RVator's Log

Newsletter of the Twin Cities RV Builder's Group

December 2023

In this issue…

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Upcoming Events

TC RV Builders December meeting. Doug and Paul's hangar, Lake Elmo Airport

Saturday, December 9 at 10 am. Details on page 10

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Minnesota Wing
Van's Air Force

Pres: Doug Weiler, 651-398-1184, dcw@mnwing.org

Sec/Treas: Bernie Weiss 612-845-6178

mailto:treasurer@mnwing.org

Shop Notes

- Doug

Let's return to the days of yesteryear and dig out an old "Shop Notes" from 2006. Fond memories of an RV-4 adventure in the pre-iPad days using that new-fangled GPS….

Flyin' the RV Line

Airline pilots spend their working hours "out on the line." The drill is the same for us all no matter whose check you cash each payday… schlepping your bags through the terminal, preflights in blowing snow, crosswinds, wind, and rain at LaGuardia, another night in a hotel. There are good times and bad as in all jobs. Flying the "RV line" is a little different. First of all, it's fun!! No bustling airports, no TSA, and I can bring all the gels I want. I recently flew the "RV line" on a trip to the Land of Enchantment Fly-in. It didn't go quite as smooth as it could have but it was pretty typical of life "on the RV line."

After so many years building our RVs, suddenly we "graduate" to flying instead of building. The days of agonizing over what primer to use are past. Once the test time is flown off and all the bugs are worked out, our RVs are pretty much like any other GA aircraft (except fast and fun!) So my LOE trip started like most other VFR trips. This year we didn't have our usual contingent of MN RV pilots making the trip. Due to a variety of factors, several of our guys bowed out leaving just me and Ken Beene. I left a day earlier than Ken to make a visit to a friend in Lawton, Oklahoma. It was cold leaving Minnesota and I flew through some areas of light snow but once into Iowa, it was clear. Motoring along at 8500 with the Tru Trak doing all the heavy lifting, the flight to Lawton was pretty easy. Once you get into OK, there is lots of military activity so one needs to stay alert. I always use flight following from whatever local ARTCC I am flying through and that is especially important down south. I flew right over Vance AFB at 6500 talking to center and then to Vance approach. There were a gaggle of twenty-something AF students going round and round in the pattern in their turbo-prop Texan trainers. They stayed out of my way but I was glad to get clear of that busy airspace.

The RV-4 "money shot" courtesy of Alex Peterson on a previous LOE trip

Going into Lawton, I had one last monster restricted area to skirt around and that was Ft. Sill, OK. Lots of artillery action going on, so the GPS

map is an absolute necessity. Landing at the Lawton airport, the RV gets lots of attention. I had a nice visit with my friend Al and his wife and stayed the night in their new home.

Friday dawned clear and perfect. Ken called and he was leaving Minnesota in his RV-6A. It was a windy departure out of Air Lake but he was on his way and should be in El Paso by late afternoon. I took off around 11:30 and had just a perfect flight to the southwest across New Mexico. Stopped in Hobbs and bought some real expensive gas but what can you do. Across the mountains west of Carlsbad at 10,5000 feet and soon I was on the ground at Santa Teresa, NM just west of El Paso. I wasn't on ramp an hour and Ken arrived after an uneventful flight.

There are tons of great RVs at Land of Enchantment. Most of the time is spent bumming around on the ramp talking RV talk. Doug Reeves of Van's AirForce.net had assembled over $17,000 worth of door prizes that were raffled off at the evening banquet. Two local charities benefited from over $14,000 raised in the raffle that evening!!! Couldn't find a better reason to fly to LOE!!

Sunday morning dawned with rain and fog (yes, this is the desert!). Now we had a problem. Checking the weather at the hotel, things didn't look too good for getting back to Minnesota today. Even if the local weather improved, there were low clouds and poor visibilities across Kansas and Nebraska with the forecast for Monday not any better. I had to get back to work on Tuesday, so a plan B was next on the agenda. Back at the airport, all the RVs were on the ground waiting for a break in the weather. Former RV-4 builder Mike Eesley and his wife were with us having flown their new RV-8A over from Tucson. Mike suggested that if I couldn't get home, I could come back to TUS with them, store my RV at his local airport and fly NWA back home. That was beginning to look like my only choice. By 10 am, the local weather was improving rapidly and Ken decided that he possibly could get back to Minnesota if he flew to the west of the Rockies and came home via Wyoming (gee, that was going to be a trek, even in RV).

Look at these Minnesota youngsters from the 2005 LOE: Alex Peterson, Bernie Weiss, John Lee, Mike Eesley, Pete Howell, and Ken Beene.

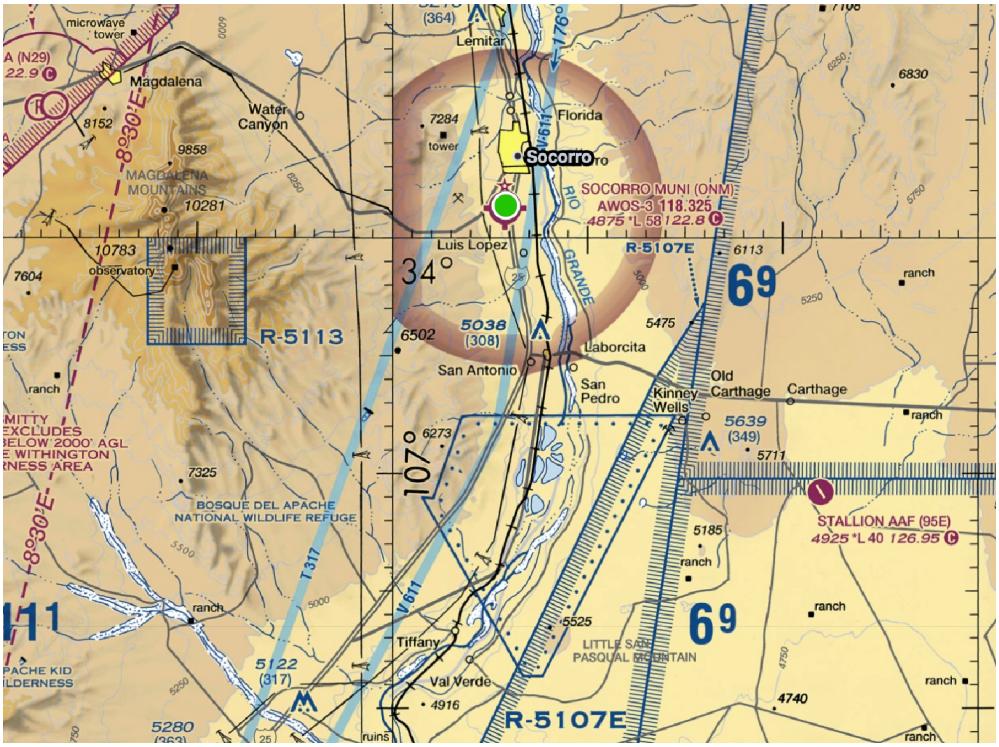
Mike and I took off for Tucson and Ken headed northwest towards northern Arizona. I chased Mike through and around billowing cumulus for 1:30 to Ryan Field just west of Tucson. Mike had arranged for me to use a friend's vacant hangar for my RV-4. In no time, 22DW was snugly put away (maybe for the winter!!) and we soon were sitting on the back deck at Mike's beautiful home in Oro Valley. That evening I got a call from Ken and he was home!!! I couldn't believe it but he had flown around the weather as planned and made it back to Lakeville via Winslow, AZ, Wyoming, and South Dakota. It was a long trip, but he accomplished his plan. Personally, I have this aversion to night flying in anything powered by less than 2 turbine engines so I was satisfied with my decision to park the airplane. I had the NWA option, which is good to have.

Next morning, I am on the way home via a Northwest A-319. My next chance to retrieve the airplane was not for 2 weeks so I was hoping there would be a window of good weather. Surprisingly enough, on Friday, Oct. 27th I left on NWA to TUS with not a cloud in the sky all the way to Arizona. The forecast looked good for the next couple days, so things looked promising. After landing at

TUS around 10:30, Mike was waiting outside the terminal and we rushed to Ryan Field. Mike had the RV out, gassed, warmed up and ready to go and I was airborne off Ryan Field just one hour after landing at TUS.

My mountain flying experience is rather limited and when in Arizona I follow Mike's advice. The "conservative" way to fly out of Tucson for Minnesota is to head east to Deming, NM, then north around the NW corner of the White Sands Missile Range and then NE towards Tucumcari, NM. Unfortunately, I have a little headwind so I would be landing at Tucumcari with only 5 gallons of fuel. That wouldn't work, so Mike suggested I only fly as far as Truth or Consequences and get gas there (about 1:30 out). I could probably then make it to Liberal, KS for the night. Mike warned that many of the "attended" airports in NM aren't really, so is best to call ahead and be sure someone is there. But, he said someone is always at Truth or Consequences so don't worry about getting fuel there. But when I landed at TCS, I was met by one scruffy airport dog that didn't seem very interested in fueling my airplane. Not a soul in sight, office locked, and when I called the "fuel number" no answer. I gave up and called Anderson Airport about 20 miles south of Albuquerque. Real humans answered the phone and yes they had fuel. Leaving the airport dog in my dust, I was airborne bound for Anderson.

Flying northbound from TCS, towards Socorro, NM, the big White Sands restricted area is on the right. Just southwest of Socorro is a rather small restricted area R-5113 surrounding a mountaintop, which is ground zero for an occasional flying missile coming over from White Sands. My course would pass well to the east of this area. But as I got closer, my trusty GPS issues a warning of Restricted Area R-5513 ahead. No problem, I am tracking well east of the target area. But 5 miles later, I get this warning I am INSIDE a restricted area and my moving map shows a rather confusing array forbidden airspace that I am apparently right in the middle of. My NEW WAC charts show nothing more than the target area R-5113 but I have this feeling I have really goofed. Hmm… spinning through my head…let's see… FAR violation, loss of license, loss of job, F-16s bearing down on me, arrant missiles also bearing down on me!!!! I continue flying north still intact and land at Anderson Airport. I get fuel and ask a flight instructor there about the mysterious restricted area I supposedly just flew through. He has no idea what I am talking about. I finally conclude that there is an error in the database in my GPS (which is current by the way). There are no FAA squad cars screaming up the airport driveway so I fire up and get out of Dodge.



The rest of the trip is a no-brainer. A stop overnight in Liberal, KS (big, old, WWII training base…. Nice folks… cheap hotel). The next morning it is a 4-hour trip back to Lake Elmo with a stop in Hastings, Nebraska. By noon I am home and 22DW is safely stashed away in the hangar. Flying the RV line…. always an adventure… always fun!!!

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Congrats to Dave Swanson!!

- *Doug*

Good news from RV-7 builder Dave Swanson. First flights are what it's all about. Hope to see you out on the 'RV Line" Dave!!!!!!

Dave's comments….

Tuesday, I received my airworthiness certificate, and today after a couple of days of gusty winds my RV-7 took flight. The flight was education, exciting, but uneventful.

The Twin Cities Builder community was extremely helpful in getting me to this point, and I would like to say thank you to all those who helped on the journey. I believe I am now officially at the 90% done 90% to go phase in my 'build' I took delivery of the tail kit on New Year's Eve 2018.

Step away from the edge!!

-Doug

The blogs have been blogging at redline over the last month after Van's announced a financial blip in the road. I have seen everything from "don't sweat it" to the "RV world is ending" and our aircraft will soon be worth nothing.

Going way back in RV history, Van's as a company and Dick VanGunsven as founder wrote the book on conservative business practices. I can recall back when the whole idea of building a two-place RV-3 was blasphemy and don't even talk about a bigger engine or a constant speed prop. In the 1990's, Van's first real general manager Bill Benedict, brought the company into its own and began to lay the groundwork for a successful

business plan. I am far from a knowledgeable businessperson, but I can certainly see how Van's got into a cashflow crunch with a perfect storm of laser cut parts, bad primer on quick-build kits, and supply chain issues during Covid time. Maybe an angel investor may step in but who knows. I am confident that the company will survive, and we will continue to have the backing and support of our aircraft. Granted the financial commitment to build an RV today is significant as prices continue to creep upward. But the value of these aircraft in performance and efficiency remains strong. Be patient and keep pounding those rivets!

A super simple CO detector

-Doug

It's coming up on December and for those of us non-snow-birds, the inevitable lies before us: it's going to get cold! Yep, it's a pain to shovel out the hangar, slip and slide on the ice trying to drag the airplane out, freeze getting into the cockpit and get strapped in. Crank up the engine and reach for the cabin heat knob and hope for the best. Manifold heaters in our RVs are hardly the best but that's all we've got. Which of course brings up the whole issue of carbon monoxide danger. Most of us have a CO detector in our homes. How about the RV?

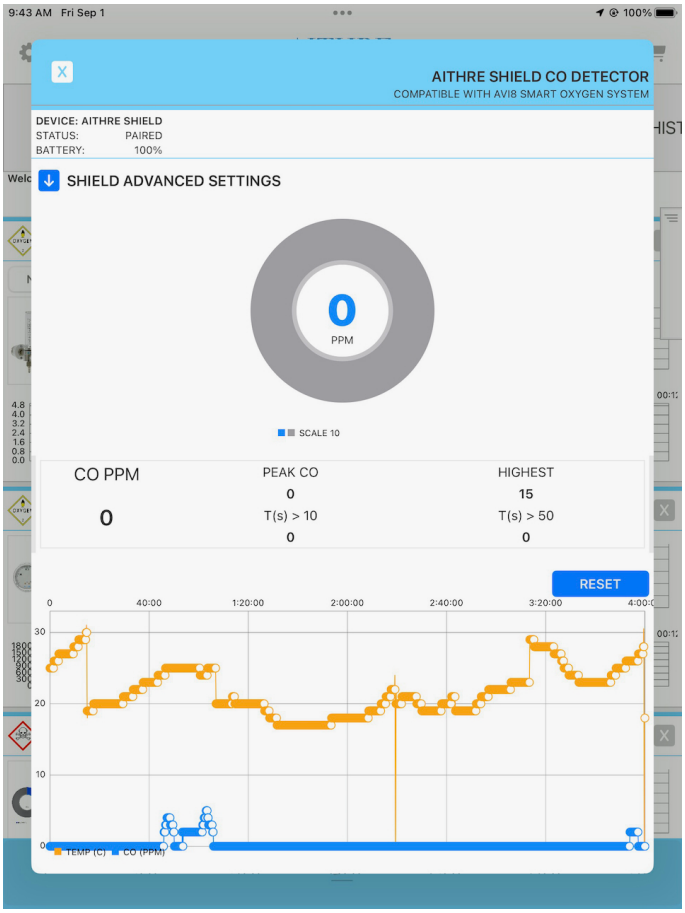
Last winter I got to looking into some type of CO detector. There are lots of possibilities from the simple and cheap card that sticks on the panel that changes color to some pricy units that wire into one's EFIS system (I see LightSpeed just came out with a headset with a built-in CO detector. Great idea!)

Last winter I bought an Aithre Shield USB Detector. It is super simple… plugs into a USB connection (I have two in my RV-7 installed under the instrument panel and my GMA 245 audio panel also has a USB port)

Aithre Shield plugs into any USB port

The Aithre Shield talks via Bluetooth to their app which is installed on my iPad which can then provide a CO warning to my audio panel and thus to my headset.

The Aithre Shield stays plugged in under my panel



The app shows this real-time display of parts per million plus a moving graph of temperature and CO level.

Odds and Ends, Fall 2023

- *Tom Berge*

N369TB, my trusted RV7A turned 20 years old this past summer. Seems only yesterday that everything worked, the paint was great and the upholstery flawless. But 2800 hobbs hours later have started to show the passage of time. Nothing too far out there, but certainly chinks in the armor.

I had an automotive body shop put the yellow on and I have to say, it has held up very good. The applied vinyl labels have held up as well except for the wheel pants. Wheel pants get beat up. That's a violent environment they live in. Flat tires

showed where the clearances were not quite as big as I thought. Make sure you can run an adult size finger around the perimeter, especially the back end. Your fiberglass and paint will appreciate the effort. My hangar neighbor harps on me to wash and wax and I'm trying but…..

The panel has seen a few enhancements, mostly in the flight instruments area. I started with electric gyros, then an Aspen

system and now a Garmin G3X. Love the G3X. Someday when my trusty Advanced Flight engine monitor gives up, I'll add another screen. But until then, I'll squeeze every last engine reading that I can from what I have.

Radios are as they were 20 years ago. The TruTrack autopilot has been upgraded a few times and my current version does a wonderful job without taxing my mental horsepower too much. Besides, it flies way better than I have ever been able to, doesn't get confused and doesn't get distracted. What more do I need?

The upholstery has held up well. I had DJ from the folks at Cleavland Tool make my seats. They are cloth which are warm in the winter and cool in the summer. They are now starting to show wear, and while still looking good, the writing is on the wall. Perhaps I will have them make me a new set before they close up shop. We are all aging out of this hobby.

My engine, well, has had some issues. All in all, good, but I got caught up in the ECI cylinder AD from several years ago, so they were replaced. I use about a quart every 6 hours or so. Those of you who claim a quart every 100 hours or so, please keep that crap to yourselves. I just don't want to feel bad about mine. My annual from 2022 had a low cylinder so a very helpful Don G. helped me lap the exhaust valve in place and that seemed to fix the problem. This year's annual had another low cylinder, and an attempt was made to lap the valve but no joy. The cylinder was removed and the folks at Horizon Air, formerly Bolduc, replaced the exhaust valve, guide and rings. So far so good. And of course, I shouldn't forget the cracked crankcase. Would like to, but a problem has to be really big if money can't fix it.

Now the last thing I'm fighting is my alternator system. This summer the system failed to come online after a start. I shut down, restarted and it worked fine. Since I was in Iowa at the time, I did appreciate the correction. Fast forward to October of this year and another long cross country, the system shut down mid-flight, then came back online. Seems it's trying to tell me something. The occurrences have now increased and trust in the system is at a low. It appears to be a bad connection somewhere, but so far have not found it. I've replaced the split rocker master switch without success. The last thing I did

was remove all connections and thoroughly scrub the ring terminals. The last few flights have been without issue. My fingers are crossed. Now if only I could hold up as well as N369TB.

Words of Wisdom

- *Tom Turner*

Ed note: Master CFI Tom Turner recently published this excellent piece on aviation safety. I have found no better summary of how we can be better and safer pilots. Enjoy…..

2023 is my **25th year of publishing *FLYING LESSONS Weekly*** and its predecessor, the Beech Weekly Accident Update (for a few years before *FLW*, the *WAU* was a similar format but limited to discussion of piston Beech mishaps). I still track piston Beech mishap trends over here.

In those 25 years I've learned a few things about flying's risks, and its rewards. The most prevalent *LESSON* on the risks seems to be this:

The causes of almost all accidents are very predictable. *We're doing the same things again and again*. The good news is this means most accidents are preventable, if we heed the *LESSONS* learned from the unfortunate experiences of others.

This knowledge leads to some suggestions on ***how to avoid the vast majority of aircraft accidents***, especially those involving serious injury or death—sometimes luck is the only difference between the two. Some of my suggestions may sound overly conservative. But I bet the pilots who crashed thought they could get away with it too. You'll find these suggestions are not onerous, nor restrictive, nor even expensive, and can easily become part of your standard operating procedure. History shows that implementing these few personal rules will make it far less likely that you, your passengers, or people over whom you fly will ever get killed, hurt, or make the evening news in the aircraft you love so much to fly.

First, some general tenets:

Know what the airplane is…and isn't. The airplane you're flying may have extraordinary avionics and equipment, but it is not an airliner. It is a recreational vehicle, personal transportation, or perhaps a business tool. It has not been designed, tested, certificated or maintained to the same level as an air carrier aircraft. It doesn't have the performance, redundancy or support of an airliner. **It is very safe and very capable…*if flown within its limitations*.**

Know what you are…and aren't. You are probably not a military, corporate jet or air carrier pilot. Even if you are, or have been at one time, that experience does not fully prepare you for the workload of single-pilot operations in a less capable airplane. You almost certainly do not get the level of initial and recurrent training in light airplane single-pilot operations that a career pilot routinely receives. You won't be able to do everything that you could do as part of a jet crew. This is doubly true if you are retired, because like it or not, age takes its toll on endurance, reaction time and cognitive ability. **Fly to your experience in type, not to what you've done in a different aircraft in a completely different environment.**

Evaluate and monitor the weather. By far the most common reason for airline delays is adverse weather. Your airplane is less capable to handle adverse weather than an air carrier airplane. Consequently, you will need to delay, divert or cancel flights even more frequently than the airlines. I flew Beech Barons 250-300 hours a year for several years in the U.S. Southeast, and I routinely diverted around weather, landed at an alternate to sit out the weather, missed approaches "for real," parked myself in holding patterns for showers to move on or for fog to finish clearing, and canceled trips and drove a rental car home because of long-lasting weather hazards. It's not "if", it's "when." **The more you fly, the more you'll delay, re-route or cancel because of the weather.**

If you are not the person who sets the schedule for events or meetings that create the need for your trip, or if there are adverse repercussions or lost revenue if you have to delay or cancel a flight, then plan to depart in time to delay, divert or cancel and still make it to your commitment by other means if necessary. This is especially true for the trip back home, when you often have personal pressure to arrive on schedule. This sometimes means traveling to your destination a day earlier, or cutting your trip a day or two short if the forecasts show the weather may close in on the last day of your trip. The old adage is spot on: "**Time to spare, go by air."**

Fulfill all your roles. You are pilot-in-command: the Captain of your aircraft. You are also Dispatcher and the Director of Maintenance. You are the Aviation Medical Examiner, responsible for self-certification before and during flight. You are the Chief Pilot, questioning and evaluating your own performance. Plan each flight consciously thinking about the responsibility of all these roles. To paraphrase a self-help cliché, "if it's to do, it's up to you." **Flying a cross-country aircraft is a profession**, whether or not it's your chosen career or a compensated position. It requires the time and study and practice of a second job.

Now some specific suggestions based on actual mishap history:

Put time into training. One hour of flight instruction every two years is probably sufficient for the pilot of a very simple, VFR-only airplane flown locally outside the realm of Air Traffic Control. But it's not nearly enough for the cross-country pilot (even in visual conditions), the instrument pilot, and/or the pilot of a complex or high-performance aircraft. My years teaching multiengine pilots at a simulator-based training facility convinced me biennial training alone is insufficient for a pilot to *increase* his or her capabilities in the practice of flying—it took all our time to ensure the biennial pilot could simply get back to meeting minimum standards. **Pilots who trained twice a year tended to show up meeting standards, and get even better over time.**

The less you fly, the more you need to train and practice. A corollary is that more flying time does not by itself replace the need to train. Two hundred hours of point A to point B probably won't protect you if an engine-driven fuel pump dies close to the ground, or if the weather moves in faster than forecast and low-level wind shear affects everywhere within the airplane's fueled range. **Two hours of solid practice and/or challenging instruction of some sort two or three times a year is probably a better measure of the prepared pilot.**

Get very comfortable with angle of attack and stalls. Loss of control in flight ("LOC-I") is the cause of over 40% of all fatal general aviation events in the approach and landing phase of flight. Although aeromedical factors and partial panel flight are included, LOC-I is in most cases a euphemism for "stall." Many pilots are not comfortable flying an airplane at the slow end of its flight envelope, where you are on takeoff and go around, and where you need to be during landing. These are precisely the people who need more training in stall recognition, recovery and avoidance—**discomfort is a symptom of undeveloped or atrophied skill**.

Hand-fly the airplane—a lot. Fatal crashes often result from a pilot's inability to hand-fly the airplane in the event of an autopilot disconnect or failure. Often pilots lose control almost immediately upon a trim runaway or autopilot disconnect, when the pilot must instantly transition from automated flight to hand-flying with an airplane that is radically out of trim as a result of the failure mode. **Be as comfortable and capable hand-flying as you are using an autopilot**.

Maintain mode awareness. The corollary to hand-flying is to **be adept at the operation of your avionics and autopilot, so there's never any doubt about the mode** in which it's operating, or what the equipment is going to do next.

Practice partial panel. Half an hour of partial panel flying every six months may be worth more than a panel full of backup instruments. **The hard part**, however, **is identification of a partial panel situation in the first place**. Unless this has actually happened to you at night or in IMC (and you bucked the odds by surviving your first encounter), the only way to experience this realistically is in a flight training device or simulator. **Seek out today's accessible simulation** to prepare for the worst.

Maintain situational awareness. My informal review of the NTSB record suggests a noticeable decline in Controlled Flight into Terrain (CFIT) events that coincides with the widespread availability of cockpit moving map displays in general aviation aircraft. That said, CFIT continues to be a problem, especially at night and during visual approaches in marginal visibility. Whether VFR or IFR, **always know the lowest safe altitude for your current and next segment of flight.**

Know your EPs, short for Emergency Procedures. Why are airline operations so safe? In a large part it's because the crews are required to perform normal and EPs in simulated scenarios every six months. So when an actual abnormality or emergency arises (which is almost never "textbook" as presented in the simulator), the pilots have a recent wealth of experience with which to correlate to the situation at hand. If you've not been **practicing and reviewing EPs regularly,** you won't be ready on the unlikely but far from impossible day an actual emergency occurs.

Don't push it with fuel. It seems to be in vogue to talk about flying maximum range, requiring running all but your last tank dry and the last tank down to minimum fuel. Far too many people have died trying to make it home because that's where the cheaper fuel was, or stretched the airplane's range to its limits to avoid the inconvenience of a stop, or simply to have a story to chat about online. When one tank is down to 1/8 full and the other is at ¼, it's time to be inbound on the approach or entering the traffic pattern. History shows that a great many fuel exhaustion mishaps happen within five miles of the intended destination—the pilot thought he could make it…and was almost right. **Fill up based on fuel *need*, not fuel price, and carefully manage and monitor your fuel in flight, always being prepared to land for more if there's any doubt.**

Consider weighty matters. Calculating aircraft weight and balance isn't a training exercise that only applies to checkrides and flight reviews. You need to **know your airplane is loaded within its control and performance flight envelope at all times**. An overweight airplane or one loaded at or beyond its design capability will be harder to control under abnormal situations, and perform less well when other conditions (density altitude, wind, etc.) adversely affect the aircraft. **Fly at the lowest weight that meets the trip requirements with a generous fuel reserve**—the lighter the airplane the better it will perform, and the more options you'll have in an emergency. The availability of computer- and app-based W&B calculations makes it easy to be sure.

Stay within limitations. This means the **airplane's limitations** (there's no such thing as "a little overweight" or "a little over redline"). It means the **weather limitations** (no flying through "a little thunderstorm" or "a trace of ice," or flying "a little lower" to find the runway on approach to your home airport). It means **your limitations** (certificates, ratings, and currency). If you allow yourself to "fudge" the limitations, human nature says it's likely you'll soon be accepting more and more risk as "creeping normalcy" (or as Tony Kern of Convergent Performance says, **"normalization of risk"**) sets in, and what was once unacceptable has gradually become your norm. It means the mechanical limitations. Follow the FARs about required equipment and inoperative equipment. Get familiar with the airplane's Kinds of Operation and Equipment Limitations (KOEL chart) if one exists for the aircraft. ***The regulations are a minimum standard…the very edge of appropriately managed risk.*** Where limitations are concerned, "no means no."

Employ SOPs. Standard Operating Procedures (SOPs) are the normal way you do things. Many of the **decisions are made before you're under stress**—which is another reason air carrier operations are so safe. Strive to take off and climb, fly an approach, and make your landings as close to the same way every time. This eliminates the need for many in-flight

decisions (not eliminated, just decided ahead of time), and permits you to more easily detect and act upon variables like wind, traffic, equipment issues and other factors—you're not so busy with the basics of flying that you have no mental bandwidth for external stress. Knowing and using SOPs has one other advantage as well—in the very unusual case you need to do something different from your SOP, you'll know what "good" is, and be better able to judge how what you're actually doing compared to your expectations and needs.

Fly stabilized approaches. Unstabilized approaches, those where the airspeed, power and airplane configuration do not conform to an established and nearly uniform SOPs for the final approach segment until the flare, commonly correlate to airport environment crashes. Further, know and use the same power, attitude and configuration cues for approach every time, and **on final approach ask yourself three things:**

- Is the airplane **on speed** (Vref +5 knots -0 knots) at the proper rate of descent (usually 500 to 750 feet per minute, except in an obstacle landing)?
- Is the airplane **on target** (proceeding at the proper attitude and glide path to touch down at 1000 feet from the runway threshold or in the first third of the runway, whichever is shorter)?
- Is the airplane **in configuration** (flaps and gear set correctly, power and attitude as expected?

If the answer to any of these is "no" when you're within, say, 500 feet of the ground, **go around**, set up properly and try again.

Get real about fatigue. Pilot fatigue is one of the great unknowns of general aviation air crash investigation. Yet even more so than in highly regimented airline operations, with maximum duty days and mandated sleep periods and time off, nothing stands between the pilot and command and his or her own judgment of their fatigue state. If you're a morning person, don't fly after work. If you dance or work the night away, don't plan on an 0600 departure. A Friday evening trip after a long work week, or a Sunday afternoon flight home after a whirlwind vacation or active vacation trip, is setting you up for bad decision-making…which may be a factor in as much as 80% of all general aviation crashes.

Even more challenging: **evaluate not only how you feel for departure, but predict how you're likely to perform three or four hours later** after bouncing around in turbulence or solid in IMC or at high altitude at reduced cabin pressure or on supplemental oxygen—and then are faced with a missed approach or an abnormal or emergency condition.

Involve your family and passengers. Show your family (whether they're riding with you, or just expecting you to be somewhere at some specific time) and your passengers what it is you're looking for when you gather information and make informed decisions about appropriately managed risks. Ask them to concur with your go/no-go decision, and give them the power to cancel or delay a flight, or divert it while en route if they feel uncomfortable. **Often it's real or perceived pressure from family or the passengers that leads a pilot to accept an unacceptable level of risk**, usually because nonpilots have no idea what conditions you require to safely complete a flight. If those around you have some basic understanding of what is acceptable, and what is not, you may find you're under far less pressure to "go" into conditions that would normally cause you to decide against it.

Maintain your airplane. Normally it's decision-making that results in a crash. Sometimes, however, things break. The failure may not be complete, but the status and reduced capability will demand more of the pilot's attention, making it harder to appropriately manage risk in other areas. **Pilots and airplane owners tend to interchange the words "maintenance" and "repair," but there is a vital distinction.** Maintenance is to keep things from breaking; repair is to fix it once it's broken. Think about what "maintenance" means: It is what you do routinely, before something breaks or fails, to ***maintain*** the current level of system fidelity and functionality. **It may be "safe"** (appropriately managed risk) **to defer some maintenance** tasks for a time, assuming that you step up the intensity and frequency of inspections to confirm the item has not yet shown signs of imminent failure. **But you cannot defer repair**.

Going beyond recommended Time Before Overhaul of an engine or a landing gear motor, for example, may be safe, if it's legal for your operation under the rules of its governing authority. But you'll have more down time and spend more money on inspections to properly confirm it remains safe until the time comes you indeed overhaul or replace. Continuing to defer the maintenance task will soon reach a point of diminishing returns, when the cost of more frequent and intrusive inspections could have been folded into the cost of the overhaul or replacement you know you'll eventually need.

If we all followed the tenets and suggestions I derive from **25 years of *FLYING LESSONS***; imagine how positively we'd change the record of general aviation accidents.

Questions? Comments? Supportable opinions? Let us know at mastery.flight.training@cox.net.

Twin Cities RV Builders December Meeting

Saturday, December 9, 2023, 10:00 am

Doug and Paul's hangar
41C Mooney Lane, Lake Elmo Airport (21D)

The guest speaker for our December meeting will be **Director of Air Safety for Cirrus Aircraft, Chris Glaeser.** Chris has an extensive background in aviation including 23 years in the Air Force, Director of Air Safety for Northwest Airlines, and similar positions for Alaska Airlines and the International Air Transport Association. In his current position at Cirrus, Chris is responsible for safety systems for their line of piston-powered aircraft plus their new Vision Jet. In his spare time, he flies his RV-7A out of Crystal Airport.

Chris will discuss the highlights of his more than 50 years in aviation and the latest safety innovations at Cirrus and how they relate to our personal RV flying.

As always, coffee, juice, and the usual goodies will be on hand!! What's not to like??

Everyone is invited whether you fly an RV, spam can, or even have to drive! Lot's of good food and fellowship is on the agenda. See ya then!!!

Directions: From I-94 go north on Manning Avenue (County Road 15) about 3 miles. Turn right at the second entrance to Lake Elmo airport just before the railroad tracks. Go east past Lake Elmo Aero and follow the road to the left. Go just past the old Civil Air Patrol hangar on the right. Then turn right on Mooney Lane. We are the fourth hangar on the left (41C.) **Call Doug if lost: 651-398-1184.**