

# *The Mooney Flyer*

The Official Online Magazine for the Mooney Community  
[www.TheMooneyFlyer.com](http://www.TheMooneyFlyer.com)

December 2023



## Editors

Phil Corman | Jim Price

## Contributors

Jerry Proctor | Tom Rouch | Richard Brown | Parvez Dara | Terry Carraway

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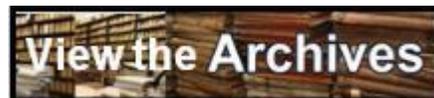


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The views expressed in each author's article are their own.  
The Mooney Flyer's goal is to educate, inform, and entertain Mooniacs.



## Break the Chain

I was reading the NTSB report on my friend's fatal crash at Dinsmore. It was sad, and to me, an avoidable accident that took the lives of four souls.

While reading the NTSB report, it reminded me that the vast majority of accidents are a result of multiple decisions or events that occurred in sequence. And more importantly, if the PIC had taken action after the second thing, the accident could have been avoided.

Here's the sequence of events: 1) The Density Altitude was high. 2) The runway was short. 3) The M20J was at/near/over Gross with four passengers. 4) The PIC decided to take off with a tailwind and uphill runway slope and 5) The engine was not in good shape. [CLICK HERE](#) for a synopsis from MooneySpace.

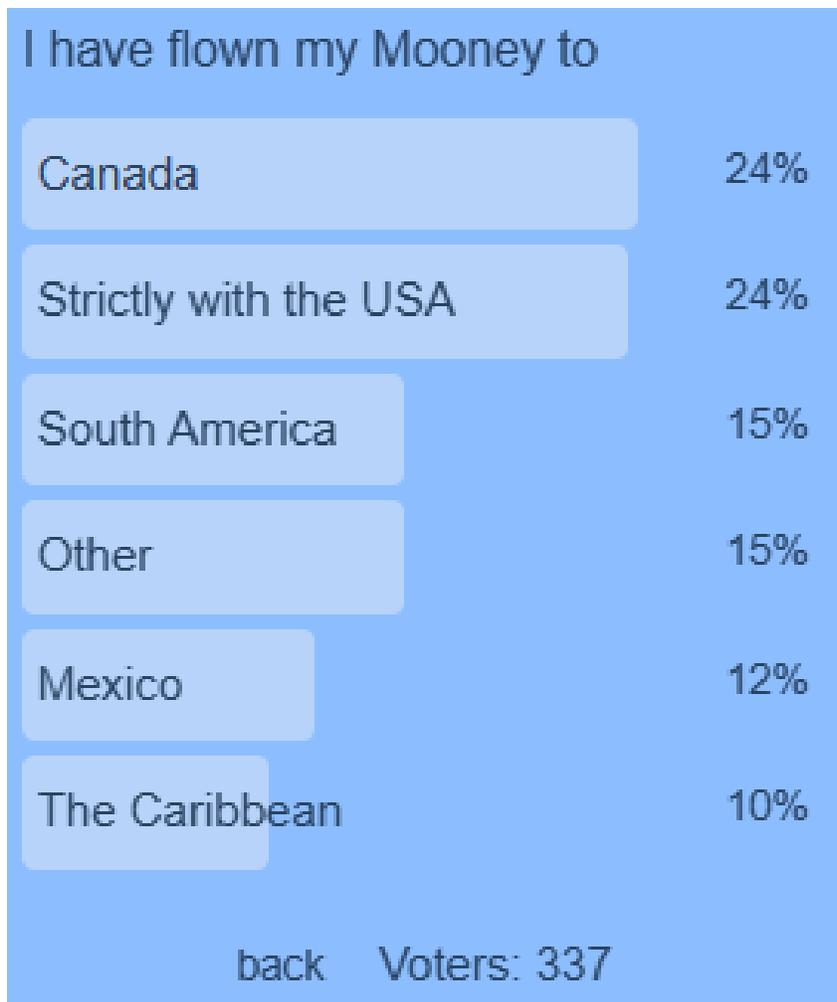
The point of my message is that the PIC could have broken the chain of events and avoided the fatal accident. Usually, an accident isn't the result of a single bad decision or event. I have a simple "Rule of Two." When there is an issue, I might continue with my decision to fly or continue to fly based on its severity. But if a second event occurs, I will not depart and if I'm in the air, will seek the nearest airport and land.

## Avoiding Gear Ups

We continue to be distressed by the number of Mooney gear up incidents. They're costly and the vast majority of the time, they are avoidable. Most gear ups happen, not because of a mechanical issue, but because of a distraction in the cockpit. The distraction might be an unexpected traffic pattern event, lots of traffic, a distracting passenger, etc.

A sure-fire method to avoid distractions goes like this: When you first put the gear down, say out loud "Gear is Down & Locked." When you turn base, check the gear is down and say out loud "Gear is Down & Locked." And on short final check the gear is down and say out loud "Gear is Down & Locked." You must utter this out loud, even if you are by yourself. Psychologically, your brain will expect this verbal annunciation and you will not land with your gear up.

For Johnson bar owners, you must ensure two things: 1) When you extend the gear, you ensure that the J-bar is fully engaged and locked into place. One time, I did not check it (by tugging on it), but my wife noticed the gear light and saved our bacon. The second thing to check is that the bracket is in good condition so that the J-bar cannot slide out. Check this a couple of times per year; at least at the annual. If the receiver is no longer round, but oval, you need to replace it.



Next month’s poll: “The Correct way to enter the Pattern is”  
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**Mooney Instructors**

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# Need a Mooney CFI?

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You can also go to <https://themooneyflyer.com/> and click on CFIs – (located in the top menu).

You can also click on the CFIs icon, found in the website's right column menu.



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*Letters to the*

**EDITOR**

**TheMooneyFlyer@gmail.com**



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September 11, 2021, a pilot had been visiting a family member at the privately-owned Intervale Airport ([NH86](#)), New Hampshire. As he began his preflight on his Cessna Cardinal for the flight home, the pilot noticed that his left fuel tank had nine gallons of fuel and the right tank was empty. Sadly, Intervale Airport did not sell fuel and his home airport was an hour away. Therefore, he planned to refuel at Minute Man Air Field ([6B6](#)), in Stow, Massachusetts, a mere 44 nautical miles from NH86. He chose to refuel at 6B6 because the fuel was cheaper.

The Cessna Cardinal was at 2,800 feet MSL and just 6.7 miles from Minute Man Air Field, and suddenly, the engine began to sputter and then the only sound was the eerie and lonely whistle of the wind.



The pilot glided to the little town of Ayer, Massachusetts. He touched down in an old railyard, where train cars were once unloaded. Nearing the end of the landing roll, he ran out of unobstructed land and the Cardinal ran into a pile of broken asphalt. The NTSB reported that the damage was substantial. Fortunately, the pilot walked away, uninjured.

When authorities inspected the airplane, they found the Cardinal was full of “Glider Fuel”. That’s right, air filled the tanks.

## 20 Cents is 20 Cents



Sadly, on his flight to Minute Man, the pilot ignored several closer airports because he was looking for less expensive fuel and the fuel at Minute Man was twenty cents per gallon cheaper.

## Rules of Thumb

Additionally, the pilot “would deduce his fuel burn by rules of thumb using one single fuel burn number, rather than using the published cruise and range performance that was in the owner’s manual.”



## The Wrong Dipstick

According to the NTSB Final Report, to determine fuel levels during preflight, the pilot used a fuel dipstick “from another airplane model that was not calibrated for this airplane.”

### The NTSB’s Probable Cause and Findings:

1. The pilot’s Fuel planning.
2. The pilot’s Preflight inspection.
3. The pilot’s Knowledge of equipment.
4. The pilot’s Decision-making/judgment.

## The Pilot and Woulda, Coulda, Shoulda

The pilot held a private pilot certificate and had sixty-eight candles on his birthday cake. He had over 600 hours total time, a current flight review, and he was flying under BasicMed.

According to CessnaOwners.org, the Cardinal burns ten gallons per hour. Using the wrong fuel dipstick may have tricked the pilot into thinking he had nine gallons and could make the 44 nm flight. His engine quit after flying 37 nm, so it appears at preflight, he had less than five gallons of fuel.

Then there’s the matter of considering the required 30 minutes of fuel reserve, which would be about five gallons.

## The Frugal Pilot Syndrome



A lot of your hard-earned cash is spent on insurance, hangar, maintenance and fuel. But if you want to play, you need to be willing to pay.

What did the repairs cost our frugal pilot? I’m sure the repairs cost more than a \$30 FuelStik and twenty gallons of expensive fuel.



## Different Schools of Thought



Some Mooney pilots feel that they can extend the life of their fuel tanks to thirty years or more, just by keeping them full or at least half full of fuel.

Some Mooney pilots feel that full tanks increase the weight of the aircraft, increasing the stress on the landing gear. The additional weight can be hard on the landing gear pucks. (\$219 each).



Whatever your fuel tank philosophy, when refueling, don't worry about an extra twenty cents per gallon. Fill your tanks prior to departing. Please ensure that you will have ample fuel for the trip plus a generous fuel reserve. To ease the anxiety, I recommend a fuel reserve of an hour or more.

Don't risk your life or the lives of others because you want to save a few bucks. It's not worth it!



Download the NTSB's final report, ERA21LA380, [here](#).

Read Kathryn's Report, [here](#).

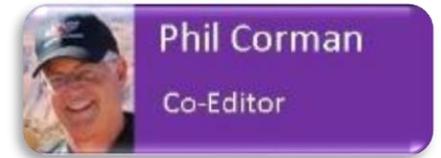
*Fly safe,*

*Jim*

## Air Force One



While flying in the UK, Air Force One called a USAF base controller and requested radar. The controller asked, "What is your position?" Air Force One replied, "You've got radar, you find us". A few minutes later, ATC announced, "Air Force One we're changing frequency." The pilot asked, "What is the new frequency?" ATC replied, "You've got 720 channels – you find us!"



Every year, as we enter the colder season, there are a handful of items that we need to consider before and during each flight in our Mooney.

Winter poses different challenges to our Mooneys and to us. In this article, we will illuminate as many of these items as appropriate.

## Batteries

With colder temperatures, our batteries' power output is diminished. That means, in cold temperatures, you will have less power to crank your engine. If your battery is already weakened, then you may not have enough power to start your engine.

You should check the health of your battery during the autumn. That gives you plenty of time to deal with an old/weak battery.

Additionally, there are a few things that you can do to alleviate the power decline in cold weather.

First, you can keep your battery warm in icy temperatures. This will enable your battery to provide its maximum power.

Secondly, after you shut down your Mooney, you can protect your battery with a BatteryMinder. They are invaluable. They will "top off" your battery if it needs it and then it will run in "Maintain" mode and desulfate your battery. I do this year-round and my batteries last much longer, compared to battery life before I discovered BatteryMinder.

## Preheating

If you are expecting colder temperatures, then preheating is a must. Most of your engine wear occurs in the first 15-20 seconds after ignition. That is because in the cold weather, your oil is thicker, and it takes longer to heat it up and pump it to the top of your engine. This does not bode well for your engine.

You should preheat whenever you expect the temperature to be 32°F or below. Also, I recommend you check the oil dipstick and if your oil is gelled, you should preheat regardless of the temperature.



### You can preheat several ways:

- Heat with an installed heat system such as Tanis. I have a sump heat pad, plus cylinder heat rings on each cylinder. The sump heat warms the oil, and the rings warm the dissimilar metals, helping to lessen wear after ignition.
- A poor person's solution is to cover your cowling with a horse blanket and place an incandescent light bulb under the engine. Usually, you'll need to do this several hours before you plan to depart, perhaps the night before. Care must be taken to ensure there are no flammable residues on the floor that might ignite.



### Preflight Checks

This one is not obvious, but it happens. It's pretty cold outside and you are about to begin your preflight inspection. You are chilled, so you tend to rush your inspection. This is not good. Stuff gets missed when you rush or are distracted. Bundle up and do a meticulous preflight inspection.

- Ice – Ice is a killer. Even a little ice on your wings or empennage is dangerous. The slightest ice can be enough to seriously reduce your lift. A tail stall, especially on departure, may be lethal. No ice permitted is the correct response.
- Ice or Snow – Check your wheel/gear well. If there is any buildup, it could hinder gear retraction.
- Double or triple check that all of your control surfaces are able to move freely and without friction. This is best discovered while on the ground and not in the air, right?
- While you are at it, ensure that there is no ice or snow blocking your air intake.



### Oil and CHT Temperatures

During the summer, we are more concerned with heat. On climbout, we are vigilant to keep our CHTs under 380°F and our oil temperature in the "green". In the winter, our concerns are reversed.

We want correct/appropriate oil temperatures and we do NOT want cold CHTs. If your temps are too low, increase your rate of climb and lean your mixture as you climb. That's the opposite of what we do in the summer to keep our temps cooler, right?

Perhaps you could close your cowl flaps or partially open them.

For oil temperature control, ensure that your [Vernatherm Valve](#) is operating at the correct temperature. The Vernatherm Valve is a temperature-sensitive device or “thermostatic oil cooler bypass valve.” Check this in the autumn, before it becomes a problem in the winter.

### Descent Temperature Awareness

I’m not one to worry about shock cooling. That’s basically mostly a myth, except in extreme cases. But in the winter, I tend to keep more power applied during the descent to keep my temps warmer. Also, I reduce my power more gradually. This helps keep the temps higher.

### Icing

In colder weather, icing becomes an issue. Unless your Mooney is certified for flight into known icing conditions, if you encounter ice, your best solution is to turn around. Chasing icing levels to find non-icing air is hazardous. Staying away from icing will help you avoid being featured in the evening news.

### Carbon Monoxide



In the summer, we typically fly with our vents open and our heat off. This avoids the CO (Carbon Monoxide) experience.

In the winter, however, we are cold and will often crank up the heat and close down the vents. This might be a recipe for CO poisoning.

There is only one way to manage this. You should have a CO detector in your cockpit. Set it to alarm at a reasonably low acceptable level. If CO levels get high, open the vents, close the heat, and consider landing.

### Summary

These are just some of the items that you should be aware of while operating your Mooney in the cold months. I did not mention some of the upsides of winter flying. For instance, I usually expect 800’-1000’ fpm vertical climb, but yesterday in the colder weather I was climbing at 1500’ fpm. I love my Mooney for that.



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You can register at <https://www.mooneysafety.com/ppp-registration/>

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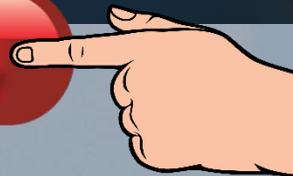
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# Tailwinds Both Ways?

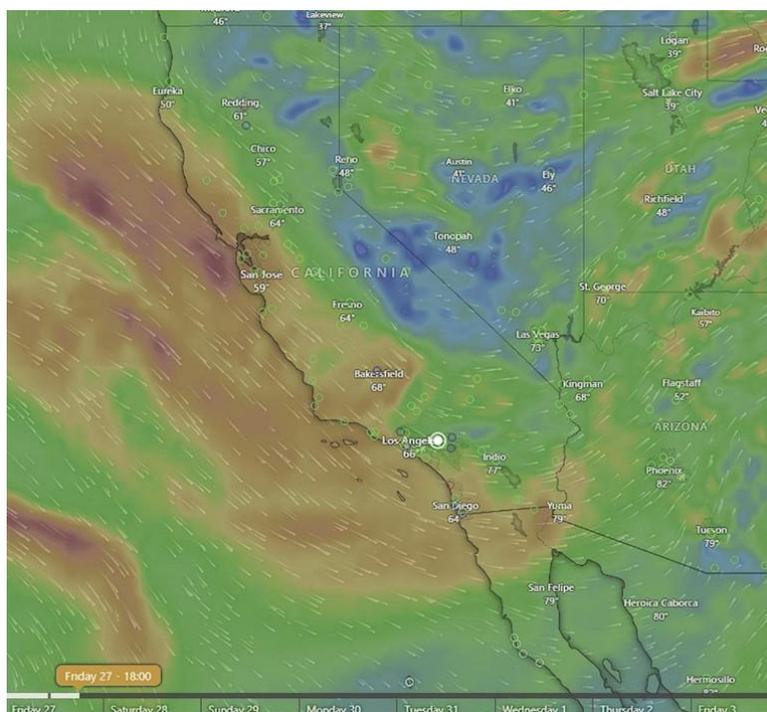


What makes a perfect trip? First, you need a destination. Or, on second thought, maybe you don't need a destination. I confess that some great flights have started and ended at the same airport. For sake of this discussion let's say you need a destination. If there is a good purpose for the trip, it adds to the equation. How about nice weather and beautiful views? What if we threw in smooth skies and wait for it . . . tail winds on your way there and the way back.

"That's not possible," you say to yourself as you shake your head at my foolishness. Maybe the old-timer on the bench at the local airport who judges everyone's landings bragged about it once "back in the day," but everyone knows he makes up a lot of things. Then there's the fact that a 90° crosswind counts against you as a headwind because you are forced to crab into it to maintain ground track. Having an honest to goodness tailwind both ways? That's the stuff dreams are made of.

From my home base in Fullerton, CA (KFUL) to our destination of Provo, UT (KPVU), it is 501 nm by my routing and with no winds, climbing up to 9,500', it is a 3:41 flight. The purpose of the trip, and the impetus of getting my pilot license and the Mooney, was to visit family. My wife's nephew was leaving to serve a two-year mission for the church in Guam and would be speaking in church. We would also be able to see one of my sisters, my wife's daughters and their families, grandkids, along with my oldest son who would be driving down from Idaho Falls, ID.

I began looking at the weather about five days before, and then each day as the flight approached. The morning of the flight, I was looking at a 10-20 knot tailwind for most of the flight there, and when I scrolled forward two days, I saw 10-30+ knot tailwinds on the return trip. I scrolled back and forth between the dates, thinking it must be a mistake, but there it was, tailwinds both ways.





The morning of our flight, I worked through lunch, planning to leave in the early afternoon for the airport. My goal was to be wheels-up in time to land in Provo before dark. There are plenty of ground lights in the Utah Valley, and Provo has a nice approach, if needed to fly after dark, but why fly over the mountains in the dark if you don't have to? I was just wrapping up pre-flight when my wife pulled up at the hangar.

Soon after, we were on our way, climbing out to the northeast. At our cruising altitude of 9,500' I turned on the Inogen G5 Oxygen concentrator. We both put on the cannulas, and we settled in for the flight. I was glad to have the GFC500 engaged so that both hands were free to eat my late lunch of a ham sandwich from Campitelli's.

I had been watching my true airspeed and comparing it to my ground speed during the climb and after leveling out. A hesitant

smile was finding its way to my face as I noted throughout the climb and leveling off, a higher groundspeed compared to the true airspeed. (Note that my plane is a 1965 and everything is in miles per hour. Beginning in 1969 they started switching over to knots.) I was seeing speeds in the upper 170's to mid-180's throughout the first half of the flight, and then it got better! In level flight for a bit, we even saw speeds in the 190's. What would have been a 3:41 flight in no wind clocked in at 3:22.

Destination and purpose? Check.

Tailwinds? Check.

Beautiful views? The desert is not the most beautiful, but sometimes the sky and clouds are amazing, and on this trip, they were. We were descending into Provo as the sun was going down and the sky just kept getting better and better. We landed and I took a picture of my plane at sunset, then waited and took another, and another as the sky colors kept changing.



We enjoyed a wonderful weekend with family, visiting, hanging out together, going to the Orem Temple open house with kids and grandkids, and getting to listen to my wife's nephew speak in church.

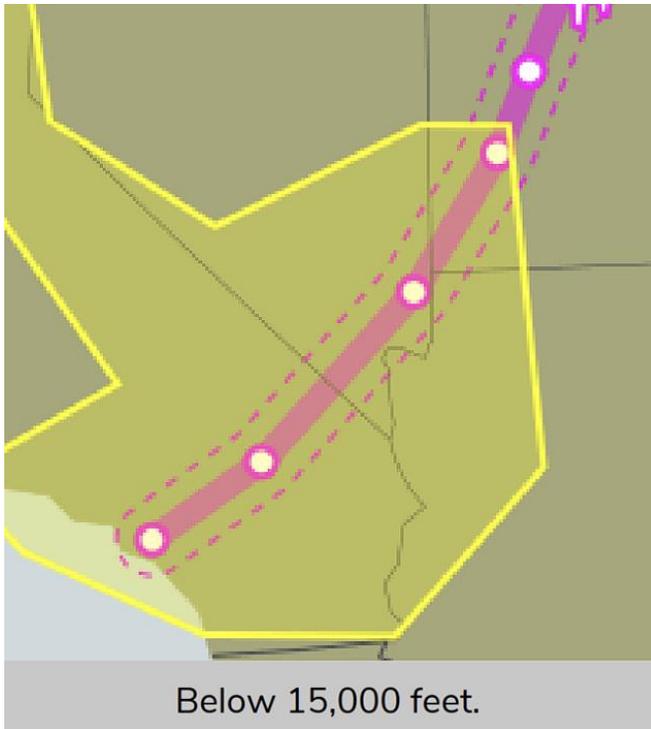
We had great meals at R&R BBQ in South Jordan and Chubby's Café in Pleasant Grove. It would be a few weeks before I was able to lose the weight I gained that weekend!



Sunday afternoon, we arrived back at KPVU for our flight home. Signature has always been friendly there, but I double-check everything. The last time we were there, on departure I stopped by the desk where they told me they had put 70 gallons of fuel in my plane. I told them that would be impressive because my plane only holds 52 gallons. She looked at the notes and said they had put in 39 and then 31. I told her the 39 was mine, knowing how much I had burned on that flight up, and they must have forgotten to reset the meter when they moved on to the next plane. Because they had already billed my card, they had to issue a refund and then rebill.

On this trip, I had given them the fuel order to top both sides. When I got to the plane and checked, they had not fueled it. One of the line guys was near the fuel truck so I talked to him, and he quickly hopped in the truck and topped off my plane. Unfortunately, as he was fueling it, I received an email with my bill from Signature that had no fuel, but a high ramp fee which hadn't been waived, because I didn't buy fuel. After fueling I went inside and explained everything, but because it was the weekend, they had to make notes to issue a refund and then rebill. Regardless of where you stop, always double check everything.

Before going to the airport, I got my weather briefing. The briefing for the flight back showed an even better tailwind than the trip to Provo. The briefing also showed an AIRMET for moderate turbulence below 15,000', and an AIRMET for winds over 30 knots. Turbulence across the desert is not unusual, and when it is forecast, sometimes it is there and sometimes it isn't. When there is an AIRMET for turbulence, I warn my wife that she might want to take a Dramamine. In the past, I have canceled flights when 30+ knots were forecast. This looked to be more like the Santa Ana winds that will beat you up if you are down near the passes, but are not as bad if you stay up high. So, I determined to go ahead with the flight.

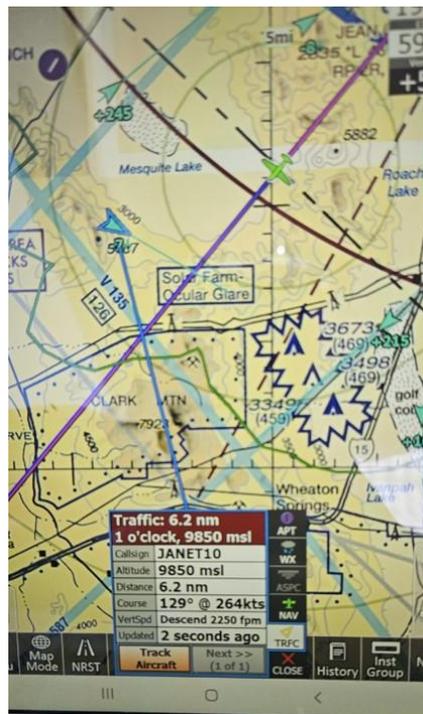


AIRMET - Winds Over 30 Knots



The tailwinds did not disappoint. Forty-five minutes into the flight, we were seeing ground speeds in the 180's and further into the flight, the winds were forecast to be stronger. As we continued southwest back to California, we saw ground speeds above 200 mph in level flight. Now that will put a smile on your face.

Passing Vegas, I looked at my tablet and saw the callsign of a passing flight was JANET10. Janet Air ("Just Another Non-Existent Terminal") flies from Vegas to Area 51.



Normally, I will start my descent from 10,500' as we are passing over Lake Arrowhead on our way into the LA Basin. However, there were PIREP's from 737's over Ontario on their way into LAX, of moderate turbulence and ATC was advising all the flights that there was light chop between 10,000 and 7,000'.

With all of that in mind, I stayed at 10,500' and planned to pull power back and start my descent south of that corridor of air. I knew that if we got far enough away from the San Bernardino Mountains, the air would be smoother.

Before beginning, I told my wife to snug her seatbelt tight. Then, I pulled the power back and dialed in a 400-fpm descent into the GFC500. I was expecting some bumps but was pleasantly surprised when the ride was about as smooth as any other descent. I also expected that we would be landing on runway 06, (which I have only done twice in the 240 times I have landed at KFUL). That's because all the Inland Empire airports were showing strong winds from the East. However, when I listened to Fullerton's ATIS, the winds were 200 at 4.

The flight finished off without any rough air and was even faster than the trip to Utah, coming in at a blazing 3:16, almost 30 minutes faster than if there had been zero wind.

So, there you have it – beautiful flights, smooth skies, a great purpose and destination, and tailwinds both ways. It may never happen again.



As always, thank you for taking the time to read. If there are things you would like me to write about (or not write about), or if you just want to say hello, drop me an email at [richard@intothesky.com](mailto:richard@intothesky.com). If you're ever in Southern California and want to meet up let me know.



# Instrument Takeoff in a Mooney

By Winslow Bud Johnson, CFII

While teaching a seminar at one of the Mooney Safety Foundation Pilot Proficiency Programs, I asked a group of Mooney pilots if they would ever consider doing an instrument takeoff (ITO). Most of these highly experienced, instrument rated, pilots said no. If there was zero visibility, they would generally make the decision to just stay on the ground.

FAR Part 91 does not mention any visibility requirements for taking off in instrument meteorological conditions (IMC), so “blind” takeoffs are legal. Nevertheless, the risk is substantial because even the smallest issue can result in disaster. Such a takeoff requires a perfect positive rotation and liftoff with wings level, followed by a climb at VX or VY to make a quick getaway from the runway.



## Nantucket Island

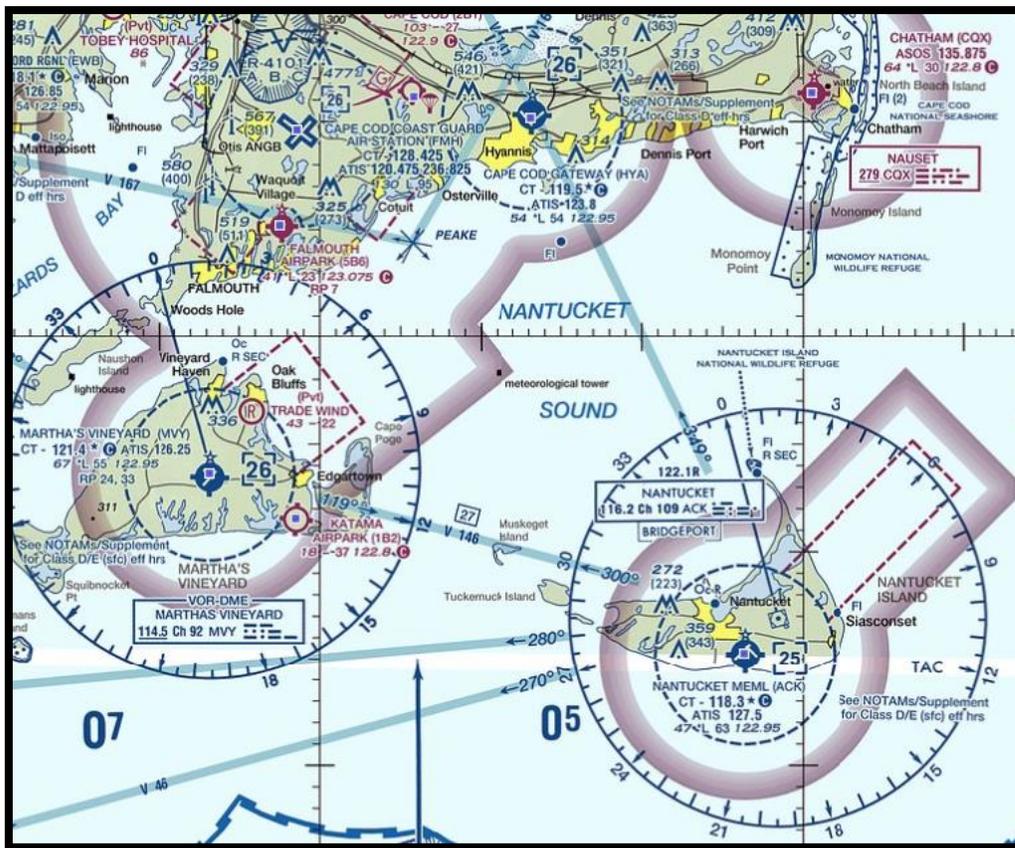
I'd like to tell you a story of how I personally found it quite useful to have practiced many instrument takeoffs, just for fun. I would go up with another pilot, (most of my pilot friends are certified instrument flight instructors), put the hood on and roll down the runway. I felt I was pretty good at it. Of course, I had never done it for real until one day on Nantucket Island ([KACK](#)).

Around 8:30 in the evening, I had just finished dinner with a friend on beautiful Nantucket Island. I had flown my Mooney from Bridgeport Connecticut to Nantucket and was planning a return flight after dinner. I kind of had to return that evening because there was no room to stay with my friend and all the hotels on the island were full. That is a normal situation on Nantucket during that time of year.



When I arrived at the airport, fog had rolled in, and the visibility was very poor. I could see that there was a clear sky above the fog, and I learned that the weather on the next island, Martha's Vineyard ([KMOV](#)), was clear. This was a time when I was glad to know the proper numbers for take-off rotation and climb out. I am not recommending you ever do an instrument takeoff, but it is a good thing to know how it works.

First, I aligned the airplane with the runway centerline, with the nose wheel straight. I set the heading indicator with the bug on the runway heading. Holding the brakes, I advanced the throttle to an RPM that would provide partial rudder control. I then released the brakes, advancing the power smoothly to the takeoff setting.



During the takeoff roll, I was careful to hold the heading constant (on the heading indicator), by using the rudder. I kept my feet off the brakes to avoid over controlling. As the airplane accelerated, I cross-checked the heading indicator with the airspeed indicator and watched for a rotation speed of 67 knots. I smoothly applied elevator control for an 8-degree positive attitude and accelerated to 90 knots. When I was sure of a positive rate and had reached a safe altitude of around 100 feet, I raised the flaps and gear.

During the climb, I continued a rapid cross-check of the heading indicator and attitude indicator.

I was very careful to maintain pitch and bank control by carefully watching these instruments. I was also watching the VSI and altimeter to make sure of a stable rate of climb. I trimmed to reduce control pressures so I could hold a stable climb attitude. Once I reached 1,000 feet, I was out of the fog and changed my power settings to cruise climb.

**Conclusion**

I am not recommending instrument takeoffs and I am not sure I would ever do one again. As they say, "There are old pilots and bold pilots but there are no old bold pilots." Nevertheless, I do think it is a good idea to occasionally practice an instrument takeoff with a CFI while wearing a hood or Foggles. It sharpens your takeoff skills, improves your instrument scan and forces you to fly by the numbers.



# Sometimes You Just gotta....

By Jerry Proctor



Well, I keep looking at the mid-November calendar and I am shaking my head. Yesterday, per pix, I sent a note to my daughter in CO and said, what is wrong with this picture besides my ugly old legs.



So, I gave her the answer. I am outside barbequing, wearing Birkenstocks and shorts and it is mid-November! Whattha? Been unusually warm here in AZ this year but come on!

However, I firmly believe winter will arrive and with winter comes, you got it, Santa Clause! Yah! I remember as a young boy, how great Christmas mornings were. I would try my hardest to sleep the night before. I hoped those pesky reindeer wouldn't be able to peak past my second story window shades to see if I was faking sleeping. Then, as I got a little older, I would watch the nearby Ellsworth AFB radar tracker on our black and white TV. It showed how they were tracking

Santa move around the country. Impressive for sure. I also wondered about that chimney deal; my house did not have a traditional chimney so how the heck was he going to get in? That said, when I checked the cookie plate in the morning, there was nothing but crumbs left so I rationalized Mom left the door open.

Well, since you are reading this you along with me probably had an interest in flying and planes when you were young. Thus, you began to read about planes and probably rockets. At some point, I began to wonder how Santa could make it to all the houses in the world in one night. Well first, nighttime lasts 24 hours worldwide. OK, so that helps. But still? Finally, in High School physics class, I learned that Mr. Einstein was able to state that the faster one goes, the slower time goes. Ahhh, that's the missing puzzle piece!

So, forget about that silly old scene of reindeer and an open sleigh. Santa, as the world population grew, had to upgrade. Who knows what he is riding now, but it is a super-fast son of a gun. We Mooney pilots get FAST! I guess he scoots around at approximately .9 the speed of light! Easy to cover the whole world when you are experiencing maybe a month vs. the world only has one night.

Well, that worked for me for a while and mostly it still does. However, like many ultra-complex theories, it maybe doesn't solve all the issues. What about the time to put the presents under the tree? How can he move so fast and not break the sound barrier while coming down the chimney? I am sure I would have heard that sonic boom! So, I finally came to the perfect justification. Here it is.

Have faith, and sometimes, you Just have to Believe!

Merry Christmas

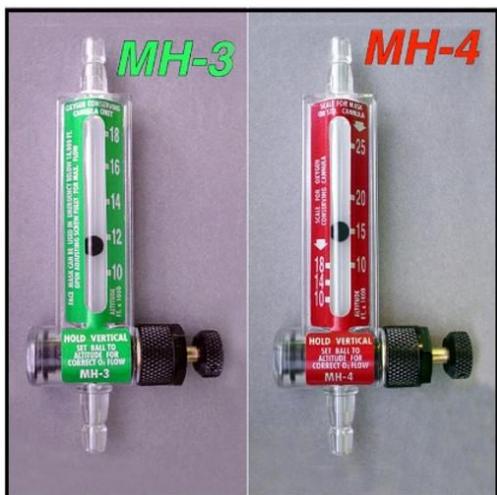


# Some More on Oxygen

By Terry Carraway

I was all set to write an article on using oxygen, when Jim beat me to the punch. But here are some other thoughts and some comments on equipment.

If you are buying a system, buy the largest cylinder you can handle. Make sure it fits in your plane with the normal people/luggage. When you refill your oxygen cylinder, you pay for the fill, not how much oxygen is put into the cylinder. So, a larger cylinder costs the same to fill as the smaller one, but it lasts longer.



Another option for filling is to set up the equipment and fill your cylinder yourself. This works for portable as well as built-in systems. You can get one or more tanks of oxygen, and the parts to connect that large cylinder to your smaller one. The major suppliers of oxygen equipment, Mountain High and Aerox, can supply the fittings to fill your own cylinder. For the smaller portable cylinders, a single large tank will work, and when the pressure gets too low, just swap it out. For the larger built-in systems, a cascade system gets you a more complete fill. You fill from cylinder 1, then you top off from cylinder 2, and possibly have a final top off from cylinder 3. When cylinder 1 gets too low to do any good, you swap it for a full one, and that becomes cylinder 2 (or 3) and the former number 2 becomes the new number 1. It is more complicated to write about than to do it. Another consideration is to get together with a few other pilots and split the cost of setting up the filling system. You can get more info at

Mooney Space and Beech Talk. Also, if there is enough interest, I can write an article about it.

These days, all oxygen comes from liquid oxygen. There is no difference in the purity and moisture content of welding oxygen, medical oxygen, and Aviator’s Breathing Oxygen (ABO).



Most people use cannulas. They are approved to FL180. Above that, a mask is required. There are the standard cannulas like the ones used in the hospital. The problem with these is the oxygen flows all the time, even when you are exhaling or pausing between inhaling and exhaling. So, a lot of oxygen is wasted.

There are also the “oxygen saving” Oxymizer or “mustache” cannulas that have wings from the nose area. Those wings collect the flowing oxygen while you exhale and then deliver it when you inhale, saving a lot of oxygen. They can reduce the oxygen flow by a factor of four. Your flow meter should

have scales for standard and oxygen saving cannulas. When setting the flow rate, make sure you are using the correct scale. The flow meter allows you to adjust the flow of oxygen for the altitude. It should be used in conjunction with a pulse oximeter. More on that later.





Another trick way to save oxygen is using the Mountain O2D2 system. This is a pulse demand regulator. It senses when you inhale and delivers a metered pulse of oxygen only when you inhale. This saves a lot of oxygen and delivers it at the start of the inhalation, so it gets deep into the lungs. It supports two users. There is also the O2D1 for single users. It is also a “set and forget” operation as it senses the cabin altitude and adjusts the duration of the oxygen pulse to compensate. You can set it to start the oxygen delivery at 5,000 feet, 10,000 feet or immediately. It also warns you with a flashing red light if you do not breath for a while, which could be because of a

disconnected or kinked hose, preventing the unit from sensing your inhalation. The O2D2 can be wired with power from a USB port and has audio alerts that can be wired into your audio panel. I have one of these units and love it. I have heard rumors that one of the other aviation oxygen equipment companies may be testing a similar product.

An oxygen concentrator is another option. These work by flowing air through a canister that holds onto the nitrogen, so that you get air with a much higher concentration of oxygen, up to 96 – 98%. There are two canisters in the unit. As you use one, the other is regenerated by making it give up the nitrogen and exhausting it. The Imogen G5 is approved for aviation use. There are some suppliers who will sell you a new unit with a copy of your pilot certificate. Main Clinic Supply is one such supplier. They have the unit on sale most of the time for \$1,995. Some people have managed to find them on Craig’s List for a few hundred dollars. They can run off an internal, swappable battery pack, AC power or 12-volt cigarette lighter plug. If your plane is 28-volt, you will need a voltage converter, (\$45 from DigiKey). The buy-in can be high, but you will never need to pay for a refill. The canisters do need periodic replacement. People with the units say they use oxygen at much lower altitudes than FAA requires for oxygen use, but notice they are sharper when arriving at their destination and have fewer after flight headaches. Of course, you can use a normal system at lower altitudes.

Jim discussed pulse oximeters in his great article, and I want to reiterate, you need to have one of these in your airplane if you use oxygen. And, if you don’t have an oxygen system, you might want to pick one up and check your oxygen saturation levels when flying. That may motivate you to buy an oxygen system. They are not expensive and are available at Amazon.com.

### Inogen One G5 System



Most people are familiar with oximeters that are used by their doctor. It is the thing they clamp on your finger. It measures the oxygen saturation by shining a light through your finger and seeing how much gets through. They are not perfect, but they do a reasonable job. One huge caveat is, if you are exposed to carbon monoxide, the pulse oximeter will happily and falsely show high saturation levels.



I have found a wearable oximeter. The typical ones are pretty large and annoying hanging off your finger. This one is like a large ring. You put it on and leave it on. It connects to your phone via Blue Tooth and keeps a running log of your oxygen saturation, pulse rate and other parameters. But the big advantage is that it has a settable vibrating alarm. Just set the desired minimum oxygen saturation, and if you hit that level, it starts vibrating. It is definitely enough to get your attention. It is the Wellue O2Ring Oxygen Monitor. It is not exactly cheap at \$179, but I think it is well worth it if you fly with oxygen. [CLICK HERE](#) for more information.



In 1955, shortly after the M20 was certified, Al Mooney left his namesake corporation to work for the Lockheed Aircraft Corporation in Marietta, Georgia. His brother Art joined him there, and both remained with Lockheed until retirement.



**1/** You are planning a VFR flight to visit family. Your mechanic has placarded your Rate of Turn indicator (turn and slip) "Inoperative," while you patiently await a new indicator. Can you still fly VFR?

- a. Yes
- b. No

The answer is a, Yes. A Rate of Turn indicator is required for IFR, not VFR.



**2/** Your flight to visit family will require 2 hours. Because your spouse and two friends will be flying with you, you have determined that to remain at or below the maximum gross weight of the aircraft, you can only start your flight with 3 hours of fuel. Is that sufficient?

- a. Yes
- b. No

The answer is a, Yes. Legally you could start your flight with 2.5 hours of fuel because VFR flights only require 30 minutes of reserve fuel. But, like many pilots, you prefer to have an hour of reserve fuel.

**3/** You have misplaced your Sectional Chart. However, you have an iPad with ForeFlight and it is up to date and current. Can you still fly to see your family?

- a. Yes
- b. No

Answer is a, Yes. A current EFB is a legal replacement for paper charts, and you are not required to carry a backup if you are operating as part 91 single engine piston. It is suggested that you have a backup data source, but it is not required – just a suggestion.



## What was the Mooney Mite M-18's nickname?

The "Texas Messerschmitt" because it looked so much like the Messerschmitt Bf 109.



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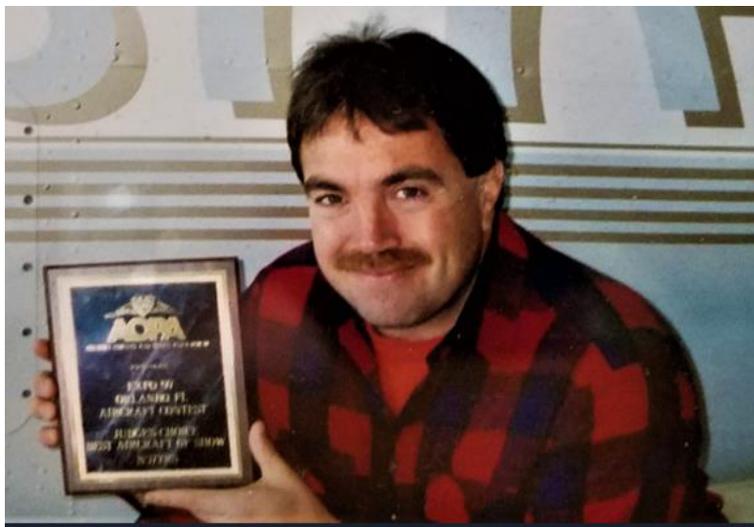
- ✓ No metal-to-metal contact.  
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### Checking your Engine at the 50-Yard Line – by Richard Simile

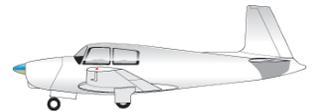
First of all, I hope everyone had a fantastic Thanksgiving Holiday and watched some good football games!!!! You may have noticed that there were at least two MOONEY accidents that occurred in close proximity to Thanksgiving. One, unfortunately, appears to be a stall spin accident after an engine failure, PLEASE WATCH THIS VIDEO and BUY-INTO what is being said. It will protect you greatly: [CLICK HERE](#). I am writing to you today because I have been dealing with several aircraft dormancy issues recently and would like to convey a few thoughts. When we think about Thanksgiving, or holidays in general, we think about taking longer trips than usual. Before we decide to depart, we should first consider how long the airplane has been sitting. When you wake an airplane up after a long duration of dormancy, things tend to happen; particularly with a long trip wake-up call. Those long "wake up call trips" are typically to connect family and loved ones, which is truly a great reason to own a Mooney!! I know the people that I am writing to here are a safety conscious group of folks. It makes perfect sense for a pilot /owner to open up his or her cowling and do a full observation of the connections,

hoses, etc., etc., prior to any long flight, right? But sadly, I think there is still WAY too much grab the plane and go. My next suggestion might be even more foreign.

I want you to de-cowl the aircraft when you arrive at the furthestmost extent of your trip, (the 50-Yard Line). This will allow you to see the engine when it is warm and if you find anything, it will also allow you time to address the problem prior to your planned departure. Frequently, family is there to pick you up, and it is certainly a wonderful moment. However, I suggest that you build time into the trip so that prior to getting picked up, you can open things up a bit, even if it's only the top cowling. Smell the engine compartment, etc. This is really important if the airplane has been sitting for a long time before the flight. In the weeks leading up to a long holiday trip, flying the aircraft a few times would help mitigate some dormancy issues as you press for the long haul. Sadly, that does not happen often, and people usually just do a grab and go. Taking a serious look at the airplane prior to a long trip AND also at the 50-yard line, helps preclude the issues which occur when an airplane sits for long periods of time between very long flights.



# Mooney Maintenance



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*Magazine for the Mooney Community*

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Download Mooney's 100 Hour Inspection Guide

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[CLICK HERE](#) for Airworthiness Directives for all Mooneys.

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# Ask the Top Gun



## Tom Rouch

Founder of Top Gun Aviation, Stockton, California



Send your questions for Tom to [TheMooneyFlyer@gmail.com](mailto:TheMooneyFlyer@gmail.com)



Hi there. I was hoping you could help me. **What is the most economical replacement for a 1980 Mooney M20J Century 21 Autopilot? (I need HDG, ALT Hold and VS).** They say parts are hard to come by, so should I replace it? Are there any recent articles on Autopilots or NAVs?



I wish I could be more helpful, but I am not up to date on avionics, although I know there are new systems that are really good, but also quite expensive. That being said, The Century 21 A/P was popular in quite a few airplanes built in the eighties. I assume you have several components with problems, but I would first have a specialist determine what is needed to repair your system. Many K and J models used this AP and have gone to salvage, so I would contact the large salvage companies to see what is available. The Ks used the Century 41, but some parts are common. Parts are really getting scarce, especially when you are talking about a forty plus year old aircraft.



I own a 1984 M20K. My strobe power supply appears to have died. I have already replaced the strobe lamp. The power supply is Mooney part # 880028-507. Whelen part # C-70211-1. I can't find a replacement and don't know where to go to get it repaired.

I have looked into putting Whelen LEDs in the wing tips as a possible option. They are FAA TSO'd parts, but there is no STC for my Mooney; some earlier models, yes, but as far as I can tell, not the K. **What are my options?**



The best option is to install the [Whelen LEDS](#) under the TSO with a log entry.



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This is a pilot's airplane with an exciting challenge to step up to a new environment — a new place in the sky where you fly higher, faster, farther — and fly in pressurized comfort. Up here the world looks different, you fly different, you feel like an airline captain. The Mustang is a new concept, a new breed you'll be proud to own and fly.

Have you  
HEARD?



## Citing Valve Damage, UND Drops Unleaded Fuel And Returns To 100LL



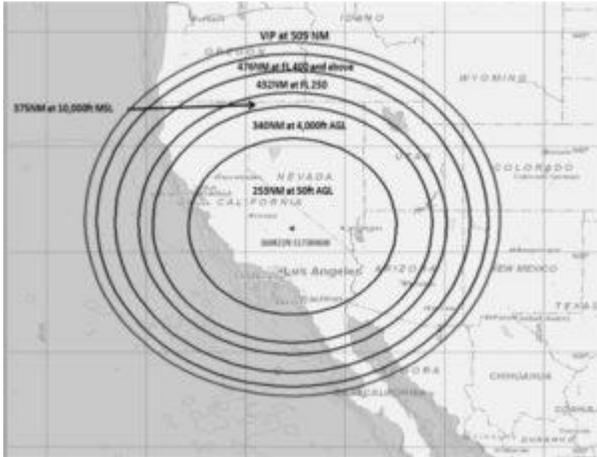
After an extensive trial, the University of North Dakota's flight school has dropped Swift UL94 fuel and resumed use of 100LL. The school said ongoing maintenance monitoring of aircraft using UL94—almost exclusively Lycoming-powered Piper Archers and Seminoles—resulted in measurable exhaust valve recession. The school made the switch back to 100LL on Oct. 27.

[CLICK HERE](#) to read more.

## FAA Approves Testing Landmark For Unleaded Avgas Contender

On November 29, 2023, the Eliminate Aviation Gasoline Lead Emissions (EAGLE) team announced that the first high-octane unleaded aviation fuel has reached an FAA milestone. According to an FAA announcement today, the agency “has approved the advancement to full-scale engine and flight testing of unleaded UL100E aviation fuel for piston-engine aircraft developed by LyondellBasell Industries/VP Racing. The UL100E fuel successfully passed a 150-hour engine durability test under the Piston Aviation Fuels Initiative (PAFI), a collaborative industry/government testing program. LyondellBessell/VP Racing UL100E is the first unleaded fuel to pass the PAFI 150-hour durability test phase.” [READ MORE](#)

# GPS Outages—How ADS-B Receivers can Protect Against Jamming



GPS outages do happen, sometimes over large areas.

Portable ADS-B receivers like [Sentry](#) are must-have devices for many pilots, delivering subscription-free weather that helps make better in-flight decisions. Besides datalink weather, many pilots have also discovered the value of having a portable ADS-B receiver as a backup. If you suffer a serious electrical system problem, an iPad and an ADS-B receiver can provide excellent backup situational awareness, including GPS moving map, backup attitude, traffic alerts, and weather.

There's another level of redundancy that most pilots don't consider, though: GPS failure. With receivers built into everything from smartphones to GoPros, the GPS constellation of satellites really does drive modern life, but it's not immune to failure or even intentional

jamming. GPS outages appear from time to time in NOTAMs, and these should be taken seriously. Even the most sophisticated glass cockpit isn't worth much without GPS. [CLICK HERE](#) to read more.



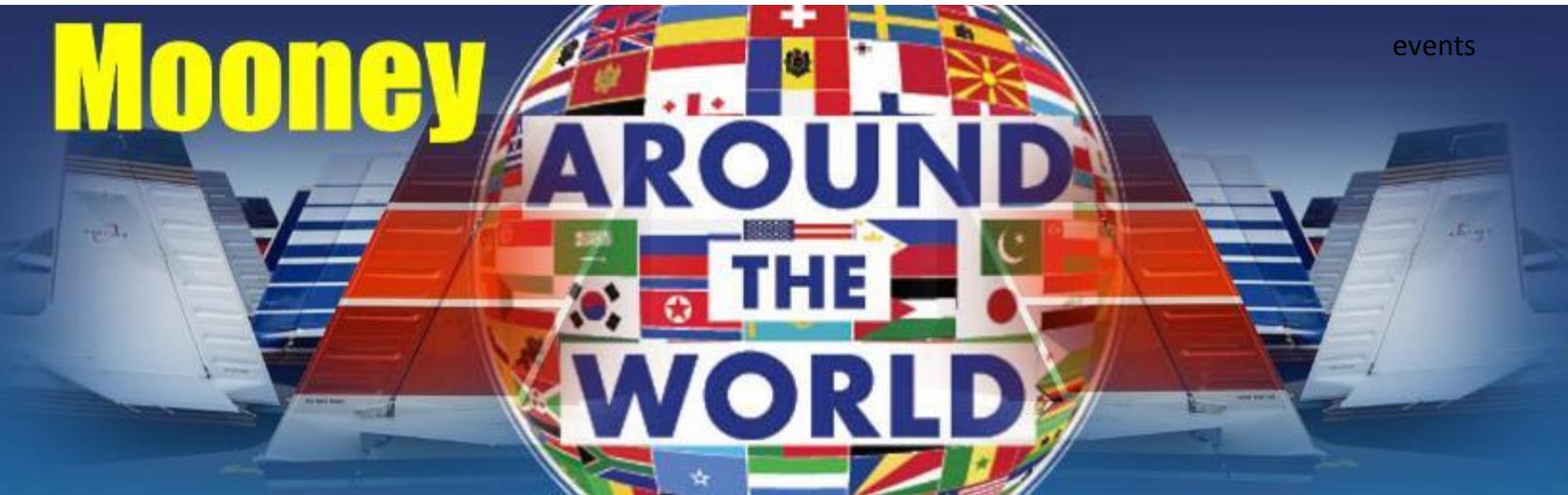
How many M20s were sold in 1955, 1956, and 1957?

'55: 10

'56: 51

'57: 105





	<p>Contact Dave at <a href="mailto:daveanruth@aol.com">daveanruth@aol.com</a> or (352) 343-3196, before coming to the restaurant, to have an accurate count. Events begin at 11:30                  December 9: Sebring (<a href="#">SEF</a>)                  January 13: Williston (<a href="#">X60</a>)</p>
	<p>Sign Up at <a href="https://www.mooneysafety.com/ppp-registration/">https://www.mooneysafety.com/ppp-registration/</a>  <b>2024 Event locations:</b>                  Ocala, FL, Jan 26-28                      Santa Maria, CA, Apr 5-7                  Owensboro, KY, June 21-23              Burlington, VT, Sep 6-8                  Dallas Ft Worth, TX, Oct 18-20</p>
	<p>2024 AGM fly-in will be to Port Lincoln in South Australia. You will be able to enjoy fabulous Coffin Bay oysters, swim with the tuna, visit local wineries and much more.</p>
	<p>Learn more at <a href="https://www.empoa.eu/index.php/en/">https://www.empoa.eu/index.php/en/</a></p>
<p><b>Other Mooney Events</b></p>	



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them 1.5cm / 0.6 inches away from the wall to give a 3D look. They also include a centered hanging attachment on the back of the product for easy mounting. Each product is safely packed and shipped with express delivery.

[CLICK HERE](#) to visit their website for more options and details.



### When did Mooney move to Kerrville?

In early 1953 and the first M20 flight took place on September 3, 1953. It was certified in 1955.





## Parts for Sale

### 1965 Mooney M20C Mark 21 (\$74,999)

180 horsepower Lycoming O-360-A1D  
Johnson bar manual landing gear  
IFR capable (VOR/DME/Glideslope)

Mooney cruise airspeed 145 Kts @ 9 GPH @ 5,000ft  
Or 7.8 GPH @ 8,500 ft  
Economy mode 87 Kts @ 3.8GPH (low manifold pressure and prop pulled back)

Video: <https://youtu.be/RNurNwEwMmg>

Photos: <https://aeroplane4sale1.wordpress.com/>

Panel video: [https://youtu.be/r1rq\\_ke0eek](https://youtu.be/r1rq_ke0eek)

More info on the Mooney: <https://mooneyspace.com/topic/45533-1965-m20c/>

Extensive 6 week annual just completed on the Mooney as of April 2023. All compressions in the mid/high 70s.

Mooney logs: [https://drive.google.com/drive/folders/1c7fMmP43vVq5\\_u7zhyxafC41ot\\_hKpJD?usp=sharing](https://drive.google.com/drive/folders/1c7fMmP43vVq5_u7zhyxafC41ot_hKpJD?usp=sharing)  
Complete logs since new, no damage history, no corrosion

### 1959 Mooney 20A - Seeking Mooney Purist \* \$17,000

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\* Would consider selling only the engine and prop. However, sentimentally prefer to find a Mooney Lover seeking a great project. \* Telephone: 419 591 6477 for further information.

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Current Hartzell price is \$4,275.

Price \$3,500 **REDUCED**

This Cowling was removed from a M20E and replaced with a M20J (201) cowling. The cowling is located at Fullerton Airport (KFUL) and is in excellent condition. Offers accepted.

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P/N 310309-502

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Bushing P/N 914007-003 - 2- Bushings in the original package @ \$35.00 each. Priced elsewhere @ \$45.00 each.

Bushing P/N 914007-005

1-Bushing in the original package @ \$59.00

1-Bushing loose @ \$50.00

Priced elsewhere @ \$69.00 each

Contact: Bernard Lee – [leebern@msn.com](mailto:leebern@msn.com) (562-865-2547)

Access Covers P/N 3000-901 (2-available) - 1-without nuts attached.

Make offer. Contact: Bernard Lee – [leebern@msn.com](mailto:leebern@msn.com) (562-865-2547)



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For Sale: Complete exhaust system from 1975 M20C. Excellent condition. Drilled for EGT sensors.

Approximate 2,750 hours TT. Removed for Power Flow upgrade. \$350. For information: 541-382-6752; 541-410-1121;

[jhl1csrs@yahoo.com](mailto:jhl1csrs@yahoo.com)



For Sale: Complete exhaust system from 1993 M20J. Excellent condition. Drilled for EGT sensors.

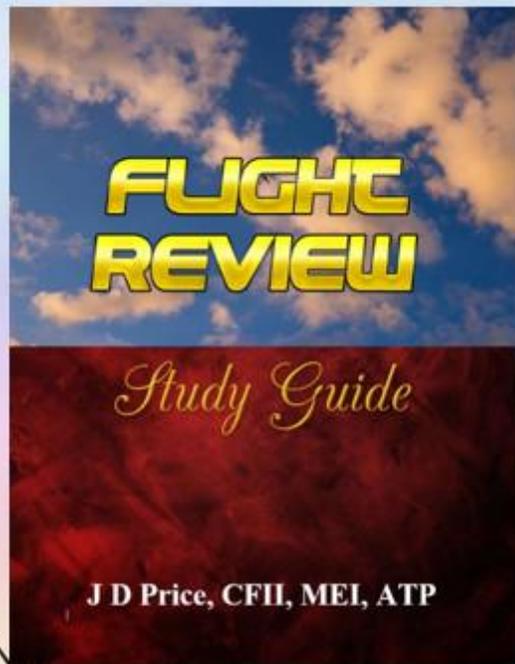
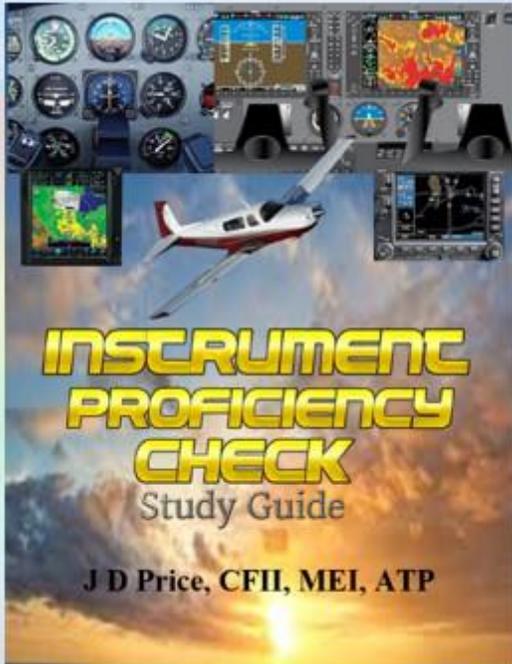
1,212.7 hours TT. Removed for Power Flow upgrade. \$350. For information: 541-382-6752; 541-410-1121;

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For Sale: Polished Hartzell 3 blade spinner P/N: A-2295-4P. Fits Mooney M20J and M20C with STC and other applications. Complete with bulkhead. \$500. For information: 541-382-6752; 541-410-1121; [jhl1csrs@yahoo.com](mailto:jhl1csrs@yahoo.com)





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