hope the FAA rethinks their "snitch" tactics and enforcement policies.

Many times pilots asked me about the altitudes they should be flying on a particular instrument approach, and there is a lot to be said about this subject. For the purpose of this article, we are going to be using the ILS 27 approach to Hagerstown, Md. (FIG 1), as this was the approach referenced when discussing the "snitch."

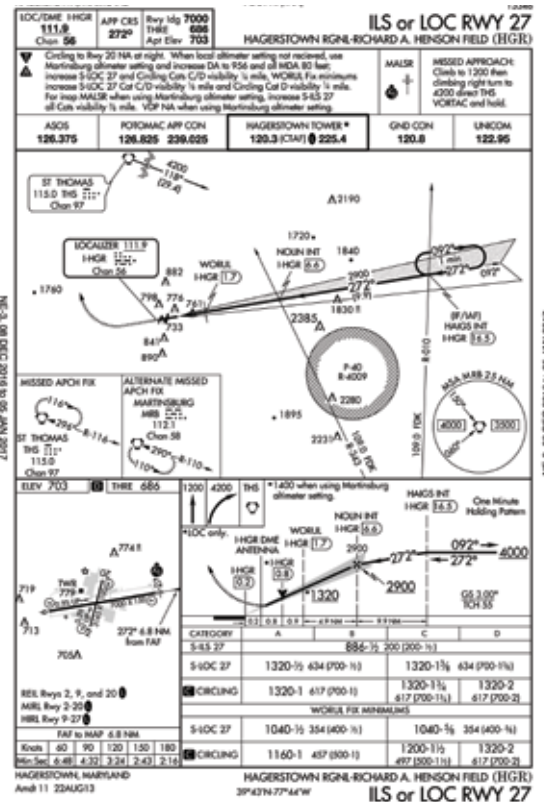


FIG 1  
For Illustration Only! Chart Not To Be Used For Navigation

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There are some magical, and sometimes confusing, words when the controller's voice comes through the radio with "cleared for the approach." These words may be in conjunction with other words or restrictions which we need to take into consideration with this approach clearance, mainly being at which point does this clearance take effect.

Let's take vectoring into consideration and use the clearance example "Cessna 2852 Foxtrot, you are 3 miles from PODUK. Turn left heading 030. Maintain 3,400 till established. You are cleared for the ILS 18 approach to Happy Town."

Other than reading back the clearance, this is an easy one. After turning to 030 degrees, we wait for the localizer needle to move, intercept the course, fly the needle and wait for the glide-slope needle, assuming it is above us and follow it down to the decision altitude published on the chart.

The next scenario we will use will be on the approach chart for Hagerstown (FIG 1), and we are approaching the airport IFR from the northwest and receive the following clearance from Potomac approach:

"Cessna 22 Hotel Bravo, you are cleared for the ILS 27 approach to Hagerstown via the St. Thomas transition. Proceed direct St. Thomas. Maintain 7,000 till established on a segment of the approach."

You look at the approach chart and find St. Thomas (THS), a VOR northwest of the airport, and turn to your VOR (NO GPS) to the proper frequency and head toward it. You are a bit confused as you study the approach chart, but see an arrow pointing in the direction of the initial approach fix with a direction of 118 degrees, and you think this is what the controller meant.

If you have one of those nice GPS boxes, things are much easier. On the Garmin 430/530, you have the airport (KHGR) loaded as your destination, you select approach and pick the ILS 27, and then select the transition, which is THS. You are done with your route except for altitudes.

Thinking about altitude, you remember two things from your clearance: 1) "Cleared for the approach," and 2) "Maintain 7,000." As you cross the St. Thomas VOR (THS), you are now established on a segment of the approach because

there is an altitude published.

So, you begin a descent to 4,200 feet, as that was published on the chart. You look down at the approach chart and in the lower right-hand corner of the top view of the approach, you see a circle that is divided into segments labeled "MSA" and there are several altitudes shown. You also notice that the circle shows a 25NM distance from MRB, and there is a VOR symbol. That must mean these altitudes pertain to distance from the Martinsburg VOR, but you do not see it depicted on the approach chart. Now you remember your old flight instructor telling you that the MSA circle altitudes are not to be used, and are a reference only for an emergency.

You are now on your way to the HAIGS intersection at the altitude of 4,200 feet and see a holding pattern course reversal there. You are a bit confused again as the HAIGS intersection has an IF/IAF printed above it, and you are wondering what that means and what should be done next. The IAF means the first time you cross the intersection, it is considered the initial approach fix (IAF). The second time you cross it would make it the intermediate fix (IF), followed by the final approach fix (FAF) at NOLIN. The chart shows that once you have crossed the HAIGS fix the first time and in the course reversal, you may descend another 200 feet to 4,000.

At this point if I were flying this approach and were receiving the localizer/glide-slope, I would wait for the glide-slope to center and follow it down to my decision altitude (DA). This would eliminate making a step-down to 2,900 to cross the final approach fix and give me more time to get stabilized on the glide-slope.

I am always saddened to read that so many accident reports are the result of controlled flight into terrain (CFIT) because the pilot did not understand the clearance or the approach chart. The scenario I created for this approach is just one of many we could explore, and it is highly impractical getting such a clearance so far out on the approach to an airport like Hagerstown, unless it was 3:00 a.m. on Christmas Eve, but it would be quite common in Cut Bank, Montana. I see the need for me to write more on altitudes that need to be understood, and flown on approaches, in future issues of *Midwest Flyer Magazine*, and I will do so.

It is "icing season" again. Stay away from icing conditions unless you have the proper de-icing equipment, and always plan an out to get clear of the ice.

**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 (KLNK) 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](mailto:captmick@me.com) or call 817-988-0174.

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## Adventures In The Traffic Pattern

by Harold Green

Occasionally, I am overcome by an irresistible urge to comment on traffic pattern manners observed around various pilot-controlled airports. The items discussed here are not violations of regulations. They are, however, opportunities for improvement in courtesy and/or common sense.

As with virtually all of us, the common traffic advisory frequency (CTAF) at the airport I fly out of, Middleton Municipal Airport/Morey Field (C29), is shared by several airports. This, coupled with normal excursions to other airports, provides insight into traffic situations at many airports. This offers each of us some consolation that our airport is not unique in its traffic issues. The most common annoyances are pilots who call in every mile or so as they approach from as much as 10 miles out, or provide excruciating detail regarding their position.



Harold Green

“Over the pig farm” may be useful if you fly there frequently, but conveys little information to transient pilots. Then there are the two buddies who must discuss where they are, the condition of their airplanes, and where they will meet when on the ground.

Thank goodness there are not many regulations covering the traffic pattern at pilot-controlled airports. As a result, things in general, work quite well. However, manners and situational awareness counts for a lot.

The following are three incidents, which I have observed over the past two months at our airport:

1) An aircraft reported “four south” to enter downwind for “two eight.” The pilot actually entered on base for Runway 28 at an altitude well lower than pattern altitude and then proceeded to head for an aircraft already on a long final. At the time there were three aircraft in the pattern and all had announced their positions. One had just turned base leg and would soon be on final and the target of the incoming plane, one was on downwind and one had just announced it was turning downwind. What could have been improved was better communication regarding the newcomer’s awareness





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of other aircraft and a more definitive statement as to his position on downwind. After all, the downwind leg is at least two miles long making it difficult for those already on downwind to locate incoming aircraft.

There are several options here. First, announcing intent to enter the pattern on a base leg would have been far more informative and helpful for the rest of us in the pattern. Maintaining pattern altitude until entering base would have also been helpful. Additionally, if the pilot saw the other two airplanes on downwind, letting them know would have been the polite thing to do. If not seen, a comment to that effect would have been useful as well.

2) The pilot of another aircraft reported "six out for two eight," then corrected that to "one zero" when aircraft in the pattern announced their position. The pilot then proceeded, with an announcement beforehand, to execute a midfield crosswind closely ahead of an aircraft already on downwind and previously announced as such.

The issue here was that the arriving airplane was about 20 kts slower than the aircraft already on downwind. The pilot approaching from outside the pattern did most things right, except for placing the aircraft just ahead of a much faster aircraft. This resulted in a potential collision and a very definite need to extend downwind

to avoid over-running the slower aircraft. Interestingly enough, when discussing the incident with the pilot, his concern was that he entered on a midfield crosswind and kept defending that decision even after the real issue of cutting off an aircraft already established in the pattern was pointed out to him. Presumably, the concern on the part of the pilot came from the fact that the recommended entry is on a downwind. However, given the circumstances, a midfield, crosswind entry actually made the most sense because of traffic considerations in general. The pilot just needed to be more circumspect about where he entered the downwind.

3) A pilot announced departure on Runway 28, despite the fact that traffic was using Runway 10. There had been a slight wind shift with a velocity of 3 kts and about an 86-degree crosswind. The wind direction had been shifting about 10 degrees all morning favoring first one runway and then the other. Traffic had been using Runway 10 for some time. There were two other aircraft in the pattern and a Citation had just departed Runway 10. Apparently, the departing pilot felt he was obligatory to takeoff upwind regardless of traffic.

(With a light wind, I prefer to go with the aluminum flow, rather than the air flow, runway permitting. If I feel the wind is too strong, I am not above requesting a change in runways.)

Since training activity was ongoing at that time and there was at least one relatively new solo student in the pattern, the potential for stress was quite high. One can only speculate that the pilot going against traffic has been told you ALWAYS take off into the wind. Obviously, a little attention to the radio while taxiing to the runway would have let the pilot know that things were a little different than what was usual.

It just so happened that I know two of these folks. I know they are capable pilots and I assume the third was also. The point is that sometimes we need to pay a little more attention to situational awareness in the pattern, particularly when it concerns other aircraft. Also, our usual habit patterns could perhaps use some review from time to time.

Another issue that arises frequently is the spacing between aircraft. Since, at a pilot controlled airport, we pilots set our own spacing, it is worth a review at this point. Again, it is important to develop situational awareness concerning the type and position of other aircraft.

The simplest spacing is probably when landing. We all know that we should not touch down on the runway when another aircraft is on the runway. Therefore, we know to go around under those conditions. To establish this spacing when following in the pattern, given two airplanes of roughly similar performance, it generally works to turn base when the lead aircraft passes you on final. Otherwise, this becomes a judgment call on our part as to when to start descending on final. If the plane ahead is faster, then an earlier turn to base would be appropriate. However, leave enough time for the plane ahead to reach a taxiway and depart the runway. It is always a good idea to be prepared to execute a go-around if, at the last minute, things don't work out as planned.

If entering the pattern after listening to any reporting aircraft, develop a picture in your mind of the situation. Then plan an entry point and time, which will give you most traffic

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separation. If necessary, loiter outside the pattern until you can safely enter. As you do so, keep your head on a swivel and keep in mind that the primary concern is to make sure the airspace you are about to use is free of obstacles.

Care is also needed on departure. Life is good when taking off behind a much faster airplane, so long as we allow for wake turbulence avoidance. There is no danger of collision. However, when taking off behind an aircraft of similar or lesser speed, care must be exercised.

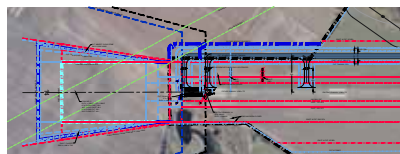
There are two things that can make this situation interesting. The obvious issue is a fast airplane taking off behind a slower one. The less obvious one is that airplanes in the pattern don't usually fly a pattern of the same dimensions. The whole thing is compounded by the fact that airplanes, being streamlined, present a small cross-section to the airflow, which also means they are hard to see, particularly head or tail on. A good idea is to wait until the aircraft departing ahead of you has at least 500 feet of altitude. At our airport we have a noise abatement procedure which, on one runway (Runway 28) calls for a turn 20 degrees to the right of runway heading soon after liftoff. The issue with this is that when you turn left crosswind, you are cutting back across the straight-out path from the runway. If the aircraft following you is unaware of the noise abatement procedure (despite the signage) and has flown straight out, you are now cutting across their flight path. This can be an adrenalin creator for both. That's one of the reasons why we call our crosswind on the radio, even though it adds to the frequency congestion. A little care to acquaint yourself with such procedures at strange airports, is well advised.

Perhaps as a flight instructor who spends an inordinate amount of time in the pattern, I have become overly sensitized to pattern issues. However, despite all my carping, as a group I think we do very well at controlling our own traffic, but there is always room for improvement, common courtesy and common sense!

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

welcomed via email at [harlgren@aol.com](mailto:harlgren@aol.com), or by telephone at 608-836-1711 ([www.MoreyAirport.com](http://www.MoreyAirport.com)).

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## Getting Personal

by Dr. John Beasley, M.D.  
Aviation Medical Examiner  
Professor Emeritus and Clinical Professor  
Department of Family Medicine  
University of Wisconsin - Madison

**R**ecently, an aviation legend who will remain nameless, almost bought the farm... not because of a lack of ability to out-fly the enemy in combat, nor for any problems with his air show skills, but partly because he did not have a personal physician. Fortunately, a doctor friend of his happened to be with him during his time of need. As the physician stated: "Only by having a strong professional relationship with a personal physician can we get the best advice and treatment when it is needed, especially in light of the fragmented state of medical care in the U.S." (Paraphrased).



Dr. John Beasley

I have to agree with that – and it's becoming more challenging for both patients and their doctors. (I note that Physician Assistants and Nurse Practitioners also provide excellent care, but I'll use the term "doctor" in this article.)

Back in the day, one "doc" treated the whole family, caring for folks in the office, the hospital and the nursing home – even making the rare house call. He or she knew you as an individual. Now there are urgent care centers where no doctor ever gets to know you as an individual; hospitalists (working in shifts), who never see you after discharge; and a myriad of sub-specialists. There may be a different doctor if you are pregnant or have diabetes.

So, who cares? Well, you should. You deserve a doctor who knows and understands you... knows what you are worried about, what your strengths and support systems are, and what your goals of care are. Sure, you want the "best care," but "best" is defined by what's important to you!

Take, for example, the treatment of high blood pressure. If your blood pressure is borderline, is it worth the hassle and

(albeit minimal) risk of side effects for what may be marginal reductions of risk? Do you want screening for breast or colon cancer? To make decisions regarding this requires knowing the potential benefits – but also the potential risks.

It's important to have somebody you can trust. I recently heard of an airline pilot who after a relatively minor injury had some high blood pressure. Rather than just get it treated, he elected to not renew his medical for fear of a denial. He was out of work for two years because of a simple problem that could have been treated with no risk of a denial, but he didn't have anybody he trusted to help with the problem.

If you do develop some problem, then both you and your personal physician have a starting point. Your personal physician will also be able to work with you to maintain your health so you can keep flying. Yeah, I know that soon (thankfully!) you won't need that pesky Third Class Medical, but it's still better to not have a heart attack than to have one. If you and your doctor know each other reasonably well, it will increase your ability to deal with minor issues over the telephone or by electronic communication. Your doctor may be your Aviation Medical Examiner (AME) or not; either way works.

I recently had to select a new doctor, as my previous one retired, and I have the good fortune to know a lot of docs at my clinic. So I was able to pick one who has about the same approach to medical care that I do. She knows all the guidelines and how to use the computer, but at the same time, she is not too driven by the guidelines or too immersed in the computer. She has a very knowledgeable approach, but one which is tempered by really good common sense. She's willing to listen. Fortunately, I've not had much to tell her, but I know she'll be there if (and at this age, when) I do.

I'll admit that this is more difficult if you are young and healthy and living in different areas of the country with frequent moves, but at some point when you are settled in one location, you should try to establish an ongoing relationship with a personal physician. □

## Panke Joins Wisconsin Aviation

MADISON, WIS. – Madison native and University of Dubuque graduate, Nathan (Nate) Panke, has joined Wisconsin Aviation as a flight instructor. Panke has a Bachelor of Science degree in Flight Operations and a minor in Aviation Management. Panke credits an aerospace engineering course he took at James Madison Memorial High School for starting his education in aviation ([www.wisconsinaviation.com](http://www.wisconsinaviation.com)). □



Nathan Panke



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# FAA Releases Final Rule & Effective Date For Third Class Medical Reform

WASHINGTON, DC – The Aircraft Owners and Pilots Association (AOPA) and Experimental Aircraft Association (EAA) have reacted favorably to the FAA release of its final rule for “Third Class Medical Reform, which the agency has named “BasicMed.”

Teams of AOPA and EAA experts are now examining the regulations, which appear to closely mirror the legislation signed into law on July 15, 2016. Pilots should note that BasicMed will not be effective until May 1, so they cannot fly under the rule until then.

The law guaranteed that pilots holding a valid third-class medical certificate issued in the 10 years before the reform was enacted would be eligible to fly under the new rules. New pilots and pilots whose most recent medical expired more than 10 years prior to July 2016 will be required to get a one-time third-class exam from an FAA-designated AME.

The FAA was required to implement the law within 180 days of its signing, or January 12. Since EAA AirVenture Oshkosh 2016, FAA senior leadership has been assuring EAA and AOPA that the 180-day deadline would be met.

Because it is final, the rule – named “BasicMed” by the FAA – will not go out for a typical public comment period. The FAA also said it would publish an advisory circular describing the implementation of the rule later this week.

“BasicMed is the best thing to happen to general aviation in decades,” said AOPA President and CEO Mark Baker. “By putting medical decisions in the hands of pilots



Mark Baker.

and their doctors, instead of the FAA, these reforms will improve safety while reducing burdensome and ineffective bureaucracy that has thwarted participation in

general aviation.”

In the near future, AOPA will offer a free online medical course to let pilots comply with the rules of BasicMed. The course is just one part of a suite of resources for pilots and physicians that AOPA is launching to help people take full advantage of BasicMed. AOPA is calling them our “Fit to Fly” resources

and they include an interactive tool that helps you determine if you qualify for BasicMed, as well as FAQs and other important information for pilots and doctors.

After meeting the initial requirements laid out in the regulations, pilots will need to visit any state-licensed physician at least once every



## Dynamic Duo *crushes* runway project schedule

Engineers Greg Stern and Terry Donovan played beat-the-clock and won on Waukesha County Airport's Runway 10/28 reconstruction project. To be eligible for FAA year-end discretionary funds, the runway needed to be designed and bid within a 10-week period. And as a kicker, the project won the **2016 American Concrete Pavement Association's top national award for Excellence in Concrete Pavements. POW!**

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four years and take a free online medical course every two years. A certificate of completion of the course and the checklist from the physician must be kept in the pilot's logbook.

Baker said, "AOPA's Fit to Fly resources will help ensure pilots can fly under the reforms we fought so hard to pass."

EAA CEO/Chairman Jack J. Pelton added, "This is the moment we've been waiting for, as the provisions of aeromedical reform become something that pilots can now use. EAA and AOPA worked to make this a reality through legislation in July, and since then the most common question from our members has been, 'When will the rule come out?' We now have the text and will work to educate members, pilots, and physicians about the specifics in the regulation."



Jack J. Pelton

EAA has updated its Q&A and will continue to update them to provide the latest information. EAA is also working with its aeromedical and legal advisory councils to provide resources that will help members and their personal doctors understand the provisions of the new regulations.

Indiana Congressman and pilot, Todd Rokita, who serves on the General Aviation Caucus, said: "The updated FAA third class medical rule closely follows Congressional intent, with the comprehensive medical examination written exactly as we laid out in the law. This is a true win for the general aviation community. We have fought for years against these burdensome regulations, and I am pleased to see a third class medical reform rule that does away with unnecessary government red tape to keep the skies safe and accessible for all aviators."

During the 113th and 114th Congresses, Rep. Rokita introduced the General Aviation Pilot Protection Act (GAPPA), leading the way on third class medical reform. □

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## AOPA Statement On FAA's Release Of Final Rule On Small Aircraft Certification

FREDERICK, MD – The Aircraft Owners and Pilots Association (AOPA) issued the following statement after the FAA's release of the final Part 23 rule that reforms small aircraft certification standards with groundbreaking new provisions that allow manufacturers to use performance-based, industry-consensus standards in place of the "prescriptive" manufacturing methods that have long hindered development of new designs and technologies, and caused aircraft certification costs to soar.

"We acknowledge the FAA's achievements with Part 23 reform and anticipate a much improved certification process for new aircraft with new innovations, exciting designs and

technologies incorporated, but we must also focus on ways to modernize the existing fleet," said AOPA President & CEO Mark Baker.

Under the final rule's provisions, categories such as utility, aerobatic and commuter will be eliminated for future Part 23 airplane certifications. Instead, four levels of performance and risk will be used, based on the aircraft's maximum seating capacity.

AOPA will continue to press for reforms allowing the existing type-certificated aircraft fleet to be retrofitted with modern, low-cost equipment ([www.aopa.org](http://www.aopa.org)). □

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## GAMA Accepting Scholarship Applications

WASHINGTON, DC – The General Aviation Manufacturers Association (GAMA) is accepting applications for two prestigious scholarships valued at \$2,000 each: The Edward W. Stimpson Aviation Excellence Award, and the Dr. Harold S. Wood Award for Excellence.

Applications for both scholarships are due April 14, 2017. For more information, email [scholarships@gama.aero](mailto:scholarships@gama.aero). □



## Playing To Type

by *Mark R. Baker*

*President & CEO*

*Aircraft Owners & Pilots Association*

I hope you're already an AOPA member. I believe AOPA is a critical partner for any pilot no matter what or why you fly. With safety programs, advocacy, news, flight planning, insurance, financing, and so much more, there's no place you'll find more tools to help you manage and enjoy your flying. But for me, there's one more group that should be part of any aircraft owner's commitment to flying wisely and well, and that's the **type club**.



Mark Baker

Type clubs have in-depth knowledge about the aircraft they represent, and through the years I've belonged to many such clubs and visited even more. In just the past couple of years I've spent time with The International 180/185 Club, The Lake Amphibian Club, American Bonanza Society, Cirrus Owners and Pilots Association, Cessna 150-152 Club, North American Trainer Association, Citation Jet Pilots, TBM Owners and Pilots Association, and Pilatus Owners and Pilots Association, among others.

You don't necessarily have to own an airplane to be part of a type club. In fact, I recommend connecting with the type club for any aircraft you fly regularly. Type clubs know and understand their airplanes like no one else, and they're more than willing to share that knowledge with the rest of us.

And when it comes to the quirks, challenges, or design oddities of a specific airplane, type clubs know the challenges and often have the solutions. They even work closely with the FAA to ensure the continuing safety of the fleet and often play a big part in the development of airworthiness directives for their aircraft. Many type clubs also have newsletters, magazines, or other publications where they provide safety information and updates. And some, like the American Bonanza Society and the Cirrus Owners and Pilots Association, offer type-specific proficiency programs.

They're also great places to meet like-minded pilots and build your own aviation community. Many type clubs hold social and educational gatherings, whether that's a monthly seminar, quarterly barbecue, or annual convention. And lots of them join in other community-building events, like the AOPA Fly-Ins.

I've made great friends and obtained potentially life-saving information through every type club I've ever been part of. Often, those ties are so strong that I stay involved with a type club even after I'm no longer flying that particular airplane. If you own an airplane, are thinking about buying one, or just fly a given make and model regularly, check out the type club. It's one more way to get the most out of your flying. ☐

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Page 59  
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Left Front: Marissa Buresh; Left Middle: C.J. Cummings; Left Back: Trent Phillips; Center: Alyssa Connell;  
Right Front: Karen Connell; Right Middle: Delane Muller; Right Back: Shelby Riehm

## Midwest Flyer Magazine Teams Up With Connell Aviation Group

**E**ffective January 1, 2017, *Midwest Flyer Magazine* has teamed up with the aviation marketing and communications firm, Connell Aviation Group of Cedar Falls, Iowa, to expand its marketing services to aviation

businesses, airports and organizations. Connell Aviation Group is working with *Midwest Flyer Magazine* clients designing advertisements, developing websites, and providing social media services.

“We specialize in publishing a regional aviation magazine, and providing advertising for aviation businesses, airports and organizations,” says Dave Weiman, publisher of *Midwest Flyer Magazine*. “Connell Aviation Group specializes in providing a variety of marketing services specific to aviation, so we complement one another. Together, we cover the bases in meeting the marketing needs of our clients.”

Connell Aviation Group has advertised with *Midwest Flyer Magazine* since 2014, so they already had a working relationship when the two businesses decided to form their partnership.

*Midwest Flyer Magazine* was founded in 1978 by Dave and Peggy Weiman, and serves 12 Midwestern states including Wisconsin, Minnesota, North Dakota, South Dakota, Iowa, Nebraska, Kansas, Missouri, Illinois, Indiana, Michigan, and



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Ohio. The award-winning publication has grown from 12 black and white pages in 1978 to 64 color pages today, and circulation and advertising has likewise grown.

Since 1954, the Connell family has provided flight training, aircraft maintenance, fuel sales, and airport management services at various public airports in Iowa throughout the years – including most notably Independence, Decorah and Oelwein.

Connell Aviation Group was the brainchild of advertising executive, Alyssa Connell, who serves as Chief Executive Officer. The company is 100 percent devoted to aviation, and is headquartered in Cedar Falls with district offices in Minnesota and Arizona.

In addition to public relations, marketing and online

services, Connell Aviation Group offers corporate event management, economic/business development, and trade show and conference exhibits and displays.

For more information about Connell Aviation Group and its programs, visit [ConnellAviationGroup.com](http://ConnellAviationGroup.com).

For additional information on print and online advertising in *Midwest Flyer Magazine*, contact Alyssa Connell and C.J. Cummings at [midwestflyer@connellaviationgroup.com](mailto:midwestflyer@connellaviationgroup.com), or call **641-426-2012**.

*Midwest Flyer Magazine* is solely owned and operated by Flyer Publications, Inc. All requests and inquiries regarding editorial material, calendar items and subscriptions should be directed to [info@midwestflyer.com](mailto:info@midwestflyer.com) or contact Dave Weiman at **608-772-1776** ([MidwestFlyer.com](http://MidwestFlyer.com)). □

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## **Michigan Businessman Recognized By NBAA With Dr. Tony Kern Professionalism In Aviation Award**

WATERFORD, MICH. – The National Business Aviation Association (NBAA) has named Mike Baker, Vice President of Safety & Compliance at Pentastar Aviation, a recipient of the “Dr. Tony Kern Professionalism In Aviation Award.” The award recognizes individual aviation professionals who have demonstrated a continuous history of extraordinary participation in, or in support of, professionalism in business aviation. This is the inaugural year for the award.



Mike Baker

Created to honor Dr. Tony Kern, a cofounder of Convergent Performance, distinguished U.S. Air Force veteran and author of five books on human performance, the award recognizes individuals who excel in leadership in the following areas: professional ethics, vocational excellence, continuous improvement, professional image and selflessness. There were 19 recipients in the inaugural class.

Baker is a seasoned aviation professional with decades

of hands-on leadership and senior management experience with 14 CFR Part 145/EASA 145 Repair Station Operations and 14 CFR Part 135 On-Demand Air Carrier Operations, utilizing turbine powered corporate aircraft.

“Throughout his 34-year career at Pentastar Aviation, Mike has demonstrated a high level of commitment and leadership, continuously delivering personal and professional excellence, integrity, engagement, and mentoring to the next generation in support of Pentastar’s business objectives,” said Pentastar Aviation President & CEO Greg Schmidt. “We are grateful to have Mike as a pillar in our organization, upholding our tradition of aviation excellence.”

Pentastar Aviation, wholly owned by Edsel B. Ford II, is a leader in the world of business aviation, providing aircraft management, advisory services, aircraft maintenance, avionics services, interior services and award-winning FBO services. Air charter transportation services are provided by Pentastar Aviation Charter, Inc., a U.S. FAR Part 135 on-demand air carrier, or by other U.S. FAR Part 135 certificated on-demand air carriers arranged by Pentastar Aviation, LLC ([www.nbaa.org](http://www.nbaa.org)). □

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## **Long-time Office of Aviation Director Leaves Iowa DOT**

AMES, IOWA – After serving as the director of the Iowa Department of Transportation Office of Aviation and the Office of Public Transit since May 2000, Michelle McEnany has resigned to pursue new opportunities.

McEnany was responsible for the development and maintenance of safe, comprehensive, and competitive aviation and transit systems in Iowa. Her management in transportation emphasized advocacy, promotion, and partnership building, with a focus on economic development and quality-of-life issues.

“Michelle brought a fresh perspective and contributed to the success of aviation in Iowa,” says Stuart Anderson, Director of the Iowa DOT Planning, Programming,



Michelle McEnany

and Modal Division. “She was effective in her work with stakeholders at all levels, and in implementing reorganizational changes for the Office of Aviation. We thank her for her unconditional commitment and dedication throughout the years.”

Prior to joining the Iowa DOT, McEnany was the director of state and local relations for the Greater Des Moines Partnership, where she was responsible for advancing transportation public policy issues that enhanced business and economic development opportunities. She is a graduate of Boston College with degrees in economics and political science.

IDOT says that McEnany’s position will be filled and should be posted soon (IDOT). □



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# Great Aviators Gone West!

**Ron R. Alexander,**  
EAA Vintage Aircraft Association Director, was killed November 17, 2016, while flying his Curtiss Jenny near the Candler Field Museum/Peach State Airport in Williamson, Georgia.



Ron R. Alexander

Born in 1942 in Bloomington, Indiana, Alexander soloed an Aeronca Champ at the age of 16. From there Alexander climbed the ratings ladder by instructing ROTC cadets before entering the Air Force in 1964. While serving our country Alexander flew the de Havilland Caribou, supplying Special Forces troops in Vietnam and earned the rank of captain before leaving the Air Force in 1969. He started flying for Delta Air Lines in 1969 and retired as a captain in 2002.

Alexander founded the Alexander Aeroplane Company in 1979, supplying materials to aircraft builders and restorers. In 1993, he created the "SportAir Workshops," which have opened the doors to countless homebuilders and restorers by giving them hands-on educational experience in the art of building an airplane with an assortment of materials. In 1999, Alexander sold SportAir Workshops to EAA, which carries on that tradition and Alexander's vision today.

In 1992, Alexander purchased Stits Poly-Fiber, Inc., manufacturing the Poly-Fiber covering process and remained president of that company until 2002. He was also a regular contributor to *EAA Sport Aviation* and *EAA Vintage Airplane* magazines writing technical articles for homebuilders and antique aircraft restorers.

Alexander founded the Candler Field Museum in 2004 at his home airport, Peach State Aerodrome (EAA).

**Gene Chase,**  
longtime editor of *EAA Vintage Airplane* magazine and later a member of the Vintage Aircraft Association board of directors, died January 2, 2017 in Tulsa, Oklahoma, at age 92. His death comes less than two months after the passing of his wife of 70 years, Dorothy.



Dorothy & Gene Chase  
with their 1933 Davis D-1-W

Chase joined the EAA staff in 1973 as part of a remarkable aviation career that included service as a naval aviator on aircraft carriers during World War II and service in the Naval Reserve before retiring as a lieutenant commander. He was also a corporate, charter, and cloud seeding pilot at various times, and maintained his flight instructor rating for more than a half-century.

Chase also held several other positions on the EAA staff, and wrote hundreds of articles about vintage aircraft, the people who owned them, and flying those airplanes. After retiring from EAA in 1987, Chase joined the antique/classic division (now Vintage Aircraft Association) board of directors in 1989 and served as co-chairman of the antique aircraft judging committee at EAA AirVenture Oshkosh for many years. He was inducted into the Vintage Aircraft Association Hall of Fame in 1999. Most recently, Chase was a member of VAA Chapter 10 in Tulsa.

Chase's strong interest in vintage aircraft included restorations of a 1929 Church Midwing, a 1933 Davis D-1-W, and a 1935 Taylor E-2 Cub.

Gene Chase was a regular contributing editor to *Midwest Flyer Magazine* in the 1980s with his "Mystery Airplane Contest" in which he would feature aircraft unfamiliar to most readers (EAA).

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## PEOPLE IN THE NEWS

**William F. "Bill" Bordeleau**, 84, of Menomonee Falls, Wis., died January 8, 2017, but he leaves a permanent footprint on the air show entertainment industry, and among the millions of spectators he entertained as one of the top air show announcers of all time!

Bordeleau was the owner of Continental Air Show Productions for 47 years, serving as narrator/producer and providing sound systems. He earned numerous awards and was inducted into the Wisconsin Aviation Hall of Fame in 2001. Bordeleau was also a lifetime member of the Experimental Aircraft Association (EAA #39) and International Council of Air Shows (ICAS #4).

Bordeleau was an entertainer, leader, mentor and an inspiration to many in the air show entertainment industry. He and his wife, Darlene, managed the ICAS office for many years, and started its magazine, which continues to be published to this day. If anyone had a question about the air show entertainment industry, chances are Bill Bordeleau knew the answer.

A man of vision and great wisdom, Bill Bordeleau realized early on in his career that the air show entertainment industry would be going to great places, and in his own words, *"I wanted to go along for the ride!"*

Bordeleau's first performance was a one-day show in Monroe, Wisconsin on September 7, 1951, in which he did a



William F. "Bill" Bordeleau

comedy act with the late Skip Flannery of Monroe, who flew a 7AC Champ.

Also performing at the Monroe show were the "Cole Brothers," featuring the late Duane and Marion Cole from Kankakee, Illinois. Duane Cole flew his Taylorcraft, which he later flew at EAA AirVenture Oshkosh for many years, and Marion Cole flew his Stearman, which he later sold to another air show icon, Bill Adams of Menomonee Falls, Wis.

Beginning in 1961, Bill Bordeleau began doing skydiving exhibitions with the Wisconsin Skydivers. It was through this work that he became good friends with Bill Adams. Adams was killed during his final maneuver at

an air show in Valparaiso, Indiana in 1966.

Bordeleau really did not get started announcing air shows until 1967, when he went to Dodgeville, Wis., and Bill Sweet's National Airshow was performing. Bordeleau ended up narrating for the skydivers at that show because he was managing skydiving teams at the time in addition to working full-time for Metropolitan Life Insurance Company. Bordeleau did not officially start announcing full time until 1969, when he decided to print brochures and name his company "Continental Air Shows/Sky-O-Rama." He added sound systems to his business in 1971.

A celebration of Bill Bordeleau's life will be held in the spring at the EAA AirVenture Museum. □

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# North Central Airlines DC-3 To Fly Its Colors Once Again!



North Central Airlines N33632 in Ypsilanti, Michigan, circa 1958.  
Photo Courtesy of the Aviation Heritage Center of Wisconsin. Photo by Lynn L. Reigle

A North Central Airlines DC-3 will soon return to the skies, thanks to the Aviation Heritage Center of Wisconsin. The non-profit aviation museum located at Sheboygan County Memorial Airport in Sheboygan Falls, Wisconsin, has acquired one of the only remaining DC-3 aircraft that actually flew for the airline from 1953-1964. The museum plans to paint the aircraft in North Central Airlines colors and if sufficient funds are raised, put her on tour to select cities in 2017.



The cockpit is in excellent condition. Many retired North Central pilots, who flew this exact aircraft in the 1950s and 1960s, are thrilled that they will soon see her fly again in company colors.

Photo Courtesy of the Aviation Heritage Center of Wisconsin.

The airline, with its recognizable flying duck logo, was a predominant air carrier in the Great Lakes region from 1941-1979. Founded in Clintonville, Wisconsin by executives of the Four Wheel Drive Corporation, North Central Airlines served many small cities throughout the region, including seasonal flight to Land O' Lakes, Wisconsin, the smallest community ever served by a commercial airline.

The town of Clintonville donated \$25,000 to name the DC-3 (N33632) "The City of Clintonville." Other donors

contributed funds to help the museum acquire the aircraft. Additional funds are still needed for painting and maintenance before the aircraft can be brought home to Wisconsin.

"North Central Airlines needs to be commemorated as one of Wisconsin's great aviation success stories," noted Jon Helminiak, executive director of the Aviation Heritage Center of Wisconsin, and founder of the North Central Airlines Commemorative Exhibit. "The airline had a very personal touch – her employees and passengers were like a big family in the days when airline travel was a privilege. They started small, but by the 1970s, North Central was serving cities across the nation."

Almost every airline in the 1940s through the 1960s flew the DC-3, and the military configuration was widely used as a transport aircraft during World War II. At one time, North Central had 32 Douglas DC-3 aircraft in its fleet and for a time, N33632 was conscripted during World War II and saw action in Guadalcanal.

Helminiak noted that N33632 is in excellent condition:

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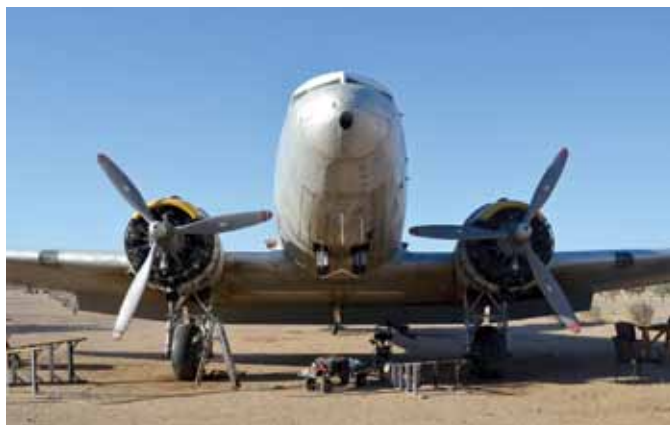
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N33632 served as both a passenger and cargo carrier for North Central Airlines from 1953 to 1965. The Aviation Heritage Center of Wisconsin is in the process of painting her in North Central Airlines colors, and once sufficient funds are raised, will return her to flying status to tour small towns in the Great Lakes region, formerly served by the airline.

*Photo Courtesy of the Aviation Heritage Center of Wisconsin.*



For the past 21 years, N33632 has been based in the dry environment of the California desert.

*Photo Courtesy of the Aviation Heritage Center of Wisconsin.*

“For a 75 year old aircraft, much of it looks new. There is no corrosion, the engines are low time, and the cockpit and interior are very clean.”

Board President and air show performer, Paul Walter, added: “This DC-3 has flown more than 81,300 hours and transported thousands of people all over the nation. We’re happy to bring this aviation treasure back home and hopefully return her to service.”

For the past 21 years, the former owners of N33632 kept the aircraft in the dry desert environment near Victorville, Calif. They took good care of the aircraft and spent thousands of dollars to maintain it.

Helminiak noted: “The former owners are thrilled that the aircraft will return to Wisconsin and fly as North Central Airlines.” If sufficient funds can be raised in the next six months, the aircraft will be painted in the colors of North Central Airlines when it flew for the airline in the 1950s, and then put on tour in the summer of 2017 to visit the small



The manufacturer's data plate for N33632 shines like factory new. The aircraft came off the Douglas assembly line in 1941 and sold to Eastern Airlines, and was accepted into service by company president and famous aviator, Eddie Rickenbacker.

*Photo Courtesy of the Aviation Heritage Center of Wisconsin.*

towns it once served.

Former North Central Airlines employees, most in their twilight years, are gratified that “their” airline will be remembered. Retired North Central Airlines pilot Harry Alton of Minneapolis, Minn., who actually flew the purchased DC-3, said “Most of us worked for the company for our entire careers. Many met their spouses there. North Central was a wonderful airline to be a part of.”

Every third tuesday, former North Central Airlines pilots gather for breakfast at Denny’s in Apple Valley, Minn. At least three of the pilots that gather flew North Central DC-3 aircraft


between 1953 and 1964, including Bill Hunchiss, Randy Sohn, and Carroll Hemming.

For volunteer Roger Hallingstad, 83, of Sheboygan, Wis., the North Central Airlines exhibit is his passion. He acquired a motor home, had it painted with the North Central Airlines and Aviation Heritage Center logos, and is traveling the Great Lakes region talking about the aircraft and collecting memorabilia.

“People come up to me everywhere and tell me stories about their memories of North Central Airlines,” said Hallingstad. “They’re always smiling as they talk because they’re so excited that North Central will fly again in their lifetimes.”

Tax-deductible donations are being sought to bring the aircraft home to Wisconsin and put her on tour the summer of 2017. Donors can name a seat, window, or even the cockpit.

For more information on how you can participate and support the North Central Airlines DC-3 restoration project, contact Jon Helminiak at [jon@ahcw.org](mailto:jon@ahcw.org) or 262-893-5500. The center’s website is [www.ahcw.org](http://www.ahcw.org). □



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# DC-3... The Good Ol' Days

by Richard J. (Dick) Reilly

*In his poem "In The Drovers Days," Australian Poet Laureate, A.B. (Banjo) Paterson, refers to a drover's lame and aging old war horse nostalgically as "One of the boys of the Old Brigade." Some of us have similar sentimental feelings about old airplanes.*

**I**t was the winter of 1952, December, cold. I rounded the corner of Fanta-Reed's hangar in the glow of a crisp sunrise and there it was – a Douglas DC-3. An airplane of this size was a real oddity around the airport of La Crosse,



Author R.J. Reilly (left) with his flight instructor, Bobby Budde (right), who was operating a crop dusting business out of La Crosse, Wis. at the time of the DC-3 story. Budde gave Reilly his "readiness ride" for his private ticket in 1950, and his biennial flight review when this photo was taken with Reilly's Cessna 170B in 2010. Reilly has owned the Cessna 170B since 1963, and before that, two Cessna 140s.

Wisconsin, the nearest airport to my old home, Hokah, across the Mississippi River in adjacent Minnesota. I hadn't noticed the hulking DC-3 in the dark of my late arrival the night before.

The 20-degree sub-zero temperature had covered my Cessna 140 with hoarfrost, and it was fortunate that I had negotiated for a spot in a warm hangar to work on it.

During the summer I acquired the airplane from a major oil company – remember the 'Flying Red Horse'? \* And as Texans might say, it had been "rode hard and put away wet." It needed a bit of wrench work and I was adding a few modifications to make it truly my own.

Several volunteers helped me untie the plane and move it into the warm hangar; the help was welcome because even the wheels objected to being awakened in the cold. The structure was so viciously cold to the touch that I elected to wait for the frost to melt and the structure to warm enough to be more work-friendly. I passed the time perusing the ample supply of aviation magazines that grace the offices of most FBOs.

Outside a 'Herman Nelson'\* hummed away, pumping hot air into a canvas enclosure wrapped around one engine of the DC-3. The hum of the Herman nearly induced a nap,

but a blast of cold air got my attention as Jack Fanta burst into the office, stamping his feet in a vain attempt to induce circulation into frozen feet. After a few moments of luxury in the blast of the office heater, he said to no one in particular, "The crew called from the hotel and said they'd like to go in an hour. I don't know whether we'll make it with only one heater." Outside, a cloud of blue smoke signaled that the first warmed engine reluctantly came to life and slowly settled into the song that is the charm of a big radial engine. Jack turned to me and said, "You've got nothing to do for now. While your airplane is drying out, how about you sit in the big machine and keep it from running away while we heat the other engine? Regulations say a licensed pilot must be in the seat when the engines are running and you'll do." How could I not take the job? It enabled me to pay for the courtesy of a warm place to work.

Entering through the passenger door, I made my way up the aisle between the second and first rows of seats to the cockpit and took my place in the copilot's seat. Ken Reed set the parking brake and departed for warmer climes. There was nothing for me to do except to be ready to apply the toe-brakes should the big beast start to move.

Curiosity drove me to explore the cockpit's side pockets searching for a pilot's manual or other technical lore that



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might help pass the time. No luck on the tech manuals, but I found a logbook showing that the airplane had flown 22,000 hours, as best I can recall, but there was nothing of technical interest in the pockets. However, I did come upon a strange document: a bill of sale. The briefest glance revealed that the airplane had been bought and sold yesterday, the day it arrived.

The trip into La Crosse carried a load of military personnel to the nearest airport at Camp McCoy, a military facility about 30 miles away, so the recent purchase caught my attention. A revenue flight on the day it was purchased presented a curious enigma that was really none of my business.

After nearly an hour, Ken Reed came back into the left seat, fiddled with the primer pump, threw some switches and engaged the starter. There was another cloud of smoke; the big, round Wright Whirlwind coughed a few times, then caught and settled into the siren song of the radial. Ken shouted over the din that I was free to go back to the warmth of the office.

On my way out I paused to look at the name plate, riveted to primary structure behind the copilot's seat that supported the little steam boiler that heated the entire cabin, if one knew how to operate it.\* The plate read:

Douglas Aircraft Company  
Serial Number 2  
August 1936

Truly, it was "one of the boys of the old brigade" and for me, a brush with history, even in 1952. Now, 65 years later, whenever I see historical references to the DC-3 and its vital contributions to World War II, I wonder what happened to Serial #2 and the history of Serial #1.

The crew arrived shortly and we engaged in some airplane lore since the DC-3 was already legendary in 1952, having been the focus of many World War II adventures. I commented on the bill of sale that I had seen during my hour in the cockpit. The captain responded, "Yeah, we sold it and bought it again in-flight yesterday; we do it all the time. It's the way we get around regulations." He then went on to explain the regulatory idiosyncrasies of small-airline operations in the shadow of World War II.

After the big war, many pilots returned with a dream of starting their own airline. The legacy airlines – names that were familiar in news stories of the day – feared competition from ex-military crews flying war surplus airplanes with minimal overhead. They encouraged their congressional representatives to sponsor legislation limiting these start-up companies to flying their airplanes 40 hours per month, a handicap that almost precluded profitable operations. The resulting law challenged good, old American ingenuity, which responded by making every flight crewmember an officer of the company.

The airplane at work was outfitted with a list of alternate company names and properly prepared legal documentation. When flying time came up to 39 hours in a month, the crew picked a new company name from the list and one of the crew sold it to the other, who purchased it in the name of a new company. They were then good for another 40 hours and working for a new company. Perhaps there was some creative accounting associated with the process. The old saw, proclaiming the many ways to skin a cat, comes to mind.

\* A 'Herman Nelson' was a combustion heater built by a company of the same name. It was fueled by gasoline and readily procured inexpensively from 'war surplus.' Nearly every FBO in the north-country had at least one.

\* The little boiler, about eight or 10 inches in diameter and a foot and a half high, comfortably heated the entire cabin, but its care and feeding was somewhat of an enigma. A bit of folklore of the time suggested that if a captain was paired with a copilot who could skillfully operate the boiler, he might delay recommending the man for promotion to the left seat.

**EDITOR'S NOTE:** Richard J. (Dick) Reilly grew up in a small, southern Minnesota, rural town named after Sioux Indian Chief 'Hokah.' After primary and secondary education in local schools, he enrolled in the aeronautical engineering program at the University of Minnesota, receiving a Bachelor of Science Degree in 1951.

After two years of post-graduate work, he began a professional career that spanned the aeronautical sciences, including basic research in boundary layer flow, high-altitude research using free-flying balloons and engineering flight test work on general aviation airplanes, supersonic military aircraft and instrumentation for the first manned U.S. space flight.

After 18 years working within corporate structures, he began a consulting career based largely on the aeronautical sciences that reached across five continents. Clients included a variety of corporate, international and government organizations, including the Advisory Group for Aerospace Research and Development (NATO), NASA and as guest lecturer at MIT, Penn State University and at universities of most of the NATO countries.

Reilly holds 16 patents in the general areas of aerodynamics, fluid power, control systems and computing devices.

A book of 45 short stories – "Tell Me A Story" – gleaned from the author's experiences while working for 50 years on five continents and returning home most weekends. The book is available from Amazon.com, and is best searched under the author's name: Richard J. Reilly. Also, see Amazon's review by a columnist for a national magazine: "Interesting Stories Well Told."

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# Vintage Beech Across The Big Pond



Don Kiel of Manitowoc, Wisconsin, departs Iowa, Wisconsin, in his 1942 Beech C45H (N480P). The aircraft was later sold and ferried across the Atlantic Ocean.

*Photo by Skot Weidemann (www.Weidemannphoto.com)*

*by Klaus Plasa*

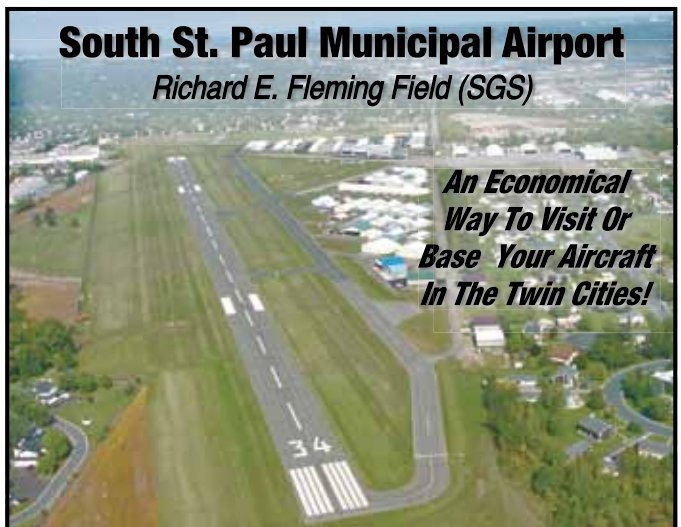
**S**ven Schlothauer of Eisenach, Germany, hired me to ferry a 1942 Beech C45H across the Atlantic Ocean, which they purchased from retired Northwest Airlines Senior Captain, Don Kiel, of Manitowoc, Wisconsin.



(L/R) Stephan Gottwald and Klaus Plasa flying N480P across the Atlantic Ocean.

Kiel, who was used to flying as many as 300 passengers in an Airbus A330-300, owned the six to 11-seat, twin-engine, low-wing, tailwheel aircraft for 4 years, and flew it 142.6 hours. N480P was affectionately named "Lady Lynn," after Kiel's wife.

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N480P was amongst 1,584 AT-11 Kansans manufactured during World War II, and flown by the United States Army Air Forces (USAAF) to train bombardiers, gunners and navigators. N480P had the famous Norden bombsight up front, a glass dome, and a machine gun turret on the upper fuselage. It is powered by two Pratt & Whitney R-985 radial engines, rated at 450 horsepower each.

N480P was remanufactured in 1954 to the extent that it was considered a new aircraft and certified as a 1954 C45H Expeditor. The aircraft was then used to haul cargo and transport troops.

The C45 flew in the U.S. Air Force until 1963, the U.S. Navy retired its last SNB model in 1972, and the U.S. Army flew its C45s until 1976. Air America used Twin Beeches during the Vietnam War, converting 14 to turboprops.

Modern updates on N480P include a Garmin 430 GPS navcom, audio panel, and digital transponder. Kiel painted the name U.S. AIR FORCE on both sides of the upper fuselage, made and installed all new fuselage side windows, and installed the nose art of "Lady Lynn."

The aircraft was displayed at many air shows through Wisconsin, at the OSH Round Engine Rodeo, and also Punta Gorda and Sun-n-Fun fly-ins in Florida.

Even though the aircraft was meticulously maintained, Kiel recommended that Nick and Joe Quint at Blackhawk Aircraft Maintenance on Southern Wisconsin Regional Airport, Janesville, Wisconsin, give it a thorough look-through before departing, so that's exactly what I did.

The plane was ready for the flight, although we had to have a high frequency radio installed, which is still a requirement at low altitudes within



the oceanic airspace. No matter what the airport buffs say, if you don't have a high frequency radio, your clearance may be subject to denial.

At any rate, the high frequency radio came brand spanking new right from the dealer on Friday afternoon, ready to plug in and play. Now, we all know that there is no such thing as a radio that's ready to plug in and play, but Blackhawk and its avionics master craftsman, made the miracle come true, and had it working by noon on Monday. Great guys...really!

Early that afternoon, Stephan Gottwald, a friend who I once did a pre-buy inspection for, climbed on board for the first and only VFR leg across Lake Michigan to Michigan Regional Airport, departing October 2, 2016.

Only a short hop, but it was enough to build my confidence in the airplane and to begin to learn her language. Every airplane talks and all the pilot needs to do is listen!

We ended the day at Billy Bishop Toronto City Airport, Toronto, Ontario – not the cheapest, but the sight of the beautiful Toronto skyline was worth the extra dollars. Excellent ATC service, too!

From now on, it was time to leave early every day as we were flying eastbound, "against" the clock, losing two or more hours local time between takeoff and landing.

After a quick refueling stop at

Baie-Comeau, Quebec (French speaking only, please!), we pressed on to Goose Bay, Newfoundland, which always feels somewhat like coming home to me after spending oh so many weeks during military flying exercises.

What was new to me since I last came through a year ago is that the whole area is booming with hydroplant and oil rigging construction

sites, so all the hotels were

booked, except for the former Airforce BOQs (Bachelor Officer's Quarters). As I said, home!

The next day we flew to Narsarsuaq on the southern tip of Greenland. I always love the sight of the spectacular coastline and the towering glaciers in the distance.

Even though the plan would have been to top off, turn the airplane around and continue to Keflavik, Iceland the same day, headwinds, and a SIGMET (Significant Meteorological Information) concerning heavy icing along our flight path, told me to better stay and sit it out.

This could have easily led to one, two or more days of delay, but especially over the Atlantic, a pilot better not count on luck.

So we gave the airplane a thorough look-through. We discovered little things, which we didn't like, such as the warped air intake cuffs, which we simply cut away to prevent them from coming completely loose and choking the engine.

Stephan, who is a VFR private pilot and had big round eyes from all the things that were new to him on this trip, was a great companion to have along, helping to top off oil, pulling props through and pampering the plane, while I focused on all the important stuff, like paperwork and flight planning.

The weather gods were with us the next morning, as we were able to depart



and climb through a cloud layer with tops only at 2,100 feet, then through another thin layer up to 14,000 feet, the minimum IFR cruising altitude over the icecap.

"Never touch a cloud from above...it may be solid ice," was one of the first rules I've been told when I started ferrying airplanes almost 30 years ago. Why? Because the cloud tops may look exactly like a smooth icecap!

When we approached the Keflavik area of Iceland, ATIS gave us bad news:

"Runway 11 in use (the other being closed; read the NOTAMs!), wind 200 at 30, gusts to 45."

With a heavy crab angle, I managed to stay within the indication range, left and right of the localizer.

Breaking out at maybe 1,000 feet AGL, I had to check the runway approach lights through the side window. This is going to be interesting, I thought.

The Airbus 320 guys holding short of the runway, transmitted: "Hey, is this a Lockheed or what?" I hollered back, "It's a Twin Beech!" Even though I was somewhat fighting with the elements, I thought to myself, better to have a solid yoke to wrestle with, than their rather tiny little side-sticks!

I just had the plane on the ground when the controller asked me to expedite departing the runway at the end, but this time I spared any comment, as the landing would only be completed when the chocks were set. "Sorry airline boys... you'll have to wait for a minute!"

The next morning, there were heavy headwinds all the way to Scotland, averaging 35 knots! Even with my extremely nice 100USG extra fuel on board, I couldn't do it with legal reserves. There was only one alternate airport about 70 or so nautical miles offset to the planned track to the Faroe Islands in Denmark with a VFR approach only. Not good enough for my personal safety minimums!

This led me to plan my flight to Egilsstadir, a little airfield with avgas on the east side of Iceland. From there, it would only be 550 nm to Wick, Scotland, my next destination...a solid 100 nm less than the direct route.

What the weather frogs did not tell me is that there was some mixed icing on climb out, but once on top of the overcast and flying eastbound, the sun melted it quickly. A little later, we had ground sight flying at 11,000 feet, but I had to use more and more power to stay airborne.

Mountain waves! I was pushing maximum continuous power at 85 KIAS and still slightly descending! I requested block level 9-11,000 feet and filed a PIREP (Pilot Report). Shortly thereafter, another pilot on the same route raised the warning to SIGMET status!



N480P's flight to her final destination in Eisenach, Germany, made for a home run, and a great trip!

Refueling at Egilsstadir was quickly accomplished, and we were off heading towards Scotland, where we made landfall at around sunset.

Next day's journey to the final destination, Eisenach, Germany, was a home run except for the European ATC, which tends to create new waypoints every five minutes. The final landing in marginal VFR conditions brought smiling faces to all of us!

The Twin Beech performed well throughout the trip, never missing a beat in 33 hours of flight, and just under 3,900

nautical miles, and despite the fact that there was no heading bug, no horizontal situation indicator (HSI), no radio magnetic indicator (RMI), and yes, no autopilot (AP). The Twin Beech is such a harmonized and stable platform to fly that it brings pure joy to all of us who love a little challenge!

*EDITOR'S NOTE:* Ferry pilot, Klaus Plasa, lives in Kaufering, Germany.



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## **13,500 Tons In 8 Days...**

### **SEH Receives Award For St. Paul Downtown Airport Project**



St. Paul Downtown Airport  
*Photo Courtesy of SEH*



St. Paul Downtown Airport remained open during the reconstruction of an intersection of two runways, thanks to the phased reconstruction approach used by SEH.  
*Photo Courtesy of SEH*

ST. PAUL, MINN. – The Minnesota Department of Transportation (MNDOT) has presented SEH with a “Merit Award” for outstanding work at St. Paul Downtown Airport. The project team had to remove existing pavement and lay 13,500 tons of new pavement at the intersection of two airport runways. Because the project was located in an area of high traffic, the team completed the project under an accelerated timeline of eight days, without shutting down airport operations, thanks to the phased reconstruction approach used by SEH.

MNDOT presented the award at the 63rd Annual Asphalt Conference, Dec. 7, 2016, in St. Louis Park, Minnesota.

The project is the first phase of a multi-phased/multi-year runway reconstruction effort. The 2016 portion included reconstructing the intersection of two runways, significantly

impacting airport operations.

“To minimize the impacts, we were able to keep the primary runway partially open, with construction on one end at a time,” said Lindsay Reidt, PE, airport designer. “The major benefit of this project is that future phases will continue with only minimal impact to one runway at a time.”

SEH aviation services include architecture, construction administration, design-build, environmental, funding/grants, GIS, land acquisition, planning, public involvement, surveying, system planning, and zoning.

SEH is headquartered in St. Paul, Minnesota, with 31 offices located throughout Minnesota, Colorado, Indiana, Iowa, Nebraska, North Dakota, South Dakota, Wisconsin and Wyoming. For additional information, email Joel Dresel at [jdresel@sehinc.com](mailto:jdresel@sehinc.com), or call 800.325.2055 ([sehinc.com](http://sehinc.com)). □

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## **Hutchinson, Litchfield, Bolton & Menk Receive Asphalt Paving Awards**

HUTCHINSON/LITCHFIELD, MINN. – The cities of Hutchinson and Litchfield, Minnesota, and the engineering firm of Bolton & Menk, Inc., have received awards from MnDOT Office of Materials & Road Research at the 63rd Annual Asphalt Conference. Both the Hutchinson Municipal Airport and Litchfield Municipal Airport were honored with Merit Awards for Bituminous Surfacing for an intermediate

airport. Both projects involved the rehabilitation of the runway, taxiway, and apron at the airports.

The process of full-depth reclamation (FDR) was applied to both airports. FDR is the process of pulverizing the existing bituminous and blending with the underlying aggregate base to create a reclaimed asphalt base course. Four inches of new bituminous was then paved over the reclaimed asphalt

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base. Utilizing this process resulted in recycling all the material on-site and substantially reducing the project cost.

The Hutchison Municipal Airport project was completed in the fall of 2015. The project was phased to minimize the impact to aerial sprayers during the fall months when crop spraying is at its peak. The contractor, Duininck, Inc., was able to keep the runway open while working on the

taxiway and apron, allowing aerial spraying for the region to continue.

The Litchfield Airport project was completed in the summer of 2016. The contractor, Duininck, Inc., was successful in having the airport opened early enough in the summer for it to host their annual fly-in pancake breakfast. Both projects were completed on time and under budget.

Bolton & Menk, Inc., ranked

among the Top 500 Engineering Firms by Engineering News Record (ENR), provides a broad range of engineering, surveying, planning, and environmental services to communities and agencies in Minnesota, Iowa, and North Dakota. In serving public sector and private clients of all sizes for more than 65 years, Bolton & Menk has become experts in providing quality professional services. (Bolton-Menk.com). □

## Ryk Dunkelberg Receives Prestigious Airport Noise Mitigation Award

**R**yk Dunkelberg, Mead & Hunt's Planning and Environmental National

Practice Leader, accepted the 2016 "Randy Jones Award for Excellence in Airport Noise Mitigation, Abatement and Management"

at the AAAE/ACI-NA Airport

Noise Conference. Ryk was nominated for his over four decades of work in aviation noise mitigation planning.

Among the cited achievements that led to Ryk receiving this award, include him having led one of the first Part 150 Noise Compatibility Studies in the country; having led more than 45 of the most complicated Part 150 Studies in the country to date, including the Jackson Hole Airport Part 150 Study within Grand Teton National Park; and he taught the class on Part 150 Studies and Legal Implications of Airport Planning at the AAAE Accreditation Academy for 10 years.

Though Dunkelberg has accomplished much in his career, the specifics of why he was recognized for this award lie less in the number of projects he has managed or classes he

has taught, and more in the way he approaches projects and, specifically, people. Dunkelberg approaches each meeting, especially the controversial ones, with an open and honest approach that allows the public to engage, learn and leave educated.

A Mead & Hunt spokesperson noted that Ryk Dunkelberg has an uncanny ability to make a regulatory process accessible to people with a wide range of backgrounds, while never letting go of the important personal connections. This is one of the most impressive skills he contributes to his clients, his staff and the aviation industry as a whole.

Mead & Hunt provides architectural, engineering, planning and historic preservation services from more than 30 offices across the USA. The company offers expertise in aviation, bridges, construction, cultural resources, energy, environmental, food and industrial, highways, infrastructure/municipal, military and water.

Mead & Hunt's aviation group is ranked as the 13th largest aviation firm in the country according to Engineering News Record, and takes pride in being named among the best civil engineering firms to work for in the country (www.meadhunt.com). □



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# Fagen Fighters WWII Museum...

## A Flying Treasure Created By A Flying Family



Inside the Fagen Fighters WWII Museum, Granite Falls, Minn.

*Photo Courtesy of Fagen Fighters WWII Museum*

*by Jim Hanson*

I've been to most of the big and famous aviation museums in the United States, and elsewhere. I love visiting all of them, and better yet, I've been able to get "behind the scenes" in most of them, as a reporter. Most of the museums require extensive travel, but we have some fantastic aviation museums right here in Minnesota. One of my favorites is the Fagen Fighters WWII Museum in Granite Falls, Minnesota.

My wife, Maryalice, fellow pilot, Ken Asbe, and I were returning from an annual glider event hosted by Lakes Area Technical Institute (LATI) in Watertown, South Dakota. LATI has a superb A&P school, and also flight training. The students and staff there have restored several gliders and airplanes, and we have conducted ground-launch glider operations there – an inexpensive way to teach glider flying. Last year, we conducted a program to teach high school STEM (Science, Technology, Engineering & Math) teachers to use aviation as practical problems in their classrooms, and trained the A&P students and rated glider pilots how to ground launch gliders, and gave rides to the STEM teachers. This year, we again trained A&P students, and gave glider rides to high school students. Afterward, I suggested we visit Fagen Fighters WWII Museum on the way home. As we pulled up, I spied Ron Fagen, himself...the crew was running up a P-40. As we walked up to him, he greeted me by name, and I introduced Maryalice and Ken. Ron spends most of his weekends at the airport (he's THAT kind of "airplane guy!").

I've found that many privately-funded museums tend to be "vanity" museums...a way to show off a personal collection, or sometimes, "look what I've got." Not so with this little jewel. The "Fagen" in this museum is not for Ron Fagen, owner of an international construction company and ethanol

manufacturing plants, and a major employer in southern Minnesota. Rather, the museum is named in honor of his father, Ray Fagen – a pilot, and veteran of World War II. The museum is owned by the Fagen FAMILY. Ron says (seriously), "The museum is run by my wife, Diane (also a pilot). If you have questions, see HER!"

Aviation runs in the blood of the Fagen family, starting with grandad Ray, then Ron. Son, Evan, is the chief pilot and flies all of the airplanes. Judging from the number of grandkids Ron was playing with around the museum, there will be a 4th generation of Fagens carrying on the tradition!

The Fagens have a corporate flight department for their business. Granite Falls is located about 100 nm west of the Twin Cities, and a corporate airplane helps them keep in touch with projects.

Like many rural companies, it is safe to say, "Our company wouldn't have prospered and employed as many people as we do today without the ability to move quickly by air," says Ron. The company utilizes a Citation XLS, Beech model 58 Baron, and A-36 Bonanza, with Ron flying the Bonanza and Baron personally on business.

I've known Ron for years, as he would frequent our FBO in Albert Lea. Ron has the qualities exhibited by so many successful people, though he is always on the go and is pressed for time. Ron will take the time to say hello – to introduce himself – and most remarkably, to remember people and names. Meet him on an airport ramp, and he is just another businessman in a Bonanza, and he may well recognize you.

Over 40 years ago, however, he was bitten by the aerobatics bug, then moved to warbirds. I've followed the progress of the Fagen Fighters WWII Museum for years. Initially, I thought it would be another "wealthy pilot buys a warbird." I was wrong. He started with perhaps the most humble of airplanes...his dad's two-place Ercoupe....a homage to his dad, Ray. That beautifully restored airplane is hangared in a place of honor at the museum, and like all of the collection, it is flown regularly.

Rather than just ACQUIRING warbirds, Fagen was thinking of actually RESTORING warbirds! He started with a P-40E, then a rare P-38, a P-40K, then ANOTHER P-40E. Fagen Fighters is best known, however, for their Curtiss P-40 restorations. He acquired FIVE P-40s from Russia, and





Ron Fagen behind the controls of one of his Curtiss P-40s. The P-40 was one of the few modern fighters we had going into World War II, and it stayed in service during the entire war.

*Photo Courtesy of Fagen Fighters WWII Museum*

has built them up individually, with two of them winning BOTH the Grand Champion Award and the Golden Wrench Award at Oshkosh. “Why the P-40?” most people ask. “The airplane is stone simple,” Fagen answers. “The Allison engine has about 1/3 of the critical engine parts of the Merlin that powers the P-51. The airplane is simple to maintain, and simple to fly. It’s a perfect first warbird!”

I asked Ron what the crew was working on these days; he responded by opening the maintenance shop and inviting us to look around, as he went back to the P-40.

His P-38 was getting an annual inspection and was all opened up for us to see (I was once again reminded of just how BIG a P-38 is!). A flying P-38 is one of the rarest surviving World War II aircraft, and here was a great example. Best of all, we had it all to ourselves!

In the corner was a Grumman Wildcat – wings folded. In the other corner was his latest restoration project – a Curtiss dive bomber fuselage with engine mated. Numerous drop tanks and other aircraft parts were hung from the ceiling.

We could have stayed longer, but there was so much more to see! We postponed seeing the hangar at the entrance; we would see it on the way out, instead. We went instead to the main hangar, where I showed Maryalice and Ken some of the rest of the collection.

We had to stop our tour several times to watch Evan Fagen on a P-51 test flight. (It’s every pilot’s DUTY to stop and watch an aircraft overhead!) Ron came over to describe the hangar in detail.

“During the recession, we had some slack time. Rather than lay anybody off, I asked my engineers to design a windproof and tornado-proof building – something to preserve these treasured aircraft, and by the way, make it LOOK like a World War II hangar.” The hangar, itself, is a thing of beauty!

Inside was a perfectly polished P-51 named “Twilight Tear,” along with yet another P-40...the aircraft flying that day would be pushed back inside later. The walls were adorned with hand-painted World War II scenes. The museum is much more than an airplane museum; there were exhibits of World War II Jeeps, halftracks, machine gun emplacements, command and communication radios, a diorama of the airborne Normandy landings (complete with parachutists), and my favorite display, a full-sized display of soldiers hitting Utah Beach during the Normandy landings.

The diorama is striking. The entire back of the hangar is a painting of the beach landing, looking out to sea. Front and center is a re-creation of the front ramp of an LCVP – the famed “Higgins Boat” for amphibious assaults used to land troops and light vehicles – one of the innovations credited as the most important in winning World War II. Coming down the open ramp to “hit the beach” at Utah Beach are twelve bronze soldiers, including



Ron Fagen’s father, Ray Fagen, landed on Utah Beach. The museum is dedicated to him, and to all World War II vets and U.S. service men and women. These incredible statues depict Ray Fagen and his squad hitting Utah Beach – 12 lifelike bronze statues from the ramp of the famous Higgins Boat landing craft. Even the sand they are walking on is authentic Utah Beach sand. That’s how good this museum is!

*Jim Hanson Photo*



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Ron's dad, Ray Fagen. (Ray was not injured on Utah Beach, or in the fighting to liberate Paris, but did receive a Purple Heart for fighting in the Ardennes Forest, Bastogne). Even the sand in the display was real. Ron had the actual sand shipped in! It's one of the most evocative displays I've ever encountered. THANK YOU, Ray Fagen, for your service, and thank YOU, Ron, for creating this memorial to inspire all of us!

After spending more time in the research library above the rear of the hangar, I again caught up with Ron to ask him about his latest hangar, built since my last visit. I was only looking for a brief description, but Ron took us in tow and walked us through the hangar, from rear to the opening. Inside the back door was an old RAILROAD CAR! I noticed that it had European couplings on it (not the "knuckle couplings" as in the U.S.), so I had an idea of what was coming next. Ron read my thoughts. "Yes, it is the 'cattle car' (also called '40 and 8s' – 40 people or 8 horses) used during the Holocaust."

I asked how he acquired it. "We wanted to do a display



This North American B-25 looks just as it did 75 years ago when it rolled off the factory floor. Yes, it flies regularly.  
*Jim Hanson Photo*

one side chronicle the progress of the war. On the other, artifacts of the war, and aircraft and ship models help put the experience in context. The centerpiece of the hangar, however, is a beautifully restored B-25 Mitchell bomber. Most pilots associate the B-25 as the bombers flown from the deck of the aircraft carrier Hornet on the "Doolittle Raid" that bombed Tokyo, letting Japan know that the U.S. would seek vengeance for the Japanese attack at Pearl Harbor that started the war, and that contrary to the promises of Japanese leaders, Japan would pay a price.

This aircraft is beautiful, inside and out. The outside is configured with a bombardier's nose for dropping bombs (the versatile B-25 often had a "gun nose" with eight guns). In addition to the bomber nose, this one has four "cheek blisters" for forward-firing machine guns. Since it is an operating aircraft, it isn't normally open inside to the public. "Would you like to get up in it?" Ron asked. The words were still hanging in the air by the time I crawled through the bomb bay doors and up the ladder to the cockpit. The cockpit was immaculate – fitted out with modern avionics – every placard marked and unscratched, it looked just like it came off the factory floor. I wondered if it flew. Ron answered, "Our pilot took a check-ride just last week. It's got a schedule of appearances booked." What a machine!

As we left the hangar, I took advantage one more time of Ron's hospitality, and asked if we might see the restoration shop. He walked us right over. Inside was all of the metal-working equipment you would ever need (much of it from North Central/Northwest Airlines). They were in the process of building up yet another P-40 wing.

"This one came from the jungles of New Guinea," Ron explained. "We had to rebuild much of the wing skins due to corrosion, but there was enough there to provide a pattern. We have been able to clean up many of the original fittings," he said, as he showed us some unrestored and restored fittings. "This aircraft will be so authentic that it will even have functioning guns."



A railroad cattle boxcar used to transport people during the Holocaust.  
*Jim Hanson Photo*

on WHY we fought the war. There was a railroad station in Germany...the tracks had been bombed and torn up late in the war and never rebuilt, so the car was still at the old station after all these years...we had it shipped over here!" He pointed out the louvres in the sides; they were not enough to provide ventilation when the cars were overcrowded. The cars were also used to transport prisoners, either Allied POWs or people to work the death camps. The display might be controversial, but it was a part of the war – something we were trying to stop.

Not everything in this museum involves aviation, but our aircraft did help in stopping this tragedy.

There are a number of aircraft inside the World War II-looking hangar...familiar aircraft like the BT-13, and Fairchild Primary Trainers (PT-19 and 26). There are also vehicles: jeeps, and the last intact World War II tank destroyer vehicle. Along the walls, recessed windows on



We let Ron get back to his family, and re-crossed the ramp to take in the World War II-era control tower. Though the cab was closed for renovation, I have been there before. It is nicely restored, right down to the correct radio and communications equipment for the era. Below, we visited the Quonset hut



A World War II-era control tower, and a Quonset hut used as a briefing room for fighter pilots in England. *Jim Hanson Photo*

– an exact copy of original photos – as used by World War II ace Bud Anderson. New this year are replica German gun batteries of the Normandy invasion, located at Longues-sur-Mer, France. I've been there; the gun batteries are accurate.

We re-crossed the ramp one more time to view the entrance building on our way out. It houses Ray Fagen's immaculately restored Ercoupe, but the centerpiece of the display is the Waco CG-4A combat assault glider. I had covered the progress of the glider project when it was built-restored in Minneapolis. The Fagen Fighters WWII Museum has the glider on long-term loan; a way for people to see and appreciate part of Minnesota's contribution to the war effort. Though nine contractors built the gliders during the war, Minneapolis very nearly eclipsed Ford Motor as the largest manufacturer. The huge glider is displayed so that visitors can admire the workmanship of the aircraft made famous by carrying airborne troops, supplies, guns, and jeeps into the Normandy and Operation Market Garden battles. Alongside is a Cushman motor scooter used by airborne troops, a Harley military motorcycle, a "half-track" with anti-aircraft guns, a Curtiss Jenny from World War I, and a Ryan PT-22 trainer. We finished right at closing time – WHEW! This is why I like this museum.

It's true that you could probably see some of these aircraft in other museums, but they wouldn't likely be flyable. It's also true that you could see many of these airplanes at air shows like Oshkosh, but you couldn't get up close, and you would have to battle crowds of people for a few seconds of time to admire the machines and to reflect on what they meant. Instead, this is a unique opportunity. How many times have you wanted to get "behind the scenes" in a museum to see how the exhibit was produced, to feel the passion the staff has put into displaying the artifact, to ask questions of the staff,



(L/R) Evan Fagen with Diane and Ron Fagen outside the museum.  
*Photo Courtesy of Fagen Fighters WWII Museum*

to get the inside scoop on the artifact on display? Visiting the Fagen Fighters WWII Museum may satisfy that desire, but if you're like me, you'll find yourself going back to learn more, and as I did, taking your friends to see it.

The Fagen Fighters WWII Museum is open from 10:00 a.m. to 4:00 p.m., Tuesday through Saturday. The website is <http://www.fagenfighterswwiimuseum.org/index.html>

HERE'S A TIP: For the very best experience, get 10 or more people together to arrange a private guided tour. You'll enjoy it more, and there is no extra charge. Call 320-564-6644. Private tours must be arranged in advance.

Since these are FLYING airplanes, some may be out on tour. Be sure to check their Facebook page at <https://www.facebook.com/FagenFighterswwiiMuseum>

**EDITOR'S NOTE:** Jim Hanson is the long-time fixed base operator at Albert Lea, Minnesota. Flying for 54 years, Jim is something of a museum piece himself! If you would like to bring him back to the modern world, he can be reached at [jimhanson@deskmedia.com](mailto:jimhanson@deskmedia.com) or at his airport office at 507-373-0608, but be careful if he starts to reminisce about the "good old days!"

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# Aeronautics Report

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## All You Ever Wanted To Know About Taxiway Markings – and More!

by Hal Davis

Airport Compliance Manager  
WisDOT Bureau of Aeronautics

The last Aeronautics Report kicked off a series of articles focused on airport visual aids and provided an overview of runway markings. In this issue, I'll be covering taxiway markings and nearly every other marking you may come across on an airport. Have you seen them all?



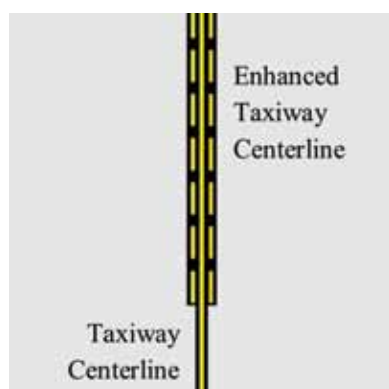
Hal Davis

expected to remain centered over the taxiway centerline unless obstacle avoidance dictates otherwise. At some airports, including all airports serving commercial airlines, the 150 feet prior to the runway holding position marking is marked as an enhanced runway centerline, which consists of the normal yellow runway centerline as well as two additional yellow dashed lines on each side of the centerline. The purpose of the enhanced centerline marking is to provide an additional visual cue to pilots that they are approaching a runway to help prevent runway incursions.

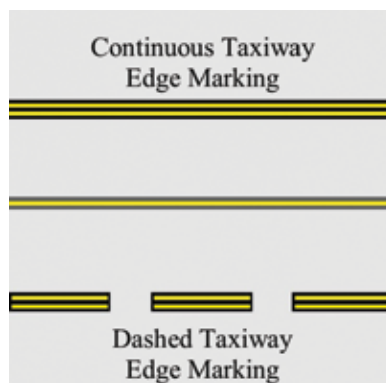
continuous taxiway edge marking, while a dashed taxiway edge marking would be used to denote a taxi route along the outer edge of an apron.

Like runways, taxiways and aprons may be outfitted with paved shoulder areas to prevent erosion from jet blast or stormwater. Normally, a continuous taxiway edge marking is all that's needed to differentiate the usable pavement from the shoulder, but in cases where it is less obvious, a taxiway shoulder marking is used. Taxiway shoulder markings are yellow in color and run perpendicular to the taxiway centerline. In addition, some airports choose to further differentiate unusable pavement from usable pavement by painting the unusable areas green.

### The Basics

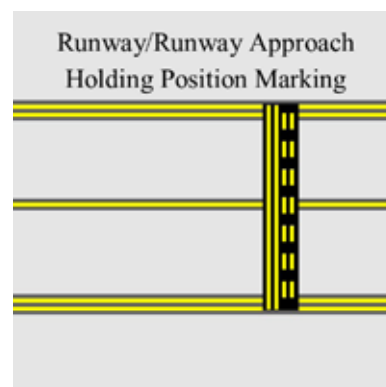


While all runways share two common markings (the centerline and designator), a taxiway is really only guaranteed to have one, the centerline. The centerline, of course, is a continuous yellow line located along the center of the taxiway. In most circumstances, aircraft are



Taxiway edge markings are used to define the edge of the taxiway from other pavement. Depending on whether or not the adjacent pavement is intended for aircraft use, the edge marking is either continuous or dashed. A continuous, double yellow edge stripe indicates that the taxiway edge should not be crossed. A dashed, double yellow edge stripe indicates that the adjacent pavement is intended for aircraft use and can be crossed. For example, a no-taxi island will be bordered by a

### Holding Position Markings



Holding position markings play a vital role in keeping aircraft adequately separated at intersections and other safety critical areas. There are five locations where holding position markings may be found on airports. Knowing where to expect a holding

position marking and what each means will undoubtedly aid a pilot's situational awareness while operating in the airport environment.

### **Runway Holding Position Markings On Taxiways**

The first, and by far the most common location, is on a taxiway at the intersection with a runway. These runway holding position markings act as the border between taxiway and runway. At an airport with an air traffic control tower, a pilot may not cross the runway holding position marking until cleared to do so by the air traffic controller. At an airport without an air traffic control tower, pilots are expected to stop at this location until they have adequate separation with other aircraft before proceeding onto the runway.

### **Runway Holding Position Markings On Runways**

Runway holding position markings can also be found on intersecting runways whenever that runway is used for land and hold short operations or when occasionally utilized for taxi operations. In either case, the runway holding position marking denotes where an aircraft is to stop and hold for clearance before crossing the intersecting runway.

### **Runway Approach Area Holding Position Markings**

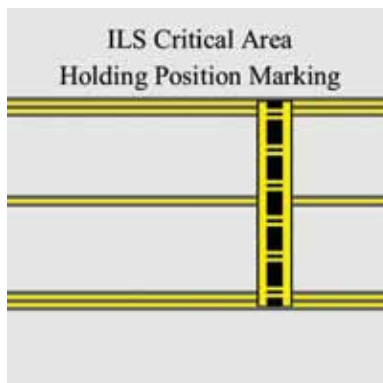
In some instances, a taxiway may not intersect with the runway itself, but instead, intersect with a runway approach area or the runway safety area. Accordingly, it may be necessary for aircraft to hold on the taxiway as to not interfere with departures or arrivals to the nearby runway. Unlike the holding position markings for intersecting runways, runway approach area holding position markings may be crossed unless instructed to hold short by air traffic control. If the airport is uncontrolled, pilots are expected to verify they have adequate separation

from other air traffic before proceeding into the runway approach area.

Runway and runway approach area holding position markings consist of four yellow parallel lines, two solid and two dashed, spanning the width of the taxiway or runway. The solid lines are always on the side where the aircraft is to hold. For a perpendicular intersection, the location of the runway holding position marking ranges from 125 feet to 280 feet from the centerline of the intersecting runway. The distance depends on the approach speed and wingspan of the aircraft for which the runway was designed. For runways designed for larger and/or faster aircraft, the runway holding position markings are located farther away, creating a larger safety buffer.

When instructed to hold short of a runway, no part of the aircraft may extend beyond the holding position marking. Conversely, an aircraft exiting the runway is not clear of the runway until all parts of the aircraft have crossed the holding position marking.

### **ILS Critical Area Holding Position Markings**

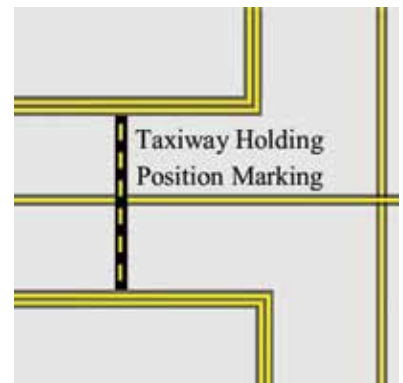


Instrument Landing Systems (ILS) depend on a reliable, accurate transmittal of radio signals from the localizer and glideslope equipment on the ground to the aircraft on approach. To protect against signal interference, ILS critical areas are cleared of all physical obstructions (including aircraft) when the equipment is in use. Often, ILS critical areas overlap taxiways and other paved areas. An ILS critical area holding position marking

is used to identify the boundary of the ILS critical area. Pilots are expected to stop so no part of the aircraft extends beyond the marking whenever instructed to hold short of the ILS critical area by air traffic control or if the ILS is in use at an uncontrolled airport.

The ILS critical area holding position marking consists of two solid parallel lines, which follow the boundary of the ILS critical area. These lines are spaced four feet apart (two feet at some smaller airports) and are connected perpendicularly by sets of two lines that are spaced one (1) foot apart and repeat every 10 feet roughly resembling a ladder.

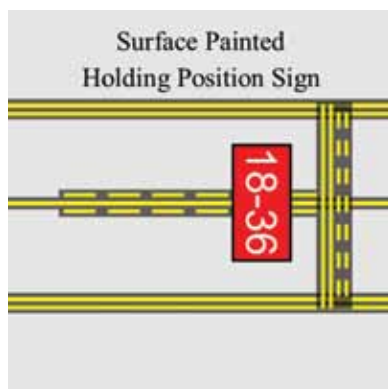
### **Taxiway Holding Position Markings**



At airports with an air traffic control tower, taxiway holding position markings are often utilized anywhere aircraft are normally requested to hold, other than on or at a runway. For example, a busy intersection between two taxiways, or the boundary between a holding bay and a taxiway. A taxiway holding position marking consists of a single dashed yellow line. Pilots are expected to hold short of this marking as instructed by air traffic control. If no marking is present, a pilot should stop the aircraft at a point, which provides adequate clearance from other aircraft.

### **Surface Painted Signs**

Surface painted signs come in a variety of shapes, sizes and colors. For the most part, they exist to supplement a nearby sign. Nonetheless, surface



painted signs provide yet another defense against loss of situational awareness and runway incursions.

### Surface Painted Holding Position Signs

In 2010, FAA made surface painted holding position signs mandatory at all commercial service airports in an effort to further combat runway incursions and wrong runway takeoffs. By essentially copying the holding position sign to the pavement, pilots are provided yet another visual cue that they are approaching a runway. Surface painted holding position signs feature white numerals displaying the runway designators on a red background. At an intersection with multiple runways, white arrows are also used. Depending on the width of the taxiway, a single surface painted holding position sign may be positioned centered over the taxiway, on the left side of the centerline, or on both the left and right sides of the taxiway centerline.

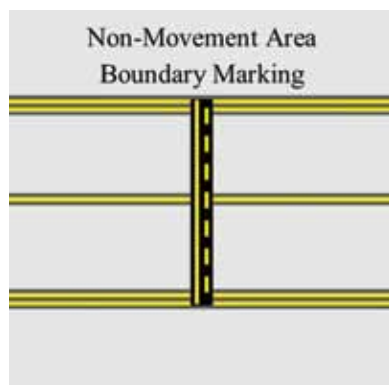
### Surface Painted Taxiway Direction & Location Signs



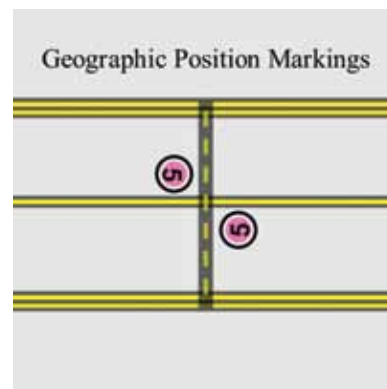
Surface painted taxiway direction signs have a yellow background with a black inscription that includes a directional arrow. These markings are used to provide directional guidance at taxiway intersections whenever it is impossible to install a normal taxiway directional sign or when a particularly troublesome intersection requires supplemental directional guidance to reduce pilot confusion. Markings indicating a left turn are painted left of centerline, while markings indicating a right turn are painted right of centerline.

Surface painted location signs have a black background with a yellow inscription. When necessary, these markings are used to supplement location signs to assist pilots in confirming which taxiway they are on. Surface painted location signs are painted right of the taxiway centerline.

### Non-Movement Area Boundary Markings



Non-movement area boundary markings identify the area of the airport under air traffic control, also known as the movement area, from those areas not under air traffic control or the non-movement area. These markings consist of two yellow lines, one solid and one dashed. The solid line is positioned on the non-movement area side. Pilots are expected to contact the air traffic control tower for taxi instructions prior to passing over the non-movement area boundary marking.

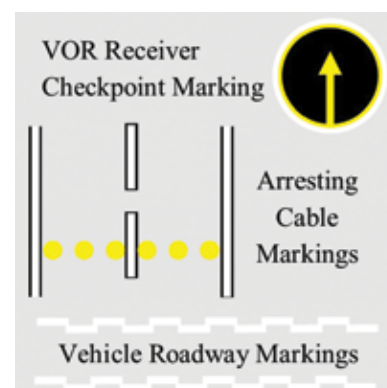


### Geographic Position Markings

Some airports utilize a surface movement guidance control system plan to allow for low visibility taxi operations when runway visual range is less than 1,200 feet. As part of this plan, geographic position markings are repeatedly painted along the designated taxi route. A geographic position marking consists of a pink circle outlined by a white ring and a black border. The circle also contains a designation, either a number or a number and letter combination, painted in black. The designation corresponds to the sequential position of the marking along the taxi route.

These markings allow pilots to more accurately make position reports to air traffic control and confirm holding spots during periods of low visibility. Accordingly, geographic position markings are co-located with a taxiway holding position marking. The markings are positioned left of the taxiway centerline in the direction of taxi.

### VOR Receiver Checkpoint Markings





Very High Frequency Omnidirectional Range (VOR) is a common radio-based navigational system for aircraft. Federal Aviation Regulation Part 91.171 requires VOR equipment in the aircraft to be operationally tested in the preceding 30 days before it can be used under instrument flight rules. One method of testing the equipment is to utilize a VOR receiver checkpoint at an airport. To find out which airports near you have a VOR receiver checkpoint, search the appropriate chart supplement (formally known as the Airport Facilities Directory). A list of VOR receiver checkpoints and test facilities by state can be found toward the back of the book.

VOR receiver checkpoint markings consist of a yellow arrow aligned in the direction of the VOR facility, and

is encompassed by a yellow circle. As needed the circle may be given a white border and a black interior to add further contrast. A sign is also typically associated with the marking to provide pilots with additional pertinent information for conducting the VOR receiver test.

### Arresting Cable Marking

There are several runways at civilian airports in the Midwest that have arresting cables installed for military aircraft. These cables are marked by a series of 10 foot wide yellow circles spanning the width of the runway.

### Vehicle Roadway Markings

Vehicle roadway markings are used

to define a path for vehicles on paved areas also used by aircraft to reduce the probability of collisions. Vehicle roadway markings consist of a solid white edge line and white dashed line to delineate lanes. Alternatively, airports may choose to enhance the vehicle roadway markings by using a white and black zipper pattern in lieu of solid lines.

### Find Out More

To find out more about these airport markings and a few others, check out Chapter 2 of the FAA's *Aeronautical Information Manual or Advisory Circular 150/5340-1L*.

Tune in next time for a review of airport signs. □

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## Appleton International Airport Contributes \$676 Million To Regional & State Economies

GREENVILLE, WIS. – Appleton International Airport contributes \$676 million in economic output to regional and state economies, according to a report created by the Wisconsin Department of Transportation's Bureau



Abe Weber

of Aeronautics. The airport supports nearly 3,200 jobs in the state and region, which translates to more than \$150 million in personal income and wages.

Appleton International Airport received 20 million pounds of freight, conducted 35,000 aircraft operations, and accommodated 270,000 travelers to the Fox Valley in 2016.

"With an airport in their backyard, Fox Valley companies are able to access

the global marketplace," said Abe Weber, airport director. "Hundreds of companies have built their headquarters here, and they rely on quality air service to transport their goods and products to the marketplace."

Appleton International Airport is involved in several community events and organizations helping to make a difference in people's lives, including Old Glory Honor Flight, Make-A-Wish Foundation and Wings For Autism.

For more information about the Economic Impact Report, visit [ATAirport.com/economic-impact](http://ATAirport.com/economic-impact). □

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## Wisconsin Pilot Named International Flying Farmer Man of the Year

SPRINGFIELD, ILL. – Phil Peterson of Oregon, Wis., was named the 2016 International Flying Farmer (IFF) Man of Year, and his wife, Carol, was named IFF Woman of the Year. The award, presented at the annual IFF Convention in Springfield, Illinois in July, is bestowed on the man and woman who most epitomize the spirit of the organization.

The Petersons fly their 1996 Piper Archer throughout the United States, Canada and South America, and regularly attend the annual Flying Farmer conventions held in other states.

On October 11, 2016, the Petersons hosted a fly-in at Peterson Field (15WI) in Oregon, Wis., and toured the world headquarters for Epic Systems in nearby Verona, Wis. □



Wisconsin Flying Farmer President Phil Peterson of Oregon, Wis., shares some of the history of the Peterson Family Farm with his fellow Flying Farmers who attended his fly-in.

Dave Weiman Photo



The State of Minnesota provides this Technical Bulletin in the interest of Aviation Safety and to Promote Aeronautical Progress in the State and Nation.

**Cassandra Isackson, Director**

**Dan McDowell, Editor**

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651-234-7200 or (toll free) 1-800-657-3922

## Let's Commit To Toward Zero Deaths In Aviation

by Cassandra Isackson

Director, Minnesota DOT Office of Aeronautics

While Flying Minnesota Airports, please add one word to your flight plan in honor of our commitment to TZD (Toward Zero Deaths) in Aviation, and Fly Minnesota Airports **Safely!** Fly somewhere you've never been before to: test an approach procedure, explore a new community, meet other aviators, ride a courtesy bike, taste local flavors, and admire the beauty of nature all around our great state. During your visit, look around and make a mental note about the unique characteristics that make this airport a special place to visit. Bring some of those ideas back to your home airport to share and improve.

Recent election results have brought new faces to our capitols in Washington D.C. and St. Paul. Budget proposals to support general aviation airports have been presented to



Cassandra Isackson

legislators in our state and to national congressional members this year. In Minnesota, an appropriation for the State Airports Fund (SAF) is among the items in the Governor's Budget. Nationally, the FAA's Airport Improvement Program (AIP) is also up for renewal.

When you Fly Minnesota Airports, remember that your aviation tax dollars are at work bringing improvements to the airport system. The SAF funds a variety of work brought to you by our office, while the AIP brings nearly \$60 million in project potential to the state each year. Even if your airport is not eligible for FAA dollars, use of AIP funds at one airport frees up State Airport Funds for use at another airport – maybe yours. Whether your vote was cast on the winning side or not, you may want to meet your local political decision-makers and let them know you support the passage of the federal Airport Improvement Program, and the State Airports Fund portion of the Governor's Budget Bill in Minnesota.

Please continue to invite us to meetings and events at your airport. We will make every effort to be there.

*Keep flying safely!*



## Fly Minnesota Airports... A Program For Minnesota Pilots

Fly Minnesota Airports is a program sponsored by the Minnesota Department of Transportation (MnDOT) Office of Aeronautics and the Minnesota Council of Airports (MCOA) to promote general aviation in Minnesota. This program rewards pilots who fly to Minnesota publicly-owned airports, attend FAA safety seminars, and visit Minnesota's aviation museums. Fly Minnesota Airports promotes safety and education, and encourages pilots to practice approaches and landings in many different environments. It is also a great way to support general aviation airports, businesses, and tourism. Just visit one of the places or events listed in the Fly Minnesota Airports passport, and have your passport stamped in the appropriate box. It's as easy as that!

### How To Participate

Visit your local publicly-owned airport and request a Fly Minnesota Airports program passport or contact the MnDOT Office of Aeronautics for a passport.

Fill in the page at the front of your passport with your name and contact information. Each time you fly to or visit a Minnesota publicly-owned airport, aviation museum, or attend a participating FAA safety seminar, have your passport stamped in the appropriate box. At most airports, stamps are located in the arrival and departure building next to the weather machine.

When you have received the proper number of stamps entitling you to a Bronze, Silver, or Gold Level Award,

submit your completed passport along with copies of your logbook to the MnDOT Office of Aeronautics. Please note which level – Gold, Silver, or Bronze – is being sought. The program is only open to Minnesota residents.

If you wish to have your passport reviewed while you wait, please call ahead to schedule an appointment (800-657-3922). Once a passport has been submitted and a gift awarded, the passport will be returned to the participant so that he or she can continue to the next level.

Gold Level Awards and recognition will be made at the MCOA annual Minnesota Airports Conference. There is no deadline for completing the passport program as long as the program remains in operation.

### Frequently Asked Questions

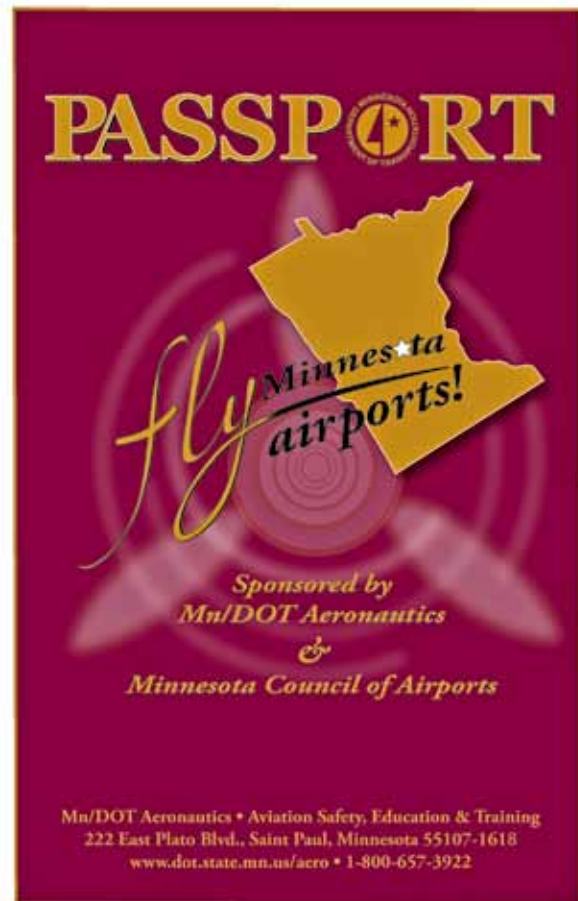
I visited a Minnesota airport that wasn't able to stamp my passport (no stamp, no passports, etc.). What do I do?

If you are unable to get a stamp at a Minnesota airport, please contact the Minnesota Department of Transportation, Office of Aeronautics.

What if I cannot find a stamp at an airport?

Insert the date you flew to that airport in the appropriate airport box in your FlyMN Passport. Upon completion of an award level, a MnDOT Office of Aeronautics representative will stamp the appropriate airport box by verifying the flight in your logbook.


For additional information, contact the MnDOT Office of Aeronautics at 800-657-3922.



## Aviation In Minnesota

**T**he Minnesota Department of Transportation, Office of Aeronautics collects taxes, safeguards the long-term viability of the state airports fund, plans and promotes a statewide system of airports, distributes state and federal aviation funding, provides navigational systems, enforces state

and federal safety standards, offers technical resources, fosters aeronautics and aviation safety, and provides air transportation to state employees.

Our Minnesota aviation system is funded by aviation user fees generated from aviation fuel tax, aircraft registration, aircraft sales tax, and airline flight property tax. These funds are dedicated solely for use by and for aviation in Minnesota. 

[www.dot.state.mn.us/aero](http://www.dot.state.mn.us/aero)

• 800-657-3922



## When Things Go RIGHT!

by Jim Hanson



**A**s aviation consumers, all too often we complain when things go wrong – and we ought to complain. Sub-par service... dates, schedules, and budget promises not kept...indifferent treatment by corporate and governmental officials... there is no need to tolerate bad service. By voicing our discontent through the aviation media (including this magazine), we can improve the experience for all of our industry.

If we complain when things go wrong, however, we should recognize when things go right, and that's the purpose of this editorial.

In a world where we are often disappointed, it's nice to recognize when someone goes out of their way to make sure something is done right.

For instance, right after 9/11, we had a change to our local sectional chart. Someone, somewhere in the vast bureaucracy changed the name of our local lake from Freeborn (the name of the town and the county) to Freedom. A nice, patriotic gesture, but inaccurate.

Not knowing how to call attention to the problem, I forgot about it. The issue grew when the FAA established an aeronautical intersection over the lake and town with the five-letter identifier "FREED." It continued to metastasize...a comment for a proposed windmill farm described it as "adjacent to the FREED intersection." People started making radio calls over "Freedom Lake."

I tried to right the wrong, but

couldn't find anyone to take ownership of making the correction. The FAA referred me to map publishers U.S. Coast and Geodetic (NOAA), who in turn said it wasn't their issue since it was the FAA who established the intersection (there was no mention of the changed name of the lake that started all of this).

I was reading *Aviation Week* (there is a lot to be learned in aviation magazines, including this one!) on an unrelated subject, when the article provided a link to aviation charting 9-amc-aerochart@faa.gov.

I dashed off a note to them explaining the circumstances, and received a note back several hours later thanking me for bringing it to their attention and telling me that the change would be made on the next printing. The writer of the note was:

Rick Fecht

FAA Aeronautical Information Services  
Visual Charts Group  
1305 East West Highway, Station 3655  
Silver Spring, MD 20910  
Office: 301-427-4929

Thank you, Rick Fecht, for your prompt and courteous attention!

Now that you have the contact information, let's help the FAA and our fellow airmen by letting the FAA know of any inaccuracies we may discover on our aviation charts...and don't forget databases!

Here's an example: Years ago, one of our pilots was flying a Citabria on pipeline patrol. The engine started losing oil pressure, so he hit the "nearest airport" feature, which directed him to an airport only two miles away. Try as he might, he couldn't find the airport, even when he was right overhead. There was no other airport close by, so he elected to make a precautionary landing in the field below. After shutting down, he started wondering where he was when he spied a rusty old windsock frame. The airport had been closed

some years before and the grass runway plowed up, but nobody had notified the FAA, so the strip still showed up in the GPS database!

In writing this editorial, I checked a current database in one of the aircraft GPS units, and found two local private strips that have been plowed up for years, and another that has had its runway significantly shortened. Though not depicted on aeronautical charts, they are included in the database.

We all have a stake in making accurate information available to pilots. If you know of an uncharted hazard that is not depicted on an aeronautical chart, do something about it. If you are aware of an inaccuracy on an IFR or VFR chart, let the FAA know. If you are the owner of a private airfield, let the FAA know if there are significant changes to your airfield. If your airfield isn't listed in the FAA database, consider doing so – the Recreational Aviation Foundation (RAF) has done landmark work to limit liability to landowners who allow others to use their strips. Go to the website <http://theraf.org/> and click on advocacy, then recreational use statutes, which explains your limited liability as a private airport owner. You can find the link for the recreational use statute for your state at the end of the page.

Don't have a private strip? Go to the RAF site any way. This is a great organization with an outstanding record of making back-country airports available to pilots.

Again, thanks to Rick Fecht of FAA Aeronautical Information Services for his quick and courteous service!

**EDITOR'S NOTE:** Jim Hanson is the long-time fixed base operator in Albert Lea, Minnesota. He has been in the FBO business for over 50 years, and has seen his share of people providing poor service—and wants to recognize and reward good service. If you know of an organization that gives better-than-expected service, let them know and let the rest of us know as well by sending an email to [info@midwestflyer.com](mailto:info@midwestflyer.com). □

## Lynx FBO Network Acquires Cirrus Flight Operations & Key Air

BLAINE, MINN. – The Lynx FBO Network has acquired Cirrus Flight Operations and Key Air Twin Cities at



Anoka County-Blaine Airport, adding to its chain of fixed base operations, which started with the purchase of Destin Jet Center in Destin, Florida, and Aurora Jet Center near Portland, Ore. The Houston-based private equity firm, The Sterling Group, is backing Lynx.

The FBO sign at Cirrus Flight Operations, Anoka County-Blaine Airport, Blaine, Minnesota. □

## 28th Annual Minnesota Aviation Hall of Fame Banquet To Again Be Held At Hyatt In Bloomington

BLOOMINGTON, MINN. – The Minnesota Aviation Hall of Fame will hold its 28th Annual Hall of Fame Induction Banquet, April 22, 2017, again at the popular Hyatt Regency Hotel in Bloomington, Minnesota. The awards ceremony will be emceed by radio personality, Al Malmberg, the

host of the long-running WCCO Radio program, “The World of Aviation.”

Awards will be presented to six inductees, including James H. Brodie, inventor of a system of utilizing small private aircraft for sub and search patrols in the Pacific during World War II; Edward J. Chapman, Vietnam

fighter pilot, United Airlines Captain, balloonist; Alvin D. Grady, historian, U.S. Air Force veteran, Duluth Airport Authority Chief Accountant, 148th Fighter Squadron budget analyst, and historian; Bruce D. Jaeger, long-time owner of Willmar Air Service,

**CONTINUED ON PAGE 62**

## MATA – Investing In The Future!

**One goal of the Minnesota Aviation Trades Association (MATA)  
is to invest in future aviation professionals through “MATA’s Scholarship Program.”**

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## **Milwaukee County Approves Sale of Gran-Aire To Spring City Aviation**

MILWAUKEE, WIS. – Effective December 16, 2016, Milwaukee County approved the sale of Gran-Aire, Inc. at Milwaukee-Timmerman Airport to Spring City Aviation, Inc., and signed a new lease with the company.

Gran-Aire, Inc., located at Milwaukee-Timmerman Airport, sold its hangar rental business, aircraft maintenance and parts departments, flight school, fuel sales and charter operation to Spring City Aviation, located at Waukesha County and Burlington Municipal Airports in Wisconsin.

Gran-Aire has been a full-service fixed-base operation at Milwaukee-Timmerman since 1946 when William Lotzer founded the company. Spring City Aviation provides flight training, air charter and aircraft brokering services at its other two locations. John Lotzer, president and owner of Gran-Aire, Inc., and Brian Behrens of Spring City Aviation, were the principals involved in the sale.

“Brian and I have worked successfully over the last decade in first transferring my flight operations in Waukesha to Spring City, and now through an extensive process involving Milwaukee County and the FAA, we are completing a similar transition of the FBO business at Milwaukee-Timmerman,” said Lotzer.

“Our mutual goal has been long-term stability for both service operations. Spring City has in fact hired all former Gran-Aire employees and is committed to keeping all the same services as Gran-Aire offered.”

Lotzer expressed his appreciation for Gran-Aire’s loyal customers and exceptional staff since the beginning, and is

pleased that Gary Bavuso and his staff in the maintenance and parts departments will continue to provide the same high-quality maintenance that Gran-Aire is known for.

Lotzer also thanked newly appointed Milwaukee County Airport Director, Izzy Bouilla, for helping with the transition. Bouilla is an active general aviation pilot and aircraft owner, and a strong advocate of Timmerman Airport as a reliever to Milwaukee General Mitchell International Airport.

Gavin Leake, general manager at Spring City Aviation, said “I am excited to be at KMWC on a daily basis, serving as the manager for what will now be known as Spring City Aviation Milwaukee. Gran-Aire is one of the most well-regarded and respected names in Midwest aviation, and I am honored to have the opportunity to be a part of a transition which I believe will bring many positive changes to the business, as well as to the airport itself.”

Leake has been with Spring City Aviation since 2006, as a flight instructor, charter pilot, marketing manager, chief flight instructor, and aircraft broker. He indicated that Spring City Aviation will be remodeling and upgrading the customer and pilot facilities at Timmerman, as well as adding a Redbird FMX full-motion simulator.

“We’ll be undertaking a large marketing campaign aimed at driving more traffic to Timmerman, and involving local media in the airport,” said Leake.

For additional information or assistance, contact Gavin Leake at 414-461-3222 ([springcityaviation.com](http://springcityaviation.com)). □

## **Wisconsin Aviation Offers Cirrus Approved Flight Training**

MADISON, WIS. – Wisconsin Aviation Flight School now offers Cirrus factory-approved training for Cirrus pilots. Cirrus Standardized Instructor Pilot (CSIP) training includes a worldwide network of flight training professionals who are experts in Cirrus aircraft.

Cirrus Aircraft’s global network of Cirrus Training Centers and Cirrus Standardized Instructor Pilots get pilots flying Cirrus aircraft quickly, efficiently, and safely (<http://cirrusaircraft.com/flight-training/flight-training-network/>)

Wisconsin Aviation has Cirrus aircraft available for rent.

For additional information call 800-594-5359, or email [FlightSchool@WisconsinAviation.com](mailto:FlightSchool@WisconsinAviation.com).

Wisconsin Aviation is celebrating its 35th anniversary in 2017, as a premier, full-service provider of general aviation services including air charter, flight training, aircraft rental, aircraft sales and management, maintenance, avionics, interiors, and line services with three locations: Madison, Watertown, and Juneau, Wisconsin ([www.wisconsinaviation.com](http://www.wisconsinaviation.com)). □



# Cirrus Aircraft Launches G6... The Smartest, Safest, Most Advanced Cirrus Ever



DULUTH & KNOXVILLE – Cirrus Aircraft has announced the launch of the all-new 2017 G6 – the smartest, safest and most advanced models ever of the best selling SR22T, SR22 and SR20 piston airplanes. The benchmark for high-performance, single-engine aircraft has been uniquely raised once again by Cirrus to include the just unveiled, ultra-high speed Cirrus Perspective+™ by Garmin® flight deck, luxury automotive-inspired Cirrus Spectra™ wingtip lighting, premium cockpit connectivity solutions and more. This sixth

generation Cirrus is available for order immediately and customer deliveries are underway.

“The word ‘comprehensive’ best describes the depth and breadth of all the improvements in G6 as the completely redesigned and fully-integrated user interface and lightning-quick speed of the brand new Cirrus Perspective+ flight deck is noticeable from the moment you power up,” said Todd Simmons, President, Customer Experience.

Inspired by Garmin’s latest G1000 NXi integrated

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### **Cirrus Spectra™ Wingtips**

Working with Whelen Engineering, Cirrus Aircraft developed the Cirrus Spectra wingtip. Incorporating ultra high-performance LEDs behind one continuous lens, the dual-strobe Spectra wingtips combine power, style, and intelligence resulting in the brightest, most visible lighting solution ever offered by Cirrus. Brightness has increased two-fold for better

visibility on landings, and automotive-style wingtip halo lighting automatically operates within 300 feet of the surface and on the ground.

### **All New G6 SR20**

The global standard in technologically advanced, affordable high-performance piston training aircraft is all-new for 2017 as well. In addition to the Cirrus Perspective+ flight deck, the SR20 now comes equipped with a modernized Lycoming IO-390, 215HP powerplant. This four-cylinder G6 SR20 creates a step change in the ownership experience as it increases power while, through a collection of additional enhancements, also increases useful load by up to 150lbs (68kg).

### **A Record Year**

The launch of G6 continues a record year of enterprise growth at Cirrus Aircraft. In June 2016, Cirrus opened a new Factory Service Center at the McGhee Tyson Airport in Knoxville, Tenn. -- the home of the new Vision Center campus. In October 2016, Cirrus certified the world's first single-engine personal jet – the Vision Jet – and began customer deliveries of the category-defining jet shortly after in December. Cirrus also expanded its manufacturing footprint in December by opening a new 68,000 sq. ft. finishing facility in Duluth to accelerate Vision Jet production.

Learn more at [cirrusaircraft.com/G6](http://cirrusaircraft.com/G6)



## **Travers Insures First Cirrus Vision Jet**

ST. LOUIS, MO. – Travers & Associates Aviation Insurance Agency, LLC placed insurance on the first customer delivered Cirrus Vision SF50 Jet. Over the passed 15 years, Cirrus Aircraft has been vigorously working to bring the SF50 Vision Jet to the marketplace enabling the everyday person or pilot the opportunity to own a jet.

Travers has worked closely with Cirrus Aircraft and many

insurance companies, helping to promote the safety features of the Vision Jet, as well as the professional factory-training program offered through Cirrus.

Travers can insure the SF50 for many different pilot scenarios, from the ATP with thousands of logged hours, to the newly instrument rated private pilot.

Joe Whisenhunt, a real estate developer from Little Rock, Ark., became the first owner of a Cirrus Vision SF50 Jet. Cirrus Aircraft has sold over 600 SF50 Jet positions.







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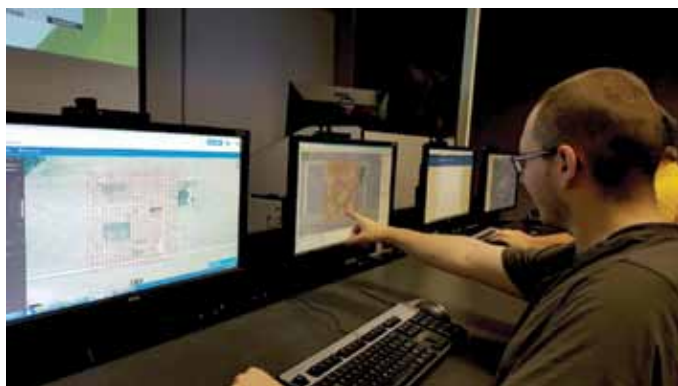


## Imagery Analysis In Today's World

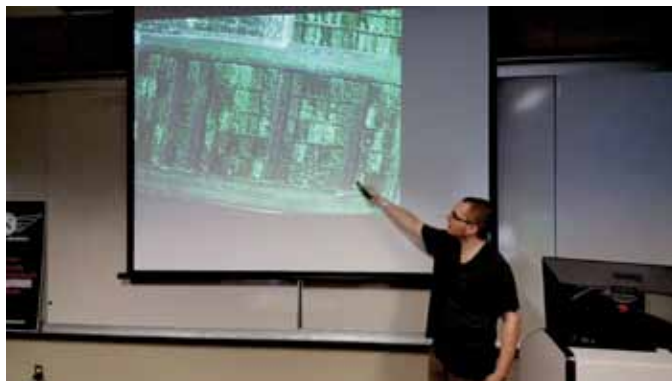
*by Frank Nix*

*Imagery Analyst Instructor  
 Northland Community & Technical College*

**W**hat is imagery analysis? The definition of imagery is the ability of a person to identify items and activities, and put together a picture of what it means. It's an imagery mindset that one must have to be a successful imagery analyst.



Adam Mahne processing/analyzing imagery using AgVault software.



Adam Mahne briefing his analysis of a cornfield by using false color to bring out the anomalies

enterprise for acquisition of satellite imagery of Earth, operated by NASA. Another way is through archival imagery that has been released by the U.S. government and is available by request from the National Archives in Washington, DC. The largest commercial satellite company is DigitalGlobe. Aircraft also collect imagery and many companies fly in support of surveying and aerial mapping. Though most commercial imagery is expensive, that's about to change.

What goes into that mindset? Well, an analyst must have patience, good judgment, perseverance, accuracy and the ability to see what no one else can. In today's world, imagery analysts must consider themselves knowledgeable about today's world, so they can be better analysts for their customers and that's just one part of the instruction for the imagery analysis program at Northland Community & Technical College (NCTC).

Where can we get imagery? Most imagery comes from satellites, such as Landsat – which is the longest-running



Alex Monsrud, videographer of Imagerhee, with images shot by the company's drone.

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Casey Olstad briefing on her assignment on Base Realignment and Closure, showing what happens when a military base closes and is then transformed into a civilian airport.



Frank Nix, imagery analyst instructor, briefing on the life cycle of pests that could be encountered in the local area.

What about imagery in today's world? It's an exciting time for those interested in imagery. As our phones have shrunk, so have the satellites. Today, there are several small commercial satellite companies in business, such as Planet (Planet.com), Terrabella (owned by Google), and Blacksky.

The size of the satellite has changed. It is no longer a large multi-million dollar satellite. Today's satellite world is a nano-satellite world. The companies I mentioned above have or will send approximately 250 lower-cost satellites into orbit in coming years, ranging in mass from 1 pound to 1,000 pounds.

What that means is that you may now receive satellite imagery right to your computer at a lower cost. The possibilities are endless. For example, you could get imagery of your property or business for insurance purposes, or for environmental and agricultural monitoring, to name a few. The statement the small satellite company Planet has on their webpage: "See Change. Change The World," says it all!

NCTC students use imagery analysis in their world.

Two 2014 NCTC graduates of the imagery analysis program are sensor operators with a large company called Fugro. What they do is fly twin-engine turboprop aircraft in the U.S. and internationally. One of them is Robert Nelson who started out as a sensor operator with Fugro and now is the Aviation Safety Officer/Health & Safety Coordinator/Flight Operations Support Manager. He said, "While working as a Sensor Operator for Fugro, my main responsibility is to

work with our pilots to ensure the geospatial data we collect is accurate and free from errors. Most of the sensors we use are Leica ADS and ALS systems, though we do possess

several others. While in production mode, I am constantly monitoring the assigned sensors for things like clouds that could cover areas of a project. Typically we operate aircraft from our fleet, such as Cessna Conquests, Piper Navajos, and a Cessna 310.

"I have worked on many projects with a vast array of clients. When I think back on the experiences that I have had here, I am reminded of just how rewarding a field this is. The work we do and the data we collect not only help improve people's

lives, but in some cases, can actually work to save lives."

Another is Noah Berg, who added: "We collected orthoimagery over Zion and Glacier National Parks, as well as other natural wonders. We collect robust data from LiDAR, RaDAR, oblique imagery and the company is testing new high-tech sensors. The data we collect is used on a national level for disaster response, national security, economic development, utility maintenance and many other vital national interests."

Another way imagery is collected today is by using drones. Many companies are flying drones today. One company is called Imagerhee (imagerhee.com). Alex Monsrud, a 2014 graduate of NCTC and the imagery analysis program, is a founding member of the company. Imagerhee is out of North Carolina. They have been flying drones to capture videos



(L/R) Adam Mahne, Josiah Clark, and Casey Olstad.





Fugro aircraft in the hangar in Rapid City, South Dakota



Noah Berg, sensor operator, aboard a Fugro Cessna Conquest.

and images for real estate and making promotional videos of various attractions in the area. They have NC certification, which involves understanding all the state laws and privacy considerations when flying cinematography with drones.

Alex said, “Drones have multifaceted uses and my experience here in western North Carolina has been primarily with tourism and real estate. Because of the rugged mountainous terrain, we are able to show a perspective that people haven’t seen before because they can’t get to it. It’s pretty amazing when doing work for tourism. For example, when you can show an aerial perspective of a waterfall that no one can get to on foot. Additionally, when working with real estate, we are able to help realtors obtain straight-on views that they can’t get because the houses are built into the side of a mountain. It has been an amazing experience to be a part of an ever-changing, ever-evolving industry, and to be the first in our region to establish this kind of business.”

One of the most important events occurring with imagery and technology is collaboration. Now people from all over can collaborate on issues, such as natural disasters. A NCTC student volunteered her time and skills supporting the Humanitarian OSM Team Hurricane Matthew in Haiti by providing geographic data.

In the classroom: Students in the imagery analyst course learn about imagery from its history to nano-satellites. The first thing they learn to do is to get an imagery analyst mindset. It takes awhile for someone who has never looked at an image to be able to identify an item, determine its meaning and to have confidence to brief their analysis. Subjects range from hardcopy map reading to remote sensing applications, imagery analysis techniques, learning to exploit radar and infrared imagery, report writing, current world events, and research projects. It is a very hands-on course.

For example, students process imagery collected by the NCTC Phoenix Unmanned Aerial Vehicle (UAV). The UAV flies over farms in Minnesota and collects imagery in the near-infrared and in the red-green-blue electromagnetic spectrum. Students run the imagery through two processing softwares and then analyze the imagery and create useful data/products

for the farmer.

As you know, not everyone is happy with drones coming into the National Airspace System (NAS). Many states have or want to pass legislation, limiting drones in their states. One of our assignments was for students to voice their opinion about the drones coming into the NAS and here is one opinion from a first semester student: “I think that the privacy issues are a real concern for people, but it shouldn’t turn people away from the thought of using drones for multiple uses, agriculture, search and rescue, real estate, etc. They need to create the right amount of regulation to keep people’s privacy safe and still allow people to fly drones to do their jobs. There is so much money in this industry, and if we regulate it too much, we won’t be able to use it to its fullest potential.”

What’s your opinion? NCTC has a 30-credit Imagery Analysis Certificate, which concentrates on distinguishing imagery from a variety of sources, cameras, radar, and satellites, and identifying what information the image is showing. It also has a 60-credit Geospatial Intelligence Analysis AAS Degree, which takes a student through the end-to-end process of planning, preparing, and conducting analysis of geospatial information.

As you can see, NCTC imagery analysts are out making a difference in today’s imagery world. Come to Northland, make a difference and make your story.



***This material is based in part upon work supported by the National Science Foundation (DUE 1501629). Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.***



# CALENDAR

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

## FEBRUARY 2017

- 4\* **BRODHEAD, WIS.** - Groundhog Chili Ski Fly-In 10:30am-1:30pm.
- 13-15 **ST. CLOUD, MINN.** - Tri-State Aerial Applicators Convention & Expo at River's Edge Convention Center & Best Western Plus Kelly Inn. [www.tristateaerialconvention.com](http://www.tristateaerialconvention.com)
- 21-23 **EAST LANSING, MICH.** - 2017 Michigan Airport Conference at the Kellogg Hotel & Conference Center.
- 18 **MILWAUKEE, WIS.** - 2017 Wisconsin Aviation Maintenance Training & IA Renewal Seminar at **Crowne Plaza Milwaukee Airport Hotel, 6401 South 13th St. Registration deadline is February 3, 2017 - [wisdotia2017.eventbrite.com](http://wisdotia2017.eventbrite.com).** If questions, please contact Jean Rickman at 608-266-8667 or [jeana.rickman@dot.wi.gov](mailto:jeana.rickman@dot.wi.gov). Visit the web at: <http://wisconsindot.gov/Pages/doing-bus/aeronautics/trng-evnts/mech-ia.aspx>
- 26 **WARROAD (KRRT), MINN.** - Ski Plane Fly-In & Breakfast. Ski Planes land on the Warroad River, wheel planes at the Warroad Airport. Shuttle service available 8am-Noon. Dave Paulson 218/386-1818 or 218/386-2098. E-mail: [dpaulson@ssbwarroad.com](mailto:dpaulson@ssbwarroad.com)

## MARCH 2017

- 2-4 **ORLANDO, FLA.** - 28th Annual International Women in Aviation Conference at Disney's Coronado Springs Resort. [wai.org](http://wai.org)
- 3-5\* **SAN MARCOS (KHYI), TEXAS** - **Bonanza & Baron Pilot Training (BPT) Clinic. Call 970-206-0182 or call Mick at 817-988-0174. [www.bonanzapt.com](http://www.bonanzapt.com)**
- 4\* **GARRISON, MINN.** - Iceport 2017 at Twin Pines Resort, Mille Lacs Lake. 320-200-8050.
- 5-7 **MINOT, N.D.** - Upper Midwest Aviation Symposium at the Holiday Inn Riverside. [www.ndac.aero/umas.htm](http://www.ndac.aero/umas.htm)
- 16\* **BROOKINGS, SD** - Aviation Symposium is for Aircraft Technician Training at the Aviation Complex (SDSU Hangar) 7:30am-5:30pm. 605-270-9774.
- 27-28 **BROOKLYN CENTER, MINN.** - 2017 MN Aviation Maintenance Technician Conference at **Earle Brown Heritage Center. Register online at [www.regonline.com/1876931](http://www.regonline.com/1876931)**
- 29\* **MITCHELL, SD** - South Dakota Airports Conference at the Highland Conference Center. Call 605-773-4430 or email Jennifer at [Jennifer.Boehm@state.sd.us](mailto:Jennifer.Boehm@state.sd.us)
- 31-4/2\* **FRESNO (KFAT), CALIF.** - **Bonanza & Baron Pilot Training (BPT) Clinic. Call 970-206-0182 or call Mick at 817-988-0174. [www.bonanzapt.com](http://www.bonanzapt.com)**

## APRIL 2017

- 2-5 **WICHITA, KAN.** - 2017 South Central Chapter – American Association of Airport Executives (SCC-AAAE) Annual Conference at the Drury Plaza Hotel Broadview for Kansas Airports and Airport Partners. For more info email [LGisick@wichita.gov](mailto:LGisick@wichita.gov)
- 4-9\* **LAKELAND, FLA.** - Sun 'n Fun Int'l Fly-In & Expo 2017. [www.sun-n-fun.org/](http://www.sun-n-fun.org/)
- 11-13\* **CEDAR RAPIDS, IOWA** - 2017 Iowa Public Airports Association Conference at Doubletree by Hilton (downtown). [www.iowaairports.org](http://www.iowaairports.org)
- 12-14 **MANKATO, MINN.** - 2017 Minnesota Airports Conference at **Verizon Wireless Center. <http://www.airtap.umn.edu/events/airportsconference/2017/presentations/index.html> or contact Mindy**

**Carlson at 612-625-1813 or [carlson@umn.edu](mailto:carlson@umn.edu).**

- 18-19 **COLUMBUS, OHIO** - Ohio Aviation Association Annual Conference at Sheraton Capitol Square. [www.ohioaviation.org/aws/OAA/pt/sp/conference](http://www.ohioaviation.org/aws/OAA/pt/sp/conference)
- 22\* **BLOOMINGTON, MINN.** - Minnesota Aviation Hall of Fame at the Hyatt Regency Hotel. [www.mnaviationhalloffame.org](http://www.mnaviationhalloffame.org).
- 24-27 **WAUKESHA, WIS.** - 2017 Wisconsin Aviation Conference. [wiama.org](http://wiama.org). 815-757-2869.
- 28-29\* **CAMARILLO, CALIF.** - AOPA Fly-In at the Camarillo Airport [www.aopa.org/community/events/aopa-fly-ins/2017-aopa-fly-ins](http://www.aopa.org/community/events/aopa-fly-ins/2017-aopa-fly-ins)
- 28-30\* **WAUKESHA (KUES), WIS.** - **Bonanza & Baron Pilot Training (BPT) Clinic. Call 970-206-0182 or call Mick at 817-988-0174. [www.bonanzapt.com](http://www.bonanzapt.com)**
- 29-30 **ANOKA (KANE), MINN.** - Annual Great Minnesota Aviation Gathering (GMAG) at the Golden Wings Flying Museum.

## MAY 2017

- 7\* **BREEZY POINT, MINN.** - Aviation Days. 218-838-3434.
- 7\* **GRAFTON (KGAF), ND** - Pancake Breakfast 8am-1pm.
- 18-21\* **CHAMBERLAIN, SD** - Minnkota Convention for the Flying Farmers & Ranchers at the Thunderstik Lodge ([www.thunderstik.com](http://www.thunderstik.com)). Contact for more info [arnesonfarms@invisimax.com](mailto:arnesonfarms@invisimax.com).
- 19-21\* **BRAINERD, MINN.** - Minnesota Seaplane Pilot's Safety Seminar at Madden's Resort. [www.mnseaplanes.com](http://www.mnseaplanes.com)
- 21\* **BRODHEAD, WIS.** - Pancake Breakfast 7am-Noon.
- 24-25\* **CHAMPAIGN, ILL.** - 2017 Illinois Aviation Conference at the Hilton Gardens Inn. 217-789-6252.

## JUNE 2017

- 3-4\* **DULUTH, MINN.** - Blue Angels Performing.
- 4 **WILD ROSE (W23), WIS.** - The Idlewild Airport will be serving a Pancake Breakfast with Sausage and Eggs from 7:30-11am, and at 11:30am-3pm a Pig Roast Dinner featuring pork, beef, potato salad, beans and more. *This is a rain or shine event.* 715-513-0911.
- 9\* **FLANDREAU (4P3), SD** - Breakfast 8am-Noon.
- 10-11\* **SCOTT AFB, ILL.** - Airpower Over The Midwest Air Show. Blue Angels Performing.
- 10-11\* **ROCKFORD, ILL.** - Thunderbirds Performing.
- 17-18\* **YOUNGSTOWN AIR RESERVE BASE, OHIO** - Thunderbirds Performing.
- 18\* **WAUTOMA, WIS.** - Chicken Fly-In 10am-3pm.
- 24-25\* **DAYTONA, OHIO** - Thunderbirds Performing.

## JULY 2017

- 1-2\* **TRAVERSE CITY, MICH.** - Thunderbirds Performing.
- 8-9\* **GARY, IND.** - Thunderbirds Performing.
- 15\* **WASHINGTON ISLAND (2P2), WIS.** - **Washington Island Fish Boil Fly-In 2017 11am-1pm. Fly-In for the day or camp beneath your wings. 920-535-0600 / 920-847-2448. [www.Washingtonisland.wi.gov](http://www.Washingtonisland.wi.gov) [www.VisitWashingtonIsland.com](http://www.VisitWashingtonIsland.com)**
- 15-16\* **MILWAUKEE, WIS.** - Milwaukee Air & Water Show. Blue Angels Performing.
- 15-16\* **EDEN PRAIRIE, MINN.** - Wings of the North Air Expo at Flying Cloud Airport.
- 20-23\* **BRODHEAD, WIS.** - Hatz/Pietenpol Fly-In.
- 23\* **WAUTOMA, WIS.** - Pancake Breakfast 7am.

**24-30 OSHKOSH, WIS. - EAA AirVenture Oshkosh 2017. Blue Angels (29-30) [www.eaa.org/en/airventure](http://www.eaa.org/en/airventure)**

**26-28\* CLINTON, IOWA - Cessna 150-152 Fly-In.**  
[www.cessna150152flyin.org/](http://www.cessna150152flyin.org/)

#### AUGUST 2017

**19\* GUTTENBERG (IA23), IOWA - Abel Island Fly-In Float-In & BBQ Noon-3pm.** 2,600 ft turf strip/Mississippi River for seaplanes.  
319-480-0913 [www.abelisland.com](http://www.abelisland.com)

**19-20\* CHICAGO, ILL. - City of Chicago Air & Water Show. Blue Angels Performing.**

**19-20\* SELFRIDGE AIR NATIONAL GUARD BASE, MICH. - Thunderbirds Performing.**

**21 PERRYVILLE (KO2), MO. - Great American Eclipse Fly-In.**  
573-517-2069

**26-27\* OTTUMWA, IOWA - Fly Iowa 2017 6am-6pm.** [www.flyiowa.org](http://www.flyiowa.org)

**28-30\* KANSAS CITY, MO. - 4 States Airport Conference 2017 (Missouri, Nebraska, Kansas & Iowa) at the Muehlebach Tower, Marriott Downtown** [www.4statesairportconference.com](http://www.4statesairportconference.com)

#### SEPTEMBER 2017

**2-3\* YPSILANTI, MICH. - Blue Angels Performing.**

**2-4\* CLEVELAND, OHIO - Thunderbirds Performing.**

**8-9\* NORMAN, OKLA. - AOPA Fly-In at the University of Oklahoma Westheimer Airport**  
[www.aopa.org/community/events/aopa-fly-ins/2017-aopa-fly-ins](http://www.aopa.org/community/events/aopa-fly-ins/2017-aopa-fly-ins)

**9-10\* MAPLE LAKE, MINN. - Pork Fly-In & Chop Dinner & Campout.**  
[www.878.eeachapter.org](http://www.878.eeachapter.org)

**11-15 ESCANABA, MICH. - 2017 Annual MAAE Fall Conference.** For Airport Managers, Federal Aviation Administration and State Office of Aeronautics representatives, airport engineers, consultants and airport equipment and service providers to meet, exchange ideas and discuss problems and solutions facing Michigan airports.

**16\* MARION, OHIO - Wings & Wheels Fly-In & Cruise-In at the Marion Municipal Airport**

#### OCTOBER 2017

**6-7\* GROTON, CONN. - AOPA Fly-In at the Groton-New London Airport**  
[www.aopa.org/community/events/aopa-fly-ins/2017-aopa-fly-ins](http://www.aopa.org/community/events/aopa-fly-ins/2017-aopa-fly-ins)

**11-15 LAS VEGAS, NEV. - NBAA's Business Aviation Convention and Exhibition.** [info@nbaa.org](mailto:info@nbaa.org)

**27-28\* TAMPA, FLA. - AOPA Fly-In at the Peter O. Knight Airport**  
[www.aopa.org/community/events/aopa-fly-ins/2017-aopa-fly-ins](http://www.aopa.org/community/events/aopa-fly-ins/2017-aopa-fly-ins)

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## AOPA Announces 2017 Fly-In Dates & Locations

FREDERICK, MD. – The Aircraft Owners and Pilots Association (AOPA) has announced its 2017 regional fly-in dates and locations as follows:

Camarillo, California – April 28 and 29

Norman, Oklahoma – Sept. 8 and 9

Groton, Connecticut – Oct. 6 and 7

Tampa, Florida – Oct. 27 and 28.

Thanks to a tremendous response from members and exhibitors, AOPA has expanded each of the four regional fly-ins for 2017, adding a second day to allow attendees to

experience more hands-on aviation, and more of what has drawn praise and sparked enthusiasm from the nearly 44,000 people who have attended an AOPA Fly-In to date.

Each fly-in will now feature two full days of activities, including an expanded roster of learning opportunities and workshops beginning on the Friday of each event at 9 a.m. These workshops will cover a range of topics, such as mountain flying and owner-performed maintenance that will help make flying more fun, affordable, safe, and accessible ([www.aopa.org](http://www.aopa.org)). □

## South Dakota University To Host ACE Camp

BROOKINGS, SD – South Dakota University will host an Aviation Career Education (ACE) Camp, July 9-12, 2017. The camp provides high school students the opportunity to get an early start on aviation careers. Students learn about the fundamentals of flight, get behind the controls of an aircraft, build and launch model rockets, look into the workings

of a jet engine, explore a U.S. Air Force F-16 Falcon, and visit with aviation professionals. This particular ACE Camp focuses more on aviation, but does touch on aerospace activities as well. For additional information, contact Cody Christensen at 605-688-6291 or email [cody.christensen@sdstate.edu](mailto:cody.christensen@sdstate.edu). Tuition is \$350. □

### AIRPORT RESTAURANTS

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Dane County Regional Airport, Madison, Wis.	KMSN	Pat O'Malley's "Jet Room" Restaurant	<a href="http://www.jetroomrestaurant.com">www.jetroomrestaurant.com</a>
Price County Airport, Phillips, Wis.	KPBH	Harbor View Pub & Eatery	<a href="http://www.harborviewonline.com">www.harborviewonline.com</a>
Tri-County Regional Airport, Spring Green, Wis.	KLNR	Picadilly Lilly Airport Diner	<a href="http://www.picadillylillydiner.com">www.picadillylillydiner.com</a>



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**T-HANGAR RENTALS** – La Crosse Regional Airport (LSE), La Crosse, Wisconsin. To check on availability, go to <http://www.lseairport.com/hangar-rentals.php>. For additional information, including rates, call the airport manager's office at 608-789-7464 or email [gilletj@lseairport.com](mailto:gilletj@lseairport.com)

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## Space Program Legend, Gene Kranz, Inspired Audience At EAA Wright Brothers Memorial Banquet



NASA mission control flight director, Gene Kranz, speaks to a sell-out crowd at EAA's Wright Brothers Memorial Banquet, December 10, 2016, at the EAA AirVenture Museum in Oshkosh, Wis. *Jim Koeprnick Photo*



Chris Henry (center) of EAA Museum Programs, presented Gene Kranz (right) with a commemorative plaque and special EAA vest, while EAA AirVenture Museum Director Bob Campbell (left) accepts Kranz's flight helmet on behalf of the museum. *Jim Koeprnick Photo*

OSHKOSH, WIS. – EAA members and their guests who remembered the space race to the moon in the 1960s and '70s, or have seen the hit motion picture “Apollo 13,” remember NASA mission control flight director, Gene Kranz – the guy with the crew cut, who wore a white vest during launches at Kennedy Space Center in Florida. Kranz was the featured speaker for the annual EAA Wright Brothers Memorial Banquet, December 10, 2016 at the EAA AirVenture Museum in Oshkosh, Wis.

Kranz described his time as a fighter pilot and test pilot before joining NASA's space program, and gave his personal recollection of the events that took place during the Apollo 13 mission in April 1970, and other memorable launches, to a sell-out crowd of 445 people.

Kranz largely credited the safe return of Apollo 13's crew to the space program's excellent leadership and to the mutual trust shared between the crew and mission control.

At the conclusion of the banquet, Kranz donated the flight helmet he wore during his time as an F-86 Sabre pilot in the Korean War to the EAA AirVenture Museum. EAA plans to display the helmet alongside its F-86 Sabre, which bears the markings of the Sabre Kranz flew and named after his wife, “My Darling Marta.”

Afterward, EAA Museum Programs representative, Chris Henry, presented Kranz with a commemorative plaque and special EAA vest — a nod to Kranz's signature apparel.

This was the first time EAA has sold out of tickets for its Wright Brothers Memorial Banquet. □

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### MINNESOTA HALL OF FAME FROM PAGE 49

and Mooney aircraft specialist; Major General Robert S. Peterson, World War II Flying Tiger, fighter pilot in Korea and Vietnam, and Metropolitan Airports Commission member; and Brig. General George L. Schulstad, 26 years a U.S. Air Force fighter pilot, and an exchange pilot with the U.S. Navy during Vietnam. In addition to the induction awards, the Hall of Fame will present a Best Aviation Writing Award for 2017 to Sam Weigel, *Flying Magazine* columnist.

The Hall of Fame will also honor three young aviation career students with \$1500 scholarships.

2017 will mark the second year the induction banquet will be held at the Hyatt, located at 3200 East 81st Street on the south side of Hwy 494, just a couple blocks from the 34th Avenue exit. Banquet and hotel details, along with reservation materials, are available online at [www.mnaviationhalloffame.org](http://www.mnaviationhalloffame.org). □





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