



RVator's Log

Newsletter of the Twin Cities RV Builder's Group

September 2015

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Upcoming Events

September 12 – Twin Cities RV Builders Family Picnic and Fly-In

See page 10.

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**Minnesota Wing
Van's Air Force**

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Shop Notes

-Doug



Shhhhh.....

Way, way back in what seems like the dawn of aviation history, I had finally moved up to the left seat as captain on the corporate jet. Our company had gone through several iterations of downsizing, reshaping, and/or reorganizing and I now found myself as one of three pilots staffing our Sabreliner 60. You just don't see too many Sabres left in the world anymore. You might see one in Trade A Plane once in a while at astonishingly low price for a jet. That's because they are old, maintenance hogs, burn lots of Jet A, and are really, really noisy. The old Sabres were actually designed for the military and the first one flew way back in 1959. Ours was a stretched version model 60 built in 1968. Power was two Pratt and Whitney turbo-JET engines, which were designed for the express purpose of converting astounding amounts of jet fuel into noise. A byproduct was to provide enough thrust to propel 8 people forward at .80 Mach.

From a passenger's standpoint, they were roomy and quiet in the cabin. I found it easy to fly enough even if the cockpit resembled a steam locomotive with a bewildering array of switches, controls, and ROUND dials. Another plus was that it burned so much gas, that you never sat in it very long. After 2 1/2 hours it was time to be looking for a place to land.

But this was not a "good neighbor" airplane. A Sabre take-off could raise the dead and probably awaken every small baby within a 3-mile radius of the airport. We were based in Dayton, Ohio and our new CEO lived in New Haven, Connecticut. Sabres and their ilk (such as the old Lears and Gulfstreams) were banned



after 5 pm and before 6 am. For about six months every Sunday afternoon, we'd deadhead over to pick him up and return him each Friday night. Being restricted by the noise curfew was a pain. The boss asked what we could do to get around this other than buying a "modern" jet with nice quiet turbo-FAN engines. I found that if we could pass a noise test at nearby White Plains airport, we'd be cleared to fly "after" hours at New Haven.

A couple weeks later we happened to have a trip to White Plains and I got the go-ahead from the boss to spend some gas money and run the sound test while he was spending the day in New York. We called the White Plains noise abatement office and made arrangements to see if we could find some magical way to pass the test. The White Plains noise czar explained how this would work.

There was a series of sound sensors placed at strategic locations around the airport and the local area (by the way, the noise guy told us the only city more noise stringent than White Plains was Minneapolis. This was 1985 so not much has changed around here!).

Me and my co-pilot Don cranked up the Sabre and took off on runway 29 using our best noise abatement procedures. We were in contact with the noise office on their Unicom frequency as we turned downwind for a landing. Decibels were off the chart!! Hmm.. no big surprise I guess. On the second takeoff, I throttled back even more to provide only about a 1000 fpm climb as we crossed the noise sensor about 1 mile west of the airport. No change! Still registering about 7.0 on the Richter scale! This was looking hopeless so on the last takeoff, as we passed right over the noise sensor about 1000 agl, I throttled back to flight idle and glided over the sensor for a few seconds. The noise office reported levels still high enough to crack china and set off car alarms. We gave up. The old Sabre was just a noise machine and the boss would have to live with it (I never could convince him we'd look really good in a nice quiet G-IV).

Probably the last think you think about when building your RV is noise. Most of us never consider a muffler even though Larry Vetterman has such a system available for us. When I built my RV-4 and also the RV-7, I just figured I'd be sure and have a good pair of quality ANR headsets. I've flown many RVs and they are all deafening in the cockpit if you dare take off your headset (Bernie Weiss' first RV-7A had mufflers and it was noticeably quieter, so they do help). And if you hear an RV fly over your neighborhood, you'll recognize the distinctive sound of an unmuffled Lycoming.



Noise, vibration, and turbulence are the biggest detractors for apprehensive passengers. You can't do a lot about turbulence except to reserve your flying to morning, evenings, and above the cumulus. But you can build your RV with a mind towards noise and vibration. Consider sound deadening material on the inside of the firewall and especially on the floor right under your feet. I used a material called DynaMat. It's a little heavy but it only added about 3 pounds for the firewall and the floorboards. In fact, I would say that much of the cabin's vibration comes through the floorboards because of the proximity of the exhaust pipes. Not only did I use $\frac{3}{4}$ foam insulation in this area but I also made my floorboards out of marine plywood, which absorbs noise better than aluminum. A quality carpet also helps. One could use other types of insulation on the sidewalls also. It will make a difference.

When it comes to headsets, this is not the time to scrimp either. I started out with a set of Bose X ANR headsets. They work just fine in the -7 but my wife found that they would cause her jaw pain on a long trip. We got a Clarity Aloft "in-the-ear" headset for her and that solved the problem. The Clarity Aloft concept uses little foamy earplugs that you mash together and insert directly in the ear. They take a couple minutes to get properly fitted, but they work great and I would consider them just as good as an ANR setup. And they are comfortable for a long period of time.

This summer I decided to buy a new Lightspeed Zulu PFX headset for me. They are supposed to be the latest and greatest and they are exception in quality and cool features such as Bluetooth and a complex system of electronic noise reduction. They take a little getting used to in that they have to be placed correctly on your head to get a viable seal around the ears. After that, they are certainly as good as a Bose unit.

I look at this as just part of making your RV a comfortable place to spend some time. Make an effort to keep the noise to a manageable level and your passengers will appreciate it!

* * * * *

Christer's Award Winning RV-8

- Christer Strenstrom

Ed note: Many of you who have done business with SteinAir are well familiar with avionics manager Chris Strenstrom. There seems to be no question too small for Chris to handle and he has proven to be an invaluable resource to all of us in the RV community. I've found that if I am having discipline problems with those wayward electrons, I call Chris.

It was Saturday night, back home after another full week at Oshkosh when I get an email message that said simply, "Dude, you won a Bronze Lindy". There was no signature and it was from a cell phone, so no name etc. as to who the email was from, just a phone number that I did not recognize. Is it real or is



someone pulling my leg? I had entered my RV-8 for judging and was hoping to be lucky enough to *maybe* get an Outstanding Craftsmanship Award, but a Bronze Lindy? After some time and several Internet searches I was able to confirm that I was a Bronze Lindy Award recipient. This was AWESOME!

Building my own airplane and flying it to Oshkosh has been a bucket list item since I started an RV-4 back in 1991. I sold the project some years later after building the tail section and about half of the wings. It was eventually finished as a Harmon Rocket II that won awards both at Oshkosh and Sun-n-Fun. I remember feeling good that I had a small contribution to that award after seeing it at Oshkosh. I decided it was time to build another airplane.

Those that know me know that aviation has been a part of my life since flying control line and R/C models as a teenager. I obtained my A&P attending a vocational high school appropriately named "Aviation High School". I followed up high school with college and received a degree in electronics technology. I wound up working as an A&P and Avionics Technician for Northwest Airlines for 15 years and currently as the Avionics Manager at SteinAir Inc. This was great preparation for building the RV-8.

I found a second hand quick build kit that was mostly still in the original crate. The tail section was started and looked to be in good shape. In October of 2009 I took delivery. Over the next 5-½ years I would pluck away at building. I built mostly in the morning. I would set the alarm for 5:30 giving me 2

hours of airplane work time before needing to leave for work. This left the evenings open for family stuff, etc.

During construction, I used four criteria for the build. They were: safety, functionality, ease of maintenance and appearance, in that order. Each part or assembly that I made, I mentally ran through those four points. If I was happy that I had done the best job I could, then the part or assembly was deemed good and I moved on to the next part. Needless to say, I have made some parts more than once. There were times of frustration, but fortunately I pressed on and it all worked out. I did make some modifications to the basic kit, but soon learned that each modification will take four times longer than if you would have just followed the kit as it was designed.

I chose to eliminate the fuel filter in the cabin and instead added fuel filters to each wing root. This would give the added safety in case one clogged; I still had the other side. Additionally, I would not spill fuel in the cabin (which is carpeted) when cleaning the filters. I chose to use the Rocket style coil fuel vents in the wing root, again eliminating fuel vent lines in the cabin. I also changed the windshield to a more sloped design for appearance. I changed landing gear bolts that everyone has a difficult time torquing to a stronger 12-point bolt and nut combination, giving me more threads for the nut and making torquing problems a thing of the past.

The airplane was starting to take shape and avionics decisions needed to be made. Being that I work at SteinAir, this was the fun part of the project for me. I wanted a panel that was clean, IFR capable, if needed, and of course all glass. I chose the Garmin G3X system with a GTN650 Navigator, SL40 backup Com, TruTrak Vizion 385 Autopilot, GTX23ES transponder, and GDL39 for ADS-B weather and traffic. I have been very happy with my choice and it has functioned flawlessly to date.



Next on the shopping list was engine and propeller. I shopped all of the different vendors at Oshkosh and chose a new Titan (ECI) OX-360 with dual P-Mag electronic ignition and a Hartzell Blended Airfoil constant speed propeller. It all arrived in September of 2014. I had the winter to finish the airplane as I had put down my deposit at the paint shop (Midwest Aircraft Refinishing) for a June 1 paint slot. The only problem was my hangar was NOT heated. I spent a good deal of time working in very cold temperatures most of the winter. If it was above zero, it was tolerable.



After much work and a visit from Tim Mahoney (local DAR), the RV-8 was ready for its first flight on April 11th. I completed the very valuable transition training with our own Tom Berge, and on that Saturday morning at about 7 am, I pushed the throttle in and was airborne in very short order. Hoping to keep the first flight low profile did not work out as planned. Two neighbors came to watch and two co-workers (Mike Hilger and Jed Gregerson) flew chase to make sure all the big parts stayed attached. I had a slightly heavy left wing and just a few other minor adjustments after the first flight. The next 39 hours were a regular schedule of test flights exploring stalls, forward and aft CG, etc., etc. The weather cooperated for the most part other than there was always a nagging cross wind. Turns out it was good practice for my first landing at Oshkosh. They put me on runway 36 (show center of course) in a 12 knot direct 90 degree cross wind. My thoughts were, "don't screw this up or you will be instantly famous or "infamous".



I had just received the airplane back from the paint shop the Friday before Oshkosh. I spent Saturday doing the last minute details and departed for Oshkosh Sunday at 7am. I had only just Saturday decided to have it judged as the competition is always so fierce and it would probably never be this clean again. The judges, 12 of them, all looked it over and at the end of the week; they awarded me a Bronze Lindy. I must admit, it was a very proud moment and it made all of the work and effort worthwhile. Now I can enjoy flying the 8 and really reap the benefits from all the years of labor. To those still building; it's an awesome feeling when it's done.

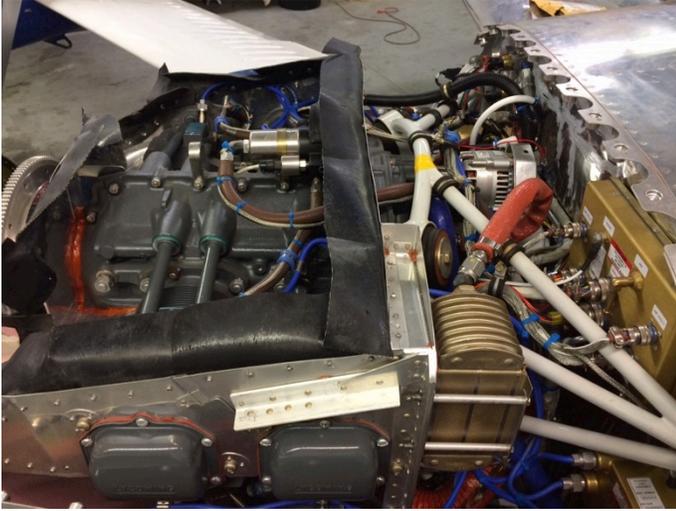
Jamie Bergen's RV-9A Flies!!!!

-Jamie Bergen



RV9A, serial number 91898 started construction in August 2009, six years later, August 2015, N363SB became an official airplane. The specs: Lycoming IO 320 assembled by G&N, engine has the Precision Airmotive Eagle fuel injection/ electronic ignition system. A Hartzell constant speed prop is hung off the front.

In order to make it comfortable for my wife, I added two heat mufflers to the Vetterman exhaust system. I also installed an interior from Flightline along with insulation. All of this comes with a penalty of weight as the empty aircraft comes in at 1172 lbs. (I must admit that after covering the dining room table with aircraft parts for five years, I think I owe my wife a comfortable ride.....).



The avionics include a Garmin 3 screen G3X system along with the GX autopilot (TruTrac), a GTN 650, SL40, PS audio panel and a Dynon D6 back up EFIS. Because the whole system is electronic, I have a 60 amp primary alternator along with a 30 amp back up alternator. The EFIS systems along with the Eagle system have back up batteries also. The control of the electrical equipment is through a Vertical Power VPX system.



All of this stated, this has been a great experience both from an educational perspective and from a networking perspective. The support and available resources have been exceptional. We are very fortunate to have local experts available to provide direction and suggestions. The folks at Steinair were very supportive with the electrical systems. Mike Hilger is a great resource as a technical councilor and Tom Berge is of course the answer man for all things RV.



A few observations: try to do something every day on the project, make this easy by locating it in the garage (if possible). Do not purchase the avionics until absolutely necessary (the plane has just flown and the avionics are already a generation old, I am sure Stein would be willing to sell me a new panel!). Enjoy the process!

My Magic Carpet Ride

-Gary Baker, EAA 848, Wadsworth, OH

On May 1, the weather cooperated, allowing me to fly my RV-6 from Medina to Oshkosh for a Homebuilt Aircraft Council meeting with EAA staff. My plan was to fly across Ohio and Indiana, stop for fuel, then fly up the Lake Michigan shoreline next to the Chicago skyline. I found on ForeFlight that Napanee Airport, IN, offered fuel at \$4.20/gallon, \$1.33 cheaper than at home, so that became my fuel stop. The FBO was locked up, but there was a sign on the outside wall stating that it was the home of EAA Chapter 938 Cloud Chasers. I found it interesting that the fuel pump reader displayed the lock code for the FBO building after I had filled up. That was my learning experience for the day.



After filling up, I took off for OSH. I took the routing via the Chicago VFR Flyway. This Flyway allows pilots to fly under the Class B airspace and, traffic permitting, to receive traffic advisories from ATC. I initially called Gary (IN) Tower and, when I left their airspace, called Midway Tower. Midway called out a few aircraft as traffic to me, but then apparently forgot about me. They did not switch me over to Chicago Approach, nor did they let me know I had left their airspace. When I getting close to the northern edge of the Flyway, I called Midway and let them know that I was switching to Waukegan tower. I could have asked Midway for a different frequency earlier, but was enjoying the sights too much.



I stayed below 2,000 feet as I flew the Flyway, so I was actually below some of the taller buildings of Chicago. I flew just past the destroyed Meigs Airport and Soldier Field. Willis Tower came next, as well as the Navy Pier, beaches and Wrigley Field. Once I passed the Bahia Temple (noted on the Flyway chart), I began to fly inland more directly to Oshkosh. I talked with a few tower controllers, but had climbed up to 4,500 feet, so I was above their airspace. I thought a courtesy call would not hurt and it seemed like the neighborly thing to do.

I picked up the ATIS at OSH and they were advertising Runway 9. I've been flying to OSH for the show for over thirty years and have landed on 9 twice, I believe. Even though I wrote the ATIS down and checked in with OSH Tower, I was still mentally landing on Runway 27, based on my past experiences. The Tower accepted my check-in and told me to report a two-mile right base to 9. In my best airline voice, I queried him that shouldn't I call a left base? He slapped me upside the head and said, no, a right base to 9. Finally I saw the light and my preconceived notion of landing on 27. Just goes to show that situational awareness can be lost. So much for another perfect flight!

Landing on Runway 9, I wished that I had a camera set up. The white dot is still on the runway, about 2,000 feet past the runway threshold of 9. I was going to park the RV in the Weeks Hangar, which is at the northwest corner of the field, so I wanted to be on the ground and slowed to taxi speed within the first 1,500 feet, in order to use the taxiway. This was not a problem. I taxied to Weeks and told myself that this was the only way to go to Oshkosh! It sure beats riding in a jumpseat and going to O'Hare to catch a connecting flight to Appleton.

I got together with the other HAC members and some of the EAA Staff for dinner that night and then we had our meeting the next day. We covered a lot of different areas and I felt like we had accomplished a lot. Jack Pelton, EAA CEO, joined us during the day for a short while and then presented two of our HAC members, Fred Keip and Keith Phillips, with plaques. The plaques recognized them for their volunteerism in the HAC over the past ten years and three years, respectively. Fred and Keith, along with Joe Gauthier, have left the HAC. We will be interviewing prospective candidates at Oshkosh to fill the three empty positions.

I planned to fly home the next day, after sitting in on the morning session of the EAA Board meeting. I sent a message to a friend who lives outside of Detroit to see if he would be available for lunch. I estimated that this would be a slight deviation in the RV, adding a half-hour to the flight home. Scott sent me a message back that he, his girlfriend, and other fami-

ly members were already on the road to Marquette, MI, for his younger daughter's graduation ceremony the next day. We checked both of our maps and came upon a solution: we would meet at Mackinac County Airport, just north of the Mackinac Bridge. After leaving OSH, I flew northeast along the Wisconsin shoreline, into the UP, and then east to Mackinac County. I was able to see Lake Superior from 7,500 feet and see ice still on the lake abutting the shoreline. At 7,500,' I had a nice tailwind of about 20 knots. This pushed my ground-speed up over 200 mph for the first time! Not bad for an aircraft that took eighteen years to build, I thought. This flight took about 1.5 hours and I landed just before Scott and his entourage pulled up with lunch.



We had an entertaining lunch and extra company, with Sadie the golden retriever willing to take anything extra off our plate. After saying our goodbyes, I took off and headed south down thru Michigan. Mary and I had stayed with Scott in his family's cabin situated on a lake south of Mackinac, so I was somewhat familiar with the area, but it was nice to see it all from the air. The northern part of lower Michigan is pretty undeveloped and I saw more than a few turf fields. I climbed to 7,500' again and, later, up to 9,500'. I used MSP Center for flight following and was switched to Detroit Approach as I got closer. DTW was very accommodating and allowed me to pass to the east of Detroit Metro and then descend into the Cleveland area, switching me off to CLE Approach. Another friend was on the other end of my radio calls, working the western sector. Glen said that CLE didn't have any departures and that I could head straight over to Medina from Lorain. 2.1



hours later and I was at my hangar.

This was a great trip in wonderful weather and I could not have made it if I had not persevered over the previous eighteen years building this RV-6. I passed the one hundred hour mark on her while going past Chicago and now have 113 hours. I am still learning the nuances of this aircraft and, now that I have the wheelpants completed, not painted though, I can keep on learning. I know the RV builders have heard this more than a few times, but keep pounding those rivets!

Time marches on....

- Doug

There are very few hobbies that are linked so dramatically to time as building an airplane. Most likely the first question a non-pilot/builder asks is "How long did it take?" I've seen RVs built in less than a year; RVs built in 25 years; and RVs that never will be finished. A recent email exchange with RV-10 builder Tim Olson brought up the fact that his two girls Danielle and Colleen, literally grew up in his RV. Tim was a high-energy early RV-10 adopter and finished his four-placer in 25 months. Since then he and his family have flown all over the country. I highly recommend his EXTENSIVE website which is a wonderful saga of building, flying, and family (<http://www.myrv10.com>). Here are Tim's thought on building:



The Olson family circa 2006: Tim and his wife Andrea and daughters Danielle (left front) and Colleen.



Nine years of RV-10 flying: Colleen, Danielle, and Andrea.

Inertia

- Tim Olson

Not too long ago I was listening to the radio when a guy who really liked running...something I cannot understand at all, was talking about exercise. He brought up a concept that I think directly applies to our homebuilding aircraft hobby. That concept is that of inertia. I'm going to use that as my starting point and then apply a bit of Newton Physics to it and let's see what happens...

So Newton's first law is that, to paraphrase it, an object in motion tends to stay in motion, and that makes the opposite true also...an object at rest tends to stay at rest, unless an external force is applied. I think this is the **Number One** thing that causes homebuilders a problem in getting their kit built in a timely manner. The radio show talked about people like me...people who get lazy, and gravitate to the couch, and that really the hardest thing about getting started on an exercise plan is **GETTING STARTED ON AN EXERCISE PLAN**. It's that constant struggle you have. From a homebuilders perspective, we often wait until everything is perfect before we get started...either started building, or started on that next kit section, or even just started in the garage for the evening. If you can just forget waiting for all the stars align properly to get started, and just get moving on your kit, you'll find that once you start it's easier to keep rolling. The trick is, simply not letting something bring you to a complete stop. I think this applies to kit building, exercise, dieting, and any other household project you can think of. **So your #1 enemy is your own inertia.** If you can overcome that and get started building, you'll find it easier to continue.

Now I think I'll look at Newton's 2nd law, since that seems to me that it applies well also. Basically, it says that $F=ma$, or for those non-physics types, Force equals Mass times acceleration. Let's call Mass the entire kit project. It's a massive project, and your job is to move it to completion. Let's call Acceleration "Motivation". That sort of makes Force a synonym for "Completion". If you can put a lot of motivation behind

your project, even though it's massive, you eventually will achieve the full force of having your kit completed...and the more motivation you can hold, the faster you reach that completion. I look back to building my RV-10. I ordered the kit, and got started on it, but had at least 2 full MONTHS that I didn't touch the kit. One was partly due to waiting for kit components, and some scattered days were due to waiting for ordered accessories, but some of it was simply due to **DOING OTHER THINGS**...not that there's anything wrong with that. Summer would come, and we'd get out and play. And, since we really only had an empenage, how big was the motivation to continue? Not that big. Getting the wings provided a bump, but I can distinctly remember that it really wasn't until the cabin top was going on, and I had a fuselage that I could sit inside, that I REALLY started getting motivated. That was basically AFTER all of the aluminum work was done! In fact, I built the entire plane in 25 months, but almost exactly 1/2 of the time it took to build, took 18 or 19 of those 25 months. Yes, I put in nearly 2000 hours, with 1000 of it in the first year and a half, but the other 1000 hours in the 2nd half of a year! What made that work?? **Motivation!** I added that acceleration component to the equation and the outcome was Force.

I could end there, because at this point I think I've solved my problem. I need to apply more motivation to my RV-14 project, and I think I will, as soon as I get the fuselage. I'm really pumped about wiring the panel, buying the engine, and hearing that thing run. For now, I'm stuck waiting for the Fuselage to become available, and then the finishing kit. But rather than end here, let's finish with Newton's 3rd law.

Newton's 3rd law of motion says that for every action there is an equal and opposite reaction. This is where I think some people can get into trouble. It depends on more than you.... but your family and spouse also. You can make a big action (completing your kit quickly), but it may lead to an equally dissatisfying reaction such as...getting divorced, going broke, having your kids hate you, your lawn growing into an alfalfa field, your car falling apart due to no maintenance...the list goes on and on. So in getting this project done, you need to at least become aware of what the downside is. For me, I had a wife who was willing to 100% take over the lawn work, the cooking and cleaning, and basically leave me to the kit, without giving me scorn, so the divorce didn't happen. I worked late nights and played with the kids until they went to bed, so they didn't hate me. My cars already weren't fantastic, but they survived the years... but what DID happen is that I basically went broke. Yes, I paid for the entire kit as I went. I would never borrow money that I wasn't 100% sure I could repay even if I lost my job, so I didn't have an airplane loan, but, I did deplete every bit of cash I had and was down to less than my last dollars when I finished the plane. I had less than \$1000 to my name, and didn't even have the money to afford the fuel to do the 25-hour flyoff. Personally, I don't know that all that many people can avoid having at least some downside to the build. Best case, you simply gave up 2000 hours of your life. But maybe that's your situation, and if so, you're probably not going to regret the kit at all. But I've known

people who have had other negative effects and it isn't always pretty, so spend time planning and discussing so that you can at least know what Newton's 3rd law is going to do to your life when you build the kit.

I hope you've enjoyed your physics lesson for today.

That tiny wheel thingy in the back....

-Doug

Yes, I will admit to being a landing gear Luddite. We have owned 11 airplanes over the past 48 years and they were all taildraggers. I'll leave this up to you to determine whether it is a sign of being a superior skilled pilot or not. As cool as taildraggers may be perceived, there is a reason the last tailwheel airliner was the DC-3 built in the 1930's. I think about that every time the wind is howling!

Fortunately, there are a lot of amateur built airplanes that come with that little wheel in the back and Van's has a nice selection of taildraggers to choose from. Generally they are pretty easy to handle as far as conventional geared aircraft go. I tell prospective tailwheel RV pilots that if you can confidently fly a Citabria, a non (-A) RV is easily mastered.

But after about 1200 hours in my two RV-4s and the -7, here are some thoughts about tailwheel maintenance. All of Van's kits come with a tailwheel assembly that looks like this:



The design is simple and light and handles well. It steers easily and is full swiveling through the use of a small spring loaded pin that unlocks when a large side load is imposed. As the wheel moves back straight, the pin slides back into place on the steering arm and you can steer it straight ahead with rudder. The downside is that you can catch the front of the tailwheel fork if you taxi from grass to pavement.

An aftermarket design is called the "Bell" tailwheel (designed by Doug Bell). I have this installed on my RV-7:



You can see this has a double fork arrangement that brings the tail up almost two inches and provides much more ground clearance. It uses a solid rubber tire similar to what Van provides. The wheel is cheap and when it wears down, I just buy another one (when they wear down and get flat, I feel the handling becomes more sensitive. They seem to last about 300 hours). BUT... the tire Van currently sells is too wide for this fork. This is solved by using Aircraft Spruce's p/n 06-03600 wheel and a bronze 5/8" to 3/8" reducer bearing from McMaster Carr to fit the 3/8" tailwheel bolt.

Now comes some editorial content so hang on! I'm not a fan of those one-armed steering links that are popular. I've seen a couple of them fail or get jammed. As innocent as this little wheel thingy looks, if it malfunctions you could end up with a damaged RV, which can ruin your whole day. I am not a fan of the compression springs that Van sells with the kits either (too stiff). I have found that plain-Jane Citabria/Aeronca tail springs sold by Aircraft Spruce (p/n 05-06339) provide just the right sensitivity. I connect them to the rudder horn with ACS tailwheel clips (p/n 06-15400) and ACS tailwheel chain (p/n 06-15500). Two AN115 cable shackles attach to the rudder horn with clevis pins and castellated nuts.

Personally, I adjust the chains such that there is no slack in them but not "tight". Some people like "slack" in their chains but I feel it gives you a dead spot when steering on the ground.

I take the tailwheel fork apart every couple months and lightly grease it and the little spring-loaded pin. If the pin gets gummed up with too much grease, it can stick and won't pop back into place after it unlocks and you can't steer except with brakes. If it gets worn, replace it with a new pin and a new control arm (FlyBoy Accessories makes very good replacement parts). I just replaced mine (after 400 hours of use) and it steers like new!

Keep that little wheel in the back happy and you'll save a few grey hairs!!!!

Minnesota Wing – Van’s Air Force
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First Class

Twin Cities RV Builders Fall Family Picnic and Fly-In

Saturday, September 12, 2015, good eatin’ starts at noon

**Sky Harbor Air Park (1MN8)
N44 31.7, W093 19.5, FGT (115.7) 218 degree radial, 9.0 nm, CTAF: 122.9
Cass Trail, Webster, MN 55088**

September brings a cool crispness to the air and our annual RV Fall Family Picnic and Fly-in. Again we are hosted by the wonderful hospitality of the Fuhrmann’s and the friends and neighbors at Sky Harbor. This is a great opportunity to kick back and enjoy a fun afternoon of RVs on one of the most beautiful airparks we

know of. Feel free to bring your family and friends!!



Please bring a salad or dessert to share. Everything else is provided. A free will collection will help pay for the PortaPotty!! Fly-ins welcome of course!! Unicom on 122.9 and please fly SAFE!!!!

More details on the website at www.mnwing.org

Directions:

Minneapolis, south on I-35. Exit at the Elko, New Market exit. East on Cty Rd 2 then south on Cty From Rd 46. Then west on Cty Rd 3. You will cross I-35. Take the second entrance to Sky Harbor (Cass Trail). Follow the driveway to the Fuhmann’s on the left. You can’t miss it!

If lost, please call Doug at 651-398-1184