



RVator's Log

Newsletter of the Twin Cities RV Builder's Group

December 2010

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Upcoming Events

December 11: Join us at Bernie Weiss' hangar for a tour of Peter Fruehling's RV-7 and check out 3 more RV engine installations. PLUS Christmas goodies!!! Details on the back page!!

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**Minnesota Wing
Van's Air Force**

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Shop Notes

-Doug



"A man's got to know his limitations." - Clint Eastwood as Dirty Harry, "Magnum Force" - 1973

When I was hired at Northwest in the early 90's, initial airline training was thankfully making a transition to a more "gentlemanly" approach. Gone were the days of new hires being required to memorize how many electrons per minute flowed through the transformer/rectifiers of the 727. Most of these esoteric bits of minutia even Boeing had long since forgotten. But still there was a LOT of information to absorb (the old "drinking from a fire hose" scenario). One of the first sections of the Cockpit Operations Manual was LIMITATIONS and we had to memorize the numbers page by page. You know... stuff like maximum weights, air-speed limitations, maximum generator loads and so on.



For us light airplane drivers, the task is not quite so intense but we still really should be familiar with the operating limitations of our aircraft. No one may lock you in a small dark room with a fire-breathing check airman to interrogate you on the critical numbers of your RV, but a conscientious pilot (and builder) really should be familiar with the important performance limitations of your aircraft. And most of us do know these limitations and can generally recite the pertinent numbers that the aircraft or kit manufacturer has established.

Unfortunately there are a set of limitations that are not found in the operating data from Van's Aircraft (or Piper, Mooney, or even Boeing for that matter). I've scoured every "Limitations Section" of every flight manual I have ever read and have failed to find them there. Bear with me and I think you'll see my point.

In the last week of October, those of us in the Twin Cities followed the tragic drama of a local private pilot and his three sons who disappeared in a Mooney flying from Jackson Hole, Wyoming to Minneapolis. For days everyone who knew of the story agonized over the dilemma of a lost airplane in the wilds of Wyoming, at high altitude, and in tortuous terrain. Sadly, we all knew the most likely outcome would be devastating and that was eventually confirmed when the aircraft and the 4 fatalities were finally found.

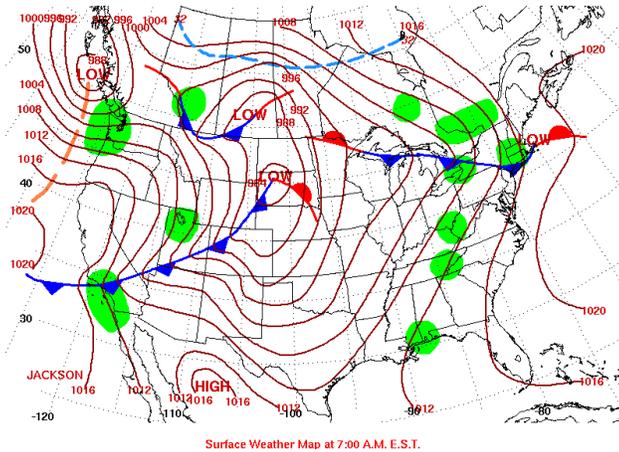


My heart breaks for the loss of the family and friends. As in any accident there is a very specific chain of events that led to this tragedy. The final NTSB report will not be published for some time so these opinions are strictly my own. Let's discuss what we know:

The pilot had intended to leave on Sunday, Oct 24 but was hampered by bad weather. On Monday morning, Oct 25, it was still less than ideal... snow showers in the area, potential for turbulence and icing. The pilot's wife and one child had flown home comer-

cially on Sunday. There was undoubtedly pressure to depart. The pilot was instrument rated and had apparently flown in mountainous terrain before. The aircraft was a 1977 Mooney 201 with a 180 hp Lycoming IO-360. Published data lists a ceiling of 18000 feet.

After waiting through the morning, the pilot saw a slight window of improving weather and departed IFR on the Teton Three obstacle clearance SID which requires a climb to 14,000 feet on a southwesterly heading for 27 miles. The Mooney then turned east apparently cleared direct to the Riverton VOR (I assume this aircraft with equipped with oxygen but that is not known). That route would take the Mooney only a couple miles south of Gannett Peak with an elevation of 13800.



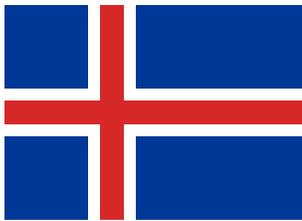
A very deep low-pressure area was forming in the central U.S. (for the next several days, the Midwest would be buffeted with extremely high winds). Winds in the local area were strong with gusts at Riverton of 37 knots. As the Mooney approached the Wind River Range and the vicinity of Gannett Peak, the radar data shows they were apparently trying to climb to 15000 but began to lose altitude and airspeed just on the lee side of the ridge line (around 13,500 feet). The last radio communication indicates they were in turbulence and descending. With 4 people and a heavy fuel load, the performance of the Mooney at this altitude must have been minimal and not sufficient to overcome the mountain wave conditions they apparently encountered.

The human tragedy of an accident like this is agonizing. If there is a lesson for us as pilots of light aircraft is that there are significant limitations in their capability. Factors such as high terrain, high winds, severe weather plus personal pressures all added up to a lethal combination that exceeded the performance capability of not only the airplane but the pilot. All airplanes (especially light airplanes) have their limitations and we, as pilots MUST respect that fact. To paraphrase Dirty Harry, "A pilot's got to know his limitations."

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A Visit from Arni

- Doug Weiler



You don't have to be around the RV community too long before you realize that there are pilots and builders from all over the world that share our interest in Van's kit aircraft. I guess I could count two international RV buddies. One is

Ross Rebgetz who lives in northern Queensland, Australia. Ross and I have been friends since the late 1990's when he began an RV-6. We met via exchanging emails as he prepared for his first trip to Oshkosh. He and his wife Sandra have visited us several times since and we stay in close touch via email.

My other international email "pen-pal" has been Arni Sigurbjornsson, native of Reykjavik, Iceland and retired Iceland Air pilot. I think I met Arni about 7 or 8 years ago when he came to visit Elden Lamprecht during a trip to Oshkosh. Over the years we would occasionally exchange emails on a variety of RV topics. This summer we began a new series of notes as Arni began wrasslin' with the electrical system design of his

new RV-9A. Avionics experts are rare in Iceland so he decided to have Stein Air put together his wiring harness, which was finished, in early October. Since he still has travel privileges on Iceland Air and they come to MSP daily, it wasn't too hard to come to the Twin Cities to pick up his harness and visit some of the local RV guys.

Iceland Air flies a B-757 direct from Reykjavik to MSP each day during the spring, summer and fall so it is really not a big deal for Arni to make a quick trip to Minnesota. Elden picked him up at MSP and the next day we met at my hangar at Lake Elmo.



Arni is an interesting guy. He retired from Iceland Air 15 years ago at the age 63. He flew all over the world in a wide variety of aircraft from the DC-3, the CL-44, DC-8, 767/757 and finished his career in the DC-10. He is a general aviation guy and has always had a passion for flying the "little" planes. Arni is not stranger to RV world. He built the very first RV in Iceland (an RV-6 finished in 1999) and also completed a RV-4 in 2007. So the new -9A project is not a completely new experience but it is his first exposure to one of Van's updated kits. Plus he decided to add an EFIS system and electronic ignition to his new project, which was new territory from his past building experience.



Arni's past RV fleet: his most recent RV-4 and the "original" RV-6

Arni and I drove down to Stein's and he marveled his busy shop. We loaded up on about everything he thought he might need in addition to his new wiring harness. His plan was to purchase just about everything he could carry back with him as the process of getting parts and supplies in Iceland is slow, cumbersome, and expensive... such as really expensive compared to what we enjoy. Iceland is still slowly recovering from a major financial meltdown in 2008. The krona lost 50% of its value and is still dramatically weak compared to the dollar. Good for U.S. tourists traveling to Iceland but very bad for someone like Arnie buying aircraft parts in the states. On top of that, Iceland has a value added tax of 25%! Arni says he generally considers that by the time he pays the VAT and shipping, any given part from Van's will be about 35% above the "list" price. Building an RV in Iceland is not for the fiscally faint of heart!

Arni loaded up on wiring, terminals, an as many other goodies as he could carry and we drove back to my shop and spent the rest of the day checking out my project and trying to clear up some of the nuances of an EFIS installation. That evening we all gathered at Bernie Weiss' hangar for a cookout and show Arni some MN Wing hospitality.



Arni spent the night with Elden and flew back to Reykjavik the following afternoon. It was a great visit. Now we have someone to visit in Iceland. Sounds like a possible trip in the future.

Another RV Completion

- Tom Berge

A couple of years back during the waning days of helping Bernie with his RV7A, Peter Fruehling asked if I would be interested in taking on another student by helping him finish his RV7. Actually it had started a bit before with Peter asking me to build his fuel tanks. The fact that he could get me to do that miserable task speaks volumes for his negotiation skills. That or I'm just a promiscuous RV builder, I don't know which! At any rate, I agreed.



Peter had built the tail and wings via slow build and then switched gears with a quick build fuselage. As I recall, I stepped in at the beginning of the fuselage. The way I like to help is to actually help someone learn the ropes and hopefully avoid most of the pitfalls that can on occasion trap the first time builder. I've always said the FAA got it right by saying the purpose is educational. And so the project progressed with the canopy, forward fuselage, empennage mounting, etc. Bit by bit we completed tasks with Peter learning along the way while at the same time I would come up with different ways of doing things. The beauty of having built a number of RV's is the creative ideas start to surface at a much earlier stage than if building ones first RV.



Moving day! Peter's dad, Peter, canine supervisor Otto, Tom Berge, Vince Bastiani

Right from the start we decided to try keeping the weight down, so anywhere possible, we shaved off the pounds. Well, maybe not pounds but certainly grams, and after awhile, they add up. Part of my reasoning for paying attention to weight has less to do with the savings of a few lightening holes than the concept of keeping unnecessary things out of the project. In other words, if a few grams are not important to the builder, then neither are a few extra pounds and can you see where that will lead? In the end his weight was 1133 pounds sans paint, which with all the stuff on his panel is pretty remarkable.

Speaking of his panel, at first it was a real nice design. Nice lines, nice flow, who could ask for more? Then SteinAir started playing the siren song of a Garmin 1000 panel out of a wrecked Cessna. The unit was refurbished by Garmin with new screens and even included the ability to play movies! That was when I first noticed the glassy eyed stare coming from Peter. Stein did a masterful job of leaving some slack in the line, then reeling in just enough to keep interest until Peter struck at the bait and was completely hooked. I tried with all my reasoning to free Peter, but the hook was set too deep. In

my opinion, there is no way that the RV7 wings can support all that the G1000 can do, but I must admit it oozes coolness and I'm envious. Then a line was cast in my direction and before I knew what happened, I was wiring the thing. As I recall, the estimate was around 100 hours and lots of thumb size wire bundles. I've never wired avionics before and was initially apprehensive but I have to say that Garmin has done a first rate job of mapping out the wiring and with some technique help from SteinAir, I succeeded. Like all wiring, one wire at a time and a wire only has two ends.



Tom in his usual building configuration. Peter appears to be "helping."

Systems work continued with lots more wiring, brake lines and such. Along the way Peter chose an injected engine, which required a high-pressure boost pump. I'd seen the thing on other RV's and have always thought "what a jumbled bunch of tubing". I've also heard horror stories about lots of wasted tubing so I challenged myself not to follow that lead. In the end, I used the tubing that was sent with the kit and did not have to remake a single piece. Now that's not saying some of the tubes weren't slightly modified and encouraged to cooperate, but no remakes.

A couple of neat ideas we incorporated into the boost pump structure was a slide control on each side of the Andair fuel valve to control alternate air and cabin heat. Another idea was to position the fuel flow transducer inside the tangle of tubes to make a cleaner installation. While there is no bump on the floor where most builders mount the transducer, if the thing ever fails, Peter (not me!) will have to completely disassemble the boost pump tubing to get it out. And yes, it works just fine in that location.

Some of the other special items we built were the battery box and copilot stick. We installed an Odyssey battery to save weight and instead of buying a premade box, we built one out of aluminum. This allowed us to hang just about everything

electrical onto the box making for a compact install. The copilot stick is a story all by itself. Remember I had mentioned Peters negotiating skills? Well, he put those skills back to use and convinced me to figure out how to come up with a removable stick with a total of 7 circuits on the stick grip. I wanted to figure out how to do this without having to remove the stick and then disconnect a plug. In the end I produced a system that installs with one hand. Just insert the stick into the socket, rotate until it drops and push till it clicks. It's a very simple design. So while I was teaching the building process to Peter, he was encouraging me to be creative. That, ladies and gentleman is a partnership.



Why yes, it does fly!

In time, all the myriad of things that needed doing were completed. The paperwork sent in and inspections done. First flight was to be mine, but a problem I have is my mind is always working. Well, maybe not always, but enough. I awoke at 2:30 in the morning the day of first flight and the thought occurred to me that Peter had installed a 205 hp engine and so told the feds. It turns out I do not have a high performance endorsement. Whoops! Doug was at the hangar that morning and plan B was put into motion and he got the tough job of doing the first flight. Lucky dog! Things went well and have continued to do so. A few squawks popped up as is normal with the biggest one being the more than common high oil temperature issue. It seems that electronic ignition RV's tend to run hot. We've made a change to the duct feeding the oil cooler and will have to wait for the summer to check the effectiveness.

Peter's RV will be at the next meeting planned for December at ANE and I would invite you to look it over. I have had the pleasure of watching Peter learn all about the construction process and I could certainly see the apprehension slowly slip away as time went on. Now almost nothing scares him. As it should be!

Fifty-one year's flying or is it sixty-five years!!

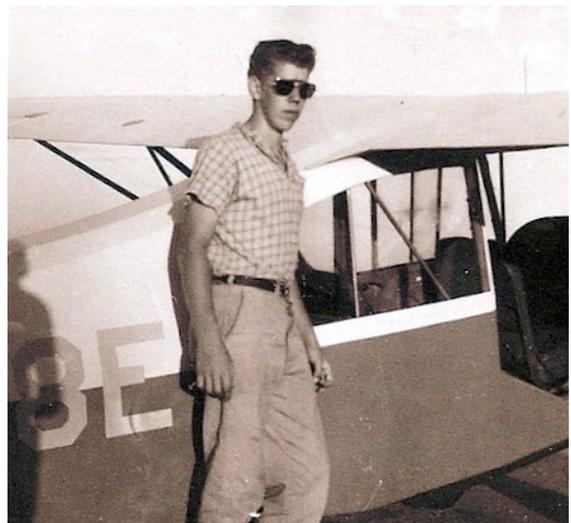
- Tom Irlbeck

I was fortunate to solo shortly after my sixteenth birthday at Anoka County Airport in 1959. The 7AC Champ was a great teacher, and was sometimes more fun than the proverbial "barrel of Monkeys". But, also I really started my flying career, sitting on my Mom's lap, my Father was in the front seat of a J-3 Cub in 1945. My Dad was checking out as a pilot in the B-17 and the United States was deeply involved fighting on multiple fronts against the Germans and the Japanese.



This flight was recorded by a friend, showing me intently looking over my Dad's right shoulder, trying to see what he was going to do next. My Mother said I enjoyed shaking the stick, and to this day, I still enjoy shaking "the stick".

There are many memories stored in the multiple logbooks that record over 24,000 hrs. There are also many pictures that conjure up more memories.



First solo!

I have seen many changes in aviation, some beneficial, and some like the fences around the airports, limiting new ideas. My early days were spent cruising along behind 65 horses coming from that old Continental at 80 mph. It was a very satisfying and content time, I was 18 years old and I enjoyed the open doors, splashing around at the Rice Lake Seaplane base. Then in the winter, John Benson's airport had skis on his J-3, and slipping and sliding, no brakes were a new challenge. Our family had a 1953 C-180, and was that fast! VOR's and ADF, plus the E6B ruled the air.

In 1964 the Navy opened a door to their aviation program, the NAVCAD (Naval Aviation Cadet) Program, only required 2 yrs of college, and my college career was below par, a low draft number caught me on a skiing break, and "bingo", I was signed up with the Navy. It was undoubtedly the best thing that ever could have happened to me.



This challenge, and believe me it was a constant challenge, opened many new doors for me, and I enjoyed the challenges.



In a short amount of time, the good old F-4 Phantom with Mach 2 speeds and I had become the best of friends, especially seeing as how it got me through some 170 combat missions over North Vietnam. Leaving the Navy was a tough choice, but a new door opened and I never looked back with regrets.

A small regional airline, called North Central Airlines found a seat for me in 1970. The Convair 580, a 48-passenger turbo prop, felt like flying a truck, but a very good reliable powerful



truck. 34 stops in 3 days was one of our more fun working trips. My seniority number was 422, \$550 dollars a month didn't leave much for beer money that first year, but we were making our payments. I never missed a paycheck because of strikes or bankruptcies. Mergers changed my uniforms a couple of times, and sometimes I thought I was a "North Central", when I was really a "Republic", or was it a "Northwest"??? A planned early retirement bailed me out of the airline business in 1996 while flying the new A-320 fly by wire bird. Once again, I didn't look back on what had been the perfect job for me, which I was leaving.

Retirement is "Great"!!! I could now build my own airplane. Oshkosh offered many choices, but the RV series won hands down. The RV-8 was going to be my new buddy; sort of a mini fighter plane was needed. After 10 years in the 8, I still enjoy the take offs, ALMOST as much as that first one.



"Bear" and Lil Bear"

Flying from Larry Vetterman's, Hot Spring's Fly in (KHSR) this last weekend gave me some "thinking" time. On the way

out, there wasn't much thinking time due to the challenges of weather, low clouds known as "Scud", and dogging wind generators. Homeward bound was smooth tail winds at 9500 feet, 220 MPH ground speeds and 30 miles vis.

What is the number ONE event in aviation in the last fifty or so years? It is spelled GPS!!! The mapping information, reliability and capabilities of the new units on the market places us right up there with "Star Wars" navigation. In 1976 I flew my C-180 to Alaska, mostly on compass heading and timing, due to the fact that the rain had shorted out our ADF. It was a little more of an adventure that what we had planned on. In 1997 I once again headed to Alaska, only this time with GPS on board, and let's just say, it was much safer. GPS units are kind of like a candy jar that will never stop producing candy.

The number Two event in aviation in the last fifty or so years? It is called the "Experimental" aircraft!! Of course, I might be a little biased on the subject. The building and flying of the Experimental aircraft has saved the general aviation community in the United States. With this I also throw in the solid state, flat screen technology that has developed in the experimental field. This last weekend out at HSR, the Experimental aircraft outnumbered manufactured aircraft by about 10 to 1. I know this is not always the ratio, but it is impressive what has been generated by the EAA flight crews. So many new innovations, businesses, and aircraft development has generated from EAA. All one has to do is attend one of the Oshkosh EAA Shows, and you will realize what I have seen. Whether you agree with everything that EAA is doing is not the question. I think we all should realize that without EAA, aviation, as we know it would be dead!!! I will also have to throw in a pitch and good word about AOPA, as it also supports our cause. My unbiased opinion is that anyone who flies a general aviation aircraft should support BOTH of these organizations.

The number Three event in aviation in the last Fifty or so years? The lack of leadership from the FAA to help general aviation advance in technology and support. Twenty to thirty years ago, one time STC's were easy to come by. When you wanted to try to improve your old aircraft, the one time STC was workable. Now, the FAA wants a high tech evaluation, or creates obstacle to innovations that would update our aging fleet. It is discouraging to look back, and see the obstacles that have been generated by the FAA rules and regulation. The lack of trust with the delays in physical evaluations generated by Oklahoma City is a prime example.

The number Four event, or I should say FARCE, is the implantation of the TFR, which follows the President or whoever they deem important. It is hard for me to understand how, or why we tolerate this sort of restrictions on our freedoms. There was a reason, for a short amount of time to evaluate what was happening during the 9/11 attack by the terrorist, but to retain this as time went on is criminal. There are no such restrictions on the automobile, trucks, trains, buses, or bicy

cles, but they have focused their lack of judgment and hypothetical fears, lack of common sense on the general aviation group. It appears that EAA and AOPA have rolled over, and are playing dead. The FAA has rolled over, and supports this idiotic restriction on the general aviation community. What do you think of the Presidential TFR's????

The last event that I have enjoyed, and still enjoy??? Meeting new people, especially the people around "Van's Hangar". There is something that bonds the pilots who fly Experimental aircraft. We are a little different, and that little difference is a good thing to have. The only thing that worries me, I see too much gray hair. We have to get more youth into aviation, so, if someone asks you to fly a Young Eagle, try to do it.



Tom's 4 year old grand daughter enjoys a "flying lesson" at 4 years-old. Note the "RV chuckle"

I want to thank all of you that support general aviation. It has been a "Field of Dreams" for me, to be able to fly somewhere, and meet someone that also likes to fly. Some day, I suppose I'll have to hang up my wings, but hopefully I can pass some of my worn out wings to one of my Grand Kids, or to one of your Grand Kids, to help keep the air moving over those wings.

Keep the greasy side up!

Tom Irlbeck and "Bear"

Minnesota Wing – Van’s Air Force
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First Class

Minnesota Wing December Meeting

Saturday, December 11, 2010, 10 am
Bernie Weiss’s Hangar, India Lane, Anoka Airport, Blaine, Minnesota

Time to hunker down in a nice warm hangar for a morning of RV talk and Christmas goodies. The agenda will be a guided tour of Peter Fruehling’s brand new RV-7. Peter and Tom Berge will point out all



the cool features and construction techniques that were incorporated in this fine example of workmanship. And yes, it does have a Garmin 900 layout reportedly able to display not only what your airplane is doing, past, present, and future but... shows 3-D movies in Dolby surround sound (just kidding!)

Also Pete Howell’s RV-9A, Bernie Weiss’ RV-7A, and Alex Peterson’s RV-6 will be on display with their respective cowlings removed for you to check out 3 varieties of engine installations (bring that camera!)

And.. of course we’ll celebrate the upcoming holiday season with hot coffee, hot chocolate, OJ, and plenty of beautifully crafted edible works of caloric art.

Directions:

Driving: I-694 from the east or west to Hwy 65 exit. Go north to 93rd Lane NE. Turn right (east). Follow road with a slight right turn and enter airport entrance on the left (gate will open when you drive up close or code 12185). Make slight right at stop sign and then left on India Lane. Hangar is on left (3rd from north end). If flying, taxi to India Lane and park clear of taxiways. Lost: call Doug, 761-398-1184.