# The Mooney Flyer

The Official Online Magazine for the Mooney Community

www.TheMooneyFlyer.com

March 2024

## Editors

Phil Corman | Jim Price

## Contributors

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

## Departments



## Features



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Find all the back issues (starting in 2012) or use our powerful search engine to find a past article.


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


## Donations

We haven't had a Donation Drive for a few years and our funds are a little low. Some of our readers think we are MAPA, but we are completely different.

If you like or love our magazine, and we hope that you do, please consider making a donation.

We take no salary, and we use your donations to publish the magazine, cover expenses and put on fly-ins such as this June's Paso Robles Mooney RoundUp.

It is essentially the 100LL that keeps us going.

Please consider giving.

Please Donate to The Mooney Flyer (Click Here)

## Our Contributors

We are 100% blessed to have writers that offer their vast knowledge. Our magazine is always improved by those Mooniacs who help with some amazing articles that inform and entertain us and help make us the best pilots in the GA world. They include Parvez Dara, Richard Brown, Jerry Proctor and Terry Carraway, as well as many other less frequent contributors. Parvez, who is the President of the Mooney Safety Foundation, writes articles that literally save lives. His article this month "The Colorless Poison" is a must read and a life saver. Richard Brown's articles typify the "Joy of Flying." He both informs and entertains us with his flying tales. Jerry Proctor is one of a kind. I love his writing and always look forward to his work. I met Terry Carraway at MooneyMax and he has become a regular writer. His current work regales us with his panel upgrade, a most interesting read.

Please consider writing an article and sharing your knowledge and/or experience, or just a good tale. We don't care if you can spell, know grammar, or think you are a bad writer. We will make it look great.

## Mooney Flyer Fly-in on June 28-29

We are hoping to make this the largest Mooney event of the year. **CLICK HERE** for more information.

**CLICK HERE** to Register (It's FREE)

# The Mooney Roundup Fly-In Event in Paso Robles, KPRB, on June 28-29

Our last Paso Robles fly-in had 54 Mooneys, more than 125 attendees and included a FREE Tri-Tip BBQ.


This year we plan to blow out this event with the following activities:

**Friday Evening:** A Wine & Beer event in our hangar for everyone to meet & greet old and new friends. Plus, a short but entertaining presentation by The Mooney Flyer team. In addition, this event is FREE

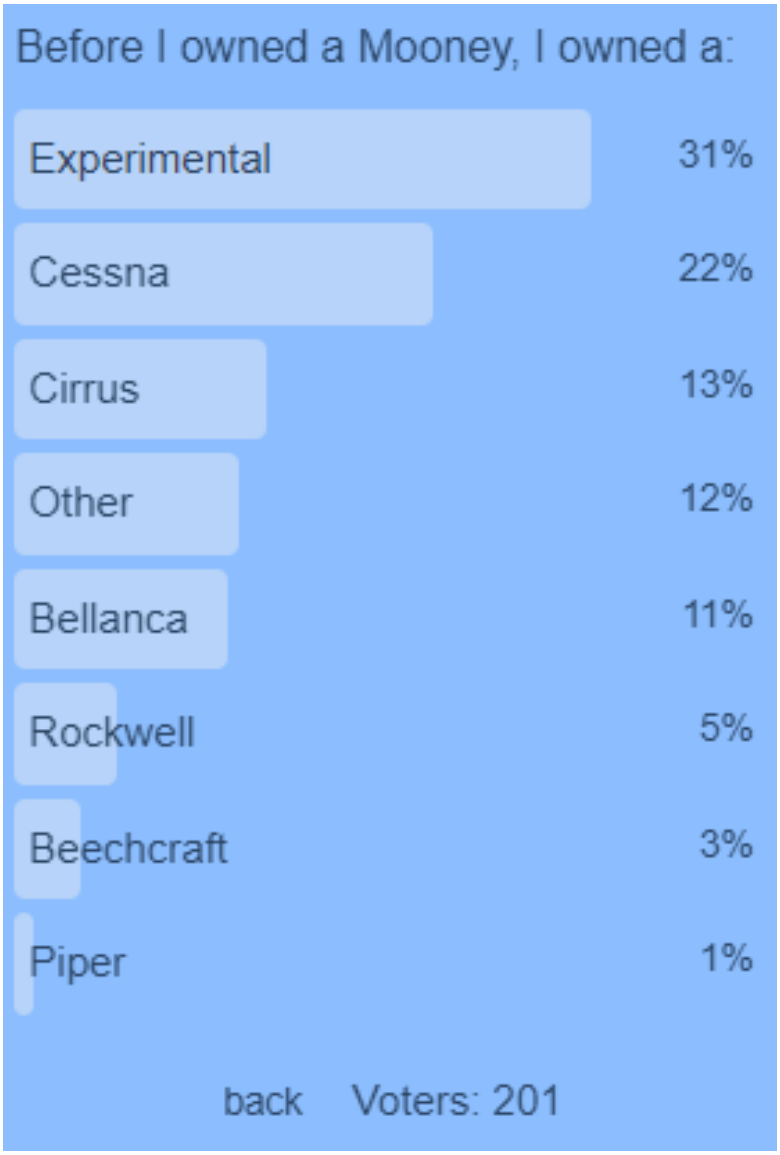
**Saturday Morning:** Hang out on the ramp and greet the Saturday morning arrivals while you admire each other's Mooneys.

**Saturday Mid-Day:** Lunch and a few more presentations including our very popular Mooney Destinations presentation, given in the perspective of the pilot's and passenger. The pilot talks about the airport, the FBO, etc. and the Passenger talks about hotels, restaurants, shopping and things to do. There is something for everyone. The other presentation will be a special guest and you don't want to miss it.

**Saturday Afternoon:** Free time. You can visit the Estrella Warbird Museum (on the airfield) and/or we will arrange for Wine Tasting at 3 wineries.

**Saturday Evening:** Dinner at Cool Hand Luke's , Followed by an AMAZING visit to Sensorio, a one of a kind place.



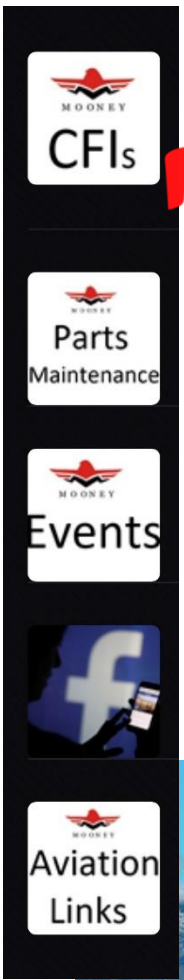



Next month's poll: "Regarding Leaking Fuel Tanks"

**CLICK HERE** to vote

# Need a Mooney CFI?

CLICK HERE to find one




**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.**

**CFIs can list their name and contact information on our website. To modify your current CFI listing, send an email to TheMooneyFlyer@gmail.com**

**Be sure to include your home base and state.**

# Letters to the EDITOR

TheMooneyFlyer@gmail.com

So enjoyed reading Parvez Dara's article. "View From a Distance" in the Feb. 2024 issue of The Mooney Flyer. Please continue to solicit his continued contributions to your excellent magazine. His prose was more than enlightening, and also, very educational. I will keep his experiences in mind for my own future flights.

PS.: I always enjoy reading Richard Brown's exceptional stories as well. Hope you can keep both of these authors "on task"!

Sincerely, **Joe A**

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*DESERVES SUPERIOR SERVICE & SUPPORT*


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Volume 13 Number 3 March 2024

# Distractions & Expectations

## Silent Enemies

Phil Corman
Co-Editor

Even though we are pilots, we are also human and subject to our most innate instincts. If something in our lives recurs over and over again, sometimes for years, we expect that patten to continue. This is part of our survival. However, in aviation, expectations can be deadly. Distractions are another silent enemy. If we are distracted in our lives, we may forget to do something that was important or crucial. In the cockpit, distractions can be deadly or at least have significant consequences. We think we can multitask and not be distracted. But often that is not the case.

**Distractions are bad when they occur, and expectations are bad when they don't occur.**

### Preflight Expectations and Distractions

Last month Parvez Dara wrote an excellent article entitled, "The View from a Distance." He described things that the PIC overlooked during the preflight walk-around.


During a preflight walk-around, both expectations and distractions can bite you. Let's start with distractions. If you have a passenger that is walking around the plane with you and talking to you or asking questions, that's fine. But you cannot let it distract you from doing a detailed preflight check. Weather is another distraction. If it is cold or very stormy, it distracts you from doing a thorough and detailed preflight as you are more than likely to be focused on completing the check and getting out of the weather. You can imagine other distractions that can occur. The message here is to not let those distractions prevent you from accomplishing your primary mission, which is to ensure that your Mooney is safe and airworthy for your flight.

Expectations during the preflight check are equally bad. I've done thousands of preflight walk-arounds and very seldom do I find an issue. This drives my expectations that my Mooney will probably not have any issues. But our mindset should be exactly the opposite. We should go into the preflight check with a mindset to find an issue that's lurking somewhere in the engine, fuselage, gear, etc. Mindset is everything. Expect to find an issue and look closely at everything. Don't assume everything is A-OK.

## Taxi

This section will be short and sweet. Don't taxi and touch your iPhone at the same time. No texting, no calling, NADA! This is the ultimate distraction and cannot result in anything good.

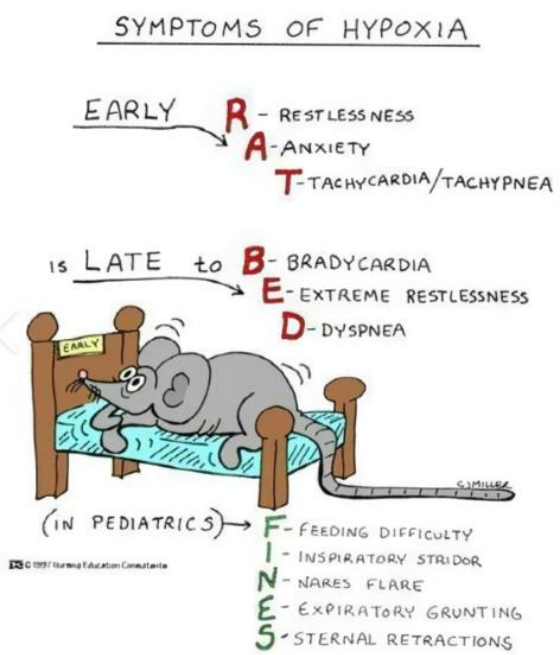
## During Run Up

No matter how many times you go through your runup checks, you should use your checklist to protect against distractions and expectations. Did you overlook a blown fuse, a rough running engine during a magneto check, or did you forget to check that all the instruments are operational? Did you remember to pull the pitot cover? I hope not because forgetting this makes your landing a little more challenging. Did you remember to take the towbar off the nose? (I've warned 5 or 6 planes that they were pushing their towbars during taxi to the runway).

## Takeoff

Expectations are the main culprit here. You have done hundreds or even thousands of takeoffs and maybe you have not had any issues with any of them. But as stockbrokers say, "Past performance is no indicator of future performance."

As you add full power for takeoff, you should set your mindset to be prepared for a partial or complete engine failure. Then, if it happens, you are already in the correct mindset. But that's not good enough. You need what we refer to as a "Conditioned Response." This means that you act without any delay to aggressively push the nose down and look for the best landing zone within +/- 30° of your heading. If you think first and don't aggressively push over, you will lose two seconds or more, which could result in a stall/spin. Have the expectation on your takeoff roll and climb out that your engine will fail.




## Cruise

Normal distractions usually can be managed during cruise. You just have to remember to be on the lookout for traffic and to monitor all your gauges, such as oil temperature, oil pressure, CHTs, EGTs, etc.

Expectations are the killer here. The two issues are 1) Hypoxia and 2) CO Poisoning. Parvez Dara writes an excellent article in this issue entitled "The Colorless Poison." CO poisoning is a silent killer because the person afflicted does not recognize the symptoms. There is a solution and it's a CO monitor.

Lightspeed just released a new ANR headset, the Delta Zulu. It has a built-in CO Monitor. You can set it to alarm at any level. It also has the ability to review your CO levels for dozens of past flights. That can be crucial, finding an issue before it is dangerous.

Hypoxia is another bad expectation. You never expect it, and you will not recognize the symptoms which degrade your piloting skills. As I get older, I have started using oxygen at lower altitudes. It eliminates the probability of hypoxia, and also increases my alertness.

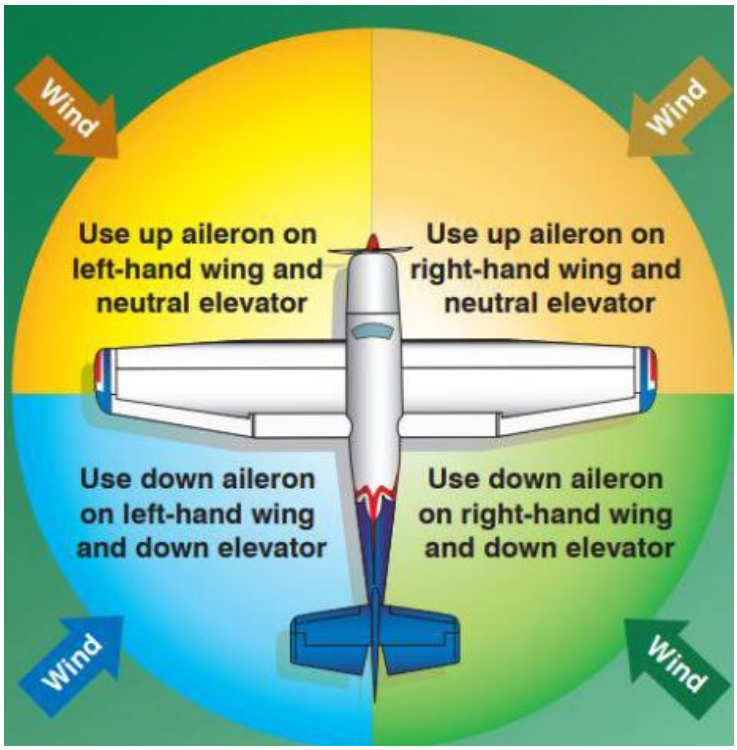
## Landing

The 3 main issues during landing are distractions, distractions, and distractions. Most gear up landings occur because the PIC was distracted and failed to lower the gear. Distractions can take many forms, such as passengers talking, traffic in the pattern, weather, and any disruption to your landing routine. One remedy is to ensure a sterile cockpit. Inform your passengers that they are to remain silent upon entering the pattern.

Then repeat the following 3 times: “The gear is down and locked.” Check when you lower the gear, then again when you turn base and then on short final. Say the above quote aloud each time. This actually works and you can avoid a costly incident to your Mooney.

## Taxi

Your last expectation is that taxiing to your tiedown, or hangar will be a non-event. If the winds are high or gusty you are not done yet. Remember to continue flying while taxiing to your hangar. Dive away from the wind with your ailerons and rudder.




## Summary

Expectations and Distractions in every phase of flight need to be managed. Preparation and focus are the start.
Flying is the most amazing endeavor, but also the most unforgiving.


# Once You are on BasicMed

You can operate under BasicMed if you meet the provision of holding an FAA Medical at any time after July 14, 2006, as long as the FAA Medical was not:

- Denied
- Revoked
- Suspended
- Withdrawn

**What do I need to fly under BasicMed?**

- Comply with the general BasicMed requirements
  - Possess a U.S. driver's license,
  - Have held a FAA 1st, 2nd or 3rd class medical after July 14, 2006).
- Get a physical exam with a state-licensed physician, using the Comprehensive Medical Examination Checklist
- Complete a BasicMed medical education course
- Go fly!

**Aircraft Requirements**

- Any aircraft authorized under federal law to carry not more than 6 occupants
- Has a maximum certificated takeoff weight of not more than 6,000 pounds

**Operating Requirements**

- Carries not more than five passengers
- Operates under VFR or IFR, within the United States, at or below 18,000 feet MSL, not exceeding 250 knots.
- Flight not operated for compensation or hire

# Are there Circumstances that would Require You to Obtain an FAA Examination and a Special Issuance?


UNITED STATES OF AMERICA
Department of Transportation

MEDICAL CERTIFICATE THIRD CLASS

This certifies that (Full name and address):

| Date of Birth | Height | Weight | Hair | Eyes | Sex |
|---|---|---|---|---|---|

has met the medical standards prescribed in part 67, Federal Aviation Regulations, for this class of Medical Certificate.

Limitations: Must wear corrective lenses. Not valid for any class after September 30, 2006.

Once you attain a BasicMed, you will never need to have an FAA Medical certificate again and can forever operate under BasicMed. **However,** BasicMed did not do away with special issuances. The FAA still issues special issuances along with medical certificates for all classes of medical certificates. Under BasicMed, getting a special issuance for certain medical conditions is a requirement of the FESSA legislation that was passed by Congress.


# BasicMed and a Special Issuance

**You will need to undergo the FAA process for special issuance if** you newly develop (or have never held a special issuance for) any of the following medical conditions since the last time you received a FAA medical certificate:

- **Mental Health:**
  - Personality disorder severe enough to have repeatedly manifested itself by overt acts
  - Psychosis
  - Bipolar disorder
  - Substance dependence within the previous 2 years.
- **Neurological:**
  - Epilepsy
  - Disturbance of consciousness without satisfactory medical explanation of the cause
  - A transient loss of control of nervous system functions without satisfactory medical explanation of the cause
- **Cardiac:**
  - Myocardial infarction (heart attack)
  - Coronary heart disease that has required treatment
  - Cardiac valve replacement
  - Heart replacement

For more information, see:

https://www.faa.gov/licenses_certificates/airmen_certification/basic_med

BasicMed FAQ:
https://www.faa.gov/sites/faa.gov/files/licenses_certificates/airmen_certification/basic_med/basicmed_faq.pdf

# Plan Now to Become a Safer Pilot in 2024

Attend a Mooney Pilot Proficiency Program. Visit MooneySafety.com to learn more.
You can register at https://www.mooneysafety.com/ppp-registration/

You can also email Lela Hughes, lelahughes49@gmail.com or call 830-315-8008.

**Ocala, FL, January 26 – 28**

**Santa Maria, CA April 5 – 7**

**Owensboro, KY June 21 – 23**

**Burlington, VT September 6 – 8**

**Dallas Ft Worth, TX Oct 18 - 20**

**Click Here To Register**

MOONEY SAFETY.COM

# What is Your Line in the Sand

On a Thursday, we returned from a trip to Colorado with plans to fly to St. George, Utah on Saturday morning. My youngest son had a recital and concert that he was playing in and while the University live streams most of them, they sound so much better in person.

Before departing Colorado, I saw that the four hours going to and from Utah was going to put me past 50 hours on my oil change. So, upon putting the plane in the hangar, I started draining the oil. This way I could come back and complete the oil change before our flight. It's been a while since I drained oil from a hot engine. Wow! What a difference that makes in the speed of the oil flowing out.

My plan was to complete the oil change Friday evening so we could leave Saturday mid-morning. The forecast was for low IFR Saturday morning, but by 9-10 am it was supposed to lift to ceilings of 1,200-1,300'. I am comfortable departing into a deck at that height. It's high enough that I don't have to transition immediately to the instruments when lifting off, and it is also higher than Fullerton's (KFUL) RNAV MDA.

The tops were going to be between 3,000' - 5,000' and the freezing level was above 10,000'. Therefore, I wasn't concerned with icing. I know some of you are rolling your eyes at me, but even in Southern California, sometimes in the winter, we have to worry about the freezing level.

I passed my IFR Checkride September 29th, 2021. Since that date, I have been diligent about staying ahead of the requirements for currency. When the weather is agreeable, I will go out to shoot an approach or two in actual conditions. When I can't get in enough actual approaches, I will go up with a safety pilot and shoot two or three, even if I only needed one. After, if I am going to fly with a safety pilot, I should take advantage of it and get some extra practice.

Seven and a half years ago, when I began my flight training, I started using myflightbook.com as an electronic logbook. At the time, I also kept a paper logbook so my CFI could sign off on flights and endorsements. Since then, I have gone just to the electronic version because it allows a CFI/CFII to electronically endorse flights.

It is a great, free tool with a website and mobile app version available. For the data nerds out there, it tracks everything. I can see airports visited, when and how many times, plot them on a Google map with distances, logged hours by month/year, logged planes flown and hours in type. Just about any data you want to record, it will track. With a click, it will generate an 8710 form and track your currency, along with when your medical and flight reviews are due.

Everything looked great for the trip, until it didn't. I will usually update my logbook once a month, but I'm getting close to 1,000 hours and don't want to miss celebrating that milestone in the air. So, I logged on the website Friday to add our latest flights to Colorado and back. That's when I saw it. There in the currency section next to IFR – Airplane, in bold red font I read, "**Expired: 1/31/2024,**" and then right below that in a smaller font, "Short by 0 Holds and 1 Approach."

What!? How could this have happened? I thought, surely there must be a mistake somewhere. I clearly remember seeing that I needed a hold, and only a hold. Yes, this is why eyewitness accounts are terrible. When I had gone up with a friend as a safety pilot, I did a hold and shot one approach, just because we were there.

SoCal Approach was very busy that evening, so rather than ask for missed instructions after the approach, we just squawked 1200 and returned VFR to KFUL. Coming from the east I always check in over the water treatment plant and they always give a straight in for 24. When flying the RNAV 24 at KFUL, they always give you vectors and have you intercept final at LEYMI. LEYMI just happens to be a little bit east of the water treatment plant.

If I had needed two approaches to stay current, I could have easily stayed under the hood going back to KFUL, checked in with "just east of the water treatment plant," and flown the practice approach. More than once during my IFR training, when ATC was extremely busy, my CFII would play the part of ATC and give me vectors to intercept LEYMI.

But I didn't because I didn't need two approaches. At least that was what I thought at the time. I was so sure there must be a mistake somewhere in my logbook, that I pulled up all flights in the last six months that had included instrument approaches. There weren't enough. Next, I looked at flights with either actual or simulated IMC time in the past six months. There were more flights, but they either had just departures into IMC or descents through IMC. However, breaking out prior to the FAF doesn't count.

I took another look at the forecast, on multiple different sites, and all of them agreed. We wouldn't be able to get out of KFUL in VFR until at least 2:00 pm, which meant we couldn't get there in time to see our son's concert. I was disappointed in myself for having let my currency lapse when I could have easily maintained it, had I paid closer attention. I broke the news to my son that we wouldn't be coming.

There was no reason now to finish the oil change Friday evening, so instead, I went to the hangar on Saturday to complete it. After that, I spent some time on some other things there at the hangar, looking up at the low overcast that seemed reluctant to release its grip on the LA Basin. Around 1:30 pm, I began to see the sun trying to break through, and by the time I was headed home just before 3:00 pm, the clouds had given up the fight, leaving a very hazy, but clear sky.

A friend told me once, "You could just put a G-3 approach in your logbook if you need it."

"What?" I responded having no idea what he was talking about.

"You know, grab a G-3 pen," he said referring to the Pilot Gel Rollerball pens, "and write in an approach and go," he finished with a smile and a laugh.

"I can't do that" I replied.

I'm not going to get up on a soapbox and say that I have never done something that was in the gray areas of the FAR's. Some of the following may or may not have occurred in the past 7 ½ years.

"Did we just fly through a cloud? No, that was only visible moisture because you could see the ground below and out in front."

"I'm pretty sure we're 1,000' away from that cloud over there."

“This looks like 500’ below those clouds above us.”

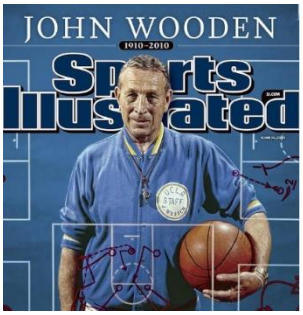
“I don’t know if this is 3 miles visibility” as you look out the windscreen at the dust layer you just flew into, “but two airports less than 8 miles away are both reporting 10 miles visibility, so it must be better than 3 where we are right now.”

I really wanted to make that flight to St George. I was not concerned with my proficiency. I have 63 hours in the last 6 months. That includes night hours/takeoffs/landings, actual IMC departures and approaches, IFR flights, and simulated IMC with safety pilots. But according to the regulations, a guy that shot 6 approaches with a hold 5 ½ months ago and hadn’t flown in IMC or filed and flown IFR since, is legal and I’m not.

“Nobody would know,” the little devil on my left shoulder whispered.

“But I would,” I answered back.

That is a line in the sand for me, and I won’t cross it. What goes in the logbook is accurate and true. And just like personal minimums for flight conditions, I also hold fast to the currency requirements, whether I am carrying passengers day/night or following IFR currency requirements. It is a commitment I made when I started on this wonderful journey.




I love John Wooden quotes, and one of my favorites is about character. He said, “Be more concerned with your character than your reputation, because your character is what you really are, while your reputation is merely what others think you are. Don't mistake activity with achievement. The true test of a man's character is what he does when no one is watching.”

So, what is your proverbial line in the sand?

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. If you’re ever in Southern California and want to meet up let me know.



In January 2024, the FAA took another proactive step to address wrong surface events by publishing additional Arrival Alert Notices (AAN).

Wrong Surface Events occur when an aircraft lines up to or lands on the incorrect runway, taxiway, or airport. AANs provide a graphic that visually depicts the approach to a particular airport with a history of misalignment risk, as well as language describing the misalignment risk area.

## 83% of the Wrong Surface events are committed by GA Pilots

Wrong surface events continue to be a significant safety risk and GA pilots are the reason for 83% of the wrong surface events. Many wrong surface events occur during the daytime and in visual meteorological conditions, and the majority of the time, the pilot has read back the correct landing clearance. AANs can serve as an additional planning and awareness tool for pilots.

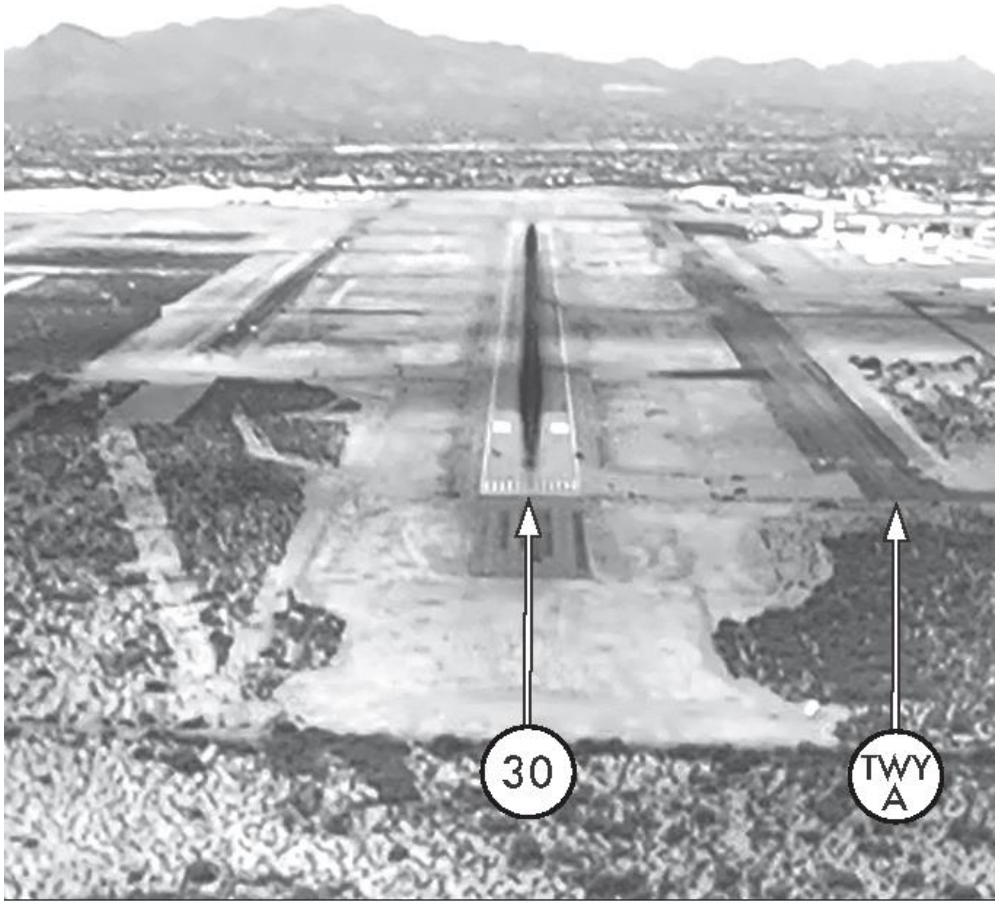
## Added 28 Airports to the List

In 2022, the AAN effort started by evaluating the top 40 airports with wrong surface arrival risks. AANs were then developed for 12 facilities and released in the May 19, 2022 charting cycle. They were then evaluated for a one-year period and the FAA found that they were successful in mitigating wrong surface landing risk. The Agency has now published 28 new AANs, expanding the total AAN library to **40**.

# Sample Arrival Alert Notice (AAN)

TUCSON INTL (TUS) ARRIVAL ALERT

## Landing Northwest
## RWY 30 and TWY A




Pilots sometimes confuse TWY A for RWY 30.
Be aware that the former south parallel runway,
RWY 29L, is closed for reconstruction.

**Not for Navigational Purposes**
**For Situational Awareness Only**

# Airports with Arrival Alert Notices

| | | |
|---|---|---|
| BFI | APA | BED |
| CCR | BJC | BOI |
| CNO | CHD | CMI |
| ELP | DPA | DVT |
| FFZ | FAT | FCM |
| HND | FTW | HIO |
| IWA | HNL | IDA |
| LVK | LAN | LNK |
| PAE | MRY | OPF |
| PSP | PBI | PDK |
| RHV | PTK | PWK |
| SLC | RNO | ROC |
| VGT | TKI | TUS |
| | VNY | |


For an interactive map that allows you to click on a location and view its Arrival Alert Notice File, go to
https://www.faa.gov/airports/runway_safety/hotspots/aan

# Night Flight, or Fright?

By Jerry Proctor

So, as I am oft to do, I will start with, “There I was!” I was new to Mooney airplanes. I was only a few months into my first Mooney, an M20K, 231. It was a fine stead. I was lucky that she found me, and I got to fly her from Wilmar, Minnesota, to Southeastern Arizona. I was so new to Mooneys. I filed IFR and after I took off from Wilmar, ATC said, “Cleared Direct to KPUB.”

Wow, straight to Pueblo, Colorado (KPUB). I settled in and did what any brand-new Mooney owner would do. I slid the seat back. No, it wasn’t to relax, but to grab the POH. I said to myself, “What did I get myself into now?”

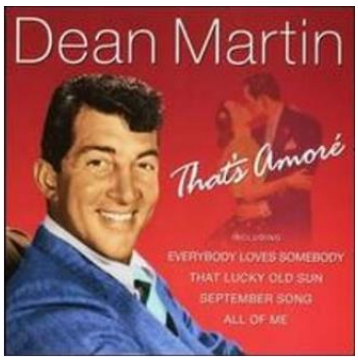
I am not kidding. I read the POH all the way to KPUB as I had never even touched the book before. Well, I survived this first leg, although I forgot to lean after landing and then after the subsequent startup. So, let’s say my mag check wasn’t perfect. I had been around planes a bit in previous lives, so I did the burn out deal. It didn’t work, but I took off anyway. That worked as the mag check at home base was just fine. I don’t recommend this method.

A few weeks later, with a few landings under my belt, (more like a few plops instead of landings), I decided it was time to earn night currency. In my military career, I flew many years of night missions. It was dark as the inside of a cow, and I loved it. So, off I go on night flight number one in my 231.

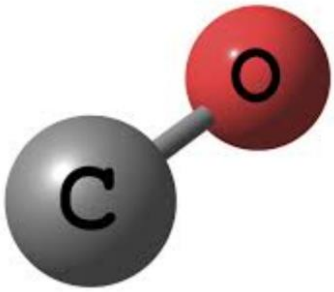
I Googled up a bit on night flying and found nothing that I didn’t already know. However, it was a good refresher. Now, consider that I fly out of SE Arizona. I previously mentioned its dark. I also knew I needed to do stop and go landings. Okay, but why go to all that trouble? I fly out of a 12,000’ runway, so do I really need to stop? I invented a procedure I called, land (plop) roll, while rolling retrim and reset flaps, and then take off. Land, roll and go! Sweet!

Well, the first LRG went just fine. I easily remembered, on the approach, to follow the VASI until my landing light gave me enough to land. Then, while rolling, I reconfigured the flaps and trim, put the coals to it and took off. OKAY, that was working fine. So, on landing #2. Land, roll, reconfigure and go! Whoohoo, this is fun.

Time for my third go at this fine set up. I came in just as planned; land, roll, reconfigure and put the power in. Almost immediately, I was not staring out at the complete darkness, (which was normal), but I now saw a half-moon in my windshield. WHATTHAAAA? Holy Mooney Moley, I am pointing at the Moon and my MOON-EY is at a climb angle that cannot long be sustained. PUSH, PUSH, PUSH on the yoke!! Grab the trim wheel and try like heck to get my nose down. After probably one or two seconds that seemed like an eternity, I got her in a proper climb attitude. Sweat city!! That was not fun, that was not good, and that was really stupid. Obviously, I have never repeated that dangerous and stupid maneuver. In Mooney training with the Mooney Safety Foundation, we never do touch and go landings in the daytime, and heck no at night. I recommend you don't ever try what I did.




So, remember and say this with the Dean Martin tune in your head, 'When the Moon hits your eye, like a big pizza pie, in a Mooney, that's a lotta trouble!




# The Colorless Poison

Parvez Dara, MD, ATP, Mooney Safety President, Master CFII, MEI, AGI.

The chill in the air needs addressing and therein lies a tale worthy of mention. Heat, the byproduct of combustion, becomes a necessity.

Carbon Monoxide is a byproduct of the combustion of fuels; wood, propane, and charcoal – all culprits that we need to produce energy. One form of combustion in the powerplant is applied directly to the propellor in the form of thrust, while the other is in the form of heat. Lurking within the confines of these two is carbon monoxide, a colorless, odorless, and tasteless gas. Environmental carbon monoxide is a byproduct of incomplete combustion of any carbon containing fuel. In an unventilated environment, even on the ground, it is the cause of around 430 fatalities and 100,000 Emergency Room visits per year.

In General Aviation piston powered aircraft, the cabin heating during winter or at altitude is done by ram air directed over the engine muffler. Any poor fitting components, cracks or holes, unsealed firewalls, and even poorly sealed wheel wells, will allow the carbon monoxide generated during the combustion process to escape and mix with the heated ram air and enter the cabin.

**Limitations**

The established limit of exposure in most healthy individuals is 0 – 10 parts per million (ppm). Smokers carry a higher limit of up to 20 – 40 ppm. OSHA considers 100 ppm in unventilated spaces as unhealthy and/or prolonged exposure of 55 ppm for 8 hours or longer.

**Accidents**

Based on 31 accidents between 1982 and 2020 with 23 fatalities, in 2022, the NTSB recommended to the FAA to require CO detectors in the cockpit. At the first instance of recognition, the pilot must use these common-sense recommendations:

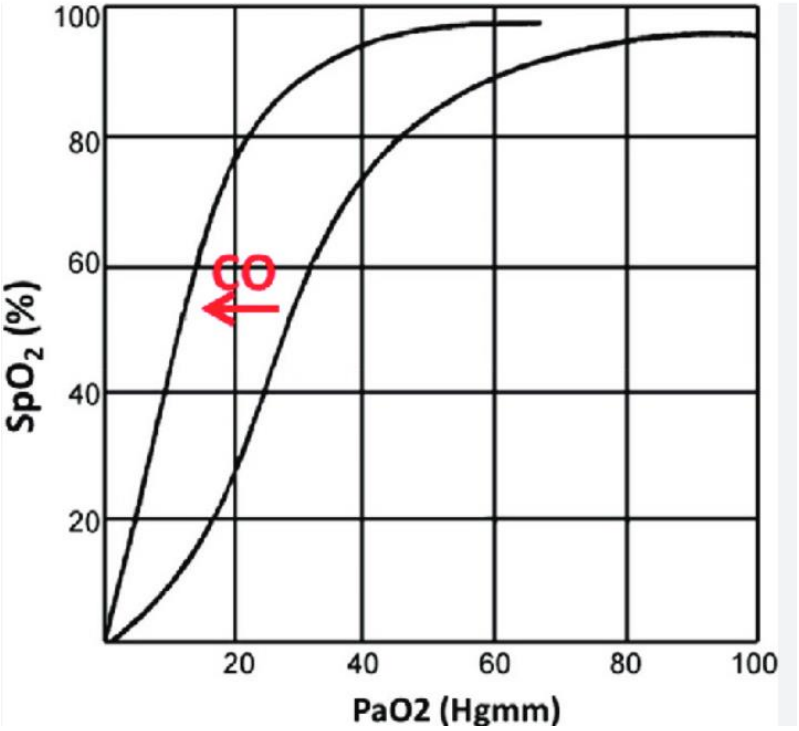
- Turn the heat Off.
- Open fresh air ventilation to the cabin.
- Consider supplemental Oxygen if available.
- Land as soon as practicable.
- Advise ATC.
- If able, to allow complete combustion of fuel, run the engine Lean of Peak.
- Seek medical attention upon landing and have the aircraft checked by a mechanic before the next flight.

**Physiology**

Hemoglobin is in the Red Blood Cells (RBC). It has two components, the oxygen transport protein (globin) attached to the iron (heme). The heme has an affinity for oxygen and sterically attaches and

then dissociates to take in (oxygen from breathed air) and give out oxygen (delivered to the tissues) respectively. The hemoglobin gives blood its red color.
Compared to Oxygen, Carbon Monoxide has a 200 - 300 times stronger binding ability to hemoglobin. CO latches onto hemoglobin, (selective binding), and that is called “carboxyhemoglobin.” This combination leads to a left shift of the “oxyhemoglobin dissociation curve,” which leads to less oxygen availability. In fact, at the 50% level of CO contamination, the Oxygen partial pressure is reduced from 28 mmHg to 12 mmHg. Hence, the lowered oxygen carrying capacity of the blood. The reduction of this partial pressure reduces the transport of oxygen across the membranes to the tissues. This is akin to high pressure water across a screen, versus a low-pressure water source. In general, 40% CO levels are not associated with coma or death, but they can have long standing pathological neuro psychiatric as well as disabling pathological effects on humans. The individuals most affected by such hazards of moderate CO exposure are those with heart disease and lung ailments. It is important to remember that the elderly and those in poor physiological state, even those with <30% CO exposure can develop insidious long term neuropsychiatric disorders 3 - 4 weeks after the acute exposure, and these can be permanent in 10-30% of the exposed individuals.

The CO effect on Oxygen Dissociation Curve




CO poisoning is stealthy and quite misleading in terms of visible signs. The exposed individual can have physiological manifestation of moderate to severe tissue hypoxia (low oxygen level) and yet present with normal PaO2, headache, fatigue, cherry red lips, confusion, shortness of breath and even seizures. Due to the normal PaO2 levels, although at much lowered partial pressure, **the pulse oximeter is not a reliable means to detect CO poisoning**. The pulse oximeter detects light absorption based on the oxygen content of the tissues, which can be hampered by nail polish, low blood flow states etc. Therefore, it is an unreliable method to detect the difference between Oxyhemoglobin and carboxyhemoglobin!

The only reliable means is a CO monitor with a functioning sensor.

**Chemistry**

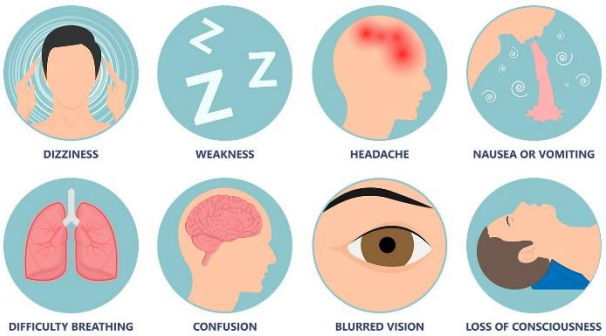
The difference between oxygen and carbon monoxide binding is illustrated simply based on the angle at which the two molecules bind. Oxygen binds sterically at an angle to the heme (carbon – iron binding), while the CO binds perpendicularly to the plane of the (porphyrin) ring via the carbon – iron binding) and this favors CO for hemoglobin binding. The two oxygen atoms create a hinderance (steric) with each other.

One might ask, what about Carbon Dioxide? Interestingly Carbon Dioxide does not compete with Oxygen because as Oxygen binds to the heme, Carbon Dioxide ($CO_2$) binds non-competitively with the protein structure.

**Pathology**

Acute CO Poisoning leads to a rash of symptoms that include the following:

1. Air hunger
2. Confusion
3. Chest pains (Angina) in compromised individuals.
4. Dizziness
5. Drowsiness
6. Fainting
7. Fatigue
8. Lethargy
9. Headache
10. Irritability
11. Palpitations (fast heart rate)
12. Nausea and Vomiting
13. Convulsions
14. Cardiovascular Shock
15. Coma
16. Death




It is important to remember that a low-level long duration exposure can lead to symptoms mistaken for influenza or viral syndrome without fever.

The organs most affected by CO Poisoning are the ones we depend upon the most – the Heart and the Brain. The Heart has cells called Cardiomyocytes that possess cardio-myoglobin or heart muscle cells that have a high affinity for carbon monoxide. This affinity pushes away the oxygen required by the heart muscle to function and leads to heart muscle fatigue, cardiac dysfunction, and erratic electrical transmission through the heart, leading to an errant heartbeat and sudden death. In the brain there is a similar play where lack of oxygen in the brain cells lead to cellular collapse and the resultant loss of cognition, confusion, convulsions, and death as the final consequence. Long term low exposure states can exhibit memory loss, personality changes and disorders of movement, such as your gait, etc.

**Treatment**

Remembering that CO forms a permanent non-dissociative complex with hemoglobin called carboxyhemoglobin, and the binding is irreversible with its 200 – 300 times affinity, it overwhelms and limits the oxygen transport to organs. Therefore, the treatment must be immediate and "overwhelming" in nature. The half-life of carboxyhemoglobin is 74 minutes. (based on the red cell turn-over), hence the treatment must be sustained with…

1. 100% Oxygen administration
2. Hyperbaric Oxygen along with Carbon Dioxide.
3. Intravenous Fluids
4. Electrolyte replacement
5. Arterial Oxygen level and lactic acid monitoring
6. Electrocardiogram
7. Chest X-Ray
8. Medicines to treat symptoms.

The 100% Oxygen sustained use is based on the work of Haldane in 1895 who kept mice alive with 100% oxygen (hyperbaric) along with CO exposure, thus proving that sustained Oxygen use can allow enough of it to keep oxygen transport to the tissues.

The future might be a little different if Jeffery Long at University of Berkley had his way. He has developed a MOF, a metal-organic framework – an amazingly porous material with a growing list of applications – that incorporates chains of iron atoms tuned to attract CO and exclude other chemical compounds. Embedding the material in the cockpit of aircraft might be a solution for saving potential lives in the future.

It is getting cold again. Have an astute mechanic check your engine compartment for leaks, Buy a good CO Monitor or have yours serviced, (if needed), for a new sensor. Carry a pulse oximeter if you fly at altitude. Always remain aware of the invisible hazard that lurks.

Here's to Safe flying and looking forward to the future in aviation.

**QUESTIONS TO PONDER**

1. Am I at Risk?
2. Is the Aircraft Safe?
3. Is the CO Monitor SENSOR up to date?
4. Has the mechanic looked at the Aircraft with a critical eye towards leaks?
5. Should I fly LOP or ROP?

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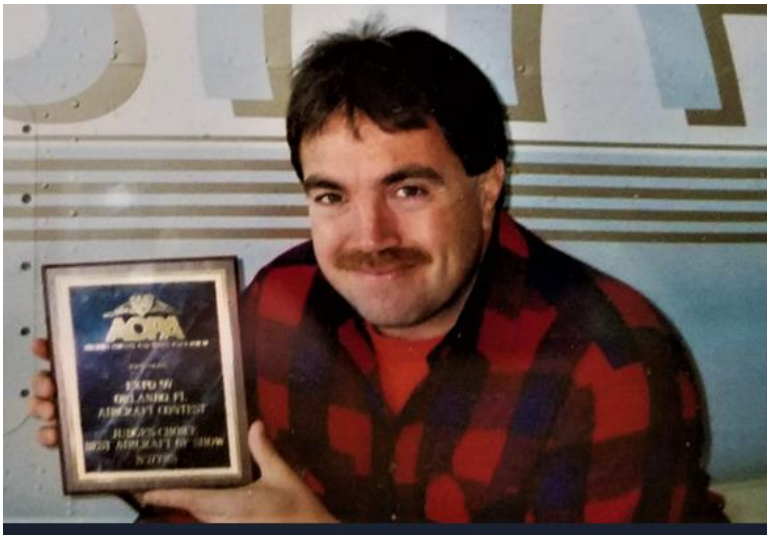

# Thunderbird Aircraft Sales

**Specializing in pre-owned Mooney Sales and Brokerage**

Hello Mooney Flyer Gang,

My name is Richard Simile, I am the President of ***Thunderbird Aircraft Sales***. We Specialize in the Sale and Brokerage of late Model Mooney Aircraft. If you are considering the purchase of a newer Mooney, or thinking about selling your current Mooney, we hope you will consider using ***Thunderbird Aircraft Sales***.

Our objective is to always provide a very pleasant transactional experience for both the Seller, and the Buyer. We have two offices. One in Auburn, AL and one in Chandler AZ. Please give us a call or email. We look forward to the possibility of serving you. Thank you.

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**richard@thunderbirdaircraft.com or 602-884-2111**
**www.thunderbirdaircraft.com**

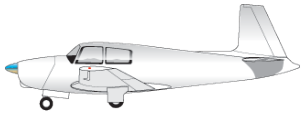
## POST COVID FLIGHT ADVISORY
## by Richard Simile of Thunderbird Aircraft Sales, Inc.

This is just an FYI. I speak often about the importance of oxygen while flying and the tactical Safety Advantage it provides. I have heard from several pilots recently, particularly a Mooney Pilot named Tony Bertus who owns a beautiful Mooney Acclaim Type "S" and often flies it in the flight levels. Tony tracks his oxygen saturation religiously and has informed me, (along with several other pilots), that post Covid flights have produced a highly reduced oxygen saturation.

**Bottom-Line:** If you have had Covid, please be on the lookout for this and test yourself often with a Pulse Oximeter even at lower altitudes. You might be surprised.

In addition to Richard's most excellent advice, as we get older, it's wise to use oxygen at lower altitudes. You will be more alert and fly more safely.

# Mooney Maintenance





Search Mooney's new website for Service Bulletins (SBs) and Service Instructions applicable to your Mooney

Click here

**CLICK HERE** for the FAA's Airworthiness Directives (ADs) for all Mooneys.

# Ask the Top Gun


## Tom Rouch

**Founder of Top Gun Aviation, Stockton, California**

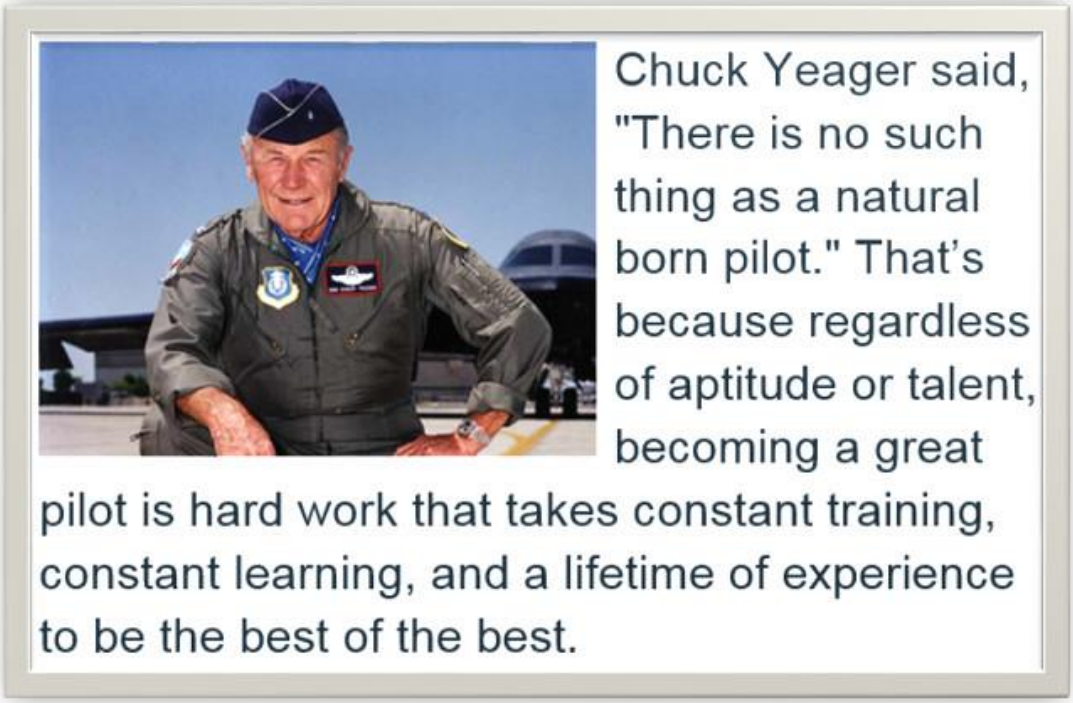
Send your questions for Tom to TheMooneyFlyer@gmail.com


This issue has been around for many years and is often confused by the fact that Mooney used at least two different gearboxes at various times and for different models – Eaton and Plessey. My current understanding is that Mooney no longer supports the Plessey gearbox and that they are awaiting sufficient orders to have a batch of springs made for the Eaton gearbox.

If I need a Plessey or Eaton back spring, what are my options?

**Tom's Answer**

It is an unfortunate situation with the late model gear actuators. Plessy stopped supporting that actuator quite a few years ago. Therefore, that is not a Mooney issue. Over the years, I have converted several aircraft to the Eaton actuators. For the Avionics Products/Eaton actuators, I heard there was a quality issue from Eaton on the springs. It has been a couple years, and I have not heard of any resolution. I do not know if Mooney is waiting to get a lot of orders or if they have another plan. I have ordered a dozen or so and have just stopped placing orders until these get filled. Unfortunately, there are no options for the spring. I guess Mooney does have some new actuators. Let me know if you have any more questions.




MOONEY'S NEWEST **EXECUTIVE 21**

★ SLEEK ★ SPACIOUS ★ SPEEDY

The Executive 21 is the newest member in the Mooney line of high performance aircraft. Extra fuselage length makes room for spacious, plush comfort and extra baggage space too! Three big picture windows, down each side, afford excellent passenger visibility. The Executive 21 not only looks sleek . . . . . and spacious . . . . . and speedy . . . . .it is!

Top speed is 197 mph . . . . . Range over 1400 miles. This one lets you travel "first class" at economy fare with more speed on less fuel with extra built-in safety advantages you won't find in other competitive aircraft. Features like Positive Control flight stability, new Brittain Turn Coordinator, tubular steel cabin protection, rugged transport "Z" type wing spar, drag-free retractable step, gap sealed control surfaces, full length rudder and flush riveted wrap-around wing skins . . . . . these are just a few of the extra advantages you'll enjoy in the Executive 21.

Seeing is believing . . . . . see it for sure . . . . . at your Mooney dealers now.

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# *Murphy's Law and the Search for an Unleaded Fuel for General Aviation*

By Ben Visser · February 12, 2024, General Aviation News

When I was working for Shell, I had a sign hanging on my office wall that quoted Murphy's Law: "Anything that can go wrong will go wrong."

Under it I hung another sign that said, "Murphy was an optimist."

This brings me to a much-asked question about the unleaded replacement for 100LL: What could possibly go wrong?

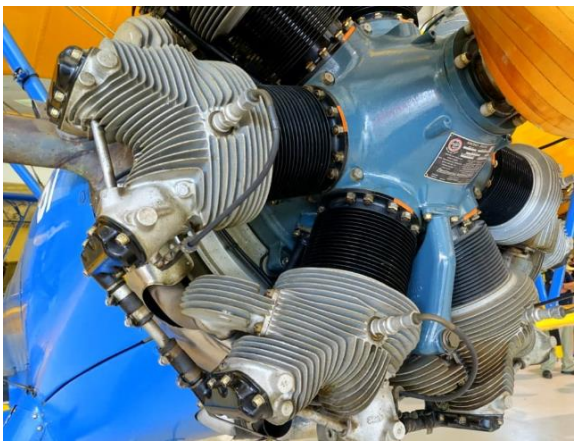
There are many things that could go wrong in just the supply and production of the product.

But from a technical aspect, I think that there are three main concerns:

1. Knocking
2. Component incompatibility
3. Exhaust valve recession

Many people think that as long as the new unleaded fuel meets the 100 lean rating specification (spec) it will have equal performance in the field as 100LL.

The problem here is that an octane rating is not a physical property of a fuel. It is a number based on how well the fuel did in a test engine. A fuel may not perform the same in a single cylinder test engine at 900 rpm as it does in a 2000 cubic inch super charged radial at 2800 rpm.



For example, when 100/130 fuel was replaced by 100/130LL, there were numerous knocking complaints, especially from the radial engine people. Many of them had to reduce the maximum boost pressure allowed on takeoff to eliminate the knocking.

This, in turn, reduced the useful load allowed and the profitability of the aircraft.

The other problem is how does one determine when an aircraft engine is knocking before it does any engine damage?

If it is a big radial engine mounted out on a wing, it is making so much noise and vibration that a pilot cannot usually tell if it is knocking or not.

The people at General Aviation Modifications Inc. (GAMI), which developed G100UL, an unleaded alternative to 100LL, have done an excellent job of studying the knock characteristics of their product in flat engines. We will have to see how that translates to large radials and others.

GAMI officials note that **when the company received its approval** from the FAA for its unleaded fuel, the Approved Model List covers "every spark ignition piston engine and every airframe using a spark ignition piston engine in the FAA's Type Certificate database," including all of the World War II engines and all of the post-World War II radial engines.

Then there is component compatibility problem.

This is one of the reasons that ASTM has not been able to develop a new specification for unleaded fuel.

The present ASTM D 910 spec is written around fuels that are a blend of aviation alkylate and some toluene concentrate, the lead in low lead.

Writing a new spec that covers any and all possible fuel candidates to be used in every old and new aircraft ever produced is an almost impossible task.

I have written about exhaust valve recession before (**What causes exhaust valve recession in an engine?**).

In a four-cycle spark ignition engine, you have the suck, squeeze, bang, and blow cycles. Following the bang or power stroke, the exhaust valve is opened and exhaust gases that are more than 1,000°F are forced pass the open valve. This heats up the valve edge significantly.

To cool that area, heat is transferred up the stem to the guide and the seat when the valve is closed.

The lead by-products of combustion tend to coat the seat area and improve the heat transfer.

When the lead is removed, the heat transfer rate is reduced and the seat temperature is elevated, which increases the erosion rate of the seat.

When the automotive world went to unleaded fuels in the early 1970s, exhaust valve recession was a problem, especially in gasoline-powered trucks. To solve the problem, manufacturers installed hardened exhaust valve seats in cars and pick-up trucks. Most of the trucks switched to diesel and the few farm tractors that still used gasoline were not affected too much because of their lower operating rpms.

Aircraft engines operate at higher rpms, high load factors, and they are air cooled, so the seats run hotter.

That means recession could be a problem when flying with unleaded fuels.

Years ago, Lycoming started using hardened exhaust valve seats in all of its engines. Now I understand that Continental is also using hardened exhaust valve seats.

My question is: Who is going to approve and make sure all of the orphan engines that are being rebuilt are also using hardened exhaust valve seats in their engines?

This would be a good project for the folks involved in the **Eliminate Aviation Gasoline Lead Emissions** (EAGLE) initiative to take up.

Failure to do that could lead to significant problems and have a negative effect on general aviation as a whole.

ABOUT BEN VISSER

Ben Visser is an aviation fuels and lubricants expert who spent 33 years with Shell Oil. He has been a private pilot since 1985.

# *Garmin Drops Support of 430/530 Nav/Coms*

## When the company runs out of replacement parts, that's it.


One of the downsides of having the latest aviation technology in your aircraft is that eventually something replaces it, and the factory support you have relied on for years will disappear. The owners of Garmin 430/530 nav/coms are now facing this, as Garmin sent out a service advisory noting that, effective immediately, "display repairs for the WAAS and Non-WAAS GPS 400, GNC 420, and GNS 430 are no longer available and have been discontinued."

In a statement sent to ***FLYING***, Garmin advised that "due to multiple component availability limitations, comprehensive repair service for Garmin's GNS 430/530 series is estimated to become limited in the years ahead. This includes all GPS/COM and GPS-only variants, as well as all WAAS models. Initially, these limitations are estimated to impact a small percentage of repairs in 2024."

The GNS 430/530 was introduced in 1998 and produced until 2011, which included 25 years of repairs.

- **READ MORE: Bidding Farewell to the Garmin GNS Line**

"We will continue to do so until serviceable components become unavailable," the company statement said.

Garmin noted that it plans to continue offering repair service when the components required for a specific repair remain available. Database updates and technical support will also remain available.

The company added that products that Garmin must return as unrepairable due to the announced unavailability of repair parts will incur a $500 processing fee per unit.

Reference https://www.flyingmag.com/garmin-drops-support-of-430-530-nav-coms/


| | |
|---|---|
| Mooney Florida Lunch Group | Contact Dave at daveanruth@aol.com or (352) 343-3196, before coming to the restaurant, to have an accurate count. Events begin at 11:30<br><br>February 10: Fort Pierce (FPR)<br>March 9: Winter Haven (GIF)<br>April 13: Flagler (FIN) |
| MooneySafety.com | Sign Up at https://www.mooneysafety.com/ppp-registration/<br>**2024 Event locations:**<br>Santa Maria, CA, Apr 5-7 Owensboro, KY, June 21-23<br>Burlington, VT, Sep 6-8 Dallas Ft Worth, TX, Oct 18-20 |
| Australian Mooney Pilots Association Ltd | 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. |
| EMPOA | **Learn more at** https://www.empoa.eu/index.php/en/ |
| The Mooney Flyer | June 28-29: The Mooney Flyer RoundUp.<br>CLICK HERE for details.<br>CLICK HERE to Register |

TMF PRODUCT REVIEW

# Landing Height System

From Microkit Solutions

This Landing Height System is FAA-approved for installations on Mooneys.

It includes a built-in eye-safe Class 1 Laser (Light Detection and Ranging) along with an audio interface system so height announcements can be heard when coming to land.

- **Aural height announcements starting at 200 ft.**
- **Fully enclosed unit with quick-disconnect 5-wire connector**
- **An advanced Audio interface that can be updated to use any language or accent if desired**
- **Built-in Wi-Fi interface for Set-Up and feedback with any Phone (iOS or Android), Tablets, or PC/Laptops**
- **Runs on either 12V or 24V Aircraft power Systems.**
- **GPS RS232 input from an external GPS.**

**CLICK HERE** for details and pricing


## Parts for Sale

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

180 horsepower Lycoming 0-360-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

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
Complete logs since new, no damage history, no corrosion

## Item for Sale

*Call Tom 303-332-9822*

**New Hartzell Propeller Hub HC-C2Y (K, R)-1 Serial CH41782B**
This hub will comply with AD2006-18-15 and superseded by AD2009-22-03
This AD affects many IO-360 aircraft.
Current Hartzell price is $4,275.

Price $3,500 REDUCED

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

Hangar stored for years, now ready for overhaul(s) and refurbish. * Airframe and engine 1439.1 TT. McAuley prop. O360 engine. Wood-wing.

* 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.

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.

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

P/N 310309-501
P/N 310309-502

These fairings are new and priced @ $280.00 each or $525.00 for both. Priced elsewhere @ $362.69 each.

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

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 (562-865-2547)

Access Covers P/N 3000-901 (2-available) - 1-without nuts attached.
Make offer. Contact: Bernard Lee – leebern@msn.com (562-865-2547)

**For sale:** Wing Covers (front & rear) for M20J. Great condition includes storage bag. Price (including shipping UPS ground, cont. US) only $279.00. Contact: Dwight Wilcox at: dw_ 1@verizon.net

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

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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