The Mooney Flyer

The Official Online Magazine for the Mooney Community

www.TheMooneyFlyer.com

May 2020

Editors

Phil Corman | Jim Price

Contributors

Bruce Jaeger | Bob Kromer | Tom Rouch | Brian Lloyd | Linda Corman

Departments

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Appraise Your Mooney's Value – *M20B thru M20R*

Mooney Mail – *Feedback from our Flyer readers.*

Ask the Top Gun –*Tom Rouch answers your questions*

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Features

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From the Editor

Phil Corman

Thank You

We would like to thank our new contributors to The Mooney Flyer.

First off, **David Wheatcroft** wrote about his love of a Mooney and his Dad. These stories touch all our hearts and we are grateful that David shared his story.

Secondly, we would like to thank **Phil Shapiro**, who bought my 1965 M20C. Phil shares his encounter with Carburetor Icing; What He Did Wrong and What He Did Right. He landed safely, so we say, "He Did it Right". Thanks for sharing your experience.

How can you tell a Mooney from other GA aircraft? It cannot have a bird strike from behind!

Not to be outdone, **Michael Rodgers** shares his newfound love for his Mooney and his resulting formation of The West Coast Mooney Club. This is the 3rd flying group that has formed on the West Coast since Paul & Sherry Loewen organized The West Coast MAPA Group and Phil Corman and Larry Palmer led the Vintage Mooney Group.

And finally, Ron Blum contributed an excellent article on Air Flow

Jim Price's COVID-19 Isolation Thoughts

During a Plague Pandemic in 1665, Cambridge's Trinity College sent its students home. One of those students was 22-year-old Isaac Newton. Isaac continued to work from home and discovered the earliest form of Calculus. He also theorized the effects of Gravity here, and on the moon.

When the plague closed the theaters in 1592, William Shakespeare had time on his hands, so he wrote King Lear, Macbeth, and Antony and Cleopatra.

While in a Roman prison, Paul wrote his letter to the Philippians.

John wrote Revelations while a prisoner of Rome on the remote penal colony of Patmos.

While a prisoner in Bedford Gaol [Jail], (1660 – 1672), English writer and Puritan preacher John Bunyan wrote "Grace Abounding" and started work on "The Pilgrim's Progress".

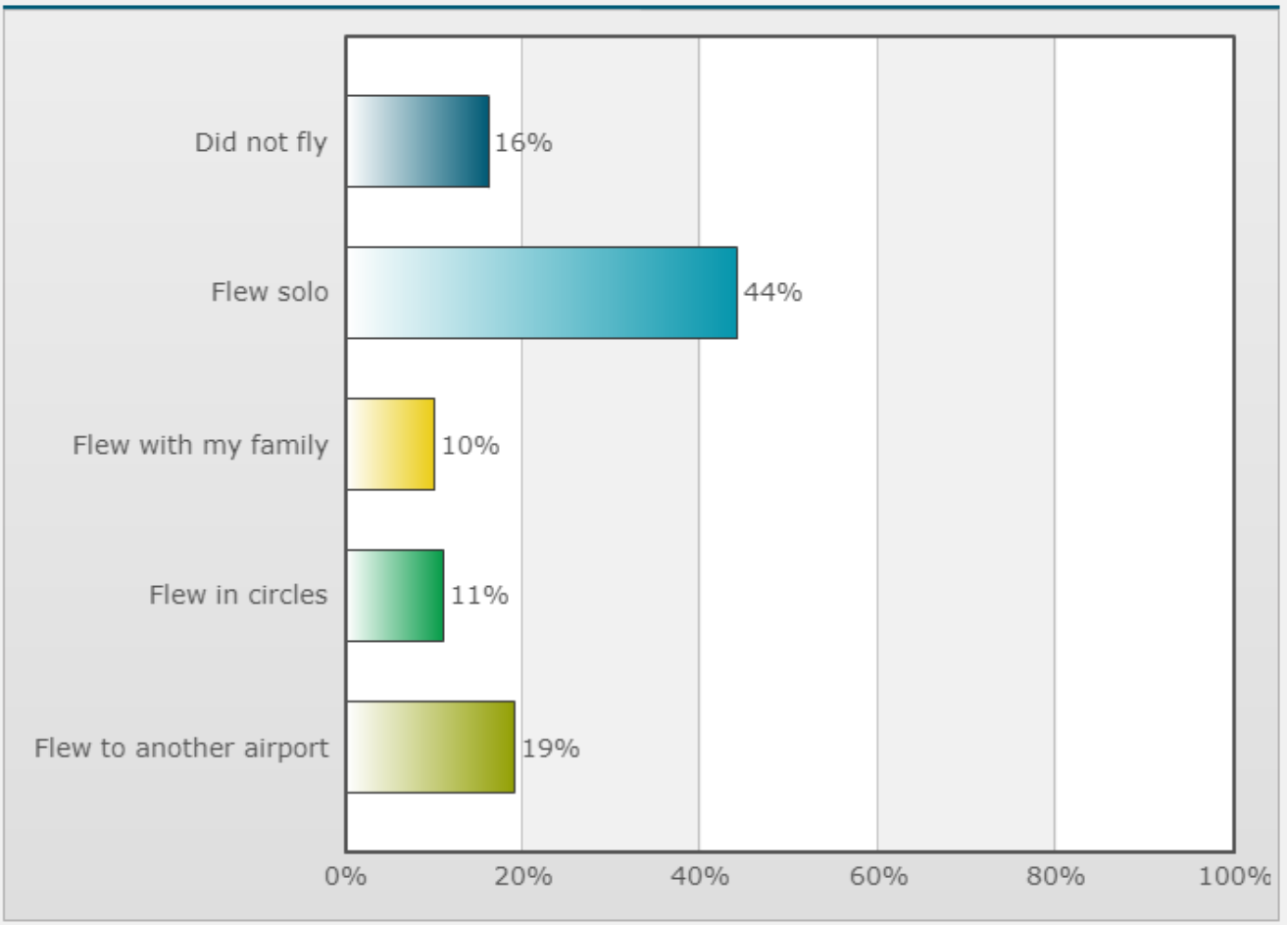
While in self-isolation during the COVID-19 pandemic, Jim Price binge-watched his beloved Sky King episodes and listened to "Funny ATC" recordings until they were no longer funny. He also discovered how to make an effective hand sanitizer from scratch.

Airspeed varies approximately with the cube root of the horsepower increase. So, doubling speed requires eight times as much power. The cube root of 8 is 2.

During the Covid 19 Quarantine, I

Poll created by Phil Corman on 03/29/2020

Poll Results



Next month's poll: "What is Your Favorite Aviation Movie?" **CLICK HERE** to vote.

Letters to the EDITOR

Editor@themooneyflyer.com

RE: Over the Ice -- That's no April's fool, my article is in the famous Mooney Flyer! Thank you very much. From now on I will write articles in English right from the beginning, so hopefully, there will be less typos because of the automated translation.

I just arrived from a long and unforeseen trip with a cruise ship, so this will be less interesting here. But I have still many plans and as soon as there is something of value, I really like to share this.

Again, thank you for sharing my article,
Rolf W
Editor Note: Rolf, it is us who wish to THANK YOU for sharing an amazing story with us!

RE: Over The Ice -- I don't generally write letters to the editor but in this case the story was so compelling I had to, I was captivated. The idea of flying our Mooney from Germany to Chicago would be the last thing I would ever volunteer to do. But, this story of "daring do" had me sitting on the edge of my seat. I know how the story ended, but the step by step adventure had me hooked to the conclusion. These two guys are amazing pilots. Hope they write more tales for the courageous.
Linda C

RE: Clarity - Hello, and thanks for the great e-magazine. In reference to your April 2020 article "Clarity", about clarity in communications, I thought one key point should have been included: altitude.

Announcing that you're "over the lake" isn't nearly as useful as saying I'm "over the lake at 3,500". Then I know that if I stay at 3,000 and below, everything's fine. And I also know if I should be looking above or below my altitude.

Giving a position report that is barely accurate within a mile or two isn't nearly as precise, or useful, as announcing an altitude that is accurate to within 100 feet.

Thanks,
Andy R

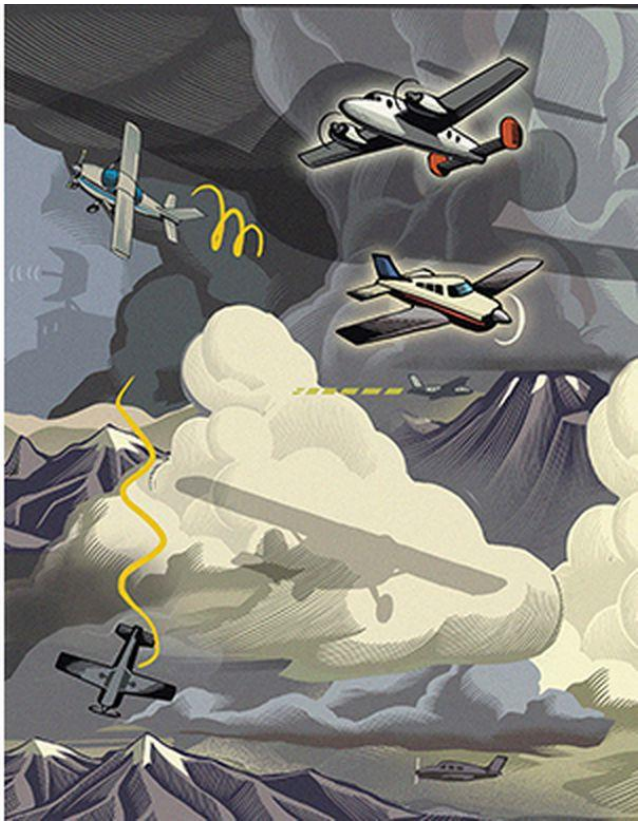
Mooney Mountain Flying

There are two types of flying that I truly appreciate, and to me, they can only be enjoyed in a Mooney. One is flying over water, either up a coast or over water to an island. The other is mountain flying. Both are very safe if you take the appropriate safety steps. Here are some good Mountain Flying dos and don'ts.

Here are some items to consider before and during Mountain Flying:

1. Before departure into the mountains, know the status of your Mooney. Make sure that it is totally airworthy. Ensure that the engine has ample oil and there have not been any concerns from earlier flights.
2. Are the Winds Aloft at the highest point in the mountains, 25kts or less? If the velocity is higher, the mountain waves could outperform your Mooney.
3. Is the ceiling at least 2000' above the ridge line? As the wind velocity increases, you'll need higher ceilings.
4. Good Visibility is a must. Recently, there have been two fatal crashes in mountains. On March 13th, there was a fatal Mooney accident that occurred in low visibility attempting to fly an ILS approach to the Van Nuys airport. Full VFR visibility should be a minimum. Don't try it in MVFR.
5. Unless you have a turbocharged engine (K, Bravo, Acclaim), remember that you will lose about 3% power per thousand feet MSL, and that's Density Altitude MSL.
6. If taking off, cruising, or landing in the mountains, leaning is critical to getting the most engine performance. For takeoff, set your Manifold Pressure to full throttle and then lean. When landing, do not select Mixture Full Rich. Full Rich will diminish your Go-around Performance.
7. When landing, fly "normal" pattern and approach airspeeds. Your True Airspeed will be faster. (It's approximately 2% higher for every thousand feet above sea level).

8. Now that we have FIS-B on our panels or iPad, many of us rely on NexRad. However, it's less reliable in the mountains because it cannot see all the precipitation at lower altitudes



Things that will get You in Trouble in the Mountains:

1. **Picking a Bad Route.** The safest flight through the mountains has access to highways and any kind of airport, even those with unpaved or short strips. If you can glide to a highway, then you'll increase your chances of walking away and being found. You need not fly directly over the highway, but simply be within glide range. Another good route is one that hopscotches to mountain strips. Flying close to the peaks or within canyons is problematic. Never fly in a canyon unless you are 100% sure that you are flying down the canyon and not up the canyon. When flying in a canyon the sunny side will have updrafts due to convection. Updrafts are good.
2. If you find yourself flying up the canyon and you can't outclimb the terrain, execute small radius turn. As Brian Lloyd explained last month in his feature "Killing Sacred Cows", the smallest turn radius in your airplane occurs at Va (maneuvering speed). Trying to outfly the terrain is akin to the "impossible turn" with engine failure on takeoff
3. Thinking that the weather will improve is another questionable thought process. Mountain weather tends to be temperamental and frequently changes. If the weather you are seeing is not as good as noted in the departure briefing, you should consider turning around or landing.

4. If you are landing at a mountain airport, it is doubly imperative that you familiarize yourself with the surrounding terrain. A go-around, especially in difficult weather, will be safer if you know which way to re-enter the pattern. A good example here in California is South Lake Tahoe (KTVL). A go-around on R/W 18 means that you should turn to the right, fly to the golf course, do a climbing 360^{o} turn and then head north to the lake.

Looking at Airflow - Up Close

by Ron Blum

Mooney Flyers are fanatically obsessed about going fast! They'll do anything for that extra knot or two. To pass the written test, enroute to a Private Pilot License, all new pilots have to learn a little about aerodynamics. But how much of what we are taught (by other pilots) is what an aerodynamicist would say?

We'll start this series of articles with the very basic: airflow. Sometimes it is easier to think of airflow as going around a surface or airfoil, like in a wind tunnel. At other times it is easier to think of the air as being stagnant and an airfoil cutting through it, like when we go fly. It is just easier at times to think one way or the other and either point of view is correct.

As aerodynamicists, we look at airflow a couple ways: 1) By conditions well ahead of the airplane and after the airplane has passed (macro viewpoint) and 2) By the small volume of air surrounding an airplane called boundary layer (micro viewpoint). Boundary layer is a small, wedge-shaped volume surrounding a surface, such as a wing, fuselage or stabilizer. Boundary layer thickness starts at zero thickness at a surface leading edge and thickens or grows as it moves aft. The thickness of this layer is determined by velocity, "stickiness" (Reynold's Number), length of surface, flow conditions at the surface, etc.

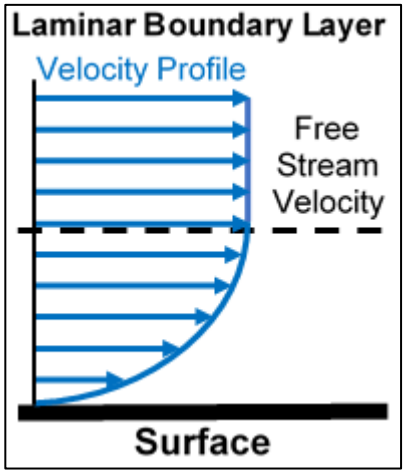


Figure 1

Let's get right to this. Aerodynamicists typically define boundary layer flow in one of 3 ways, laminar, turbulent or separated. All Mooney Flyers are proud of their laminar flow wing (NACA 63-215 root and NACA 64-412 tip), but what does this really mean?

Laminar flow means that the boundary layer is built up in layers or sheets of flow, as **Figure 1** illustrates. Air at the surface has zero velocity, and air just out of the boundary layer is moving at the velocity of the airplane. (Hint: Here we are thinking of airflow moving around the wing). All airfoils have some laminar flow at the leading edge.

Specifically designed laminar flow airfoils carry laminar flow further aft on the airfoil. It is easier to keep laminar flow with a negative pressure gradient. In other words, laminar flow is more likely when the pressure is continuing to decrease as it travels aft on the airfoil. Drag is lower when the boundary layer is laminar and in an area of negative pressure gradient.

This is the reason laminar flow airfoils typically have their maximum thickness further aft on the airfoil. The first digit of an airfoil is the percentage (in tens) where maximum airfoil thickness occurs. In the case of Mooney airfoils, maximum thickness is at ~60% chord. Maximum thickness on earlier, turbulent airfoils was around 20-30%, which allowed for taller, stronger spars further forward.

On the down side, laminar flow is very difficult to achieve and is "tripped" (to turbulent airflow) by many, many little items such as bugs, dirt, bird left-behinds, paint stripes/scratches/peeling, bumps, indentations, steps (forward or aft), etc. Laminar flow is still the Holy Grail of airflow.

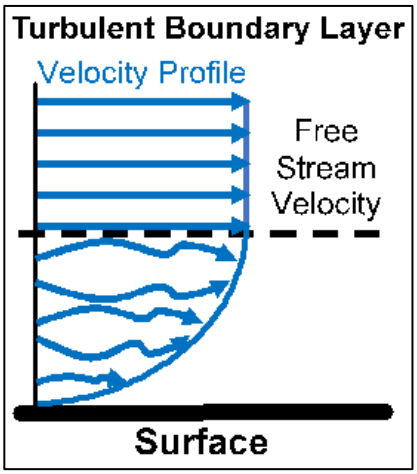


Figure 2

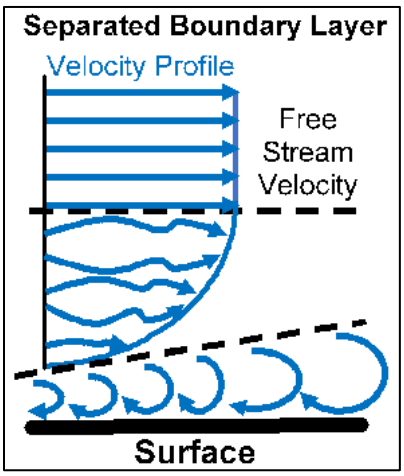


Figure 3

Now let's look at **Turbulent Airflow**, as shown in **Figure 2**. It is most of the airflow surrounding an airplane, and it is not all bad. Turbulent boundary layer grows a little thicker/quicker in areas of negative pressure gradients, and after all, boundary layer is drag. So, yes, turbulent flow is more drag than laminar flow, but it's not as bad as people make it out to be.

It's a little easier to look at drag from a macro viewpoint. On a perfect day, imagine the air as being perfectly stagnate. Now, we fly our airplane through that air. All the air that is now moving horizontally is drag. For lowest drag, we want to move the air as little as possible as the airplane passes through.

To visualize drag, think of a day with a light mist falling and a semi tractor-trailer drives by. All the water that has been stirred up and is now traveling with the semi is drag – visualized.

Now let's get to the nasty boundary layer condition, separated. **Separated Flow** is very high drag. As we can see in **Figure 3**, the airflow (or airstream) has departed the surface, and other air is trying to backfill that void. There are a lot of reasons that this occurs, but to keep it simple, the airflow cannot remain attached.

Let's use a wing upper surface as a good example. At low angles of attack (AOA), the airflow has little problem making the curve up around the leading edge and all the way back to the trailing edge. As we increase AOA, the air must work harder and harder to make those turns. As we approach stall AOA for that wing section, the airflow can no longer make those turns, and it separates from the surface, normally at the trailing edge. As we continue to increase AOA, the area of separation moves forward. That's it, the three boundary layer flows, laminar, turbulent and separated.

Here is a quick question to answer to see how well this article has done its job. Looking at Figure 4, is the flow laminar, turbulent or separated? Look for the answer next month.

Figure 4- Photo Courtesy of Scott Sellmeyer

I would like your suggestions on where to take these articles. Email me at solutions@blueontop.com. The next article will be on AOA, "AOA – What Pilots Are Taught versus How Aerodynamicists Think". Until then I hope your attitude is always Blue on Top.

Blue on Top

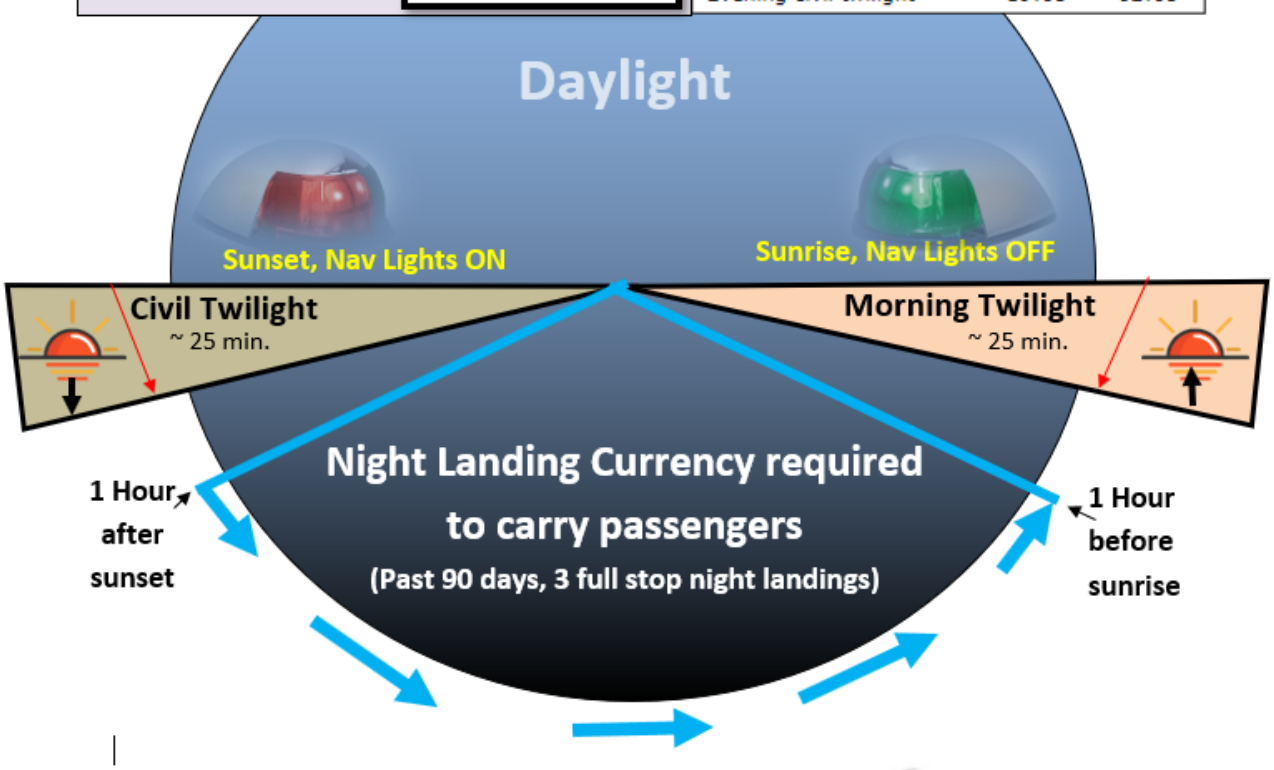
Ron Blum is an aeronautical/astronautical engineer with a 35+ year career managing general aviation Flight Test and Aerodynamics departments from shore to shore and border to border. He was Chief Engineer of the Mooney M-10 in Chino, CA. He founded Blue on Top LLC, providing engineering and management consulting, Flight Analyst DER services and keynote speaking.

You can find times for Sunset, Sunrise, Morning Civil Twilight and Evening Civil Twilight the airport pages at AirNav.com

Sunrise and sunset

Times for 26-Mar-2020

	Local (UTC-7)	Zulu (UTC)
Morning civil twilight	05:58	12:58
Sunrise	06:23	13:23
Sunset	18:43	01:43
Evening civil twilight	19:08	02:08



Logging Night Hours	
At the end of CIVIL TWILIGHT: Begin Logging Night	At the beginning of MORNING TWILIGHT: End Logging Night

A Mooney Romance

by David Wheatcroft

I don't have any memories of flying with my dad. Not in his uncle's homebuilt Volmer-22 Amphibian, his kit built Avid flyer, or his beloved 1958 wood-wing Mooney M20. My childhood revolved around planes; frequenting local airports and meeting strangers who would talk about things way above my adolescent paygrade. My dad parked his planes at three different airports. I assumed it was to avoid having all three condemned by the ministry of transport at the same time. "Diversify" they say. My earliest memory of my dad's M20 was on an overcast, long July weekend. He was trying to find a fuel leak that had plagued his ability to fly. I always watched from the sidelines; too young to pick up a wrench, but old enough to learn. My dad and his car mechanic friend pulled the plane out of the hanger onto the taxiway, under a sky that resembled a dark grey blanket; the kind made of wool that ranged in color of a shiny quarter, to that of a wet sock. He hopped in and attempted to fire her up. The engine turned over, and over, and over. It felt like ten minutes went by. Then suddenly, a flame appeared out of thin air. Under the belly, fuel had started to drip and it was ignited by something, (we never figured that out). Luckily, as an attentive 9-year-old, I yelled to my dad's friend that the fire extinguisher was in his van. This was what it was like to spend time with the Mooney; always on the ground, but never without excitement. The fire was quickly put out, but my fondness of forward-swept tails and fast flying Mooneys continues to burn forever.

C-FMLP was parked at the local flying club for her final years, collecting dust, shedding paint, and rapidly becoming a museum piece. My dad figured it would be time for new paint on the wings shortly after my 11th birthday. Did he consult local paint shops? Send the bid to a few companies? No. He hired me. He dropped me off on a hot July morning with a paint roller, paint, and four dollars to paint the timber wings one last time. The flying club stocked pop and snacks which were paid for on the honor system. I had enough for two pops and a bag of chips. The club had a good membership, with pilots always around. I knew that the site of my Grade 6 stature, painting the wings of the Mooney under the hot summer sun, would make even non-pilots speechless. An RCAF WW2 pilot was working on his homebuilt. His airplane looked like it was built by someone of my age and maintained by someone not much older. He stared at me trying to make sense of what was going on.

"You look like you know what you're doing", is all that he said to me. I somehow blended in. I finished painting, not knowing if I did anything right. I grabbed a pop from inside the fridge and waited for my dad in the air-conditioned clubhouse. When my dad arrived, he went to check on his beloved Mooney and my work, before checking on my well-being. I didn't mind. I was used to it, and I lived vicariously through him, loving his time-travelling machine almost as much as he did. I walked over to him, pop in one hand, chips in the other. He told me he was happy with my work.

Our Mooney wouldn't fly until four years later. Since I put some of my work into the plane, I considered a piece of it to be mine as well. My dad had a hard time finding an AME to work on or inspect the wood wings. This was a common problem for owners of the first production Mooneys.

For half a decade, there it sat; outside, naked on the tarmac and out of annual. It didn't make economic sense for us to keep it parked at the flying club. My dad was paying fees for an airplane that had its future up in the air. Maybe that's the wrong saying to use. We eventually found a retirement home. We planned to ferry the plane to an uncontrolled airport 60 miles away with free parking. Our beloved Mooney would be a little further away, a little harder to visit, but that was okay. She lived a good life. It carried my dad to patients all around British Columbia in the 80's and 90's. She arrived at the 1988 Vancouver Expo with a Concorde breathing down her neck on final. I was too young to remember, but she made the Province of British Columbia more accessible for our family and introduced me to its breathtaking landscape, diverse culture, and beautiful towns. I grew an affinity for the Mooney, not from flying it, but from being around it. I knew what this airplane was capable of. For eleven-year-old me, I didn't need to be at 10,000 feet, feeling the "true Mooney speed" to fall in love. I admired the iconic forward-swept tail and the crisp blue lines over white paint – not the wings, of course. I loved the way it seemed to smile through the cowling; reminiscing over her younger years. I fondly remembered troubleshooting problems with my dad; observing his love for an airplane that over the years, loved him back. It happened on the ground—to an eleven-year old boy with a fascination of flight. That is what makes Mooneys special.

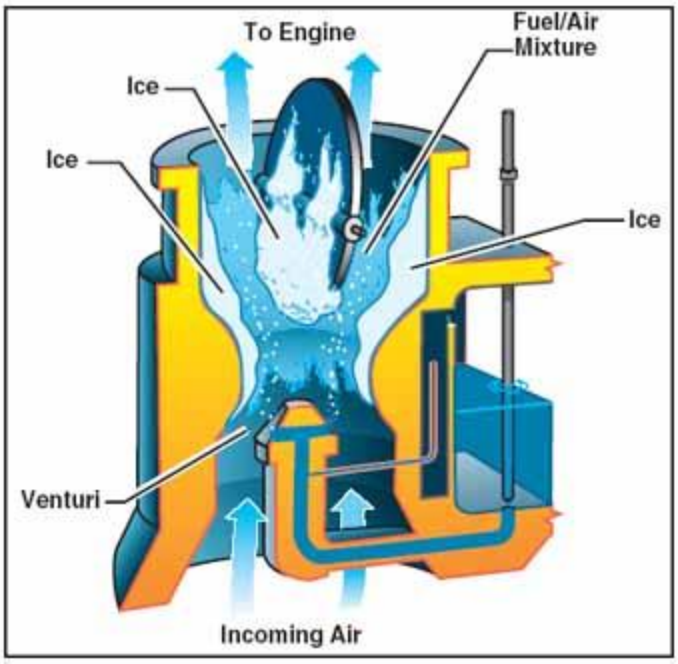
My Aunt and I in 1998, after a bumpy flight to British Columbia's interior

My Dad, David Wheatcroft, and his dog in 2013 Vanderhoof, B.C.

Squawking 7700: An Encounter with Carburetor Icing

by Phil Shapiro

The purpose of this article is not to discuss weather conditions favorable to the formation of carb icing, engine symptoms, or corrective actions. There are countless articles from numerous publications on that subject. Rather, this will be the story of my encounter with carburetor icing, what I did wrong, and what I did right. My sincere hope is that after reading this story, you will seek out those other articles to refresh yourself on this dangerous hazard.



The Incident

My wife and I were a little over halfway through our move from Sacramento, California to Washington, D.C. Our M20C had performed well through the Rocky Mountains, and had skirted thunderstorms between Wichita, Kansas and Little Rock, Arkansas, our next stop. Most of our flight had been in IMC, with approaches near minimums. Therefore, I was feeling confident and proficient at this stage of our journey.

After spending a few days with friends, it was time to leave Little Rock. The weather included moderate rain with thunderstorms in the vicinity and overcast skies at about 600 feet in the local area. If you know this area of the country, this is common summer weather and it can persist for days. Since I was on military orders, we were on a bit of a timeline. We took off, feeling confident in my ability to deviate around buildups.

Departure and climb out were uneventful, but weather deviations began almost immediately. What failed to register as I worked with ATC to reroute around a large build-up, was that my engine horsepower percentage (as reflected on my EDM 900) had decreased. Normally, it's around 65% at 11,000 feet. However, it had crept back to about 62%. I am an experienced pilot and I understand the importance of maintaining a good instrument scan. However, working the reroute without an autopilot, in heavy precipitation, was a workout.

By the time we had managed to clear the edge of a particularly daunting build up and proceed direct to the Holly Springs VORTAC (East of Memphis), my HP was sitting around 58%. It was at this point that the engine instruments began to get a lot of my attention. However, my first thought was not carburetor icing. As a military pilot, my annual check ride in the U-2 counted for a Biennial Flight Review. Therefore, it had been nearly twenty years since I had really thought about carburetor icing. Rather, my first thought was that my engine performance was a symptom of the particularly warm and humid conditions. Still, I switched tanks, out of habit. My engine was still running fine … until it wasn't.

Suddenly, the engine shuddered, shaking the whole plane. My wife exclaimed, "What was that?" Right then the HP decay went from a slow, insidious trickle to a precipitous roll back. We have a saying in the military for single engine emergencies that goes, "Turn, Clean, Climb, Check." Essentially, if you have an engine issue, first you turn toward your nearest suitable field, clean up any drag, climb to trade excess speed for altitude, and check your instruments. I went right into this exercise.

I turned to the only field within gliding range, which was Memphis Millington (KNQA). Clean… I was clean. Climb, no excess energy. Check …

I squawked 7700 and declared an emergency with Memphis Center. Memphis Millington was IFR with 2,000 overcast, rain, and 1.5 miles visibility. It was my best bad option. Making matters worse, as I turned into a strong headwind, it was just outside of my glide range. I feathered the prop to reduce drag and began to breathe easier as my glide performance improved. Still, I was in the weather and reluctant to change the blade angle for fear of losing my glide profile. As I descended through 9,000 feet at best glide, I was finally able to get into the checklist. I applied carb heat, but it had no effect. In retrospect, at this point, this was predictable, as engine power was too diminished to produce enough heat to melt the ice.

Memphis Center began trying to vector me for the ILS. I told them unable, and that I was planning to overfly the field to a high key position and land. I trusted ForeFlight to get me directly over the field and aligned with the landing runway. Thanks to Steve Jobs, it worked like a charm.

As we hit 2,000 feet, I began to make out the field. I turned to low key and the tower cleared me to land on any runway. Suddenly, I got a surge of engine power, but kept the prop feathered and pulled the throttle to idle. The only thing that mattered at this point was staying on my glide profile. I rolled off low key (essentially a base position) and extended my drag devices to kill excess altitude and landed. Margarita time at Chili's in Millington . . . lots of Margaritas.

The next day we had the plane inspected by a mechanic. It fired right up, and the engine runs were all normal. Carburetor ice was the confirmed culprit.

What I did Wrong

Any good debrief should always focus on what you did wrong, versus what you did right. Let's start at the beginning. The pressure to stay on schedule to meet my military move orders, drove me to fly in weather that is just not ideal for a single engine, piston airplane. Being in IMC with a feathered prop from 11,000 feet, regardless of the cause, gives you a lot of time to reflect on all the people you should've been nicer to. Furthermore, the weather deviations and lack of an autopilot led to a situation where I was too task saturated to keep a close enough eye on the engine instruments. Finally, I had not recently reviewed the key information about carburetor icing. Given the weather conditions and engine degraded performance I was experiencing, I should have immediately applied carburetor heat. The delay made a bad situation worse and essentially cost me the use of the engine.

As they taught us in Air Force pilot training, it's not whether you make a mistake; it's whether your buddy makes the same mistake in the future.

This did NOT happen!

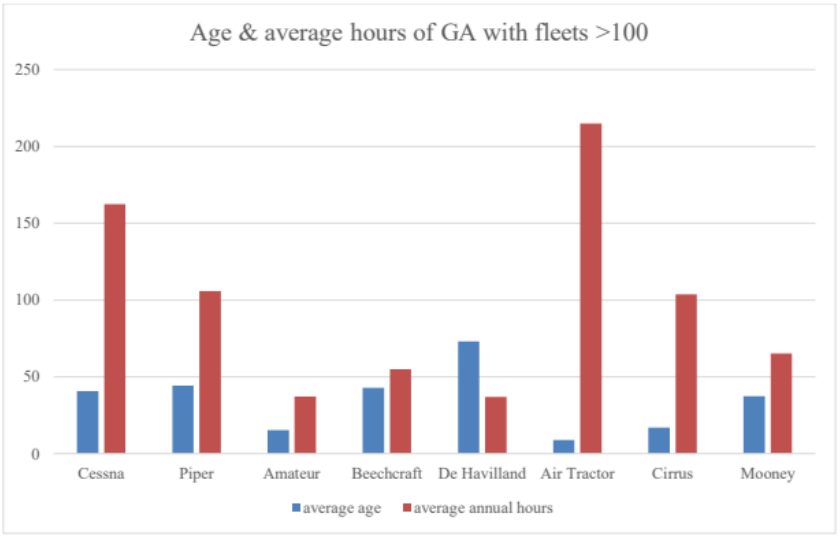
What I did Right

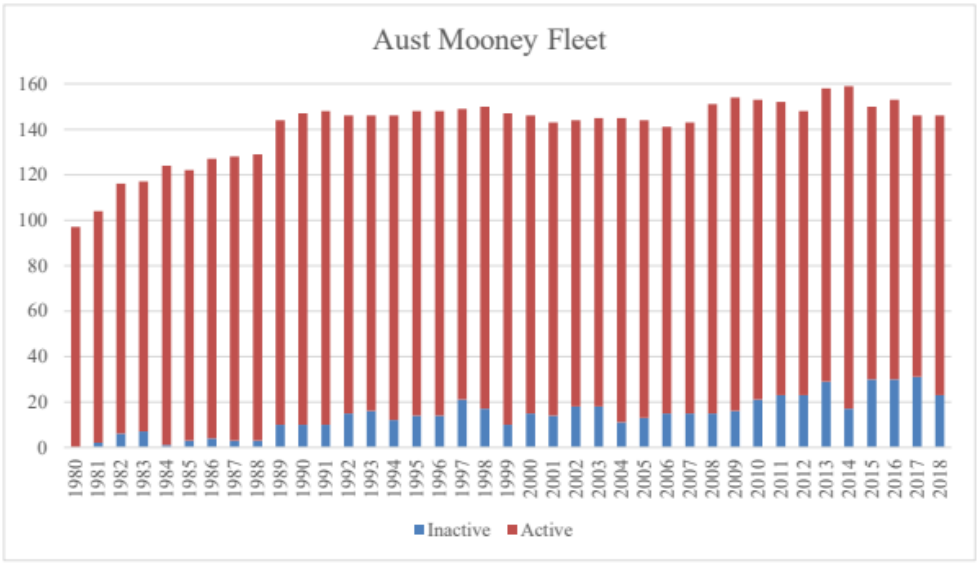
First, I made an immediate turn toward my landing field and feathered the prop to get on the glide profile. Even though I eventually regained partial engine power, I made sure to maintain my glide profile in the event of a secondary loss of engine power. **Second**, I was directive with ATC. I "declared" as soon as I knew I had a real problem. I told them I was unable to fly the ILS and gave them my plan so that they were able to clear traffic and assist as required. **Next**, I ran all my emergency and normal checklists. Nothing ruins a good flameout pattern like a landing with the gear up. **Finally,** even though I pretty much knew the culprit was carb ice, I had the plane inspected by a qualified mechanic.

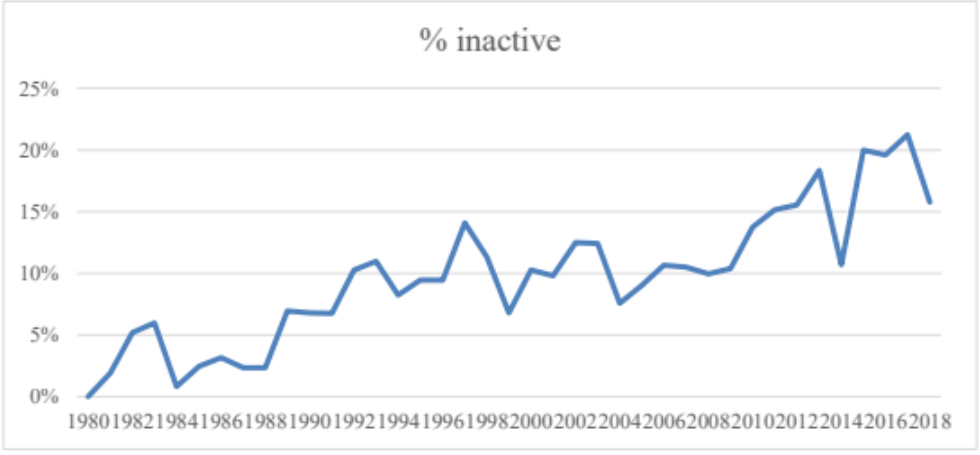
When the FAA called to follow-up on the emergency, I explained the whole situation. They were pleased that I had an AME inspect the plane prior to continuing operations and closed out the report.

I hope some reader out there finds benefit in this story. As they taught us in Air Force pilot training, it's not whether you make a mistake, it's whether your buddy makes the same mistake in the future.

Interesting Stats from Down Under







Words You Should Not Use

"For" and "To" sound exactly like "four" and "two". Used in the right combination of numbers, these words can be confusing and lead to miscommunication. Here's an example: "Center, Mooney 257KW climbing to one thousand." You can see how this can be miscommunicated as 21,000 feet. How about Mooney 257KW descending for 5000 (45,000 feet?).
Instead, try to keep it simple, concise and understandable. "Denver Center, Mooney 257KW, four thousand two hundred, climbing one zero thousand."

The Controller's Mode C Check

If you're on an IFR flight plan, always report the altitude that you are currently passing, followed by your cleared altitude. In the case of flight following, after stating your passing altitude, indicate the altitude to which you intend to climb or descend. For instance, "Los Angeles Center, Mooney 257KW 8,100, descending 6,500." Why? That's because each controller needs to validate your mode C altitude and that first *check in* altitude validates what he or she is seeing on the screen. If you forget the validation altitude, the controller will ask, "Say your passing altitude", or "Say your current altitude." That wastes time and adds two more broadcasts that could have been avoided.

Talking Aviation Insurance

by Nom de Plume

I don't care about my insurance, because I don't care about yours. Of all the hundreds, if not thousands of things that go through my mind during a flight, your insurance premiums are way down at the bottom of my thoughts.

If you just landed gear up, I'm pretty sure you have even more things going through you mind. Even then, I don't want you caring about my insurance premiums. I would never say to a pilot who had just landed his or her Mooney gear up, "Now look what you've done. What is this accident going to do to my insurance?"

We would have received a black eye or worse. Not only that, we would deserve it. Situations are even worse if the crash leads to an injury or death. But very often, there is someone saying, "Wow, look at my insurance rate!"

Why does a pilot feel the need to jump on social media after a crash? When a tornado ravages a state and kills 25 people to say, why would a pilot say, "Hey, insurance is going up".

Are we really that cold, ignorant or arrogant, getting up on our soap box to bring up a pointless jab at people that are living one of their worst days?

After seeing the devastation that the F-2 tornado did in Tennessee on March 3rd, it was hard to imagine the pain, let alone try to pick out individual planes through the carnage at John C. Tune Airport. I can't imagine thinking, "Crap, looks like my insurance is going up".

Do us all a favor. If you are one of those people that worry about your insurance premiums going up after hearing a report of a Mooney landing gear up, or worse yet, complete and utter destruction of planes, buildings, hangars, vehicles, or homes, just cancel your insurance and don't worry about it. If not, follow your check lists, double check your check lists and fly your plane.

And if you see someone that's had a bad day after bending the metal on their plane, ask them if there is something you can do to help, or just keep quiet. Someday, you could be the one having that bad day.

WEST COAST MOONEY CLUB
FAST FLYING - FUN TIMES

I've got a Fever and it Needs More Mooney!

by Michael Rodgers, N9268M

Have you ever seen the famous Saturday Night Live sketch with Christopher Walken, where he plays a record producer with a fever for more cowbell? It's a classic and hits all the right notes. That's exactly how I feel about my Mooney. She's a 1967 M20F and as far as I'm concerned, she hits all the right notes for me.

My first experience with a Mooney aircraft took place way back in 1986 on a clear fall day. I had met a man who worked for my father and he mentioned that he had a plane and he was planning a quick round trip flight to Vegas. He asked if I wanted to come along. Being a 24-year-old new father with a wife and a 5-month-old baby in the house, I was happy to get away for the day, especially if it gave me the chance to go flying. Aviation had always interested me. I met up with him at the appointed time at Van Nuys airport and saw his airplane with the funny tail. I asked him what kind of plane it was, and he said, "It's a Mooney, they all have tails like this."

We got in the plane and away we went. I was amazed at the speed and the fact that we could just get in and go without the hassle of a crowded airport. It was amazing. Ninety minutes later we landed in Vegas, where he placed his bets on the Super Bowl and soon, we were headed back to Van Nuys. I was home in just a few hours, and I was hooked.

Thirty-two years later in November of 2018, when I was finally able to fulfil my dream of flight and airplane ownership, I started looking for a plane. I looked at everything. I was even in escrow on a Long EZ until a chance conversation by text with Dick Rutan told me to stay far away from the plane I was considering because of the twist in the wing and a huge trim tab he saw in the photo's that I had sent him. Thanks Dick.

The search continued and one night at 3:00 AM I woke up from a dead sleep with a bit of a *fever* and remembered an ad for a Mooney I had seen a few weeks earlier. I found the ad and sent the seller a message. The plane was still available. After a trip to Texas, a pre-buy and annual by Don Maxwell, I purchased the plane. All of this was months before I had my PPL. I hangered the plane at Santa Monica and I'd visit her almost every day. I'd imagine what it would be like to be able to fly her. I'd sit and just stare at her. I was love struck and the *fever* grew. It was like being in love with a girl I had never even dated.

I got my PPL, finished some upgrades to the plane and began to set up my transition training with Don Kaye and Mike Jesch. I then started looking at MooneySpace. One day I noticed that they

had a section for clubs. I clicked on the link, but to my surprise there were no clubs at all. How could this be? Thousands of members and no clubs? My father always told me that if I wanted to be successful, I had to find a niche and fill it. That is when I started the **West Coast Mooney Club.** Keep in mind, I had never flown my plane. I was approaching airspace I had no idea how to fly through. I just kept repeating the words Aviate, Navigate, Communicate and hoped for the best.

The Mooney Flyer is proud to have performed the very first West Coast Mooney Club Fly-In at Paso Robles and now hosting a Wine Night at its first Conference Fly-in to Sunriver Resort.

Mooniacs RULE!

The very first member to sign up for the group in March of 2018 was Richard Brown. Then many others started adding their names to the list and soon I found myself working with Phil Corman, of this fine magazine. Phil and his wife Linda helped me plan a fly-in and BBQ. We had about 55 planes show up that April day in Paso Robles and fed 115 people some wonderful food. It was a great day. The funny thing was that I could not even fly my own Mooney to the event as I had not yet begun my transition training. John Baker was kind enough to give me a ride.

I was like a kid in a candy store, but I had no idea what I was looking at. M20 C, D, E, F & K models all looked the same to me. My education began that day and the *fever* got worse. The passion I witnessed from Phil & Linda Corman, Richard Simile, Brice & Trish Dill, Richard and Kathy Brown and everyone else who was there that day made me realize that I was now part of a special family. A Mooney family.

As of today, the **West Coast Mooney Club** has nearly 400 hundred members across our Facebook, MOONEYSPACE and other social media platforms. We are sponsored by LASAR, Aircraft Spruce, J.P. Instruments and Airspeed Insurance. This June 11-14 we are having our inaugural **Summer Conference & Retreat** at the **Sunriver Resort** in Oregon. (See the ad in this issue for more information.)

The group is a wonderful mix of pilots and owners who all share a love for these wonderful airplanes.

Come to think of it, it's more than a love. There is something else going on.

We look at our phones throughout the day when we should be working. We log into MOONEYSPACE to give our much needed and anticipated opinion about all things Mooney to those poor uninformed souls who are desperately in need our expertise. We talk about tank sealant, changing pucks, how not to float and bounce landings, ROP or LOP and which speed mods are worth the money.

We ignore our spouses, kids, grandkids, and pets. We talk (and lie) incessantly about our groundspeed vs. airspeed, our fuel flow at varying altitudes, cylinder temperatures, which model is faster, roomier and more efficient. We watch uncaringly and unaware as our family's eyes glaze over, as if they had just been hit with a Mike Tyson left hook from 1988, as we go on and on and on and on.

Yes, our friends and families are sick of it, but it is we who have been hit with a sickness. We are all very, very sick. As for me, I hope they never find a cure. **I've got a Fever and it Needs More MOONEY!**

Fast Flying & Fun Times Everyone

Michael Rodgers, West Coast Mooney Club, **www.westcoastmooneyclub.com**

1) **What speed is defined as the landing configuration stall speed (gear down and full flaps)?**
   a) VNE
   b) VSO
   c) VREF
   d) VS1

The answer is b – VSO. You can remember VSO by associating it with "Stuff Out". **VS1** is the stall speed in the CLEAN configuration. Think of it as "Stuff In".

2) **You plan a takeoff at 300 pounds below the maximum gross weight. How will your VSO speed compare to the published maximum gross weight VSO speed?**

a) It will be lower than the published maximum gross weight VSO
b) It will be higher than the published maximum gross weight VSO
c) It will be the same as the published maximum gross weight VSO

The answer is a – The VSO will be lower than the published maximum gross weight VSO.

3) **You find yourself overshooting the runway, so you think, "I'll just increase my bank from 30° to 60° and add a little back pressure." Will VSO increase or decrease?**
   a) Increase
   b) Decrease

The answer is a – Increase. That's because as the load factor increases, stall speed increases at an exponential rate. For instance, at Max Gross Weight, VSO in a M20K is 59 KIAS at zero bank. At 30° it's 63.5 KIAS and 84 KIAS at 60°. If you fly your base turn at 90 KIAS, you have a 27 KIAS stall "cushion" in a 30° turn. The stall "cushion" is a mere 6 knots in a 2G 60° bank.

4) Define VX speed.
a) The speed that gives you the maximum excess thrust
b) Best angle of climb speed
c) The speed that allows you to gain the most altitude in the shortest horizontal distance
d) All of the above

The answer is d – All of the above. After passing the runway departure-end threshold, Airplane A climbing at VX (Maximum ANGLE Climb Speed), will be higher than Airplane B climbing at VY (Maximum RATE of Climb Speed).

5) What is a VFE speed?

a) The maximum speed that you can extend the flaps
b) The maximum speed that you can extend full (landing) flaps

The answer is b – The Maximum speed to extend the flaps to full. It's indicated by the high end of the White Arc on the Airspeed Indicator.

6) If you are at or below _____ speed, you will stall before you cause structural damage, *IF* only a single flight control is moved in one direction, in smooth air.

a) VA
b) VNE
c) VNO

The answer is a – VA, which is the Maneuvering Speed. **VNE** is the never exceed speed (the red line on airspeed indicator). **VNO** is the Maximum Structural Cruising speed (indicated by the top end of the airspeed indicator's Green Arc). At VNO, the aircraft should not be damaged by a 30 **feet/second** vertical gust. The airspeed indicator Yellow Arc (beyond the Green Arc), shows the speeds at which you should fly with caution and only in smooth air.

7) **What V speed refers to the maximum speed at which you can extend or retract the landing gear?**

a) VLO
b) VLE

The answer is a – VLO. Later model Mooneys have two VLO's. There's a maximum speed at which you can extend the gear and a slower speed at which you can retract the gear. **VLE** is the maximum speed at which an airplane can be safely flown with the landing gear extended – without damage to the gear doors. The M20C's VLE is the same as the VLO. The M20K's VLE is 165 knots, 25 knots faster than VLO, which is 140 knots.

8) Your Mooney has a best-glide speed for power-out situations. What occurs at best-glide speed?

a) Maximum lift to drag ratio
b) Relative airflow is at its lowest
c) Maximum endurance
d) Minimum lift to drag ratio

The answer is a – Maximum lift to drag ratio. Flying faster than "Best Glide" will increase *parasite drag*. Flying slower than "Best Glide" will increase *induced drag*. So, if you fly slower or faster than best-glide speed, your gliding distance will be shorter because of the drag.

9th Annual Gunfighters Formation Clinic

by Charles McKenna

January 23rd to 26th, Arizona's Yuma Marine Corps Air Station / Yuma International (KNYL) hosted the 9th Annual Gunfighters/Red Star Pilots formation clinic. Chuck "Cowboy" Crinnian started the formation clinic in 2012 with 12-15 pilots that year.

It was Cowboy's goal to prepare the Mooney mass arrival into Airventure at Oshkosh; to arrive in 3-ship elements. Before 2011, the Mooney Caravan arrived in more of a "Gaggle". The 2012 experiment worked and the Mooney Caravan has been arriving that way ever since. In 2019, led by Adam "Sled" Carney, we were 62 planes strong and we landed in just over 8 minutes.

Yuma MCAS/Yuma International airport is a busy airport with more than 180,000 aircraft operations yearly. In 2019 I was one of them, in my 1977 201. The first leg of my instrument cross country was from North Las Vegas to Yuma. Because KNYL is also a Marine Corps Base, it offers an approach called Precision Approach Radar (PAR). So, I took advantage of it. My instructor said I was his first student to do a PAR to fill one of the approaches required.

At the clinic, Cowboy starts working early and forms a close relationship with the MCAS ATC unit. I can attest they are a top-notch group. The ATC unit attends the clinic meetings, and some get the chance to fly with the group. It builds a strong foundation for a safe weekend. They provide dedicated airspace for the flights, and the clinic pilots use the military departure and arrival procedures. With all the military operations and the Mooney clinic being right in the middle of it, it's better than most airshows.

Cowboy is helped by many other pilots with years and years of civilian and military training. The clinic has helped father clinics in Texas and Kansas and is the blueprint for all the other Mooney clinics. The Yuma clinic couldn't be what it is without the likes of Dave "Sardot" Martin. He's a former B-1B test pilot who was instrumental in formulating the formation training guide. There's also Darwin "Hot Dog" Puls, a former F-100 driver and Mike "Spanky" Lynch, a retired USAF Colonel and F-15/16 pilot. I can't forget the perennial Red Star Pilots Association staff, Scott "Munchie" Andrews and Rich "Wink" Martendale.

In 2016, the Gunfighter became associated with the Red Star Pilots Association. With this partnership, the clinic can give advanced training to pilots who want their FAST cards. The clinic has one to two FAST check pilots who can help with those certifications. It has given the clinic the ability to expand its flying opportunities, flying with aircraft such as the T-34, CJ-6A, Yak-52, and others. It truly is a sight to see.

The city of Yuma supports the formation clinic, starting with the Millionaire FBO. The general manager, James "Curly" Combs is a former Marine aviator and joins in the training events. Next year, I hope to participate in the 10th anniversary event. Hope to see you there.

IFR FLIGHT PLAN ERRORS

WRONG OR MISSING ADS-B INFO CAN AFFECT ROUTE AND ALTITUDE

According to the FAA, more than one-third of pilots are not filing IFR flight plans correctly when it comes to entering their aircraft's ADS-B equipment information. In certain airspace, incorrectly filed ADS-B capability could result in a significant change to either the route of flight or the requested altitude.

It's easy to fix if you have ForeFlight and the Mooney Flyer is here to help.

Let's check if your ForeFlight's ICAO data has been entered correctly.

Open ForeFlight and . . .

- Select "More" at the bottom right of the screen
- Select "Aircraft"
- Select your Aircraft
- Scroll down to "FILING"

FAA Equipment:
Most likely you have a panel mounted GPS/GNSS. If so, check "/G"
ICAO Equipment:

- Select "S" (This means you have the traditional VOR, VHF, RTF, ILS).
- If you have a panel mounted GPS, check "G GNSS".
- If you have a panel mounted WAAS GPS, you should also:
    - Check "B LPV" & "R Performance Based Navigation Approved"

ICAO Surveillance

- If you have an ADS-B 1090 Out transponder, check "B1" and also check "S" (S mode)
- If you have an ADS-B 1090 Out + In transponder, check "B2" and also check "S" (S mode)
- If you have an ADS-B UAT Out, check "U1"
- If you have an ADS-B UAT Out + In, check "U2"

GPS Equipped aircraft, ICAO PBN (Performance Based Nav)

- If you have a panel mounted GPS, check "B2". This means that you can fly point to point.

- If you have a panel mounted WAAS GPS, check "C2", meaning that you can fly T routes and Q routes,
- If you have a panel mounted WAAS GPS, check "D2", meaning you can fly RNAV SIDs and STARs,

Other Information

Note: ForeFlight's "ICAO Filing with ForeFlight" does not do a particularly good job of explaining this section. In fact, ForeFlight seems to have forgotten to include it in the guide. This is probably why 1/3 of the IFR pilots did not enter this data or did it wrong.

If you are equipped with a 1090ES transponder (either Out, or In and Out):

- Go to https://registry.faa.gov/aircraftinquiry/
  - Enter your N number and find your Mode S Code (**base 16 / hex**)
- On the "CODE" line, enter your Mode S Code (**base 16 / hex**)
- On the "SUR" line, enter "260B**"** (meaning you meet the 2020 ADS-B Mandate).

Other Resources

ICAO Filing with ForeFlight: Quick Reference Guide can be found at:
http://cloudfront.foreflight.com/docs/ff/1018/ICAO-quick-ref-guide_1018.pdf

FAA Guidance can be found at:
https://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/systemops/fs/wd/media/ICAO_Flight_Plan_Filing.pdf

An FAA quick guide pamphlet can be found at:
https://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/air_traffic_services/flight_plan_filing/media/FPL_Brochure_(2019-06-14_final).pdf

How to make sure your ICAO flight plan is not rejected by ATC (iPad News)

Installment #8

by Brian Lloyd, CSEL/CMEL, CFIA/CFII

COVID-19 is here! It's messing up flying because there is not much going on. My girlfriend, Faye, lives in downtown San Diego. She is retired, and as a result of much traveling for work, has millions of miles banked up with Southwest Airlines. She was splitting her time between San Antonio and San Diego, using her airline miles to travel. Then the COVID-19 panic set in.

California looked to be a real hotbed of COVID-19. Faye and I were concerned about her potential exposure living in the middle of downtown San Diego. Comal County in Texas is rural and had no known cases of COVID-19 … yet. I offered to come get her in my Mooney. It would be possible for her to get from her condo downtown, to the airport, into my Mooney, and out of there without ever coming into contact with anyone but me. (She lives only about a mile from the FBO at San Diego Lindbergh field and could easily walk.) I could top off the wing tanks, fly non-stop to San Diego and stop on the ramp. Faye could get in, and we could start for Texas, stopping near Phoenix at a rural self-serve fuel facility and refuel for the rest of the flight back to San Antonio. Having 11 hours of fuel in the airplane is a real boon if you want to get somewhere.

There were a couple of flies in the ointment. I had recently had oral surgery and my doctor had grounded me for 10 days. To do this, Faye was going to have to self-isolate in her condo for about 6 more days. The flight, for me, was going to be about 14 hours long. As you may know, I flew many long legs on my flight around the world a couple years back, so I wasn't worried. However, 14 hours of flight time in one day immediately following release from medical grounding, was enough to make me seriously consider IMSAFE.

In the end, Faye opted to fly Southwest to Texas. She did walk to the airport so as not to be exposed to a cab, and promised that if she was not completely comfortable with the social-distancing procedures at the airport, she would turn around, go home, isolate, and wait until I felt it was safe for me to fly out and pick her up.

She found the San Diego terminal nearly deserted. She was whisked through TSA without having to touch anything. People were “social-distancing” in the waiting area and the aircraft was only about ¼ full, giving her an entire row to herself. Still, it is nice to know that my Mooney, “Spirit”, was poised and ready for the rescue operation should the need arise.

So how has COVID-19 affected flying? I don't know about you, but it hasn't made too much difference around here at Kestrel Airpark. People are still flying regularly. Flight instruction has fallen off to near zero from what I can tell. About the only time I am with someone else in an airplane is when flying the Tiger Moth. I consider an open-cockpit biplane to be pretty good social-distancing so I have given a number of rides, or just gone out and flown for fun. Even with COVID-19, I have managed to rack up 11 hours in the 30 days that spanned the worst of the COVID-19 panic. However, this is about half my normal flying. As I write this, we are on what appears to be the back side of the infection curve and looking forward to the lifting of the “shelter in place” rules. I am looking forward to instructing.

Of interest to Mooney pilots, I have two primary students doing their training in Mooneys. Yes, they are learning to fly in Mooneys rather than more traditional trainers. One did his entire training in an F model and just passed his check ride. The other has done the bulk of his training in a C-150, but now that his C model is all done, (radio upgrades, ADS-B, and a new engine monitor), he will switch to that as he prepares for his check ride. One can learn to fly in anything if one is willing to spend a little extra time to learn the nuances of a complex airplane.

So, what about Mooneys? I have time in nearly every model from the A to the Acclaim. I even have time in the rare M22 “Mustang”. I can't say that I find a big difference between the M20 series airplanes when it comes to flight characteristics. Yes, the systems are different, e.g. “Johnson Bar” vs. electric gear, hydraulic vs. electric flaps, etc. Still, the airplanes fly very similarly. If you are comfortable in a C-model, you can fly an Acclaim without it feeling that different … as long as you aren't intimidated by the G1000 panel.
The biggest differences come from the engines, of which there are essentially only 6 variations:

1. Carbureted 4-cyl Lycoming
2. Injected 4-cyl Lycoming
3. Injected 6-cyl turbocharged Lycoming
4. Injected 6-cylinder Continental
5. Injected 6-cylinder turbocharged Continental
6. That damned thing they put in the 231

Life with a carbureted Lycoming is simple. Pump the throttle a couple times, turn the key to start, leave the knobs forward on climbout, set the knobs for how much fuel you want to burn per hour in cruise, keep the CHTs below 375°F, and life is good. You must be pretty abusive to have an O-360 not make it past TBO. The Lycoming parallel-valve 4-cylinder engines may be the most reliable piston aircraft engines ever made. I love 'em.

Then there is the 200hp injected Lycoming that showed up with the E model and was also used in the F and J. This is likewise a pretty bulletproof engine. On the other hand, when it's hot, it is difficult to start.

When someone tells me how difficult it is to start their injected Lycoming, I ask them if they have tried the hot-start procedure in the POH. Yes, it works almost all the time. Use it. The problem then becomes what to do when the hot-start procedure does not work. The answer is to use the "intentional flooded start" procedure.

By the way, the "intentional flooded start" procedure ALWAYS works, and it works for both Lycoming and Continental injected engines. If you have followed the Mooney POH hot-start procedure, but then cranked for more than 15 seconds without your engine starting, it is time to proceed to the "intentional flooded start" procedure. Those of you with carbureted Lycoming engines may now take a moment to feel superior.

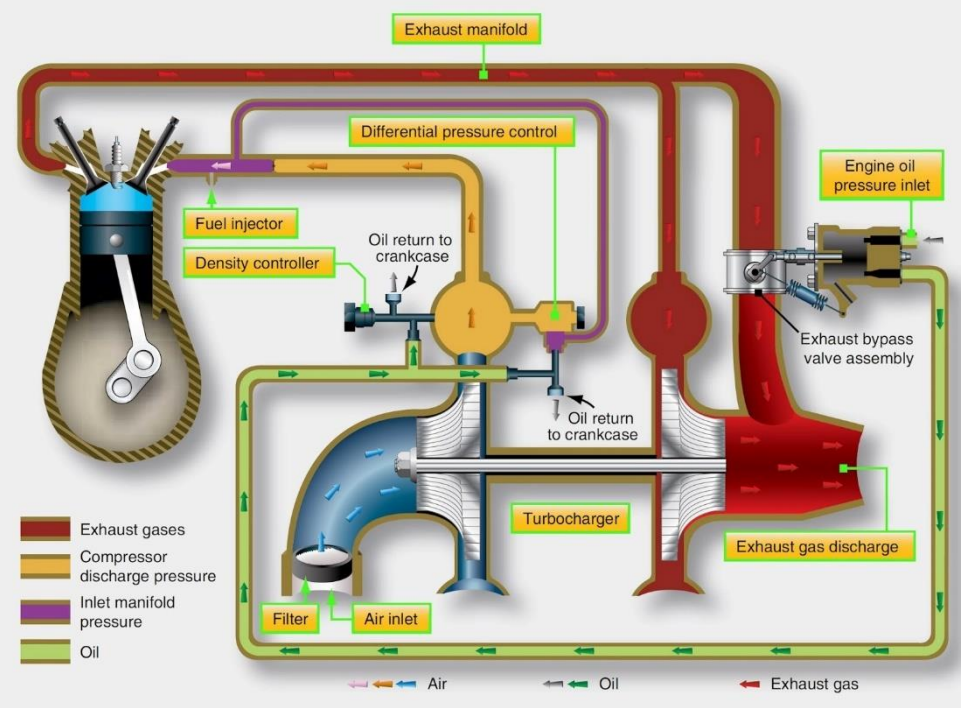
The goal of the "intentional flooded start" is to find the right starting mixture by beginning with an overly-rich mixture and letting it get progressively leaner until the engine starts. We begin by flooding the engine. Yes, that is right, we put in way more fuel than the engine can possibly burn. We do this by setting the throttle wide open, mixture rich, and boost-pump on. Let the boost pump run long enough to get a stable fuel-flow, and then a bit longer. If you are starting hot, this purges all the fuel vapor out of the lines and cools off the fuel system components. Turn off the boost pump and pull the mixture to idle cutoff, leaving the throttle wide open. Now there is too much fuel in the engine, but no more fuel going in. The wide-open throttle is allowing lots of air to flow through the engine. Now, start cranking.

As the engine cranks, the excess fuel vaporizes and is pumped through the engine and out through the exhaust. With all that extra air, the fuel vaporizes and goes away; the mixture gets leaner. After about “10-15 blades”, the mixture will be lean enough to burn. The engine WILL start. Now you SMOOTHLY pull the throttle back to idle and SMOOTHLY advance the mixture to full rich. Your engine is now running normally, your battery is not dead, you do not look stupid in front of your flying buddies, and your Significant Other is NOT shooting daggers at you with his or her eyes.

Once started, all of the engines are well behaved. The exception is the TSIO-360 used in the 231. There have been two variations of this engine, the TSIO-360-GB and the TSIO-360-LB. Since the -GB had a tendency to rapidly disassemble itself in flight, you don't really want a -GB. Fortunately, Continental recognized the problem and did something about it. The solution was the -LB. If you send a -GB to Continental for overhaul you will get back an -LB. This is a good thing and ensures that eventually, all the -GBs will be gone. The -LB is quite reliable and doesn’t present a “Mayday, my engine just blew up and there is oil all over the windscreen,” problem.

Still, that being said, the TSIO-360-LB engine is the fiddliest engine I have ever flown. This is not an engine that maintains the power settings you dial in for any long period of time, especially if you run lean-of-peak at high altitude. When I do transition training in the 231, we spend a fair bit of time on engine operation. A 231 owner contacted me, explaining that he wasn't really sure how he should be operating his engine. I smiled knowingly and said, “There, there, that's OK. Nobody else does either.” (You may laugh, but this is a weak attempt at humor. In fact, I never actually said, “There, there.”)

When Continental came out with the TSIO-360-GB, it and its other variants went into 231, Turbo Skymaster, Cherokee Turbo Arrow, and Seneca. Continental congratulated itself that it had produced a cheap turbocharged engine. Unfortunately, they did this by cutting corners, omitting an intercooler and waste gate controller. The pilot controls everything with the three power knobs in the cockpit … and boy do they interact! Most of you are used to pushing the throttle to get the manifold pressure (MAP) you want and then it pretty much stays put. Not the TSIO-360. You begin your take-off roll by pushing the throttle in about half way. The MAP comes up to about 28”. Now you move the throttle forward in 1mm increments because suddenly the MAP jumps up as the turbocharger spools up. A 1mm change in throttle position now makes about a 2” change in MAP. It is easy to



overboost the engine by pushing the throttle too far forward.

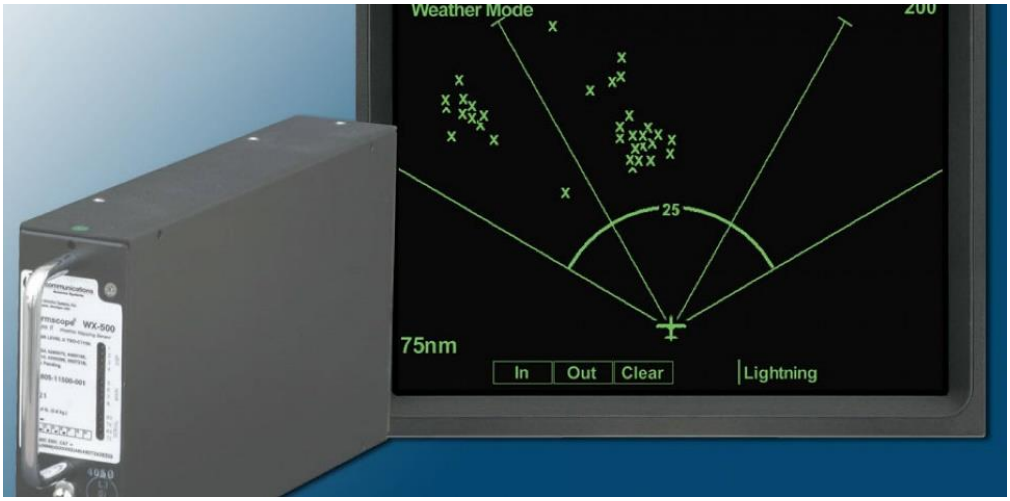
So here you are, on takeoff with one eye on the runway, one eye on the airspeed indicator and one eye on the MAP to keep from over boosting. Of course, you moved the throttle too far, too fast and now the MAP is 42"; 2" over redline or 5" over redline if you have an intercooler! You gasp, pull back the throttle, notice that your left main gear is about to take out a runway light, make a slight adjustment with the rudder, and notice your MAP is back down to 28" and the airplane is not accelerating all that well. Wash, rinse, repeat. Eventually you get something in the vicinity of 40" and continue the take-off – uneventfully.

This tendency for the MAP to change radically with very small throttle changes is called bootstrapping. It is a positive feedback between the turbocharger and the engine. It goes like this. You increase the MAP or RPM slightly. The engine then makes a bit more power and a bit more exhaust. The extra exhaust makes the turbocharger spin faster, which makes more air come out of the compressor, which makes the MAP increase, which makes more engine power, which makes more exhaust, which makes the turbocharger spin faster, which makes the MAP increase, which makes the engine make more power … and so a 1mm change in your throttle makes a 2" change in MAP. Even a change in the ram air into the induction air intake because you increased your airspeed can trigger the bootstrapping process. Sometimes when I have gotten the MAP set exactly right early on in the take-off, after I am off the ground and pulling up the gear, I see I have gotten yet another 2" of MAP.

Do not get me wrong, I love my 231. I have added the automatic waste-gate controller, which helps get more power at altitude, and the intercooler, which allows the engine to make power while requiring less boost from the turbocharger. This leads to reduced fuel burn and reduced temperatures. These two things make the 231 much happier at FL240. But I do get tired of bootstrapping. It means that you must monitor the engine all the time. You cannot, "set it and forget it."

In addition, I am a firm believer in lean-of-peak (LOP) operation. When I am in cruise in my airplanes with injected engines, I am running LOP. No, I am not going to argue with anyone about LOP operation. You can make up your own mind. I have made up mine. I run LOP ALL the time. I have probably 4,000 hours of LOP operation. I flew my 231 around the world, a lot of that looking at nothing but water. The entire cruise was LOP. That being said …

LOP operation makes bootstrapping even worse. Now the tiniest bit of change in the mixture makes a big change in engine power, which makes a big change in turbo speed, which makes a big change in MAP, which … yeah, you get it. People ask me if I was bored flying over the ocean for 17.5 hours. I tell them no. I had to spend a lot of time looking at the engine monitor and fiddling with tiny changes in the mixture and throttle; keeping the engine power set where I wanted it. If my



attention faltered, I usually noticed on the airspeed indicator. Hmm, why am I only indicating 117 kts now? Oh, 55% instead of 65% power. Every once in a while, the engine takes pity on me and the power settings don't have to be touched for maybe 10 minutes. I think that is about the longest I have ever gone without touching the engine controls when operating up high.

Later, Continental and Mooney got smarter. Continental came out with the TSIO-360-MB and TSIO-360-SB, both of which have a density-type waste-gate controller and an intercooler. Mooney then put the -MB into the 231 to create the 252. This means that if you are flying a 252, you just push the throttle all the way forward and the waste-gate controller adjusts the turbocharger to keep the MAP right at red line. Much nicer. The Rocket, Bravo, Ovation, and Acclaim are this way too. I really like the 252.

Still, I really like my 231, which is really like a 245 with the aftermarket waste-gate controller and aftermarket intercooler to help make more power at altitude … if I want it. I just have to be both pilot and flight engineer when flying up high. The autopilot is my friend.

Many of you may know that I flew my 231 around the world in 2017, following Amelia Earhart's route as much as is possible with today's political environment. I chose a different ending for my flight than Amelia did. To make her flight different from the circumnavigators who went before her, she opted to fly around the world at the equator. This means that the total length of her flight would have been greater than the circumference of the Earth. It also means that a lot of time is spent in or near the Inter Tropical Convergence Zone (ITCZ), a band fluky, variable winds, and lots of thunderstorms. I crossed or flew in the ITCZ four times on my trip. It also meant that weather briefings were often meaningless beyond, “Widely scattered thunderstorms along the entire route of flight.” One of my reasons for doing the flight in a 231 was to be able to get up high enough to see around the worst of the cells so I could thread my way through, mostly visually. I also had a lot of help from my Stormscope.

Perhaps my most memorable tropical thunderstorm moment came on the short leg from Chittagong, Bangladesh, to Yangon, Myanmar (Rangoon, Burma).

It was a short hop, only about 3 hours, and I expected it to be uneventful. It was an IFR flight, but I expected to be above the weather all the way. There was rain in the forecast, but not many thunderstorms. I thought I would get off easy that day.

I was handed off to Yangon approach and was given a descent clearance and a vector for the ILS at Yangon International (VYYY). There were scattered towering cumulus clouds building up and some

were pretty dark. The vector to final had me heading right toward the darkest towering cloud around. I didn't like what I was seeing, but the Stormscope was blank. I called approach to ask if they were showing anything on their 'scope. They said no, nothing but a few spots of light rain. So, I tightened my belt, told myself it was only going to be a little bumpy for a little while, slowed down a bit, and headed into the cloud. It was only a little bumpy … for about 30 seconds and then all hell broke loose.

I now understand the difference between severe and extreme turbulence. This was extreme. I was a rat and the cloud was a Terrier. Before I could do anything, I found myself rolled 130 degrees to the left, mostly inverted, and about 30 degrees nose down. Fortunately, the electronic gyros in the Aspen PFD didn't tumble, so I was able to see my orientation. My upset-recovery training kicked in and I unloaded the G on the airplane to keep it from breaking. I closed the throttle and started to roll back upright. I ended up right-side up again and pointed about 90 degrees from my original course. I popped out of the cloud about 30 seconds later. I informed Yangon approach of the upset and that I would be remaining clear of the clouds as much as possible on my way back toward the ILS. About this time the Stormscope started to light up like a Christmas Tree. Don't you just love technology?

Turns out I had encountered a thunderstorm that was just in the process of turning from the building to mature stage. If I had arrived a few minutes earlier, I would have gotten through with nothing but a few bumps. If I had arrived a few minutes later, my Stormscope would have warned me of electrical activity in the cloud and I would have deviated. But, like Goldilocks, I got there "just right". Thank goodness upset-recovery training works. I did not have time for that rush of adrenaline.

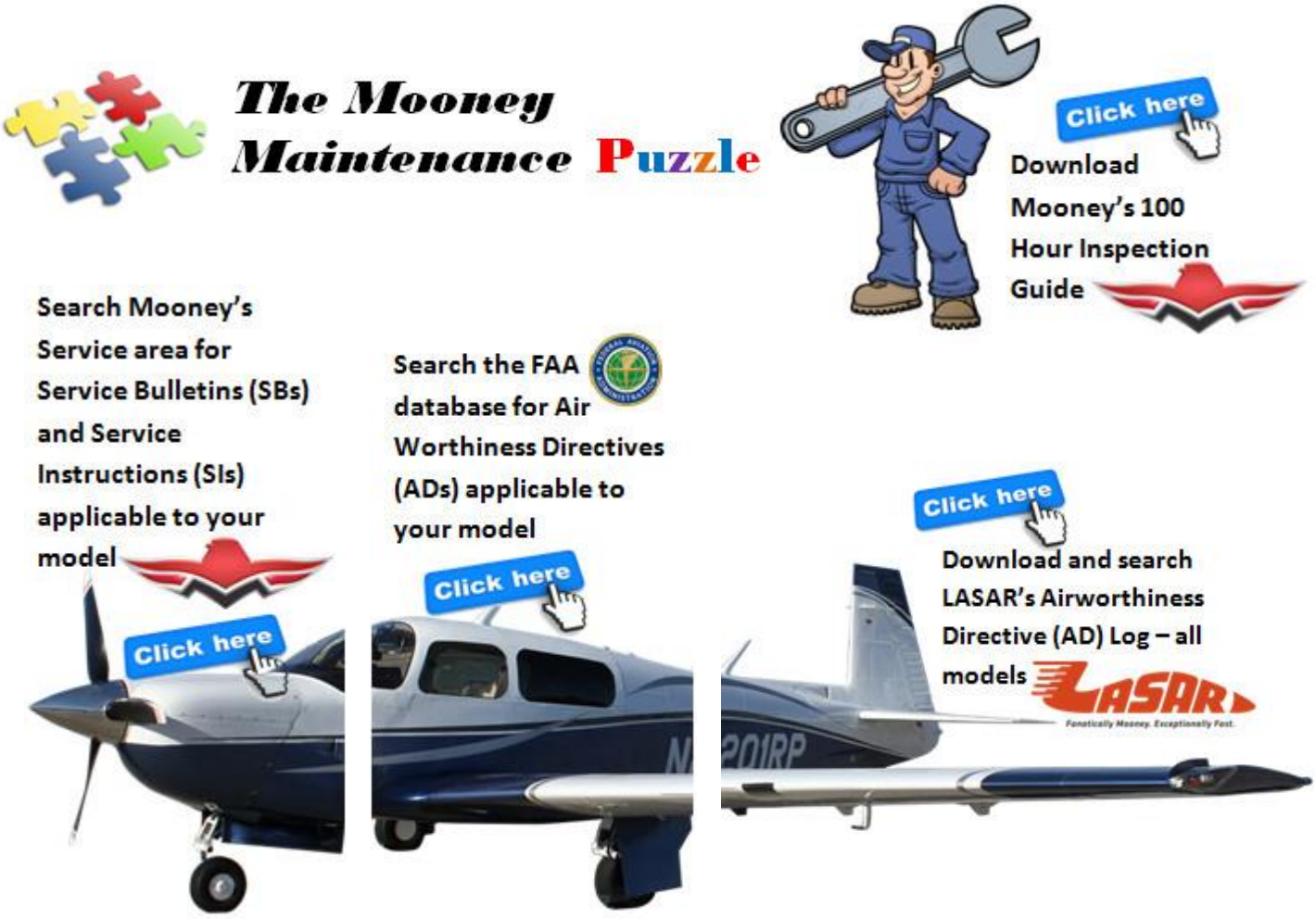
The aftermath? Well, nothing unpleasant. I could find no damage to the Mooney. My handling agent whisked me through customs and I was off to my hotel and a beer. From there I was able to see the Golden Pagoda off in the distance. I decided to walk 3 km to see it. It is truly breathtaking. You really ought to see it. Yangon is a place I would like to revisit someday, with or without the Mooney.

I hope everyone stays healthy. So, until next month …

Fly safely. Fly better. Have fun!

There is a big inventory of serviceable airframe parts, including wings for M20C, E, F, G, J, K & R models, empennage assemblies, fuselages, rebuilt controls, rudders, elevators, ailerons, flaps, cowls, engine mounts, landing gear and small parts.

Paul Loewen is offering them online, or by phone. The website is www.LoewensMooneySalvage.com, and he can be contacted in Lakeport, California at **707 263-0462** or by cell at **707 272-8638.** Email is PaulLoewen98@gmail.com. The used inventory is also still available through LASAR Parts at 707. 263-0581



Ask the Top Gun

Tom Rouch
Founder of Top Gun Aviation, Stockton, California

Send your questions for Tom to TheMooneyFlyer@gmail.com

Question: My question is about maximum CHTs. I used to have a Lycoming O-360 on my C. I was told to keep the CHTs below 360 degrees. Now I have an IO-550 and was told I only need to keep the CHTs below 400. Do you agree? If so, what is different between the two engines?

Answer: Question is the difference between max temps on Lyc 0-360 and a TCM IO-550.

If you go to the Lycoming Manual for the 360, you will find that Lycoming actually puts the maximum CHT at 435 degrees. The Lyc 360 engine goes back into the 50's and if you could read all the manuals, you would find many different limits. That's because through the years, as newer metals and fuels were used, there were different recommendations, and many were very conservative, changing with the times. Because the IO-550 is much newer and fuel injected, the CHT limit is higher, but it's really not that much different.

As an example, there is a different maintenance manual for every Mooney built and each has different shock disc limits. Yet, each model uses the same discs. For instance, an M Model is allowed more compression on the discs than the compression that's allowed on a C model.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Mooney's position as the top seller in retractables is positive proof of its impressive performance and value. Every day more and more of those who fly Mooney BUY Mooney! ▬ The Mooney Mark 21 for '62 packs a bigger payload . . . has a new "Safe-Lift" flap system,a completely new exhaust system that gives you lower noise level and more cabin heat. New T-formation flight panel means added safety and efficiency. ▬ Mooney gives you more real value in every detail . . . in design, in construction, in styling, in high speed performance and efficiency . . . it's unmatched by anything in its class . . . BUT YOU WON'T BELIEVE IT 'TIL YOU TRY IT! Ask your nearest dealer for a demonstration flight . . . but remember ownership is contagious!
199
83
146
MOONEY
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Appareo Introduces a new EFB App

In June 2019, Appareo announced the acquisition of Aerovie, LLC, the developer of the Aerovie electronic flight bag. Aerovie has evolved into Stratus Insight, which adds full mapping capabilities to the features previously available on its Appareo's Horizon app. These include an EFIS display using the attitude information inside a Stratus transponder and transcription of radio messages.

Insight includes VFR sectional maps, IFR low/high en route charts and geo-referenced approach plates. It also includes terrain warnings and synthetic vision. Like the Horizon before it, the Insight includes radio transcription, which requires an audio-cable connection from the aircraft to the iPad. (The app is available only on Apple's IOS.)

In addition, the Insight app includes weather products with Vertical Weather Profile, Radar Forecast, and Smart Flight Plan. Smart flight planning helps the pilot to ensure he or she has enough fuel for the flight, and it also can provide a graphical set of en-route refueling choices. The Insight also has an alternate-planning tool for IFR pilots that displays airports within fuel range and with the weather minimums for filing as an alternate. The Vertical Weather Profile presents aggregated data in profile view along the planned route so you can see if you'll be clear of weather at your chosen altitude. Finally, radar forecast allows the pilot to forecast from current and recent-past radar returns to make an educated guess on future weather.

The app supports integration with all generations of Stratus receivers, which provide subscription-free weather, WAAS GPS information, and ADS-B traffic to the app during flight. The Insight app is available for download now and runs $9.99 a month or $99 a year with a 30-day trial available upon download.

Champion Aerospace Slick Magneto Service Bulletin SB2-19

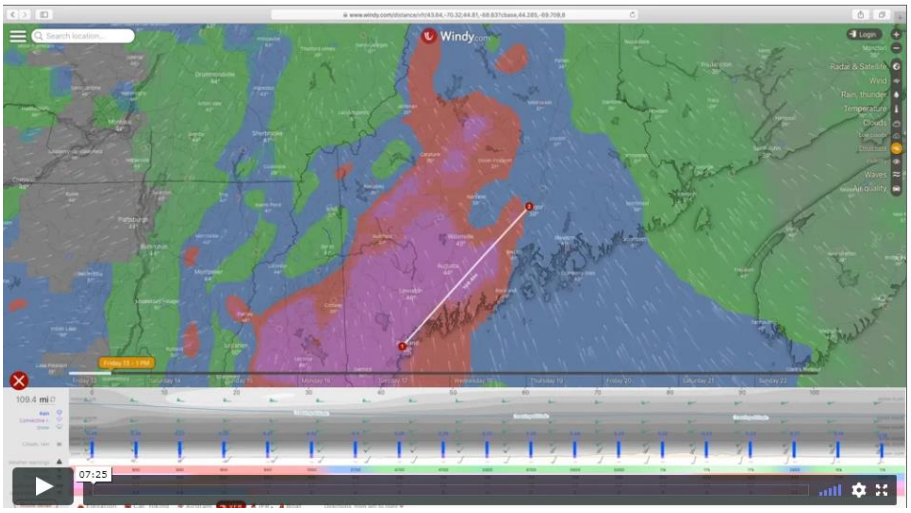
BACKGROUND: There have been limited reports of impulse coupling rivets loosening relative to the factory placement. Champion Aerospace claims that a loose or broken rivet could potentially enter the engine gear train, causing damage to the gear train or damage to engine accessories. These damages could cause catastrophic engine failure.

AFFECTED MAGS: This Service Bulletin affects aircraft engines that are utilizing certain models of Slick Magnetos. (Primarily Continental Engines, and a few Lycoming engines). Slick Magnetos affected are Series 4200, 4300, 4700, 6200, 6300, and 6700, but only if your mag's **impulse coupling** was replaced with an impulse coupling replacement kit, dated Feb 26, 2015 through Feb 1, 2019.

IF YOUR CONTINENTAL ENGINE MAGNETO IS AFFECTED: You can fly another 100 hours before complying, but the mag can't have more than 400 hours Time in Service (TIS).

IF YOUR LYCOMING ENGINE MAGNETO IS AFFECTED: You have 25 hours TIS to comply, but the mag can't have more than 100 hours TIS.

You can see the entire SB at:
https://www.championaerospace.com/assets/technical/SB2-19A.pdf



How Pilots are Using the Windy app

Click here to visit the video presentation

As of April 5, 2020, SAVVY makes Breakdown Assistance Free

Mike Busch, founder and CEO of Savvy Aviation said, *"At my direction, Savvy has decided to make its breakdown assistance program available at no cost for the next 90 days, to every aircraft owner who wishes to enroll."*

After a two-minute enrollment at www.savvybreakdown.com, owners will be given a toll-free number for a 24/7 breakdown assistance hotline. If their aircraft develops a mechanical problem, a call to the hotline will quickly connect them to one of Savvy's veteran A&P / IAs, who is trained to help get them back in the air quickly, safely, and at minimum expense.

"There are no gimmicks, no strings, and no credit cards required. Savvy normally charges $149 a year for this service, but we're offering it free of charge *between April 1st and June 30th* ***as our way of helping our fellow aircraft owners during the crisis."***

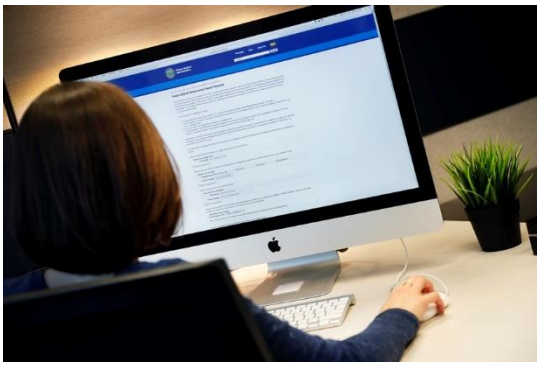
Additionally, the scope of the service has been expanded for this three-month period to cover breakdowns close to the aircraft's home base. . . it's not limited to trips away from home.

"In a time of stress and uncertainty, we want to provide the peace of mind that trustworthy help with aircraft mechanical issues is quickly available 24/7 should owners need it." CLICK HERE TO ENROLL

FAA adds to the Runway Safety Simulator

The FAA has added a second scenario to its Runway Safety Pilot Simulator. The animations are based on actual events. Check it out here to see all three offerings on the site.

The FAA's ADS-B Out mandate has been in effect for four months, and everyone's ADS-B Out is working properly—right? Wrong.



As of March 1, 10, 475 of the 129,736 U.S. civilian aircraft equipped with ADS-B Out — that's 8 percent, which is a ratio that has remained steady for the past six months, exhibited performance issues with their ADS-B equipment. These aircraft are considered NonPerforming Emitters—or NPEs. This means that they are aircraft that are not broadcasting 2020 rule-compliant ADS-B data.

A disproportionately high number, more than 18 percent of experimental and light sport aircraft, 2,095 of 11,450 equipped airframes, are classified as NPEs. It is important any aircraft owner, no matter what type of aircraft it is, ensures their ADS-B system meets the rule's requirements. There are potential safety issues if systems are not performing correctly.

NPE aircraft with ADS-B Out deficiencies that jeopardize safety, or for which the owners do not respond to FAA communications, will end up on the FAA's ADS-B No Services Aircraft List (NSAL). "If there is an aircraft we have observed that is emitting information that would be problematic for the air traffic controller — or there was a systemic problem — an aircraft may be put on the list", explained David Gray, the FAA's program manager for surveillance and broadcast services. Aircraft on the list are not in compliance with the ADS-B mandate and cannot legally fly in the ADS-B rule airspace defined by FAR 91.225 without an airspace authorization. In addition, they will not receive ADS-B-based ATC services, including Traffic Information Services-Broadcast (TIS-B) data, although ATC services will be provided if the aircraft's transponder is working properly.

A pilot or aircraft owner can determine whether installed ADS-B hardware is working properly by requesting a report from the **FAA's Public ADS-B Performance Report Request (PAPR) website**. Complete a few data fields; enter the date a recent flight began, referenced to Zulu time; select aircraft equipment from drop-down menus; and submit your request. There is no requirement to fly in FAR 91.225 rule airspace or minimum flight duration. You'll receive an email with your PAPR attached, normally in less than five minutes. Any fields highlighted in red in the

report indicate that the aircraft's ADS-B Out system did not meet the corresponding performance requirement.

The FAA recently updated its helpful **PAPR User's Guide** with NSAL information, said Jim Marks, ADS-B Focus Team lead for the FAA's Flight Standards Service. "We're receiving quite a few calls and emails from those on the NSAL with questions about procedures to get off the list," he said.

If an aircraft is on the NSAL, "Aircraft is on No Services List" will appear on the PAPR cover page of a PAPR for that aircraft, and it cannot operate in FAR 91.225 airspace without an ATC authorization. If the aircraft's ADS-B has been repaired and the pilot seeks to conduct a verification flight, he or she must use the **ADS-B Deviation Authorization Preflight Tool (ADAPT)** and beside "Reason for Request," select "NSAL Verification Flight" from the dropdown menu. Any other ADAPT request for a NSAL aircraft will be denied automatically by the system. If a NSAL operator needs an airspace authorization for any other reason, they may **email the ADAPT help desk**. The help desk will not issue any authorization that can be obtained through ADAPT.

To remove an aircraft from the NSAL after repairs to the ADS-B system have been made, the owner or operator should contact the FAA representative identified in the letter they should have received. Marks said that if a PAPR indicates an aircraft is on the NSAL and an NPE notification letter has not been received, the owner or operator should **email a PAPR** from the aircraft's most recent flight to the FAA and a representative will follow up.

An update to the **ADAPT online FAQ** was published March 30 and answers a comprehensive list of questions about the service, complementing **AOPA's ADAPT User Guide**. Pilots who need to operate non-ADS-B-equipped aircraft in rule airspace during the current COVID-19 pandemic should be aware that the air traffic personnel who perform manual ADAPT reviews and approvals may be impacted by the reduction in ATC staffing, but he sees little impact on the process.

General aviation traffic volume is down about 50 percent when compared to the seasonal average, and ADAPT requests are similarly down.

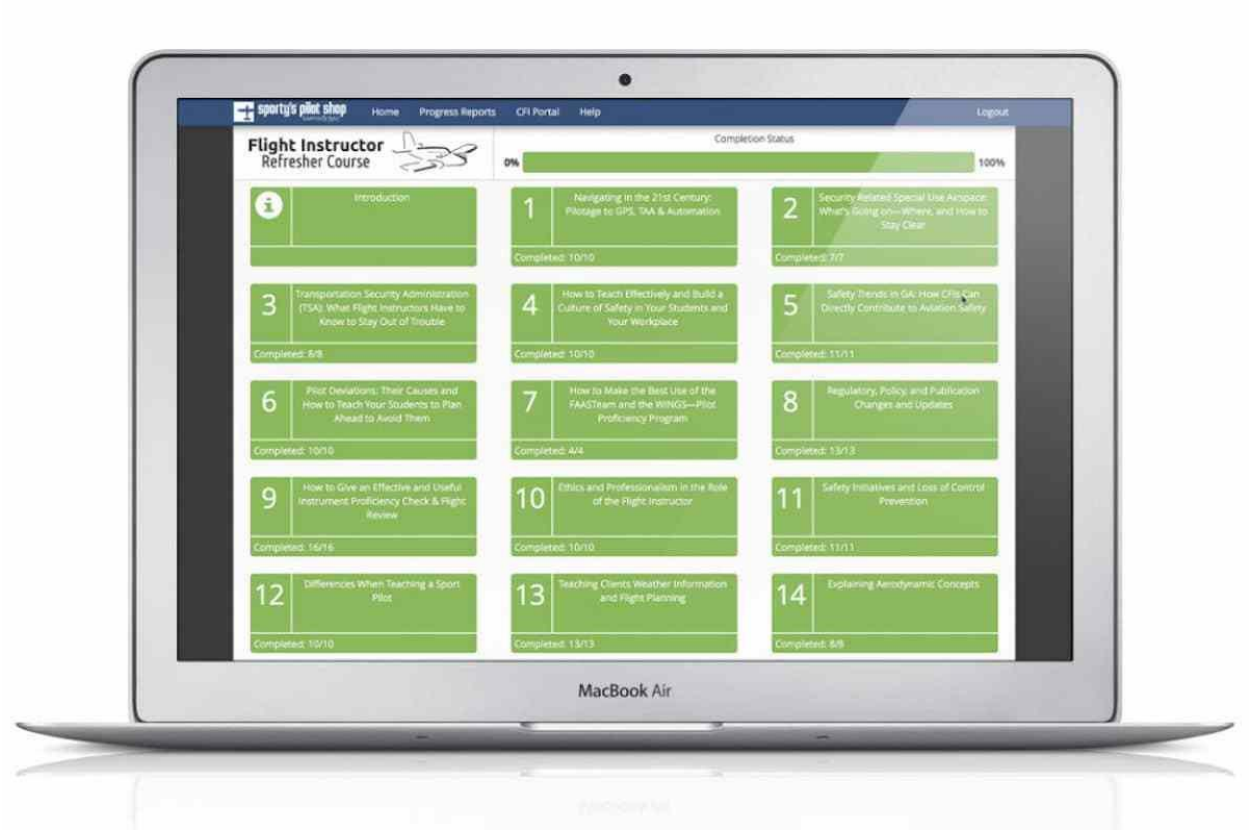
Going Direct: Why Did Mooney Fail? It's Simple! (Not)

There are reasons why Mooney's sold slowly this time around, and it wasn't the machines.

The Cirrus SR22 outsold Mooneys by a factor of around 50:1. Why? Cirrus has a stable business profile, its marketing is super slick, its technology is top drawer, and it has the chute, which a lot of pilots, and not just their spouses, are asking for these days. Did the M20, which is time consuming (read: expensive) to build ever really have a chance against the SR22. Rhetorical question. Of course it didn't. READ MORE HERE

FREE Online Flight Instructor Refresher Course

Sporty's eFIRC is universally accessible on PC, Mac, and mobile devices, including iPad and Android platforms through the web browser. There is no software to install. Simply log in anywhere there's an internet connection and begin training, according to Sporty's officials.



With the option of paperless ACR service, flight instructors who complete Sporty's online FIRC have the option for Sporty's to process their CFI renewal paperwork from within the course and

issue a temporary certificate. Ground instructors may also receive a graduation certificate to meet the recent experience requirements.

Upon course registration, access to Sporty's eFIRC is available for one year free. The paperless CFI renewal service is available for $24.95.

To enroll or for an interactive course demonstration, go to Sportys.com/FIRC.

Wings Program to be Revamped

You are invited to **participate in a survey** about your experience with the Wings program and website—tell the FAA about both the good and the bad.

Your comments will help guide the shape of the Wings program for years to come. All responses are anonymous and confidential, and the survey should take about 10 minutes to complete. Thank you in advance for your time and willingness to help improve aviation safety!

What is the Impact of COVID-19 on your Insurance? Please, do not Panic

When the FAA announced it would suspend enforcement against pilots who fly with expired medical certificates until June 30 because of the COVID-19 pandemic, pilots were alternately cheered and cautious.
Happy the agency was realizing that renewing a medical during a healthcare crisis is almost impossible, but cautious about what the impact of an expired medical would have on their insurance.

The insurance companies are helping. For instance, Starr Aviation, which insures general aviation pilots around the globe, has given automatic extensions to policy holders who may see their medical certificates expire between March 30 and June 30. The extension also applies to training requirements in certain policies. READ MORE HERE

WEST COAST MOONEY CLUB
FAST FLYING - FUN TIMES

2020 SUMMER CONFERENCE & RETREAT

New date: August 20 – 23, 2020

Sunriver Resort, Sunriver Oregon

Fly-In to Sunriver Resort Airport (S21)

✓ Fuel Discounts ✓ Low Tie Down Fees ✓ Hotel Room Discounts

Learn from some of the best Mooney and aviation experts in the country and enjoy a relaxing time with family and friends in one of the most beautiful resort locations in America.

Special Presentation By:
Don Maxwell

Don is regarded as one of the finest Mooney service providers in the country. This is a rare opportunity to hear from him in this type of setting so don't miss it!

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Right Seat Ready!©
Companion Class for Non-Flying Passengers
Presented By: Jan Maxwell & Jolie Lucas
Get your flying partners "Right Seat Ready" with this fun & informative class

Win a brand-new Zulu 3 headset valued at $850

Sunriver Hotel Discounts, Spa Packages,
Incredible Recreation, Fine & Casual Dining & So Much More

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This Is Going To Be A Fun and Informative Weekend.
Meet Other Pilots and Make New Friends!!

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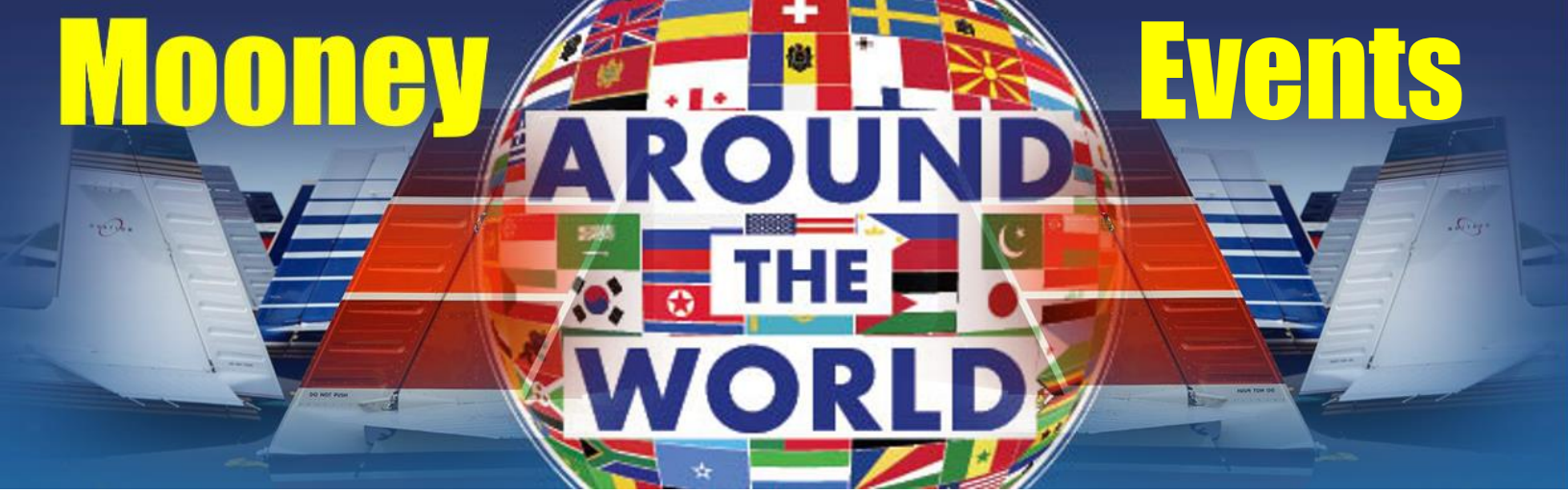

Florida Mooney Lunch Group	*Contact Dave at daveanruth@aol.com or (352) 343-3196, before coming to the restaurant, to have an accurate count. Events begin at 11:30* April 11: Flagler (FIN) May 9: Sebring (SEF) June 13: New Smyrna Beach (EVB) CANCELLED
Mooney Caravan	May 14-17: Basic Clinic (PDT) Sep 10-13: Advanced Formation Clinic (PDT) CANCELLED
MooneySafety.com MAPA Safety Foundation Pilot Proficiency Programs	Jun 12-14, 2020: Ft Worth, TX Aug 21-23, 2020: Santa Fe, NM (New Schedule) Sep 11-13, 2020: Springfield/Chicopee, MA Oct 2-4: Wichita, KS **Sign Up at** https://www.mooneysafety.com/ppp-registration/
MOONEYSUMMIT	October 16-18: Tampa O'Knight (KTPF) CLICK HERE for details
Australian Mooney Pilots Association	
EMPOA	CLICK HERE for details
WEST COAST MOONEY CLUB FAST FLYING - FUN TIMES	August 20-23: West Coast Mooney Club Summer Fly-In, Sunriver (S21) CLICK HERE for details
Other Mooney Events	

TMF PRODUCT REVIEW

Flying Bear Companion

OK, this bear is unbelievably cuddly and comes with dozens of features. It is amazingly detailed and a must for all Mooniacs. Additionally, it has a built-in GPS and Audible Annunciations for situations of close terrain, approaching IAFs, and even calling missed approaches. It connects via Bluetooth to you communications panel or you can use the built-in speaker. OK, OK, OK – at least it's soft and cuddly.

We got carried away by the Covid-19 virus in our product review.

CLICK HERE for more details and to purchase from Pilot Mall.

FOR SALE Mooney Stuff

Parts for Sale

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)

Parts for Sale

I have several Mooney parts for sale from a 1969 G model. Brand new voltage regulator (never used). Instrument light rheostat controller, cowling plugs and like new fuselage/cockpit and tail feather covers. G model POH. Contact me at Wilson Brown, located in Georgia, 678-469-6182.

1 Piece Belly Pan for M20J

I purchased this from Don Maxwell about 7/19/2017. I haven't got time to install it. Circumstances have changed and I would like to sell it for any reasonable offer. The belly pan is at the Cortez, CO airport (KCEZ). John Hutchison 47hutch@gmail.com

NEW Hangar For Sale (Camarillo KCMA) - $99,000

42'x36' in Great Condition

$218 a month covers electricity, etc.

Contact: Julie Ryan, 360.281.3488, Julierryan@comcast.net

1979 M20K For Sale

TTAF: 5155

SMOH on TSIO-360 LB Engine with 1800 TBO: 662
SMOH – engine was completely rebuilt again, but was not zero timed. Brand new cylinders were installed. 119 hours

Garmin G500 MFD
Garmin GTN750 GPS
Garmin GTN430W GPS
Garmin GDL 69 XM Weather displayed on G500, GTN750, and GTN430
Garmin GTX330 transponder with ES
Garmin GI 106A CDI
TIS traffic displayed on G500, GTN750, and GTN430
406Mhz ELT
Garmin GMA340 audio panel
EI MVP50 engine monitor with %engine power and vacuum options

Backup AI – last vacuum gage
Backup altimeter
Backup airspeed indicator
Garmin 106 glide slope gage
Century 41 3 axis AP. G500 linked to provide GPSS
Precise speed brakes
LASAR smooth one piece belly mod
Merlyn automatic wastegate
GAMI injectors
Fine wire sparkplugs
Intercooler
Brand new 115 ^{ft3} oxygen tank for 4 place
Whalen strobes
LED landing light
MT 3 bladed prop, Recently overhauled
New paint in 2003
Leather Interior – new 02-10
Panel mounted digital clock/timer
February 2020 Annual
Both Magnetos overhauled, new prop governor, overhauled fuel pump installed at annual.
Tanis Engine pre heater installed last year

Damage history: Off airport landing 1985 and off airport landing 2003. Right wing damaged. The plane was repaired by Crown Air in San Diego with a factory new wing

$149,000

Kevin@ 909-790-9359


Whether you're a Rusty pilot, dreaming of becoming active again . . .
. . . or you're a proficient, veteran
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The Flight Review
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