



# RVator's Log

Newsletter of the Twin Cities RV Builder's Group

## Shop Notes

- Doug

### December 2019

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#### Upcoming Events

Twin Cities RV Builders  
RV Roundtable

**December 14, 2019**  
**Lake Elmo Airport**

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**Minnesota Wing**  
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### Big planes... little planes...

Most of us RV drivers seem to have this natural aversion to big airports (which surprisingly seem to be populated by big airplanes.) For the average private pilot, jumping into the ATC fray of rapid-fire controllers, roaring jetliners and pricey avgas seems pointless. That's why we fly our RVs, right? Flying where we want, when we want, efficiently and "cheaply" is one of the main reasons for spending all of that time and dollars building our personal flying machines.



But sometimes taking on the big iron may be a desirable option. Maybe the big airport is just closer to our final destination and more convenient. Yes, there might be landing fees and higher priced fuel, but then again we may save on ground transportation costs and that most precious commodity: time. Or another thought (that Tom Berge and I share) is that a larger airport might have better services such as maintenance, hangar space, rental cars, and maybe a good restaurant.

Back when I was flying my RV-4, #2 son was playing soccer for the University of Wisconsin and one weekend he had a big game in Chicago. A quick study of the chart showed that Chicago Midway was really close by. Hmm... I'd flown into MDW many times for my day job at NWA. Why not exercise my rights as a tax-paying citizen and fly the -4 into Midway for the game? There were two big-name FBOs on the field. If I remember correctly Atlantic Aviation was a little more reasonably priced with only a \$25 landing fee. Gas was probably \$2 higher than a "little" airport but I'd only need 15 gallons when we arrived. The day of the trip turned out clear and a million so Jean and I cranked up and headed for the windy city.

The inbound leg was a non-event and we called Chicago approach about 20 miles out. Chicago controllers don't mess around but apparently our blip



didn't look any smaller than a 747. So we were easily vectored to runway 14L, handed off to the tower and cleared to land. It was kind of fun taxiing into the Atlantic ramp in our toy airplane and we were marshaled to the parking area next to a Gulfstream.

Our rental car was ready and we were out the door in short order and had a great day cheering on the UW team (of course, we won!) Back to Atlantic in the late afternoon, we did have to fill out some security paperwork to get back out on to the ramp (this was not too long after 9/11 so security on larger airports was a little tense). But shortly we started up, got our VFR class B clearance, and taxied out

The "other" 22DW flirting with the big guys at Midway.

sandwiched in between two Southwest 737s. I turned around once and could only see a 737 nosewheel snugged up behind us (I just know those SWA guys were lusting over our -4!!) The big guys were departing on 14R and we were directed over to 14L to taxi into position and hold. And sat there for what seemed like 10 minutes as the tower man looked for a break in the action to get this little guy out of his hair. I get very nervous sitting in position (or lining up to wait, and wait, and wait.) I was about ready to remind him we were still sitting at the end of 14L when we got the quick call.... "22DW, cleared for takeoff 14L, turn left headed 270, climb to 2000 and maintain that altitude for 10 miles". We were gone in a heartbeat and chalked off MWD as a "been there, done that."

Here's another tale of "big planes, little planes" from the "old days" at Northwest Orient Airlines

### *Where do we find men like these?.....*

*- Bob Craig, president, Sunbird Aviation, Bozeman, MT  
From the March 2019 issue of "Contrails" magazine of the Retired Northwest Pilots Assoc.*

Bozeman, Montana, is one of those delightful places left to live. One of the many things that Bozeman has is an abundance of air transportation.

One thing that Bozeman does not have is a control tower. We have managed to sort of keep everything pointed the same direction by doing a lot of coordination between pilots on the local radio frequency. This often doesn't sit really well with the airline pilots.

As a matter of fact, there are only two airports on Northwest Orient's entire route structure world- wide that don't have control towers and they are both in Montana - Bozeman and Butte.



The local FBO, Sunbird Aviation, Inc. had recently acquired an older, no- radio Super Cub as a tow plane for its glider school. On this particular day in November, Henry Bahn, a middle-aged college professor, decided that since the weather was clear - even though there was fresh snow and it was cold - it would be a nice day to improve his proficiency in the Cub.

Since it was cold, the battery in the Cub was a Little anemic and it required some assistance and a jumper cable to get started. Once started, however, everything was fine; and Henry taxied to the run-up area at the end of the

runway. Remember, this is a no-radio aircraft so a lot of looking out the windows is going on. Let's face it there is not a lot else to do in a Super Cub.

Henry observed that the ground crew at the terminal was in the closing process on a Northwest Airlines 727, but he would be long gone before the trimotor was ready to roll. He taxied into the run-up position and completed his take off checklist and noted the 727 coming up the taxiway behind him. He was ready, so he taxied onto the runway and lined up on the center stripe. Since it was very cold and the air was very dense, he thought that it might be a good idea to lean it out a little, so he started to pull out on the mixture control just a little

- and the engine quit.



Northwest was now hanging its nose over the end of the runway not far behind Henry's right shoulder; and when your engine has stopped, a big jet in close proximity can be very loud. It can be particularly annoying if you are a slightly built, grey headed, bespectacled college professor and your aircraft has a very weak battery.

Try as he might, the prop would not turn over, and Henry was beginning to panic. Let us imagine that the conversation in the Northwest cockpit at that moment was probably not too charitable to Bozeman and Super Cubs, this one in particular. The cockpit crew was Captain Burt Novak, 1st Officer W. L. Ball, and Flight Engineer N. H. Duncan. They all knew that unless that Cub got out of the way, they could not start their take off and a long delay might result. That meant inconvenience to a lot of passengers and, not least of all, the consumption of a lot of very expensive jet fuel. The Northwest crew was trying to communicate with the Cub and at the same time talk to the FSS to make everyone aware of the problem. Henry, not having a radio, was not party to the communication. He was, however, aware of the problem. .

Henry decided that he had to get the airplane off the runway, and since a Cub is quite light, he would just pull it out of the way. He got out and picked up the tail and moved it to the edge of the runway. Alas, the airport snowplows had managed to create a two-foot berm that he could not get over. He was stopped and still in the way. He turned the airplane again toward the take-off direction, got in and tried the starter again. The prop would just start to move and stop, the battery was almost useless. The 727 was still howling behind him, the engine wouldn't start, and he couldn't tell anyone about his problem. Henry was near a collapse.

John's RV-7A and test pilot Tom Berge

All of a sudden, he heard someone knocking on his right window. He turned to see the uniform of a Northwest flight officer (we never learned which one, although we suspect that it must have been the Captain, Mr. Novak). He obviously knew something of Super Cubs. He instructed Henry to turn on the mags, richen the mixture, crack the throttle, and calmly walked around to the propeller to hand prop the airplane. The third time through, the engine came to life and Henry was back in business.

The Northwest flight officer walked back across the runway, under the screaming giant of an aircraft, up the rear stairs that had been lowered, raised the stairs, walked up the aisle to the cockpit, and resumed his normal position of authority. Henry added the throttle, took off, quickly made a left tum to get out of the way, and watched the 727 roll down the runway and gracefully lift into the air. Henry returned to the runway, landed, taxied into Sunbird and allowed that he didn't really think he wanted to fly any more that day. Captain Novak and his crew experienced a small delay, but their compassion, understanding, and skill contributed to a happy ending of a situation that will be an amusing memory for all of us. Our hats off to the Northwest crew!

\* \* \* \* \*

## *John Putnam's RV-7A Flies!*

It's always great to see a new RV take to the air!! John Putnam of Brainerd, MN reports his -7A launched for the first time in October. Tom Berge was the test pilot and all operated well. 180 hp with a three-blade Cato prop and Dynon electronic goodies.



## *An Exercise in Individuality*

*-Tom Berge*

In the last four weeks or so, I've had the opportunity to fly four different RV9A's built by four different builders. One was a first flight, one transitioning a new pilot and two newly purchased. One of my favorite sayings is "welcome to the world of homebuilt airplanes" and what follows is a snap shot of why. Each of these RV's were built according to what the builder thought was best. All in all, nothing stood out as being wrong with any of the builds, and they were in fact well done even taking into account the variabilities. And while the dif-

ferences you might be thinking about involve installed equipment, paint, etc., there are other more subtle issues to think about. Whenever I fly a new to me RV, I have a set of rules I keep in mind in an effort to reduce my risk. Rule number one is I have to stall the airplane in the approach configuration. That's my carved in granite, never skip rule. If I do nothing else, that gets done because years ago I had an RV8 stall on very short final after I blindly believed the seller on his approach speed. Rule number two is sellers lie and builders don't know. Trust no one.



Rv9A number one was a first flight, injected 160 horses, Catto fixed pitch, with a Dynon panel. On the first attempt to get the flight under way, the engine quit twice while taxiing to the runway. I didn't wait around for the third time, though it did quit on the way back to the hangar and wouldn't restart. Once that was solved, the flight went well, temps were good and the stall was 41 knots indicated giving an approach speed of 55-60 knots. The low inertia prop made it a bit bouncy and the right wing was annoyingly heavy. Initial idle speed was 800 RPM, about 200 too high. It was a typical first flight. Ignition was two P-Mags.

RV9A number two was transitioning a new pilot. This was also a 160 horse but with a Sensenich fixed pitch, carbureted and also with a Dynon panel. As I recall, the stall was around 48 MPH giving an approach speed of 65 MPH. Notice the MPH instead of knots. Have to keep that straight in my head. The heavier prop added a bit of stability but was not as smooth as the Catto. Idle speed was around 600 maybe a bit less, perfect! Ignition was two regular mags.

RV9A number three was a bit more interesting. This one had an injected 180 horse spinning a Catto prop with Advanced Flight Systems 5500 EFIS screens and an Avidyne 540 driving a TruTrak autopilot. Stall was indicating 52 knots, a solid 10 knots higher than I normally see. Had I not checked this and approached at my usual RV9 speed of 60 knots, things may have become dicey. Both the AFS 5500 and the Avidyne boxes were new to me so of course, I hated them. To be fair, by the time we finished our flight from central Florida back to the Minneapolis area I was starting to warm up to them. I could build a flight plan and switch frequencies without getting too lost. Now if I can just figure out how to get the little airplane symbol to show track up, I'll be in good shape. Next flight I'll get it, maybe. Idle speed was 750, a bit high. I mention idle speed because too much makes for float. Ignition was 2 P-

Mags that turned out to be timed too advanced which may be why the cylinder temps were elevated, especially at higher altitudes.

RV9A number four was a basic steam gauge example with a carbureted 160 horse, fixed pitch Sensenich. Stall was 50 MPH giving an approach speed of 65-70 MPH. Speaking of stalls, this one broke straight ahead, period. It's not uncommon to have a slight wing drop and in fact I was in a fifth RV9 this month that had a pronounced wing drop, but this one was rock solid straight. While training the new owner we tried to induce a wing drop with a bit of rudder during the stall and it just wouldn't comply. Whatever the builder did, my hat's off to him. Idle speed was 700, a bit high. Once the idle speed gets down to 550-600 with a fixed pitch prop, landings are just easier. Ignition was one mag and one Light Speed electronic. The seller told me to start on the left impulse mag which I did the first time but after realizing the second unit was light speed, we began starting on both mags and saw quite a bit better starts. Nice airplane.



It was an interesting month to say the least. Different engines, props, panels, stall speeds, radio work, navigation and the list goes on. Hot starts were easy here and complicated there. Indicated stall speed differences kept my head spinning in regards to my approach speeds, which is why I'm a big fan of flying a sight picture. That would be the sight picture outside the airplane. Just knowing where the nose should be in relation to the horizon helps keep the approach speed steady. It's interesting to experience the individuality that the homebuilt airplanes provide. It's a great challenge to figure out enough of the idiosyncrasies to keep the flight safe and then of course, teach someone else how to fly the thing. One thing for sure, it's not boring.

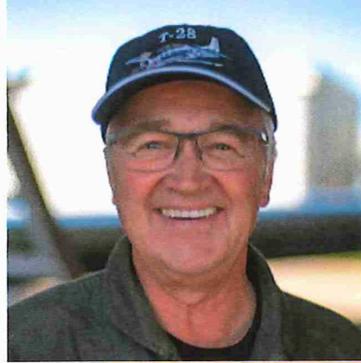
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*Ed note: Some of you may recall the tragic accident of Chuck Cook's T-28 at Anoka in the summer of 2018. Although it is not RV related it is a compelling story that is worth sharing...*

# Fire in the cockpit

By Chuck Cook Revised 10-12-19

This is the story of my inflight fire in the cockpit and crash landing of my T-28, which occurred on August 23, 2018. It is also my story of survival, which began on that day. I write this story to share what happened to me and to share some afterthoughts in an effort to encourage other pilots to be prepared for such emergencies and possibly prevent such a tragedy from happening to them.



On that day, it was a beautiful VFR weather and I was right where I like to be, in a formation flight with my buddies in route to a formation flyover event. About 15 minutes into the flight, the generator fail light came on, so I decided to separate from the formation and return to my home airport. After turning the aircraft toward home, I sensed a slight smell of something burning. I radioed my flight lead and asked if there were fires burning out west and he replied yes. (In the Minneapolis area with prevailing westerly winds it is not uncommon to smell the smoke and see haze in the air from fires occurring in California or Canada.) The smell

was slight and very soon dissipated, so I did not give it much further thought. I switched DC power from battery/generator to battery only. In this aircraft when you have a generator failure and the DC power switch is in the battery/generator position, you have automatic load shed of the secondary bus. When DC power is switched to the battery-only position, you re-energize the secondary bus, which provides power for many systems, including the speed brake, landing gear position indicators, and, on some aircraft, the radios.

My direct flight home took me through Saint Paul class D airspace, which required communication with Saint Paul tower, and I also had to pick up ATIS and talk to tower at my home airport (to enable speed brake operation, the landing gear operation and for radio communication I chose to leave DC power on in the battery-only position rather than the off position). Other than the battery fail light, the flight back to my home airport was only about 15 minutes and was uneventful. Upon reaching my home airport, I entered the standard break to land. (For those not familiar with the brake to land it is a landing maneuver used by the military and by civilian formation pilots. This technique involves flying over the threshold of the runway at 1,000 feet above the ground, banking 60 degrees and flying a 360-degree descending circle to land at the threshold of the runway). I reduced power to 20 inches manifold pressure, banked 60° and deployed the speed brake. Immediately there was thick billowing smoke filling the cockpit. I opened the canopy to clear the smoke and announced "I have smoke in the cockpit" to the tower. Right away I knew I had a serious problem, but feeling that I was too low to bail out, I elected to continue the turn to get the plane on the ground ASAP. I had to hold my face up to the slipstream on the right side of the canopy to keep forward visibility and avoid breathing in the smoke. In short order, I was also being sprayed with a fluid, which at the time I thought was fuel. The spray was very heavy and was even getting up inside the visor of my helmet. At 180 degrees of turn and level altitude and reaching abeam the runway threshold and I dropped the gear and flaps. That's when the fire started.

The fire was ferocious and first came up between the left sidewall and the left side of my seat bucket. It was like an intense blowtorch. Soon, the fire was coming up between my legs and reached above the height of my face. Despite the fire I held the stick to fly the airplane and I continued the circle towards the threshold of the runway. Next, the fire was going up my face shield and burning my face. At very short final I realized I could not continue the flare and landing. I felt I was burning alive and needed to do a controlled crash and get out of the aircraft. At about 100 feet AGL I was veering left of course and I saw the threshold of the runway in my peripheral vision. At this point I was losing my ability to see, so I decided to push the stick forward and drive the plane home. I do remember I had some intuition that I would somehow survive the crash. I don't remember retarding the throttle and I don't remember the exact point of impact.

I remember waking up to the sound of silence, but I don't remember exiting the cockpit. An eyewitness to the crash confirmed that I did get myself out of the cockpit. This eyewitness was driving by on a nearby highway and told me he pulled over and dialed 911. Then he looked up and said that he saw a man on the ground just outside the cockpit kicking his feet trying to put out the fire on his legs and shoes. I do remember lying on the ground kicking my feet and also trying to roll over because the sheepskin liner on my parachute was also burning by the left side of my face. This gentleman, along with another good Samaritan, who was also driving by on the nearby highway, slipped through the airport security fence and ran about 500 feet to my rescue. These two men along with a lineman from the local FBO who also arrived on the scene, pulled me away from the burning aircraft wreckage. The wing had separated from the fuselage, so when I stepped out of the cockpit I fell to the ground and broke my left forearm in a compound fracture. I had collapsed about 5 feet from the fuselage, but was conscious. I asked one of these eyewitnesses if he had to, could he have pulled me from the cockpit. He stated; *"no, it was already too engulfed in flames by the time we arrived"*. Immediately after they pulled me a short distance, I heard an explosion. Immediately they had to pull me further away from the aircraft. The lineman later told me it was the left-wing fuel tank. He said; *"there was shrapnel and fire from the explosion and the area where you were previously lying moments before was now engulfed in flames"*.

At this point I was going into shock. They tell me I asked for water and I told them my arm hurt. I was able to give them my wife's name and phone number, and that's the last thing I remember for two months. I was airlifted to the Minneapolis Hennepin County Medical Center where they treated me for 2<sup>nd</sup> degree and 3<sup>rd</sup> degree burns over 40% of my body, and some 4<sup>th</sup> degree burns on my right hand and leg.

As for my medical treatments, they kept me in intensive care in a drug-induced coma for two months while they did 20 skin graft surgeries and numerous other procedures and also stabilized the compound fractures in my left arm. Early on my survival was very questionable. I spent a total of four months in the hospital. As of this writing, it has been 14 months since the date of my accident and I have been in rehabilitation therapy since the day after the accident. I am told I will have this therapy for at least another year. This level of burn damage has many implications. I had to learn how to walk again starting with a walker and I am now getting some limited use of my left hand. My right hand suffered significant burns and doctors had to amputate one half inch off of each finger of this hand and to date it has almost no function. I also suffered severe burns to my face, which now has permanent disfigurement. At this point it looks like I will have an additional 10 or more surgeries. Despite my injuries, I am thankful for surviving and for the many functions I do have. I am also thankful for the many people responsible for saving my life. This includes among others, all of the many first responders and also the extensive medical team at Hennepin County Medical Center. I have also been blessed with an extraordinary support system. My wife, my family and my many friends have been here for me and have helped me with my many needs without fail. I attribute my ability to maintain a good spirit and my motivation in my ongoing recovery process to this extensive, loving support group.

Regarding the nature or source of the smoke and fire, we may never know. Upon impact, the airplane broke apart and the fuselage from the engine firewall to the rear bulkhead of the rear cockpit burned in its entirety, leaving nothing more than a pile of ash and rubble on the ground. In examining the photos of the wreckage, we found the engine firewall and the engine accessory inspection door. Neither of these showed any indication of fire penetration. Additionally, when the NTSB inspector and I examined the aircraft wreckage, we found the accessory section of the engine had no indication of any mechanical failure or fire damage. The engine driven fuel pump and the engine driven hydraulic pump appeared as normal. This leads me to believe that the fire was not generated from the engine compartment. Without any remains of the cockpit portion of the fuselage it's not possible to determine the exact nature of what failed. Another piece of information that I do have pertains to my flight suit and helmet. Both of these were returned to my family after the accident and both are saturated with an oily substance and smell of petroleum. A swatch from my flight suit has been sent to the NTSB and is being tested to determine the exact content of the oily substance.

My speculation is the fire was generated under the cockpit floorboard and was fueled by hydraulic fluid under high-pressure. When the airplane is in a clean configuration, the hydraulic system is in a bypass mode and there is no hydraulic pressure. When I dropped the speed break the hydraulic system was pressurized. I believe this caused a compromised hydraulic line to fail. This is the point when the smoke in the cockpit occurred. The smoke was white, which I am told is oil based, not fuel-based which produces black smoke. I further speculate that when I drop the gear something electrical ignited the spray of hydraulic fluid. The way the fire was coming into the cockpit, I believe it burned through the floorboard below the pilot seat. It is unknown whether the generator fail and the momentary smell of something burning were related to the smoke and fire in the cockpit, but it certainly is very suspicious.

**As far as safety takeaways for other Warbird pilots I have several suggestions, as well as some food for thought. Please keep in mind my suggestions are from my perspective and experience of the fast onset of a very severe fire in the cockpit.**

- Read *your* aircraft manuals. Study your aircraft's emergency procedures and know your checklists. Keep them in your aircraft and if possible, follow them in an emergency. They *can* save your life. The consequences of not following published emergency procedures can be life altering (or worse).

It should be noted that checklist items printed in bold are intended to be committed to memory. These items should be memorized for those circumstances like mine with the fast onset of a ferocious fire. There was not time to pull out the check list.

- **Personal Safety Gear.** Wear a Nomex flight suit and gloves. I regret to say my gloves were in a bag on the floor and I had no time to reach for them. Initially, I thought the flames traveled up my pant legs and arm sleeves. But after discussion with a burn nurse at the hospital, I learned that I likely experienced thermal burns from the intense heat penetrating the flight suit. The flames did not penetrate the flight suit but the heat certainly did. I wish I had worn full-length clothing under my flight suit for thermal protection, even though it might be hot and uncomfortable. Instead, I was wearing shorts and a tee shirt under my flight suit. My burns extended from the middle of my thighs down to my toes and from the middle of my biceps all the way down my arms and hands. I also wish I had been wearing Nomex boots as the ankle-high leather work shoes I was wearing did *not* work out very well. My ankles were burned severely and the intense fire burnt the shoelaces and stitching out of my right shoe and it opened up, and my right foot suffered severe burns.
- Your shoulder harness should always be tight and locked. There won't be time to consider this in a catastrophic fire emergency. Also, consider a good sheepskin padding for the straps of your shoulder harness. I believe this extra padding helped me considerably during my forward impact. My aircraft went from 100 knots to full stop in about 20 feet. I remember telling a friend that I was surprised I didn't have any significant injuries from the forward impact. My wife overheard this statement and corrected me. While I did not have internal injuries, she said "*your torso in its entirety was black and blue.*"
- Install a quick release in the COM line of your helmet. Again, I don't remember getting out of the aircraft, but I am sure I would not have thought or had the ability to unplug the COM lines. I am sure glad I had the quick release.
- Practice getting out of the aircraft on the ground with the parachute attached. I often practiced getting out of my cockpit with my parachute attached. Stepping up into the seat bucket with the parachute attached and staying out of the slipstream is harder than one realizes. I attribute my instinctual ability to get out of the burning cockpit with severe burns and compromised vision to my previous practice.
- Consider installing an automatic fire suppression system. The onset of my fire came on so fast and ferocious there was no time to think about a handheld fire extinguisher. To be honest, once the fire started my focus became very narrow. The only thing I could think about was getting the plane on the ground and getting out of the cockpit. I was too low to bail out and at this stage of my circle to land I certainly could not let go of the stick to operate a fire extinguisher. I had no choice but to hold the stick and fly the aircraft to the ground. Consider installing an automatic fire suppression system not only in the engine compartment but also under the floorboard of the cockpit.
- If you have any suspicion that there may be an impending inflight fire, obviously turn the DC power off and land immediately if possible. If a suitable landing area is not immediately available, I would recommend climbing to a bail out altitude and turning in the direction of a non-populated area. It gives one time to deal with emergencies and it also gives one the option to bail out in the event of a catastrophic fire. In my case, the fire had a very fast onset and was ferocious. The fire was so intense that in the 20 to 25 seconds it took to fly the second half of the break to land, I was at the end of my human endurance and my burns were severe. Even being in the pattern at 1,000 feet, configured for landing and only 180 degrees of turn to go I could not complete the landing. If you are cruising along

at 180 knots with the airplane configured clean and you have a fast onset of a ferocious fire you will not survive the time it takes to get the airplane on the ground with the fire burning.

If you suspect the possibility of an in-flight fire, take what precautions you can and also **prepare your mindset** ahead of time as to what you're going to do if a fire should break out. In a T28 I would also recommend opening the canopy and dropping your speed brake, flaps and landing gear at altitude. Again, when you activate these functions you pressurize the hydraulic system. Better to find out if you're going to have a hydraulic system fire at altitude than down low in the pattern. If you do experience a ferocious fire, it may be fueled by the engine driven fuel pump or the engine driven hydraulic pump. As listed under emergency procedures, if a fire breaks out, cut the engine fuel mixture immediately to stop the engine and hopefully stop feeding the fire. Also turn the fuel selector and electric fuel pump off.

My closing comments are about complacency vs. being prepared. I know that many of my suggestions may seem obvious to any responsible pilot. While I considered myself a responsible pilot, I was complacent, I was not well prepared, and I failed to do what may seem obvious to others. When an emergency such as smoke in the cockpit or in-flight fire occurs, it can be a moment of denial as well as a moment of terror. While I continued to fly the aircraft as best I could, I was not at all prepared for such an event. In my case with the fast onset of the fire while in a 60-degree steep bank of a circle to land and low to the ground, it was too late for preparations or emergency checklists. I was in survival mode. I did not even announce fire in the cockpit to the tower. I remember my focus became very narrow, all I could think was fly the airplane to the ground and get out. I offer these thoughts so that others can have the opportunity to be best prepared.

With the benefit of 2020 hindsight I will tell you what I think I should have done differently.

- I should have worn all of the Fire Protection gear I listed above, especially the nomex gloves and nomex boots. Unfortunately, I have nothing to offer in terms of face protection. While the protective gear I suggested would have reduced the level of burns that I suffered, when you have the fast onset of a fire in the cockpit you still have to put the fire out or exit the cockpit ASAP.
- At the very first indication of the smell of something burning I should have turned off the DC power to off. I made the very costly mistake of switching the DC power from battery/generator to battery only to maintain radio communication and also for landing gear and speed brake operation. At this point I also should have prepared my mindset for what I may have to do if a fire were to break out.
- At the initial onset of smoke and/or fire in the cockpit, I should have moved the engine mixture to cut off. In my case this would have stopped the engine driven hydraulic pump from feeding the fire. Obviously, I did not prepare my mindset for this event. I just never suspected that what started as a generator fail could result in the fast onset of a ferocious fire that I experienced.

I will make this comment about the North American T-28: it is a very robust airframe and will absorb a lot of impact. While the airframe broke apart, the cockpit section did not collapse or trap me inside. I was able to climb out despite this devastating crash. One additional first responder who showed up on site immediately after the crash happened to be my advanced flight instructor for the past 26 years. He stated he *"saw the cockpit portion of the fuselage sitting upright on its belly, fully intact, canopy open and engulfed in flames."* He also stated *"it was a good thing I had opened the canopy before the crash or in my condition I likely would not have been able to get out and would not have survived the post-crash fire."*

With all of that said, I have attached some photos of the crash scene which you may find interesting.



Here you will see I veered off course and barely made it over the nearby highway.



Note here how the tail section broke free from the main section of the fuselage and is facing opposite the direction of landing.



Judging from the way the airplane came apart, it was obviously a very violent crash. I guess I drilled it in harder than necessary. The tail section separated at the back of the rear cockpit, then flipped over top and ahead of the cockpit section of the fuselage and landed facing backwards. The main wing separated from the fuselage in its entirety as a whole. It then tipped up and slammed against the tail section facing the correct direction of flight. Somehow both the left and right main landing gear remained extended and undamaged. Obviously, this was a very violent, nose down impact. It's hard to imagine how this final configuration of the wreckage came to be.



Here you can see how the engine separated from the fuselage and how the propeller separated from the engine taking with it a portion of the gearcase housing and the planetary gear set.

## ***Twin Cities RV Builders December Meeting***

**Saturday, December 14, 2019, 10:00 am**  
**Doug and Paul's hangar, 41C Mooney Lane, Lake Elmo Airport**



What's better than to hunker down on a cold December Saturday and gather around the "RV Roundtable?"

Bring your questions, comments, thoughts, and even your opinions and we'll kick them around. There is no lack of topics when it comes to building and flying our RVs. Construction issues, paint, avionics, props, canopies, cowlings, ... you name it!!

Coffee, juice, "low-cal" goodies as usual.

AND.... door prizes!!!!!! Don't miss it!!

**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.**

See you there!!!!!! **BTW, please park on the hard surface.** (Restrooms are at Lake Elmo Aero)