The Mooney Flyer

The Official Online Magazine for the Mooney Community

www.TheMooneyFlyer.com

November 2020

Editors

Phil Corman | Jim Price

Contributors

Bruce Jaeger | Bob Kromer | Tom Rouch | Brian Lloyd | Linda Corman
Ron Blum | Richard Brown

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Ed

From the Editor

Phil Corman

Flying During Covid-19

I have received several emails about our extensive flying around the western USA during Covid-19. Many were concerned, but others wanted to know what precautions we took. To date, and we are both older, we have not contracted Covid-19… Knock on Aluminum. We have made several trips; travelling for almost a total of 2 months. We've flown to Sedona, where we went hot air ballooning, stayed at a hotel, ate out, and hiked. At the Grand Canyon, we hiked the rim and down the canyon, and again, we ate at restaurants. It did feel as though there were only a few other people at the park. Then we flew to Idaho, Montana and Oregon, where we spent most of the time outdoors. Here are a few of the precautions we took.

We always self-fueled our Eagle. I wore disposable Nitrile gloves for a modicum of protection from COVID-19 just in case the virus had lingered on the nozzle, and also to reduce my exposure to 100LL. I don't know if this was helpful, but it was a simple step that made me feel somewhat safer. I did maintain social distancing from the line guys, but we were outside where the risks are substantially lower. When in the FBO, we wore our masks which most places required anyway. Shery Loewen wove us Mooney face masks with our N21530 stitched on it, so it was cool to wear them and we received lots of compliments.

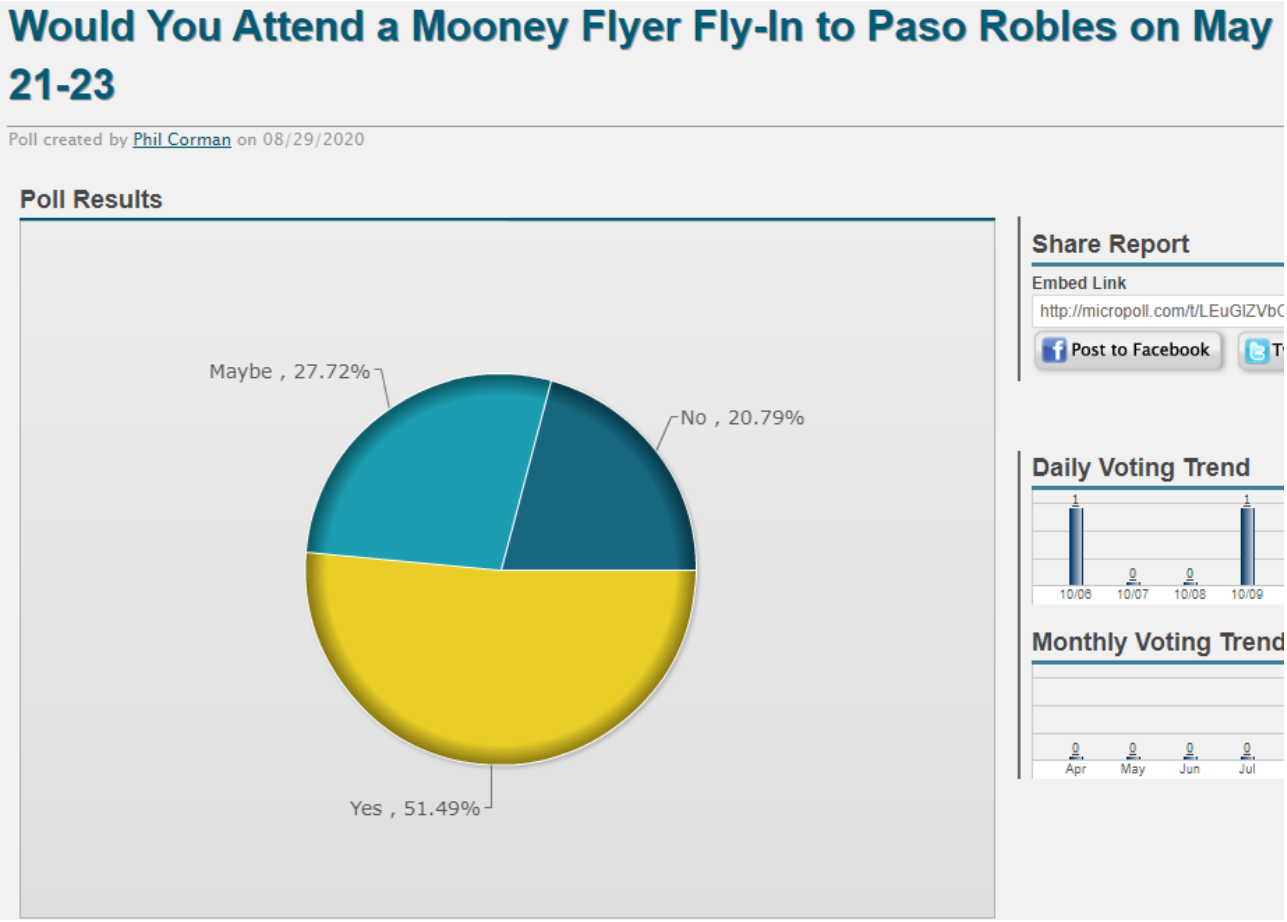
We trusted that the rental car companies would disinfect the cars and they seemed to have done a solid job. Just in case, Linda wiped down the steering wheel and door handles.

Our theory was that recycled central air was riskier, so we stayed at hotels without central air/heating, (those with window units). Who knows if this was effective, but today, we remain free from COVID-19. We also kept the windows open in our rooms. In Oregon, this was a challenge because the wildfires drove the air quality index to insanely high values.

When we stayed in condos or suites, sometimes, we ate in and cooked our own meals. It seems like the data suggests lower virus transmissions occur outside, so at restaurants, we always chose to eat outdoors. We spent an extreme amount of time outdoors, as we love to hike and explore.

If you are not overweight, have a good cardiovascular system, eat well, and are active, which for us is hiking and biking, those factors help protect from Covid-19. All in all, we averaged mask wearing for 5-10 minutes per day.

As usual, we felt like we flew fast and flew safely, taking all the reasonable precautions.



Next month's poll: "How Do You Feel About the New Mooney Owners" **CLICK HERE** to vote.

Letters to the EDITOR

Editor@themooneyflyer.com

RE: New Mooney Ownership - Just read the October issue of The Mooney Flyer. Excellent article/interview with Johnny Pollack and his comments about using Kerrville for refurbishing older Mooneys was very interesting. My suggestion to the folks in the factory would be to consider getting into the tank reseal after market. My 1967 M20F is losing about 1/2 gallon per day to a mystery leak and Weep-no-More in Willmar, Minnesota has a backlog of work until September of 2021. The folks in Troutdale, Oregon are just as back logged. The demand for this service far outweighs the supply...but on the other hand, if Kerrville could help fill the gap, it seems like a win/win. If you agree, feel free to pass the idea along to Johnny.

Keep up the good work on the Mooney Flyer.
Mark F

RE: Rules of Thumb -- I always like rules of thumb, so I'm glad you provided some. However, I have a minor comment and another rule of thumb for you.

For the IAS to TAS rule of thumb, for us NA drivers who spend most of our time at or below 10,000', the correction factor is actually closer to 1.5%/1000', but that's a more difficult math problem. For the turbo drivers, 2% is pretty close when operating in the high teens or low 20's.

For the new rule of thumb, it has to do with winds and wind corrections. Here's the rule: For each mile/minute of TAS, a 1-degree wind drift correction will cancel an equal number of knots of crosswind. So, in my M20J, cruising along at about 150 KTAS (2.5 NM/minute), if I have a 5-degree wind drift correction, then there is about 5 x 2.5 = 12.5 knots of crosswind component. If I was doing 180 KTAS, the same 5 degrees would cancel out 15 knots of crosswind. Knowing how much crosswind I have, and knowing the difference between TAS and GS (giving me approximately HW or TW), I can get a pretty rough idea of where the wind is coming from and how hard it's blowing. If the HW/TW and XW components are about equal, the wind is about 45 degrees off my nose/tail and blowing at about 1.4 times either component. If the XW component is about 70% more than the HW/TW, then the wind is about 30 degrees off the wing and the wind is about double the HW/TW component. Conversely, if the HW/TW is roughly 70% more than the XW, the wind is about 30 degrees off my nose/tail and the wind is about double the XW component.

Keep up the good work, **Bob P**

Wisconsin Aviation Expands Aircraft Interiors Service with the Acquisition of Jaeger Aviation

FOR IMMEDIATE RELEASE

WATERTOWN, WI – Wisconsin Aviation, Inc. announces the expansion of its aircraft interiors department with the acquisition of Jaeger Aviation, based in Willmar, Minnesota.

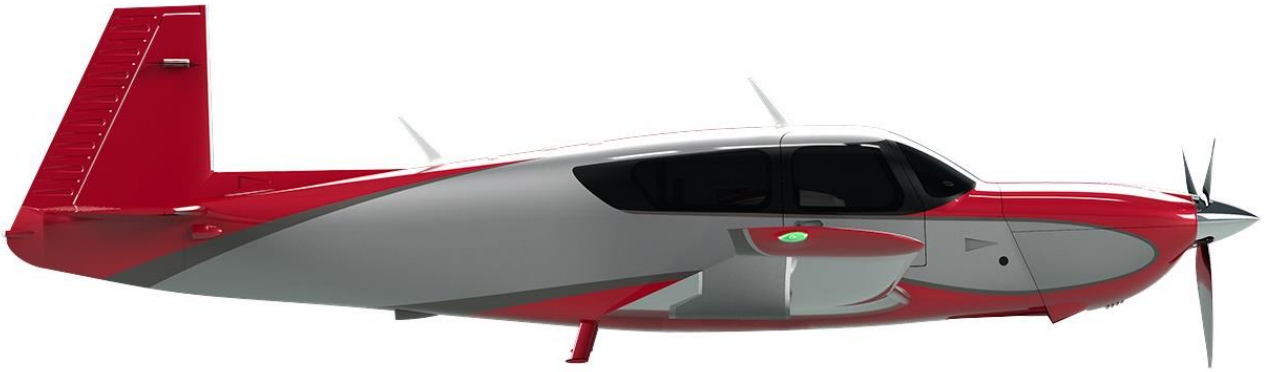
Jaeger Aviation, under the current ownership of Bruce Jaeger, a pilot with over 18,000 hours based in Willmar, MN. He was a second- generation owner of the Willmar Air Service Company, founded in 1945. Sixty-four years of specializing in Mooney Aircraft sales and service made a new interior design for the vintage Mooney a natural. The Mooney Aircraft Corporation was founded in 1929, producing a private, single-engine aircraft. Jaeger designed the Spatial Interior for the vintage Mooney, a simpler and better way to increase cabin space and expedite service while giving the Mooney a look it deserves. The Spatial Interior, now 15 years in the making is recognized worldwide.

Wisconsin Aviation's aircraft interiors department accommodates all types of general aviation aircraft. Its services include minor repairs to complete customized interior replacements. The Jaeger Aviation products and experience will help continue to grow this department.

Wisconsin Aviation offers a complete line of general aviation services including air charter, aircraft maintenance, avionics repair and installation, flight training and aircraft rental, aircraft management, aircraft brokerage, and fueling services. The corporation has locations at Madison, Watertown, and Juneau, Wisconsin. For more information about Wisconsin Aviation, visit WisconsinAviation.com.

Jeff Baum President / CEO

Wisconsin Aviation Inc, 1741 River Drive, Watertown, WI 53094, 920-261-4567



Cruise Like a Pro

Some Mooney Owners are determining the timing of the power settings for cruise. Many start adjusting the manifold pressure and propeller too soon. In past articles we have written that, on departure, you should have full MP and Full RPM. Most understand this. But when do you adjust those settings?

*One thing Lycomings and Continentals have in common is that they love a WOT (**W**ide **O**pen **T**hrottle)*

As you end your climb and lower the nose for cruise, do NOT touch the MP or Prop. You will quickly and efficiently get to the highest cruise airspeed by leaving those two controls in place. If you have cowl flaps, leave them open also. Wait a few minutes. Your Mooney will get to cruise speed faster and it's better for your engine. Your engine has been tuned for wide open throttle. Any time you operate a normally aspirated engine at a partial throttle setting, you are adding a physical restriction in the induction airflow (a partially closed throttle valve).

So now you have waited a few minutes, leave the throttle wide open. The only time this is not necessarily the case is if you choose to fly at a low altitude, or you simply are sightseeing and want to reduce power and enjoy the flight. If not, wide open throttle is the right choice. Want to get a little more airspeed, then open your "Ram Air". However, keep in mind that an open "Ram Air" bypasses your air filter, so don't do this in bad air; filled with smoke or other dust particles

Now you can select your mixture. You have several choices now. First, you can fly Rich of Peak (ROP). If you choose this, then take care to stay out of the Red Box. Many POHs suggest 50° ROP, but this is not sage advice. At that setting, you have extremely high Internal Cylinder Pressures and that is not good for your engine. At full throttle and abiding by the Red Box, you will be more like 100-120° ROP.

You can also run at Peak EGT, which is fine, but you will take a small airspeed hit.

Or, you can run at LOP, again, staying out of the Red Box. You will also take a slight hit on airspeed, but LOP pilots swear by it. You really should only consider LOP with engines that are fuel injected – NOT carbureted engines. You can only run LOP safely, by running the GAMI Test. You follow their directions, send your information to GAMI and they will let you know if you can run LOP with your existing injectors. My IO550 injectors passed the test, so I can run LOP. If they do not pass with your engine, then you need to consider purchasing GAMI injectors. If you don't run with "tuned" injectors, your engine will end up running rough and that's not advised. This happens because when you run LOP, all 4 or 6 cylinders are reaching Peak EGT. If there is a wide spread, some cylinders will be running too lean. Remember, after leaning the mixture, you need to wait a while for the EGT probes to register properly. Rushing through this will result in bad data.

SAMPLE TEST DATA — General Aviation Modifications, Inc. — PHONE: 1-888-359-4264 — FAX: 1-580-436-6622

STOCK TCM INJECTORS — FLIGHT TEST DATA FORM

DATE		AIRCRAFT TYPE		ENGINE MODEL		MP	RPM	PRESSURE ALT.		OAT		ENGINE ANALYZER		
				IO-550		ZF	2300	7500 MSL		+14° C		E.I.		
Fuel Flow	CHT 1	EGT 1	CHT 2	EGT 2	CHT 3	EGT 3	CHT 4	EGT 4	CHT 5	EGT 5	CHT 6	EGT 6	TIT	MS
15.0	343	1414	392	1355	351	1360	347	1347	318	1323	358	1292		152
14.8	345	1423	392	1365	352	1371	350	1364	319	1332	359	1301		152
14.5	342	1432	391	1376	351	1383	348	1375	318	1343	359	1311		152
14.2	338	**1442**	387	1393	350	1403	346	1398	317	1367	358	1331		152
13.9	336	1438	384	**1397**	352	1414	349	1410	320	1378	361	1353		153
13.5	329	1418	377	1387	351	1428	346	1422	322	1394	363	1363		152
13.2	320	1395	365	1366	348	**1429**	344	**1427**	323	1407	365	1375		150
12.9	313	1374	357	1345	342	1415	337	1414	321	1421	362	1391		152
12.5	301	1354	341	1320	331	1398	327	1387	318	**1432**	359	**1400**		150
12.1	292	1341	330	1299	325	1367	318	1368	315	1425	356	1387		146
11.9	280	1330	318	1281	313	1349	307	1345	308	1406	347	1370		145

GAMIJECTOR FUEL INJECTORS

DATE		AIRCRAFT TYPE		ENGINE MODEL		MP	RPM	PRESSURE ALT.		OAT		ENGINE ANALYZER		
				IO-550		ZF	2300	7500 MSL		+15° C		E.I.		
Fuel Flow	CHT 1	EGT 1	CHT 2	EGT 2	CHT 3	EGT 3	CHT 4	EGT 4	CHT 5	EGT 5	CHT 6	EGT 6	TIT	MS
14.5	322	1355	362	1323	335	1364	333	1358	303	1362	345	1326		155
14.3	323	1380	362	1348	333	1395	330	1389	303	1389	346	1351		155
14.0	324	1393	363	1362	334	1409	332	1403	304	1402	347	1363		154
13.3	325	1414	363	1380	335	**1425**	332	1419	305	1422	349	1383		153
12.8	325	**1441**	359	**1389**	329	1419	328	**1425**	301	**1428**	349	**1397**		153
12.5	321	1434	357	1383	325	1409	325	1418	299	1425	345	1396		152
12.1	311	1411	349	1368	316	1388	316	1408	292	1412	339	1387		152
11.8	301	1390	345	1345	307	1368	308	1378	284	1391	328	1368		151

If you have Cowl Flaps, now is the time to close them, unless the ambient temperature is quite hot.

Regarding the prop, 2500 RPM is best for cruise performance. You can run at lower RPMs, but you will only lose performance and you will not increase the life of your engine.

But I have a Turbo Mooney

Things are a little more involved with Turbos and heat is the chief issue.

Once you reach cruise altitude, lower the nose and for a few minutes, don't touch anything. This will efficiently accelerate you and cool your engine as well.

With a turbo, you cannot leave the throttle wide open. Here are some guidelines for safe operation. Let's start with manifold pressure. On an M20K 231, 31", a M20K 252, it's 28" and an M20M TLS/Bravo, use 30".

Like the normally aspirated Mooneys, leave your prop at 2500 RPM.

Here's to flying fast, flying safely, and cruisin' like a Pro.

Recently, I read an article written by Mike Busch, Savvy Aviation's founder and CEO, entitled "Looks Sweet, Tastes Sour". Mike's article caught my eye because it was about a pilot who wanted to buy a Mooney. The pilot found a 1964 M20E in Arizona with an asking price of $41,900. The broker's web page featured lots of pretty photos, with ad copy that read, "This E-model is fast, efficient, and affordable! The most sought-after short-body Mooney because of its 200 HP IO-360. Its great climb rate, cruise speed, and useful load makes this the perfect X/C aircraft."

Activity and Location, Location, Location

Arizona is a great place to keep an airplane because "it's a dry heat". However, as Savvy investigated, they found that this 56-year-old airplane had spent its first five decades living outdoors on a North Carolina tiedown. Additionally, this "E" hadn't been terribly active, with once-a-year oil changes at the annual inspection and no preventive maintenance between annuals.

The 1987 "Overhaul"

The Lycoming IO-360 was last overhauled in 1987 (33 years ago). Further investigation revealed that it wasn't a normal engine shop overhaul. It was performed by an A&P mechanic (NOT a certified repair station), to service limits (NOT new limits), using continued-time channel-chromed cylinders, a reground cam, reground lifters, and the original crankshaft

and crankcase. Also, the engine "overhaul" documentation did not indicate that the fuel and ignition system overhauls (required) had been accomplished.

The Prebuy

The buyer wanted to proceed with a pre-buy inspection and a Savvy manager arranged to have that done at a Mooney Service Center.

Savvy proposed using a shorter (53-item) checklist that would involve about half as much labor as the full annual (100-hour) checklist which involved 103 items.

Dirt covered some inspection areas, which complicated the process. I hope the mechanics had their Tetanus shots up to date, because this Mooney was the Rustoleum poster child. It was obvious that at least one of the previous owners did not care about appearance or maintenance. Everything, including the "thrifty" overhaul, was so cheaply done, that it embarrassed my Scottish soul. It was such a mess that I think the N number qualified for **N1MAME$$** *(I'm a Mess).*

The Report

After a few hours, the MCC director of maintenance (DOM) reported to Savvy, "*Flexible fuel and oil hoses appear homemade and appear quite dated. All the steel components of the airframe have surface rust. If I were doing the annual inspection on this airplane, I wouldn't approve it for return to service without sanding/priming or replacing numerous parts and hardware. I have not yet reviewed the logbooks, but there's a rather costly Mooney service bulletin calling for an inspection of the steel structure that was written specifically for planes like this one. It appears to have been living in a humid/coastal environment."* A half-dozen photographs illustrating the plane's corrosion issues were submitted to Savvy. *The engine has three chrome and one steel cylinder, and all look good under the Borescope.*"

Savvy asked the DOM to write up his findings and include the repair estimates for each airworthiness discrepancy found.

Here are some of the highlights of the 64 discrepancy items:

- Leaking Fuel tanks, sending units, fuel lines, parking brake cylinder, flap actuator, seals and engine cylinders
- Rust everywhere, including the engine mounting bolts, brake linings, wheels, gear actuating push pull rods, rudder/elevator attachments, and exterior AN bolts
- Rampant Corrosion – interior wings and fuselage
- Wasp friendly – 3 nests discovered
- Bad battery
- Dry and hard hoses
- Noted a Nonstandard mag switch and automotive style cables
- Dirty instrument filters

To address all the maintenance issues that should have been handled over the years, the MCC's bill was $26,650. If the Mooney 100-hour checklist were used, who knows what other discrepancies would have been found? This sad case of Mooney Abuse makes me want to call the Mooney Sherriff and **MPS** (Mooney Protective Services).

Your Mooney depends on your loving and capable hands.

Our Responsibility as Owners

- Fly it. Keep the oil flowing through its "veins".
- Your Mooney depends on you to ensure its maintenance care is first class. Treat it with respect. It's your baby and you should never let it down.
- An annual inspection that doesn't follow the Mooney 100-hour checklist is not a Mooney annual inspection. The checklist is there for a darn good reason.
- When discrepancies are found, fix them now! You and your mechanic should never cut corners.
- You and your mechanic are in a partnership. Keep meticulous records so that you will know when oil changes are due and certain items need to be repaired, inspected or replaced.
- Take an active role in the Inspections and repairs. You don't need to hover over the mechanic, but you should maintain a clear line of communication.

The Mooney Flyer staff is always grateful to those who share difficult Mooney situation. Sometimes these incidents have tragic consequences, here is a story that ends well. The occupants heard a loud boom followed by silence. The PIC was able to land the above Mooney, which had thrown pieces of the engine through the side of the cowling.

We always say, “You don’t know if you’re a good pilot until you are tested.” Well, Rylan Prieb was tested, and he and his Mooney will live to fly another day. Thank you, Rylan, for sharing your experience with your fellow Mooniacs.

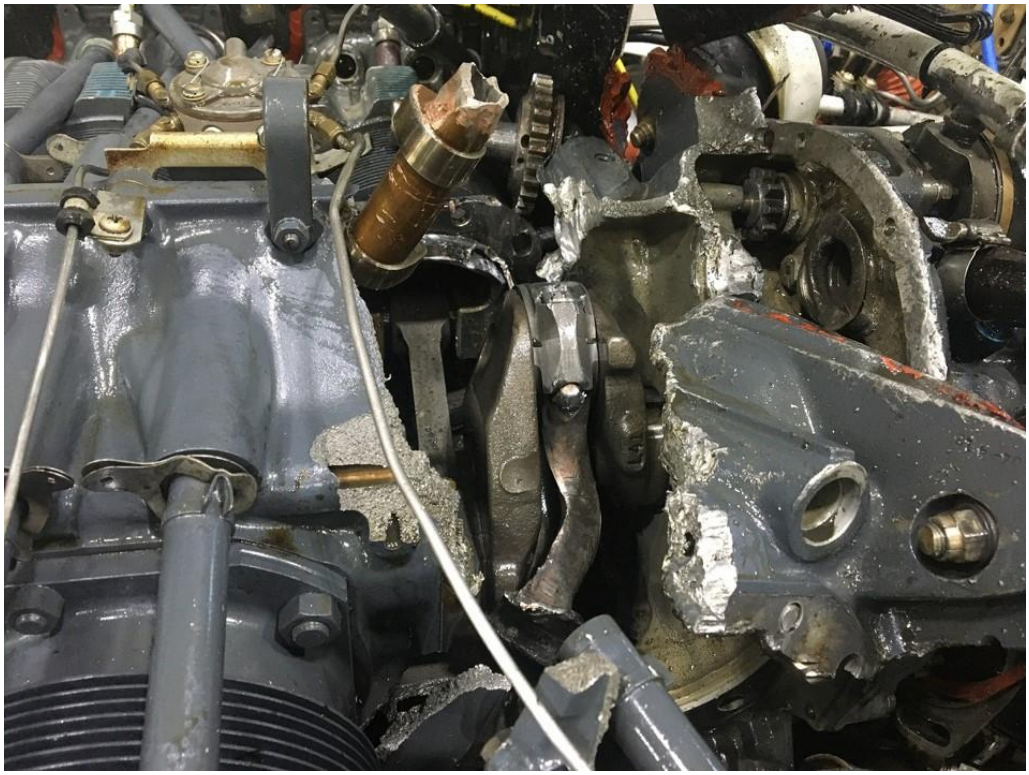
Statement to the FAA- N3275F

Thursday, September 17, 2020
Rylan Prieb – PIC

On Tuesday, September 15, my student Kyle Held and I took a Mooney M20F, N3275F, to Washington Dulles International (KIAD) to review cross country procedures as well as an intro to the DC SFRA. The flight to KIAD was uneventful, with clear skies, light winds, and a standard visual approach to 01R. After landing, we taxied back to runway 01R, for our return flight to Charlottesville, Virginia (KCHO).

After we took off out of KIAD, we were vectored around the north side of the field. We were cleared direct to Charlottesville at about the same time as we levelled off at our cruise altitude, 4,500 feet. We had just started the cruise checklist, when we heard a loud bang, and the engine started shaking. I immediately took the flight controls from my student, and I attempted to report a partial engine power loss to ATC. After listening to the tapes, it appears that I was stepped on or I stepped on

somebody. Mid-sentence to ATC, it became a full power loss. From the internet archives, my call begins with the realization of the full power loss.



The controller quickly cleared me, ". . . left turn, direct Dulles, any runway." At 4,500' only a couple miles WNW of the field, I had altitude on my side. I could likely have made any runway, but I did not want to attempt to go further than my glide would have allowed. I made a quick decision to take 19C. I innately started going through my ABC's of emergency procedures. At that point, I quickly realized my objective was not to glide farther, but to descend quickly to the runway. I lowered the gear and added the flaps to increase my drag, to help me descend rapidly. I pushed the nose down to increase my descent rate. Upon turning final, I was way higher than standard, but I knew that KIAD had a runway more than long enough, allowing me to bleed off my energy. I began a forward slip on final and was aiming for the front of the runway with anticipation of floating over the runway. I was nearing touching down when I saw the 5,000' of runway remaining marker. That was when I knew that we made it. I was unsure if the nose gear was still attached, due to the severity of the shakes, and noises around the nose, but all wheels were there for me to land. I attempted to take the high-speed taxiway to clear the runway, but my momentum ran out before I crossed the Hold Short line, thus, evacuating in the runway environment, with the fire crews right behind.

If I could have done anything different, I would have done two things. When I teach my students about engine failures, I say, "Circle your touchdown point to lose altitude and set up for a normal landing." I did not want to circle around Dulles and opted for the nonstandard approach, due to the busy nature of the airport, and the quantity of nearby buildings. Additionally, I was not sure if I was on fire, and the excess airspeed was helpful for that. I knew I had plenty of runway to burn my energy over, which worked well, but If I could change anything, I would have made a circling descent. Additionally, I would have unlatched the door upon landing. You never know what happens, and I think having my exit open would have been beneficial. Luckily, the airframe was in good shape and unlatching was unnecessary.

Overall, I am proud of the result, and considering the circumstances, it ended in the best possible outcome.

Both the CFI and Rylan reported, "The #4 cylinder rod separated from the head at the small end and then proceeded to smash its way through the back of the case. We pulled down the engine data and the only advanced [warning] indication was that the #4 EGT started to drop off about 15 seconds before the oil pressure went to zero, indicating that the case had broken apart. Everything stayed in the green right up until the case broke apart."

Idaho, Montana, and Oregon Mooney FlyCation

by Phil & Linda Corman

Even Covid-19 cannot stop the will of Mooney owners. We decided a month-long Mooney "Fly-Cation" was called for. Our friends, Kelly & Jana Couch invited us to join them at Montana's Seeley Lake. We readily agreed because we love these Mooniacs and have never been to Seeley Lake. We decided to make it an adventure, so we left early and headed for Boise, Idaho, which is on the way to Seeley Lake. This would be our first time in Boise.

Thursday, we departed early since it would be a 3-hour flight over the Sierra Nevada and then an expanse of desert. It was a good decision, as we had to fly over smoke before reaching Lake Tahoe. The ride was smooth, which is usually a safer bet in hot weather. You can see the smoke from the California wildfires on the horizon. Lake Tahoe always takes your breath away and we wanted to land and enjoy Tahoe, but we had another destination in mind.

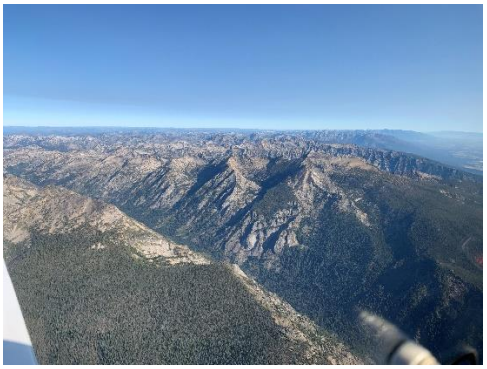
The next bit of flying brought us near Reno, Nevada and after that, it was high and dry desert flying. We are always thrilled with how beautiful the American West deserts look from the air, at 10,500'. The next few hours were over hot and dry desert with very few airports or roads below us. Mooneys enable us to go where few men/women have gone before and the views are beautiful. Pyramid Lake is shown in the picture to the left.

After that, it's just dry, dry and dry, as shown here. I kept an eye on the engine monitor to be sure everything was in the green, since there were good places to land in an emergency. Fortunately, we purchased a ResQLink PLB (Personal Locator Beacon) and that gave us the comfort that we would be found if we had a problem. Linda tested the antenna deployment, and it gave us good comfort/backup while flying.

We arrived in Boise without any issues. We used Flight Following and the Center Controller smoothly handed us off to Approach. Due to some smoke, ATIS requested that all aircraft turn on their landing lights on final approach. We do this anyway, as a safety measure. Boise is a fun 1-day stopover. We stayed downtown at the **Hyatt,** which had a good price and was walking distance to everything we wanted to do. We walked to the area with beaucoup restaurants and Linda picked a winner, **El Matador**. I heartily recommend this restaurant. It has delicious, unique food, and is well-priced. There are dozens of restaurants on both sides of the street. Later we walked to the river and enjoyed some serenity.

The next morning, we took off for Missoula, Montana, where we would meet up with Kelly and Jana, rent a van and head to Seeley Lake. This leg was not over desert, but the mountain range of Idaho. There were almost no roads, and only grass/gravel strips in various canyons. We chose 12,500' for this leg to give us options. It was interesting because if we had to land, the landing strips were hidden in canyons. So, if you pick the wrong canyon, you cannot correct, but only commit to an off-field landing in a narrow canyon.





About 20 minutes from Missoula, the mountains got higher and sharper. Instead of climbing and then making a rapid descent into Missoula, we deviated 10 degrees or so to the right and found a long, wide valley for our cruise descent into Missoula. The tower cleared us to land early, with a right pattern. The runway is exceptionally long. I landed short so I could turn off at an early exit, but the tower had me taxi down the bulk of the runway instead. Oh well, I tried. About an hour later, Kelly and Jana arrived in their Bravo and we were off to Seeley Lake.

We rented a van which enabled us to load our four folding bicycles. Ours are electric JupiterBikes, which we reviewed in the September Mooney Flyer.

We arrived an hour or so later in Seeley Lake and we were pleasantly surprised at how beautiful and tranquil it is.

We stayed at Eagle Port, which is part of the Lodge at Seeley Lake. These are not rooms, but small condos with bedroom, living room and full kitchen. Even better, they have a balcony that overlooks the long and well-groomed grass landing strip. They offer free use of the hangars below the rooms. How great is that? There are also cabins at the main lodge on the lake.

You may wonder why we didn't fly into this beautiful landing strip. That's because we wanted a rental car, which was only available in Missoula. If we go back, we will land here and use our bikes for transportation.

The runway is 4,575' long at an elevation of 4,256'. If the weather is cool, the density altitude is quite manageable.

Kelly and Jana made dinner reservations at the Double Arrow Lodge and it was amazing. The lodge, the location, the food and the service were incomparable; Montana at its best.

This picture was the view from our table.

We chose to eat early and ended up having the dining area to ourselves.

We drank, ate, and enjoyed our friends and the stunning feeling you get in Montana.

The next day, we loaded up the van and drove to Garnet Ghost Town, pictured here. This was an old gold mining town, and it is a fun place to spend a half day.

Our last night at Seeley Lake, we decided to have a BBQ on the shore of the lake near the lodge. Kelly knew the owner and he provided us with a grill. I cooked the food and Kelly provided the drink and ale. We stayed for hours as the sun set on Montana. This is a great place to spend a week or weekend.

The next day, Kelly and Jana needed to go to Heber, Utah so Kelly could fly his new hot air balloon. Linda and I stayed in Missoula and did the drinking, eating, and shopping thing, like we did in Boise.

We had brunch at Top Hat's outdoor restaurant. We enjoyed generous Mimosas and a Dutch-like pancake that was amazingly good. This is a must place to eat if visiting Missoula.

But the best dining was at Lolo Steakhouse, about 12 miles south of town. They claim to be the best steakhouse in Montana and that was hard to refute. We could cut our steaks with a butter knife. Steaks are cooked on the flame right in the dining area. LoLo Steakhouse was recommended by Dave at Northstar Jet. If you are going to KMSO, I recommend using Northstar. They treat you right and go beyond the call of duty.

We departed Missoula without a hitch. It was close to 32°, so I was a bit concerned about starting with a cold battery. Since there was frost on the wings and empennage, we pulled her into the sun, grabbed a cup of coffee and waited for the sun to do its job. With the ice melted, she started on the first half turn and we were off to Sunriver, Oregon, which might be our favorite place on earth. On climbout, we were rewarded with our first view of snowfall on the mountains; something you can only see from a Mooney.

Once again, we flew over a couple of wildfires, but there was little or no smoke.

Here are some pictures that captured our wonderful month-long trip, powered by our Eagle!

Baggage Door Departs

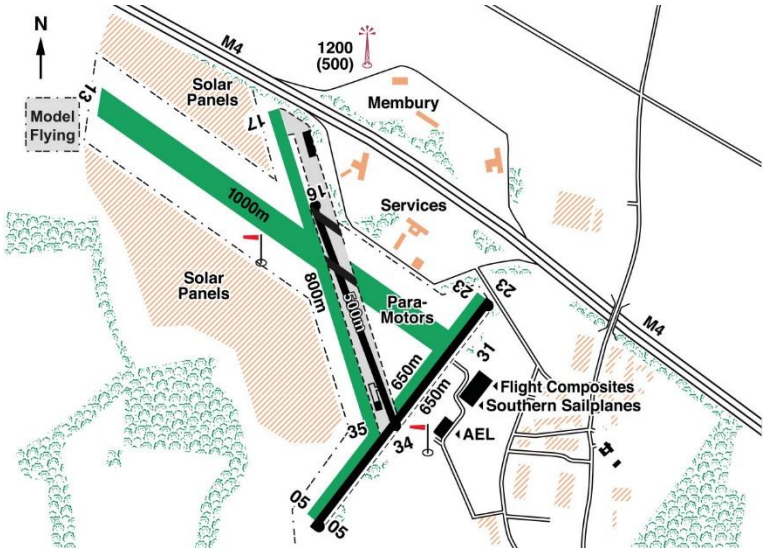
On May 30, 2020, pilot **Steve Le Van and his wife,** flew a Mooney M20K (G-OSUS) to Charlton Park Airstrip, Wiltshire, England. While there, the baggage door was opened from the outside to allow access to a picnic basket. As it was a hot day, to keep the cabin area cool, it was left open for the duration of the stay.

Before departure, the baggage area was repacked, and the pilot checked to ensure the baggage door was securely closed from the outside. Once seated, Le Van visually checked the internal handle and it appeared closed. They climbed to cruise altitude and after passing over Membury Airfield, Berkshire, England, they heard a loud bang. The baggage door had opened and detached. It struck the right horizontal stabilizer and remained wrapped round the leading edge near its tip.

The aircraft pitched nose-down and rolled to the right. A few seconds later, Le Van regained partial control, except for a 300ft/min level descent. He then experienced an uncontrolled full deflection of the ailerons, both right and left. He was able to control the aircraft and then declared a MAYDAY. He positioned to land at Membury, a former WWII RAF and USAAF strip.

Le Van recalled that the POH suggests 96kt with the baggage door open. He said, "I can't imagine an improvised airbrake on the tail improves the performance. 100kt was my target over the threshold."

He successfully landed on Runway 13, which is 1,000 meters long. During the extended ground roll, due to the higher than normal touchdown speed, Le Van steered the aircraft into a clear space on the airfield and stopped without further incident.



This was captured using a cabin mounted video camera. See YouTube (5-minute video).

About the Door

The baggage door is hinged at the top and secured at the bottom with two shoot bolts. These extend fore and aft into fittings in the door frame when the operating handle is closed. This handle can also be locked.

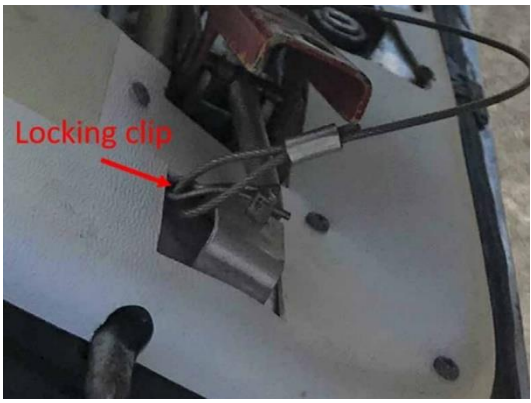
The door also serves as an auxiliary exit and is fitted with an internal emergency handle to allow operation from inside the aircraft. The internal emergency handle will open the door, even if the external handle is locked. The internal emergency handle is fitted with a secondary locking clip to prevent inadvertent operation and there is a cover over the whole mechanism along with a placard providing operating instructions.

The secondary locking clip was introduced in a 1988 Mooney service bulletin (SB) SB M20-239A, and mandated by a 5 January 1989 Airworthiness Directive (AD) 88-25-11. Both the SB and the AD were complied with.

The Investigation

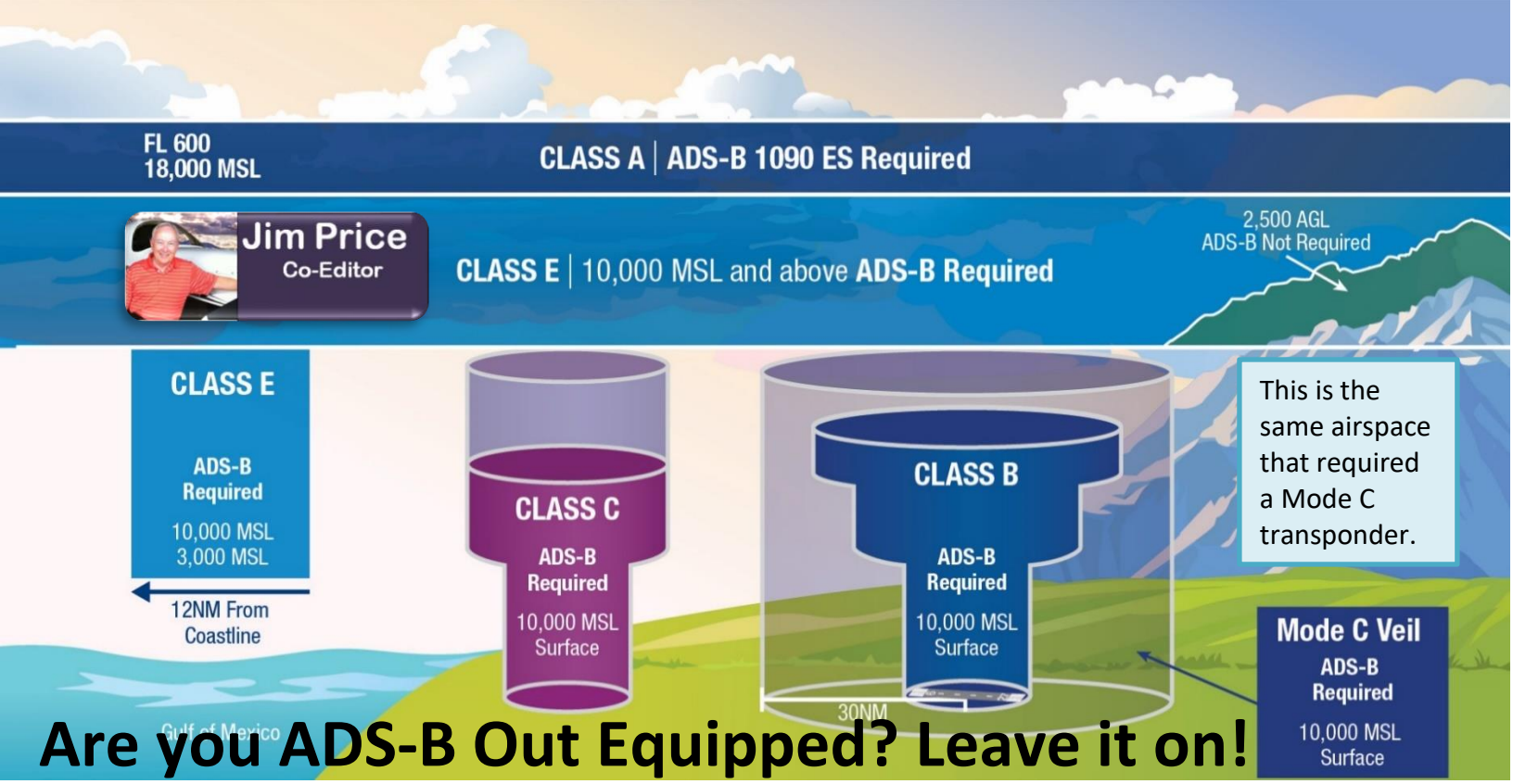
The United Kingdom's Air Accidents Investigation Branch (AAIB) found that the safety clip for the internal emergency operating handle of the baggage door was not correctly installed. Therefore, instead of holding the handle closed, it held it in a slightly open position. This may have made it appear as though the operating handle was in the correct closed position.

The internal handle had the secondary locking clip installed in the clevis pin, but this was installed under the handle rather than over it, so it did not provide a secondary locking feature. The locking clip is also bent, suggesting the handle had been forced down on to the locking clip.



During the flight, it seems most likely that this handle moved sufficiently towards the open position to disengage the shoot bolts from the door frame allowing the door to open. The force of the airflow then detached the door and it struck and became jammed on the horizonal stabilizer. It could not be determined when the safety clip was incorrectly installed or why it had not been noticed.

Despite the baggage door jamming the horizontal stabilizer, the pilot had sufficient control to allow a safe landing. Le Van maintained a higher speed than normal to ensure the aircraft remained controllable. Steve attributes the successful outcome to the voluntary additional training he received, which focused on dealing with emergencies.



Are you ADS-B Out Equipped? Leave it on!

The above chart indicates the airspace in which one must be equipped with ADS-B out. Recently, some pilots have been advocating that pilots turn ADS-B OFF when not in the ADS-B mandated airspace. These pilots are wrong and unfortunately, they have misinformed other pilots!

According to FAR 91.225 (f), if you are equipped with ADS-B out, you must always operate with it ON. However, there are exceptions. You can turn ADS-B off if you are flying a sensitive mission for law enforcement or the government. In addition, ATC may ask you to "Squawk Standby" if you are not the lead aircraft flying in a formation. (See 91.225(f) below)

91.225

(f) Each person operating an aircraft equipped with ADS-B Out **must operate this equipment in the transmit mode at all times unless -**

(1) Otherwise authorized by the FAA when the aircraft is performing a sensitive government mission for national defense, homeland security, intelligence or law enforcement purposes and transmitting would compromise the operations security of the mission or pose a safety risk to the aircraft, crew, or people and property in the air or on the ground; or

(2) Otherwise directed by ATC when transmitting would jeopardize the safe execution of air traffic control functions.

Reference DOT FAA National Policy dated 24 Jan 2020, if you have a transponder and turn it off, regardless of what kind of airspace you're in, **your pilot certificate can be suspended** – unless of course you're some sort of secret agent man/woman.

Page 9-13: ***"Single Acts of Misconduct Generally Warranting Revocation. Some acts of misconduct are, by their very nature, so egregious or significant as to demonstrate that the certificate holder does not possess the care, judgment, or responsibility to hold a certificate. These acts include, but are not limited to, those listed in Figure 9-5."***

Figure 9-5 on page 9-14 (#30) lists, ***"Operating an aircraft without activated transponder or ADS-B Out transmission (except as provided in 14 C.F.R. § 91.225(f)) for purposes of evading detection."***

Living and Flying While Restricted

by Jerry Proctor, CFII

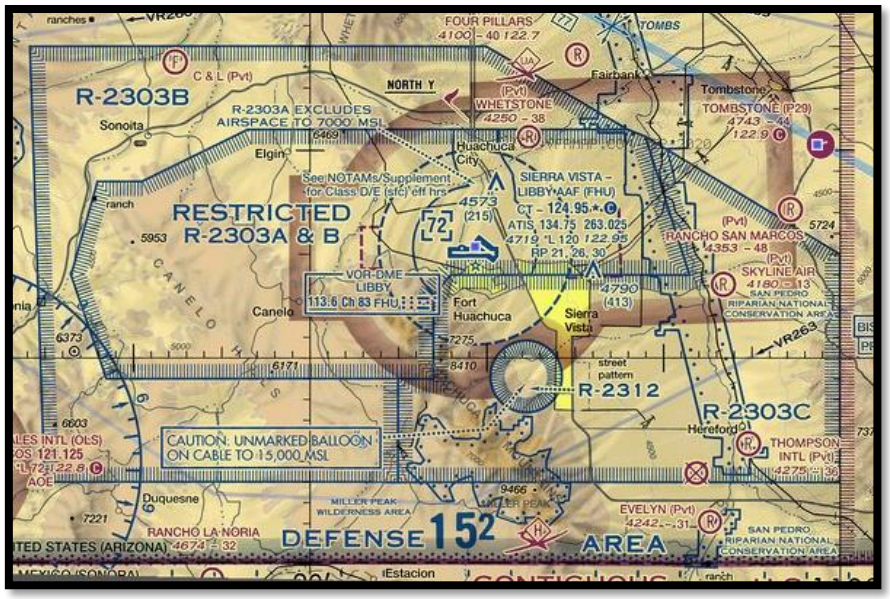
One would guess this article is about the restrictions and limitations we all have endured while the country suffers the COVID pandemic. Not that the virus isn't terribly important, but I really prefer to NOT write about that now. What this article is about is, living and flying in Restricted Airspace.

I live just outside Fort Huachuca, AZ and fly out of a joint-use airport named Sierra Vista – Libby Army Airfield (KFHU). The airport's main runway is 12,001' long and includes two shorter runways. On the Civilian side, there are hangers, a semi FBO, some commercial traffic (UPS and Biz Aircraft), plus GA boys and girls. The other side is much more interesting as it has US Forest Service planes, Army reconnaissance King Airs, and boatloads of Unmanned Aerial Vehicles/Unmanned Aircraft Systems (UAV/UAS)!

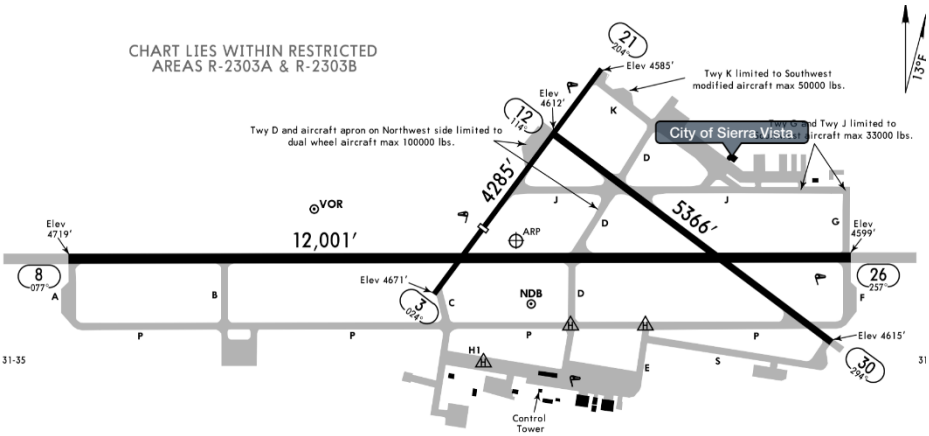
In fact, Ft Huachuca, where I was stationed for 17 years, is the home of all Army UAS training. The Army has a smaller tactical UAS aircraft called Shadow RQ-7, and an older system called Hunter RQ-5. They also train and fly the Army version of the Predator. There is an Arizona Air Guard UAS facility that flies the Predator MQ-1. In addition, Customs and Border Protection (CBP) base their drones at Libby AAF. Non-resident visitors consist of lots of A-10s and helicopters from Tucson's Davis Monthan AFB, and Arizona ANG F-16s from Tucson International Airport. In addition, there are National Guard and USMC helicopters, C-130s from the US and 14 other nations.

This is incredibly busy airspace. In fact, it is the busiest manned and unmanned airspace in the nation . . . probably the world.

To facilitate the UAS missions, we have large Restricted airspace sections, some as high as 30,000'.



Imagine a controller working with F-16s, A-10s, C-17s, UPS, small and or slow UAS plus the GA Guys and Gals all in the same area. What a nightmare!!



Think of the speed differences and the minor detail of several of the aircraft not having anyone looking out a windscreen.

It is common for me to taxi my Mooney from the Civilian side (north), to the runway 26 hold short line. While I watch a UAS land on runway 26, a military aircraft taxies up to the hold short line from the south and we are now facing each other. I try to wave "howdy" but realize that there isn't anyone in that UAS. It's a lot of fun to watch these drones take off.

Many pilots that live in the SW will look at the chart and see all the red areas in and around Ft Huachuca and think, "Noooo, not going there!" But really, it is like any other class D or C airport. Just call in with ATIS 25 miles out, get a transponder code and then either do a visual or instrument approach. We even have PAR/ASRs plus DME arc approaches. You see, not all Restricted areas are so restricted. Would I consider calling in and go bee bopping through say White Sands Missile Range Restricted airspace? Nope. But Ft Huachuca is open and ready to accommodate you.

Here are two interesting items: **Number 1:** Ft Huachuca's Restricted airspace starts at the surface, and surface means just that. So, if you are up on your roof near the Army post and you fall off, as you are screaming on your way to the concrete driveway below, you will also illegally entered the R airspace. However, I don't think you will get a call from approach control asking you to call their number. **Number 2:** On the southern edge of the Army Post, there is a Border Surveillance Aerostat. It has its own 24x7 Restricted airspace.

So yes, it is restricted airspace, within restricted airspace. I live only 400 yards from the post boundary and that balloon. So, my house is in that same double restricted airspace (R-2312). If I were to buzz my house, I would get two, count them two, violations of Restricted airspace. So no, I never have done that.

Life is currently restricted for all of us, but it can still be okay to fly. So, get out there and fly your Mooney!

Did You Check the Slope?

by Richard Brown

Eleanor Roosevelt said, “Learn from the mistakes of others. You can’t live long enough to make them all yourself.” She wasn’t talking about flying, but she definitely could have been.

Flying is about learning; constantly learning. We can learn from other's mistakes, or we can learn from our own. Learning from other's mistakes is preferable, however, some of the most deeply ingrained lessons are those we learn from our own mistakes. The key to these lessons, is to make sure that they don't have any serious consequences.

I had an excellent CFI when I trained for my PPL. Like so many others, he was a young guy, building time to get to the next level. However, he had a great disposition, loved the teaching aspect of it, and he let me make mistakes. They weren’t major mistakes, but if there wasn’t any danger of bent metal, he would let me work through the mistake and then follow it up with, “I’ll bet you won’t do that again,” or “So what would you do different next time?” Of all the lessons I learned, the ones that really stuck were the lessons that accompanied a mistake.

It was March 2017. I had just under 90 total hours of flying and of that, just over 30 of it was in our “still new to us” Mooney. I had 56 landings in the Mooney under my belt, and I was about to learn a lesson. Just after my check ride, I had made one long cross-country to Phoenix in a rented Cherokee. This time, we flew the 166nm to Lake Havasu in the Mooney so I wasn’t too concerned about the 250nm trip from SoCal to Mesquite, NV (67L). We bought the Mooney to travel and see family, and this trip would be a great one to meet family and celebrate my father-in-law’s 75th birthday.

I decided that we would get a little “flight-seeing” out of the trip and did the research needed to fly over the Hoover Dam and Lake Meade. The flight was fairly smooth at 9,500’, until we descended to 4,000’ and picked up the Colorado River just north of Lake Mohave. With so much to see, my wife didn’t seem to notice the bumps. As we passed over the dam, there was plenty of helicopter traffic below us at 3,000’ and 3,500’, but the view from 4,000’ was spectacular. We made a gentle turn to the east over the lake and flew over the narrows before pointing the nose north and finishing up the flight.

Section 91.103 of Title 14 Code of Federal Regulations relates to Pre-flight Actions and says:

Each pilot in command shall, before beginning a flight, become familiar with all available information concerning that flight. This information must include—

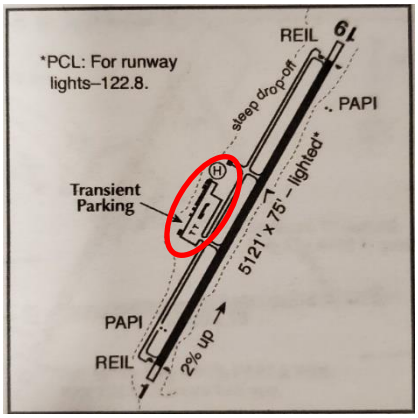
(a) For a flight under IFR or a flight not in the vicinity of an airport, weather reports and forecasts, fuel requirements, alternatives available if the planned flight cannot be completed, and any known traffic delays of which the pilot in command has been advised by ATC;

(b) For any flight, runway lengths at airports of intended use, and the following takeoff and landing distance information:

(1) For civil aircraft for which an approved Airplane or Rotorcraft Flight Manual containing takeoff and landing distance data is required, the takeoff and landing distance data contained therein; and

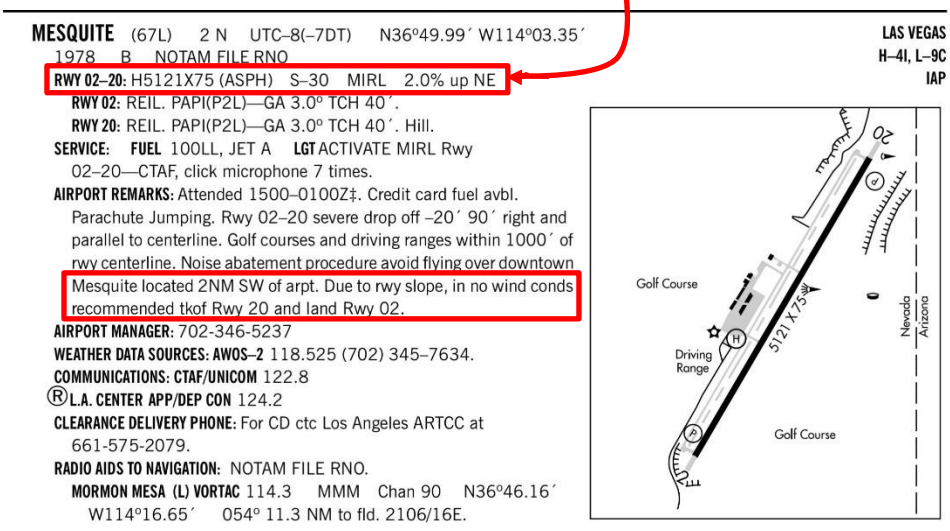
(2) For civil aircraft other than those specified in paragraph (b)(1) of this section, other reliable information appropriate to the aircraft, relating to aircraft performance under expected values of airport elevation and runway slope, aircraft gross weight, and wind and temperature.

I thought I had studied everything I needed to know about the flight. I knew the runway information, width, length, numbers, the traffic pattern directions, noise abatement procedures, airport elevation, and frequencies. However, there was something different about this runway. I didn't know it would provide a valuable lesson.



Note: *At the time, the runways at Mesquite (67L) were 01/19. The runways are now designated 02/20. Runway 01 has a 2% upslope.*

Caution: *The airport diagram in the Chart Supplement, (formerly A/FD), does not depict the runway slope percentage. You must check the text to learn if there is a slope.*


MESQUITE (67L) 2 N UTC–8(–7DT) N36°49.99′ W114°03.35′ LAS VEGAS
1978 B NOTAM FILE RNO H–4I, L–9C
RWY 02–20: H5121X75 (ASPH) S–30 MIRL 2.0% up NE IAP
RWY 02: REIL. PAPI(P2L)—GA 3.0° TCH 40′.
RWY 20: REIL. PAPI(P2L)—GA 3.0° TCH 40′. Hill.
SERVICE: FUEL 100LL, JET A LGT ACTIVATE MIRL Rwy 02–20—CTAF, click microphone 7 times.
AIRPORT REMARKS: Attended 1500–0100Z‡. Credit card fuel avbl. Parachute Jumping. Rwy 02–20 severe drop off –20′ 90′ right and parallel to centerline. Golf courses and driving ranges within 1000′ of rwy centerline. Noise abatement procedure avoid flying over downtown Mesquite located 2NM SW of arpt. Due to rwy slope, in no wind conds recommended tkof Rwy 20 and land Rwy 02.
AIRPORT MANAGER: 702-346-5237
WEATHER DATA SOURCES: AWOS–2 118.525 (702) 345–7634.
COMMUNICATIONS: CTAF/UNICOM 122.8
Ⓡ L.A. CENTER APP/DEP CON 124.2
CLEARANCE DELIVERY PHONE: For CD ctc Los Angeles ARTCC at 661-575-2079.
RADIO AIDS TO NAVIGATION: NOTAM FILE RNO.
MORMON MESA (L) VORTAC 114.3 MMM Chan 90 N36°46.16′ W114°16.65′ 054° 11.3 NM to fld. 2106/16E.
Golf Course
Driving Range
5121 X 75
Golf Course
Nevada
Arizona

The winds were 330 at 10 knots and this made runway 01 the best choice. However, the traffic on the radio was departing runway 19, and another plane inbound was planning to land on 19. That didn't make sense, but I thought, "They must know something I don't." So, I decided to use 19. I overflew the field at 3,500', 500' above traffic pattern altitude and took a glance down at the windsock. One look confirmed what I already heard on the radio. Landing 19 would have a tailwind, but I still announced I would be extending out and making a right-hand turn to enter a left downwind for runway 19.

From there it was a standard pattern/approach. I throttled back to 15" manifold pressure entering the pattern. Abeam the touchdown point, I dropped the gear, mixture full rich, prop full forward,

put in two pumps of flaps, and throttled back to 13" manifold pressure. On the base leg I extended the rest of the flaps and turned final – right on glideslope, 2 red/2 white on the PAPI.

I was correcting for the crosswind, but just before touching down, we kept drifting to the left. I was adding more and more right aileron, trying to combat the drift, but the left side of the runway kept getting closer and closer and the plane just wasn't settling down on the gear. My left main was getting close to the edge of the runway when the tires finally had enough purchase to start bringing us back to the center. However, we weren't slowing down very fast. (Later, my wife would mention that she was thinking, “Is this what an accident looks like?”) The second taxi turn off is about 3,100' down the runway, and at the speed we were going, we weren't going to be able to make it. By the time we were slow enough to think of turning, we were about 4,000' down the 5,121’ runway and had to go all the way to the end before turning onto the taxiway.

As I looked **uphill** at the taxiway in front of me and had to use extra power to taxi to parking, I knew exactly what had just happened. I had just landed downhill with a quartering tailwind. That explained why it took so long for the tires to get purchase, because the runway was falling away even as we continued to descend.

A general rule for slope is that every 1% of slope is equal to about a 10% increase or decrease in available runway. If you have a tailwind, plan on a 10% increase in landing distance for every 2 knots. When you add the 2% slope and the 7-8 knot tailwind component it becomes a 50-60% increase to the landing distance. My performance charts say that at 2,500’ elevation and 50°F, if I nail all my numbers, (I didn’t), that my landing distance should be 1,430’. However, once you insert the penalties, that becomes 2,100 – 2,300’. On the other hand, if I had done **all** my research, including runway slope and landed on 01, my landing distance would have been 600 – 700’.

Most runways don’t have a slope. I had landings at 20 different airports before landing at Mesquite and none of them had a slope, which led to my complacency in neglecting to check the slope before landing in Mesquite. It doesn’t need to be dramatic like the Lukla, Nepal runway which has almost 12% slope!

Remember that just 1% of slope means a 10% increase/decrease in landing distance. Another way to look at it is not about your landing distance, but how much runway you have to use. If it is a 3,000’ runway with a 3% slope, landing downhill makes it the equivalent of a 2,100’ runway (3000 x 0.7), while landing uphill would make it a 3,900’ runway (3000 x 1.3).

It will also take roughly 2 knots of wind to cancel out that 1% slope. So, there you are flying along, trying to plan your landing. You can land uphill on a 2% slope, but you will also have a 10-knot tailwind. That will be a reduction of 20% from the slope, but an increase of 50% from the tailwind. You are going to be better off landing downhill into the wind.

What about taking off? An upslope of 1% increases the ground roll by 22%, while a down slope decreases it by 7%. The headwind decreases your roll by about 10% for every 12 knots of headwind, but for every 2 knots of tailwind, this increases the roll by 10%. If you were hoping that a 12-knot headwind would cancel out the 1% up slope, you would be mistaken. Your takeoff roll would still be increased by 12% (22% slope penalty – 10% headwind gain).

Getting back to my lesson learned, I can tell you that I always check the slope of the runway when I am flying into a new airport. I like to think that I was going to push that throttle in and go around if the tire got any closer to the edge of the runway, but I just don't know. If it happened today with 500 hours of flying and 550+ landings under my belt, I know I would go around. But that was 3 ½ years ago. I was still very inexperienced. I am just thankful it was a lesson learned without any bent metal.

Getting back to Eleanor Roosevelt, learn from my mistake and check the slope of those runways. Maybe even do some calculations ahead of time to know how much of a wind it would take for you to decide to land downhill. Those are decisions that are much easier to make on the ground than in the air.

T-Shirt of the Month

What Is a VG?

Sixth in the series
by Ron Blum

A VG by any other name - and there are LOTS and LOTS of them - is still a Vortex Generator. Though confusing, the plural of "vortex" is "vortices" (pronounced: vor·tuh·seez). In this article, we will learn how vortex generators are designed to work and what their primary purposes are for aircraft.

To start, here are a few other names for vortex generators that you may have heard: Little Metal Things (LMTs), Little Rubber Things (LRTs), Boundary Layer Energizers (BLEs), scoops, wedges, vortilons, little winglets, triangles, ramps, dog-toothed leading edges, cranks, strakes, etc. The reason for all of these devices is to generate a vortex, or swirl of air. Doesn't this swirling cause additional drag? Yes, it does. Then why use a VG?

To begin, we need to go back to article 1 in this series (May 2020) and look at boundary layer conditions (Figure 1). The boundary layer is either: 1) Laminar, which is rare, but it is possible toward the leading edge, 2) Turbulent - most likely or 3) Separated - not good, as it results in high drag. As we look at the boundary layer moving aft along a surface or airfoil, it grows vertically, (gets thicker). However, it also loses energy (velocity). At some point there is not enough energy in the boundary layer to keep the airflow attached to the surface, and the airflow separates. Separated flow results in very high drag.

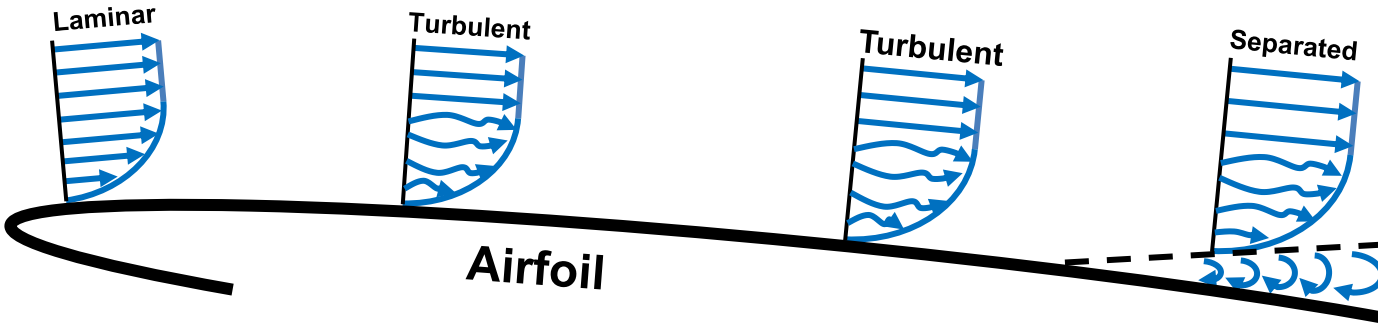


Figure 1 – Boundary Layer Conditions (not to scale)

Here is one area where a VG comes in handy. The VG is designed to reach up above the boundary layer; grab higher-energy, faster-moving airflow and swirl it down into the lower-energy, slower-moving boundary layer. This high-energy vortex flow energizes the boundary layer and keeps the airflow attached to the surface longer (Figure 2).

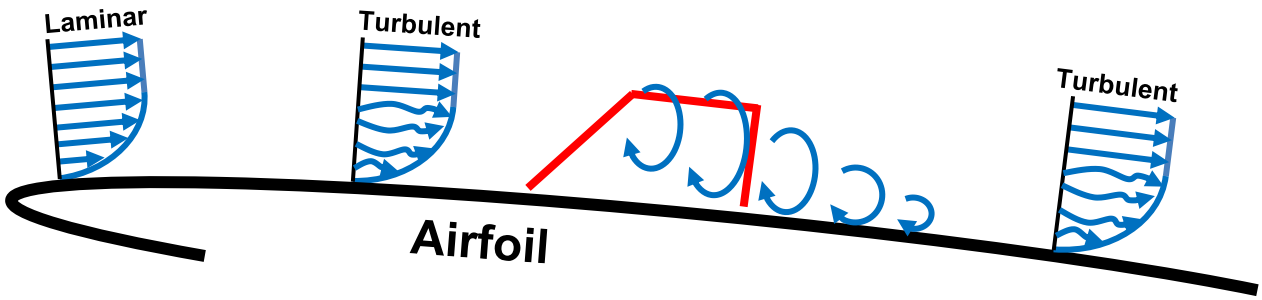


Figure 2 – Vortex Generator (not to scale)

In the above case, although the VG does create drag by swirling the airflow, it reduces overall drag by eliminating separated airflow, (an extremely high drag towards the back of the airfoil). It is a good tradeoff. In addition, it allows the wing to continue to create greater lift at higher angles of attack, (higher AOAs). Remember that this is only the case if the airflow is already separated towards the trailing edge.

Another type of VG is found on all Mooney aircraft. It is called a wing crank, leading-edge extension (LEX), or strake (Figure 3). This VG operates at higher AOAs and is designed to be a flow fence so that stalled/separated flow from the inboard wing will be delayed traveling outboard.

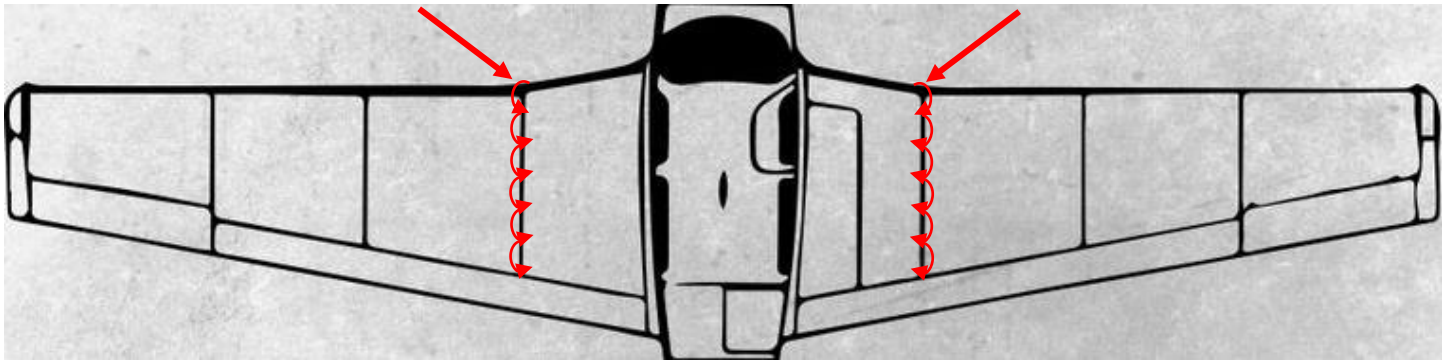


Figure 3 – Wing Crank, Leading Edge Extension (LEX) or Strake

Similarly, the Cirrus SR-series protects the aileron with the wing cuff and associated VG (Figure 4).

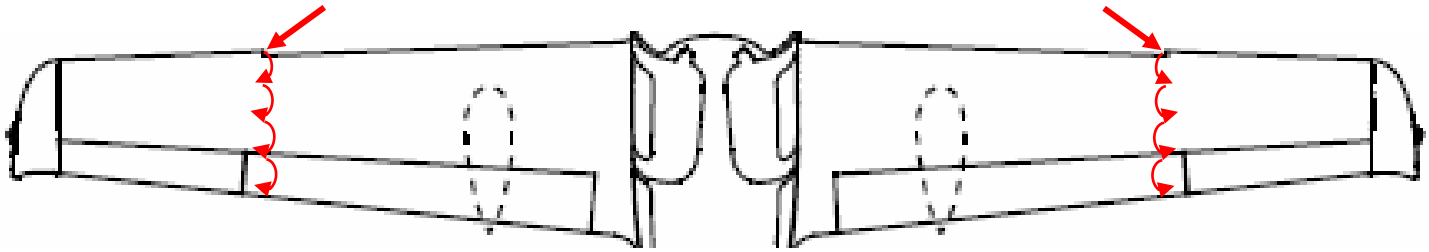


Figure 4 – Wing Cuff

If a VG is aligned with the airflow, it will not produce a vortex. It doesn't matter which direction a VG is canted to the oncoming airflow. Some VGs produce two vortices that rotate in opposite directions. What else produces a vortex? Just about everything, for instance smashed bugs, dried bird poop, mud, tufts (little pieces of yarn), skin imperfections, skin lap joints, etc.

Next month, if I can find a couple of generous, willing, and qualified Mooney formation pilots … well, at least one airplane has to be a Mooney 😊, we'll take a look at the famous, backwards, Mooney tail. Al shaped it this way for good aerodynamic reasons!

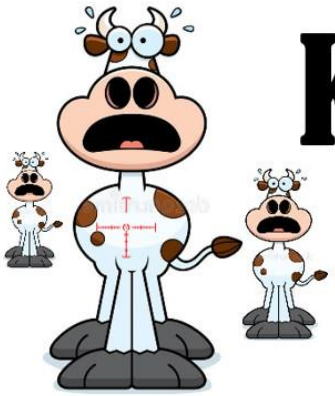
I will appreciate suggestions on where to take these articles and answer any questions that you may have. Email me at solutions@blueontop.com.

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. In 2018, he founded Blue on Top LLC, an Aviation engineering and management consulting firm. Ron provides FAA flight analyst DER services and is a keynote speaker.

CAN YOU REGISTER YOUR AIRCRAFT AS N16020?

NOPE. AT THE REQUEST OF THE NINETY NINES, AMELIA EARHART'S AIRCRAFT REGISTRATION, N16020, HAS BEEN PERMANETLY RETIRED BY THE FAA.



Killing Sacred Cows

Installment XIV

Brian Lloyd, CSEL/CMEL, CFIA/CFII

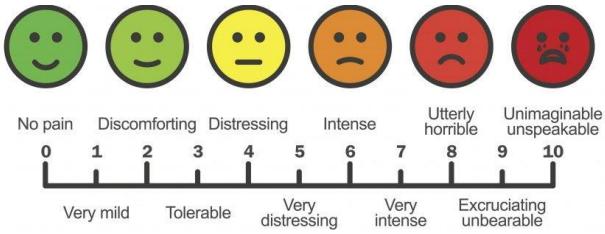
by Brian Lloyd, CSEL/CMEL, CFIA/CFII

Medical Issues vs. Flying

It has been a pretty tough month for me. I woke up one day about a month ago with an odd discomfort in my abdomen. In fairly short order I found myself doubled over in pain and shortly thereafter I was "driving the porcelain bus". An hour later I was fine. "OK, that was unpleasant," I thought, and went about my day. No other symptoms. No fever, nothing.

Next day, about the same time, it started all over again, so I called a neighbor and asked for a ride to the emergency room. Once there, the doctor decided it was a toss-up between appendicitis, a bowel obstruction, and as a distant third, a kidney stone. Most of the symptoms pointed to appendicitis, except I had no fever. So I found myself giving blood and wired up to an IV so they could fill me up with contrast and then run me through the CT machine.

The radiologist's diagnosis was a kidney stone plus an observation that I have calcification of various coronary arteries. I was not happy. The doctor felt that at 4mm, the stone should pass all by itself. She said I seemed to be handling the pain pretty well, (thanks doc!) and that I should go home, stoke up on ibuprofen, and take the pain MEDS she was going to prescribe in case the pain became too much.



Let me take a moment to talk about pain. Often times, the doctor or nurse will ask the question, "On a scale of one to ten, how bad is your pain?" I always find it amusing when the person says something like, "Well, my pain is pretty bad, probably an eight or a nine." Having had two kidney stones in my life, I can tell you what an eight or a nine is. If you can talk in a normal voice, your pain is not a nine. If you are writhing on the ground, screaming, and puking your guts out, that is probably a nine, and you might have a kidney stone.

OK, now what? One thing I can tell you, if you have a kidney stone, flying is contraindicated. In my case, the pain was intermittent, infrequent, and transient. Nevertheless, I grounded myself and contacted AOPA's Pilot Protection Services. The medical advisor provided me with the FAA's guidelines on dealing with kidney stones and what the FAA will require, depending on what the urologist says. Basically, if there is only one stone and it passes into the bladder or out, with no other complications, you document it when you go for your medical and everything is good; no reason to defer. However, if the stone doesn't come out, things get really interesting. Don't plan on flying anytime soon in that case.

AOPA PILOT PROTECTION
LEGAL | MEDICAL

Armed with the appropriate information, I headed off to meet with the urologist. He confirmed the diagnosis and then scheduled me for another CT scan and a follow up appointment, to be sure the stone was gone. In the mean time, “No flying.”

Well, after that first bout, there was no more pain. Nothing. I figured I had passed the stone and began to think about flying again. I flew some pattern work with Mooney pilots who could act as PIC, should I have a problem. I harbor no ill-conceived notion that, if stricken with kidney stone pain, I would be able to maintain control of an airplane and land it safely.

The follow up CT scan revealed that the little sucker hadn’t moved an inch. It was still right in the middle of the ureter. I have no idea why there was no pain, other than it had stopped moving. I am now scheduled to have them go in, grab it, and pull it out. Use your imagination. My reaction to this thought is about the same as fingernails on a blackboard.

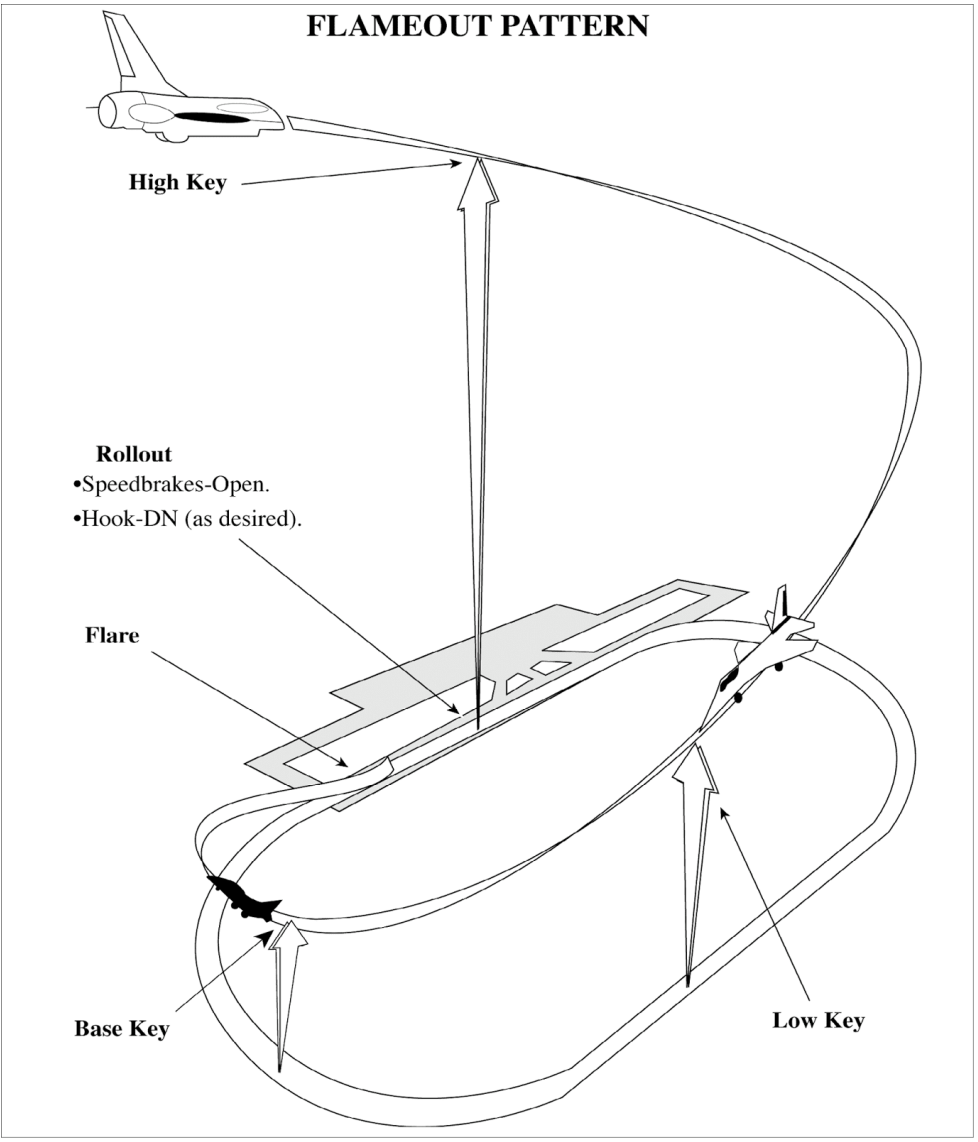
I am glad the “procedure” will be done under a general anesthetic. That’s OK doc, just knock me out because I do NOT want to see OR feel this process. Interestingly enough, this is considered a simple outpatient procedure. They reach in, dislodge the stone, pull it out, then insert a stent in the ureter to keep it from swelling shut and blocking the flow of urine. They leave a string from the stent to the outside world so that in a week, the Doc can pop that stent loose and pull it right out. Unfortunately I suspect they want me awake for that. Yeah, it hurts me just to think about it.

My flying has been curtailed for the last several weeks, so I have taken the time to focus on other things. Unfortunately, in the interim, I have had to cancel with several of my Mooney training clients.

To address the coronary artery calcification issue, I scheduled an appointment with a cardiologist. I want to be sure that, if I am flying passengers, I am going to be able to fly the airplane to its destination. The cardiologist did an EKG, spent about 15 minutes discussing my eating and exercise habits, and then pronounced me OK to fly. I will start seeing him on a semi-annual basis to keep track of things and to be proactive in my heart health so that I can continue to fly.

The 180° Power-Off

All of us SHOULD be able to demonstrate the power-off 180˚ landing. It is pretty straight forward because it always starts from the same place — at pattern altitude abeam the touchdown point on the runway. The problem is, if you are doing this for real, you probably aren’t starting from the abeam point right at pattern altitude. The key (pun intended — you’ll get it in a moment) is figuring out how to approach the airport from a greater distance with the power off, and then manage to get yourself abeam the touchdown point at pattern altitude – the point from which a normal power-off landing can be safely made.



The US Air Force has identified two points in space from which you begin the power-off emergency landing. The one we are most interested in, is what they call the "low-key". This is the point over the airport you try to arrive at, on a particular speed and altitude from which the power-off landing is guaranteed. This is usually directly over the center of the airport on upwind at a given speed and altitude. If you can get to the low-key position, a safe, power-off landing is assured. Now you don't need to do a lot of mental calculation to determine that point while trying to make an emergency landing. Once again, you have made that determination ahead of time and practiced the maneuver so that it is just a matter of "train like you fly, and fly like you train."
Every airplane is a little bit different, so I am not going to attempt to tell you what low-key is for your airplane. You are going to have to find that out for yourself, and that is where the fun of this maneuver comes in. Make a guess, try it, and see how the maneuver comes out. You and your friends can even make a game of "power off spot landings from low-key", to determine who buys breakfast. If you have flown gliders, this will be a no-brainer. You will be accustomed to adjusting drag (spoilers) to control descent angle. In the Mooney, we have drag-increasing devices, such as gear and flaps, plus a trick to decrease the drag. With gear and flaps retracted, the Mooney glides much farther. To decrease drag even more, pull the prop control to coarse-pitch (low RPM).

Also, there is the forward slip. With gear and flaps extended, the forward slip can produce an amazing rate of descent. Former Mooney Test Pilot Bob Kromer recommends that you not slip a M20K or a Long Body because with nose up trim, these models have a "high negative angle of attack and this puts the airflow over the horizontal tail at an extreme condition. Extending the flaps adds to the downwash angle over the horizontal tail, making the negative angle of attack over the horizontal tail even greater."

When you first try this, odds are you are going to overshoot and land long, rather than undershoot the runway. That is because glide speed is much faster than approach speed. The distance traveled as you reduce from glide to approach speed is substantial. You might have everything perfect, with your aim point right at the numbers. However, when it comes time to slow down and touch down, you might end up using up 2,000' of the runway. This isn't a problem on a 5,000' runway, but when your "field" really is a field, and one that is only 1,000' long, it could make a big difference. This is why it is important to practice this maneuver until you are truly proficient.

Let's say you have been practicing getting to low-key in no-wind conditions. What effect is the wind going to have on adjusting your approach? When there is a wind, you need to fly your approach faster. Normally our approach speed is much slower than the best glide speed (V_g). Speeding up will allow the airplane to fly farther. It also reduces the effect of a headwind. How much faster can you fly? You can fly at least 10% over V_g without an appreciable change in glide range. Flying faster means the headwind will have less time to affect your glide and you will glide farther. The converse is also true. Want to come down? Slow down – and that's difficult to do in a Mooney – but that is where your gear and flaps come in.

You can see that finding your low-key position, using gear, flaps, prop, and a possibly a forward slip to adjust the drag, while adjusting your glide speed to accommodate changes in the wind can be quite challenging, and therefore a fun maneuver.

Just a general note, with the gear and flaps retracted, and the prop at low RPM, the Mooney will glide much further than you might expect. When everything is done right, the Mooney Lift over Drag (L/D) is about 11:0. That means you will have a LOT more latitude to adjust your approach than you might think.

So what's this month's Sacred Cow?

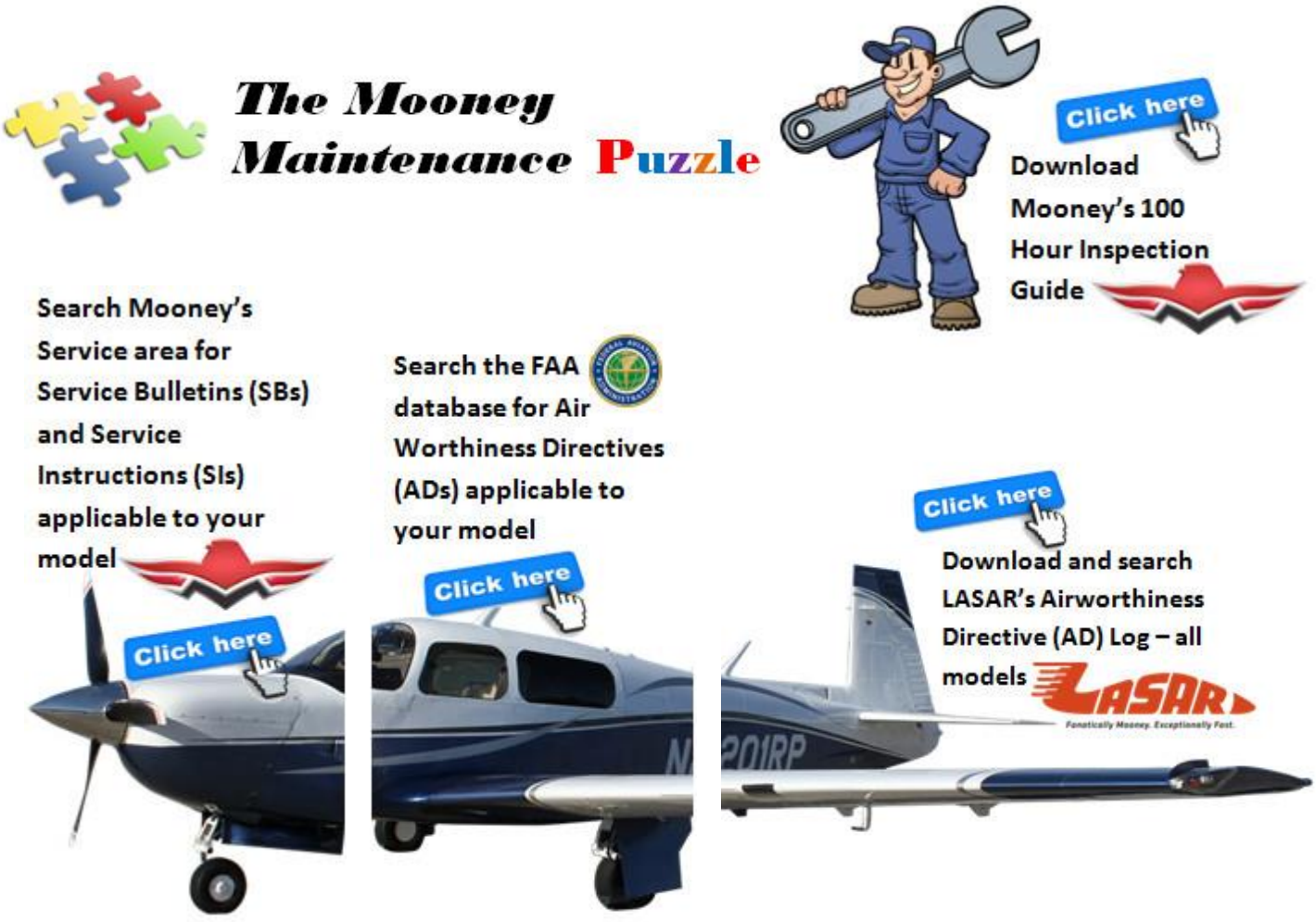
As you practice, start the simulated emergency landing at various distances and altitudes so that you arrive at the airport at different positions, from which you can maneuver to low-key. Getting good at this may someday save your life and maybe your airplane. Besides, practicing this is fun. In case you are wondering, a WW-II biplane trainer will not glide anywhere near as far as a Mooney. Oh, and don't get a kidney stone.

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: I am a new Mooney owner. I have heard the best things I can do for my engine are 1) Fly Regularly and 2) Change the oil/filter regularly. How often do you recommend I should fly to keep the engine healthy? How long does the flight need to be to be beneficial? How often should I change the oil? Does the type of oil matter?

Answer: These are good questions for a new owner. Good habits need to be started with ownership, because the cost of poor care can be enormous.

Obviously, it is best if you fly your aircraft regularly. What does that mean? Weekly would be very good, but weekly generally doesn't happen. I would suggest that once a month would do the job. What I will caution is not to go out and ground run, hoping that would work.

Ground runs are a bad idea. Taxiing around generates heat, but also creates moisture in the crankcase which can cause a great deal of internal rust and corrosion. Our aircraft engines are mostly old technology, with many steel parts that rust and lots of aluminum parts that corrode. A good flight of an hour or more will blow out the moisture and lubricate all the parts. There are procedures for pickling an engine for long time storage. Hardly anyone does that, but I had one owner who was a Naval officer aboard a nuclear sub and every other six months, we would pickle, and then six months later, unpickle.

We always have done oil changes based on flying hours and all owners and engine manuals provide recommended change intervals and types of oil. I recommend that you stay with one brand of oil. For turbocharged engines, I like multi viscosity oil and recommend an oil change every 25 to 35 hours. With aspirated engines, change every 50 hours and use a single viscosity oil.

I want to emphasize that you can get all kinds of recommendations about your questions. I have been doing this for over 60 years, so my suggestions are my opinion on how to keep from paying my shop thousands of dollars because you didn't take care of your airplane. The engine manufacturer and the airplane builder are separate companies, so read the manuals provided by both.

Thanks for the good question.

WHY PAY MORE?

. . . get performance AND economy

Why pay more when the Mark 20A gives safety, performance, and comfort equal to much more expensive aircraft and at the same time gives you much greater economy.

Mooney's Mark 20A is a modern, low wing, retractable geared, 4-place executive type plane with speeds up to 190 m.p.h. In production since 1955, Mooney sales for the world's most efficient airplane have zoomed each year. In '59 sales were up 55%; in '58 they were up 46%.

Again for '60 Mooney sets the pace with aviation firsts.

FRINGE BENEFITS EXCLUSIVE WITH MOONEY!

- Maintenance Warranty.
- Wing Warranty.
- A. D. Warranty.
- Lowest Insurance Rate.

Add these money-saving features to Mooney's unmatchable economy, and you, too, will say, "why pay more"? Compare and you'll see that your airplane dollar has never bought so much speed, safety, economy and comfort as in the '60 Mooney Mark 20A.

COMPARE!

	MOONEY MARK 20 A	BEECH 33	CESSNA 310	PIPER COMANCHE
PERFORMANCE				
Horsepower	4 cyls., 180 h.p.	6 cyls., 225 h.p.	6 cyls., 260 h.p.	6 cyls., 250 h.p.
Top Speed	190 mph	195 mph	195 mph	198 mph
Cruise (75% Power)	180 mph	185 mph	190 mph	181 mph
Rate of Climb	1150 fpm	1010 fpm	1300 fpm	1400 fpm
Service Ceiling	20,000 ft.	19,800 ft.	20,300 ft.	20,000 ft.
Range (Max. at 10,000 Ft. No Reserve)	1110 mi.	1170 mi.	1100 mi.	1100 mi.
Take Off Distance	680 ft.	900 ft.	740 ft.	750 ft.
Landing Distance	550 ft.	570 ft.	520 ft.	650 ft.
ECONOMY				
Initial Cost (Standard Equipment)	$15,490	$19,995	$22,450	$18,995
Factory Exp. Exchange Price	$ 1,532	$ 2,434.84	$ 3,056	$ 2,362
Hourly Gas Consumption (75% Power)	20.8 gph	33.4 gph	35.8 gph	35.6 gph
Total Hourly Operating Cost (300 hrs./yr.)	$17.21	$22.42	$22.31	$25.92
First Year's Operation (300 Hours)				
a Mooney Saves You	→	$1,413.00	$1,380.00	$2,457.00
Initial Cost – Mooney Saves You	→	$4,545.00	$7,000.00	$3,445.00
First Year Total Savings As Mooney Mark 20 A Operator	→	$5,958.00	$8,380.00	$5,902.00
COMFORT AND SAFETY				
Landing Gear	Manual	Electric	Hydraulic	Electric
Riding Comfort (air cushioned)	Flexible Wing	Rigid Wing	Rigid Wing	Flexible Wing
Control Systems	Steel Push-Pull	Cables—Pulleys	Cables—Pulleys	Cables—Pulleys
Airline-type Ventilation	Yes	No	Yes	Yes
Low-wing Visibility	Yes	Yes	No	Yes
Stalling Speed	57	57	59	64
Tubular Steel Cabin Frame	Yes	No	No	No
Retractable Entrance Step	Yes	No	No	No
Tinted Glass Windows and Windshield	Yes	No	Yes	No
Laminar Flow Wing	Yes	No	No	Yes

*Above figures are taken from manufacturer's advertised specifications.

Call your Mooney dealer now or write:

Mooney AIRCRAFT, INC.

Kerrville, Texas

HYH

BREAKING AVIATION NEWS

Stratus Power Pro ($400)

TSO-certified charging port with USB-C and USB-A ports

Features:

- Dual 3.0 amp charging ports (one USB-A, one USB-C)
- It will charge a full size, amp hungry iPad
- Backlit ports for night use
- Shielded to prevent radio noise
- FAA certified to TSO-C71
- Cylindrical shape for easy, drill-in panel installation
- Designed and built in the USA
- 5-year product warranty, backed by Appareo
- Works with 10-32V
- Optional engraving (when ordered from Sporty's) customizes your plug

SiriusXM Tour Audio Receiver with Bluetooth

***The easy way to add radio to your cockpit* ($150)**

Listening to music or live sports is a great way to pass the time on a long cross-country flight, especially for passengers. This all-in-one receiver from SiriusXM is the easiest way to stay connected, with over 150 stations available at the tap of your finger. This compact receiver includes Bluetooth, so you can wirelessly connect to your headset or Bluetooth-enabled audio panel. Plus, satellite delivery means you're never out of range. Requires power source and monthly subscription (starting at $10.99/month).

Pivot Omni 97X iPad Case

There are plenty of iPad cases to choose from, but none were designed specifically for aviation.

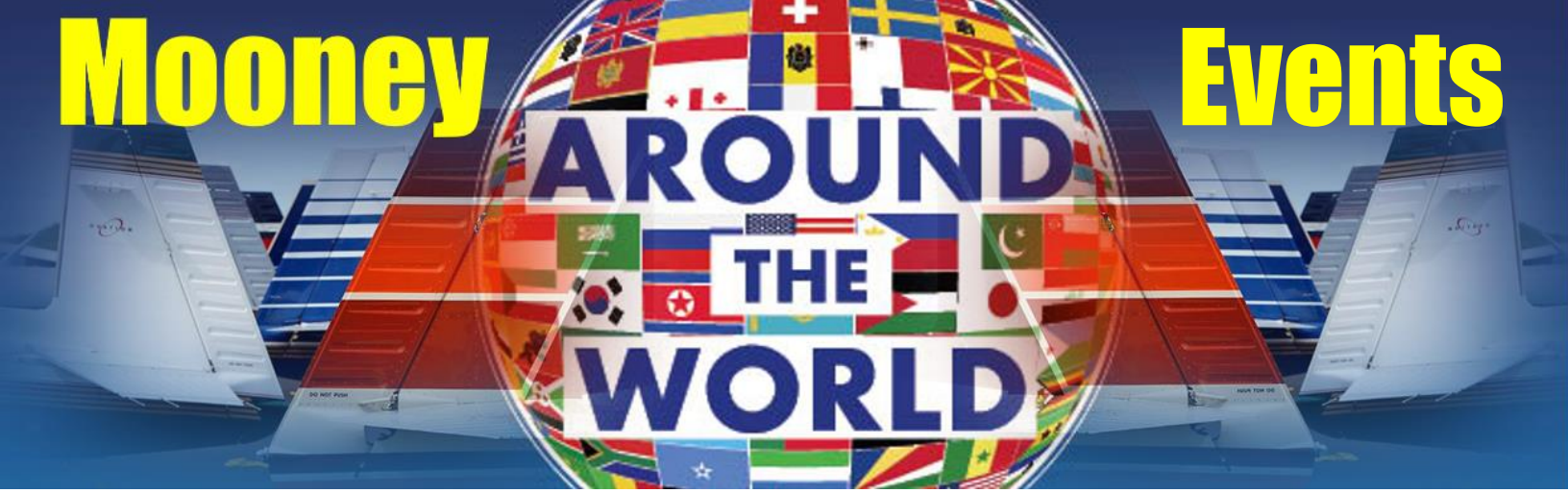
Pivot Pro Omni 97X iPad Case **for iPad Gen 6, Gen 5, Pro 9.7, Air Gen 2 ($145)**

Pivot Pro 10" iPad Case for iPad Gen 8 & 7, Air3 and Pro 10.5" ($145)

Mad Dog Stabilizer Desk $16,500 at Sporty's

Here's your chance to own part of an iconic airliner and forever redefine your workspace.

It all begins with a much-loved American Airlines MD-80 T-tail horizontal stabilizer. Each one is individually hand-lowered by a lift, then hand-cut by a small crew. They are carefully loaded and driven from the airplane boneyard in Roswell, New Mexico, to MotoArt Studios in Torrance, California. Each Mad Dog Stabilizer Desk requires over 100 hours of labor to remove the elevator from the airplane, then acid wash, grind, and sand each section.



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* CANCELLED
Mooney Caravan	
MooneySafety.com MAPA Safety Foundation Pilot Proficiency Program	**2021** Jan 28-31: Lakeland, FL April 22-25: Santa Fe, NM June 17-20: Fort Worth, TX **Sign Up at** https://www.mooneysafety.com/ppp-registration/
MOONEYSUMMIT	CLICK HERE for details
Australian Mooney Pilots Association	
EMPOA	CLICK HERE for details
Other Mooney Events	May 21-23: *The Mooney Flyer* is planning a Fly-In to Paso Robles, CA (KPRB). Dinner on Friday.. Saturday Ramp Arrivals, Wine Tasting, Seminars for Pilots and Passengers at Estrella Warbird Museum (Tours available) Sport competitions, Horseback Rides and SPA Treatments, Wine & Food Party on Saturday night

EFIS TA App

This is a FREE App and it runs very well on iPhones and Androids.

The app runs best with their quite expensive hardware, but you can get a lot of functionality out of this without using it. It's just another backup.

Main Features of Aeolus-Sense instruments displayed on EFIS TA app:

- Artificial Horizon (AHRS)
- ADS-B In (1090 & 978 Mhz)
- Indicated Airspeed (IAS)
- True Airspeed (TAS)
- Ground speed (via GPS)
- Barometric Altitude
- GPS Altitude
- Vertical Speed (VSI)
- Outside Air Temperature (OAT)
- G-meter
- Turn Coordinator
- Slip Ball
- Compass
- True Course Indicator (via GPS)
- Deviation from true track indication
- Flight Plan

CLICK HERE for details

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)

1/3 SHARE FOR SALE

Two partners are offering the final 1/3 co-ownership share in this excellent, incredibly unique and well-equipped aircraft. Over $50,000 spent over the last two years, upgrading and sorting it out. The share price is $45,000.
TTAF is about 3160, engine SMOH About 1320 (Mattituck Red/Gold). We have Calculated that 1/3 of the fixed expenses will be around $5,250 per year. Reserves TBD. Photos and all records can be provided. The plane is hangered at KCCR Concord, CA.

- Garmin GNS 430 WAAS
- King KX 155 N/C/LOC/GS
- Castleberry electric back AI
- King KFC 150 FD/AP alt hold, climb/descend, simulated GPSS
- King KCS 55A HIS
- Garmin GTX 330 ES TXP with traffic, ADS-B out
- Newly Overhauled KX 256 AI ($1,730)
- King KN 64 DME
- New Garmin GMA 345 Audio Panel
- New JPI 830 with *all* options
- ADS-B in including traffic, weather, Sirius XM, etc. via a new certified Garmin GDL 52R hard wired to a panel mounted Garmin Aera 660. A new yoke mounted
  Aera 760 will be hard wired to provide IFR charts and Additional features, More Bluetooth connections for portables and iPad available from the GDL 52R
- Newly Overhauled BFG WX 1000+ stormscope, display and processor ($1,890)
- 28-volt electrical system
- Astrotech LC-2 clock
- Electric trim with CWS
- Yoke mounted AP disconnect and ident
- Electric Back-up vacuum
- New STC'd gear and stall audio alarm ($1,100)
- Built-in CO2 detector
- Speed brakes completely overhauled January 2020 ($2,800)
- Four place intercom
- 2900 GW STC
- Two built-in David Clark 20-10X ANR headset jacks with headsets
- CYA 100 AOA with custom housing, (not yet wired) ($1,690)
- Useful load 992 lbs.
- Air/Oil Separator
- Reiff Preheater, 2 sides
- Removable back seats
- Articulating seats
- Inflatable lumbar support
- Indirect interior lighting
- Kool scoop
- Wing mounted fuel gauges
- Two place Sky Ox oxygen tank with custom rack
- Sidewinder electric power tug
- B-Cool ice cooler with remote switch
- Annual completed February 2020 by Top Gun Stockton MSC.
- Tan leather interior redone 2012, good condition, front sheepskins coming soon
- Custom black front floor mats, custom cover, cowl plugs
- Original paint. Pleasing colors. Looks very good at 8'.
- The plane starts right up hot or cold, good compressions, does not use much oil, good oil analysis, runs very smoothly, flies great.
- Recent avionics fan, fuel pump, starter, battery, airstop tubes on mains
- New shock discs 2 1/2 years
- No back clutch spring installed 2 1/2 years

Give me a call anytime at 510 377 0129 or email bradinc@astound.net. Thanks! Steve

1979 M20K For Sale, $149,000
Call Kevin at 909-790-9359

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 with a factory new wing by Crown Air in San Diego.


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