The Mooney Flyer

The Official Online Magazine for the Mooney Community

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September 2019

Departments

Features

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From the Editor

Phil Corman

Becoming Radio Perfect

For those regular readers, you know that one of my hot buttons is bad radio techniques. I don't think I have covered these before, but if I have, please chalk it up to old age.

First, at an uncontrolled field, I don't think there is any valid reason to announce taxiing from point A to point B. You are moving at +/- 5kts and can stop in a few feet if necessary. Mooneys in the pattern, however, are moving at +/- 150kts and cannot stop. Position announcements for those in the pattern have real value. Clearly, if you are on the ground and crossing a runway, then by all means, chat that up, but otherwise, consider leaving the frequency available to your brethren in the sky.

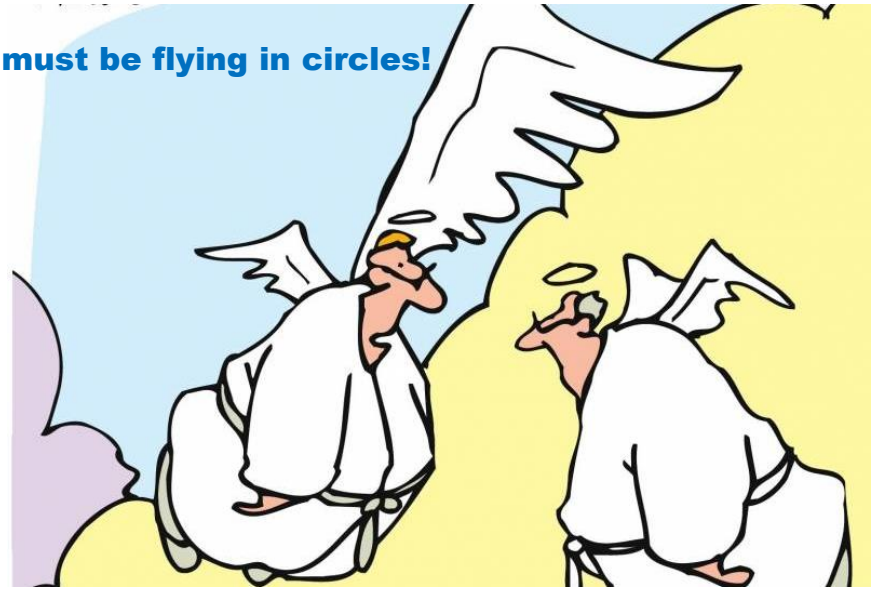
Secondly, calling the uncontrolled field from 15-20 miles out is another unnecessary call. Heck, even Class Ds have only a 5 mile radii. Listen on CTAF at 15-20, for sure, but consider making your first call at 10 miles or so. Please give your position, planned pattern entry and runway. Leaving those out reduces the value of your radio call to almost nil.

Thirdly, giving position reports like "Mooney over my kids grammar school" is not very helpful. Consider giving position in terms of compass direction from the airport and miles out.

Lastly, announcing that "Mooney is 10 miles SE at 3500' leaving the area" is not very valuable. You have already left the area and are getting further from it. Honestly, we don't care, unless you are buying lunch.

Balancing Fuel Tanks

What is your tank switching policy? For the record, there are almost as many policies as there are Mooney pilots. Fuel gauges are extremely inaccurate, so knowing your fuel burn is valuable. Policy #1 is to initially burn one a tank for 30 minutes, then switch every hour. This keeps you always having no more than 30 minutes excess of fuel in either tank. That's good for balance.



Another strategy is to burn a tank dry. The theory is that now you know how much fuel you have usable in the remaining tank. Odd thinking, but it makes sense to some.

I recently read that a pilot burned the right tank between the top of the hour until half past the hour and the left tank from half past the hour to the top of the hour. He said that the "minute hand" pointed to the tank to burn. I can't use this technique since my watch is digital and I don't have a minute hand.

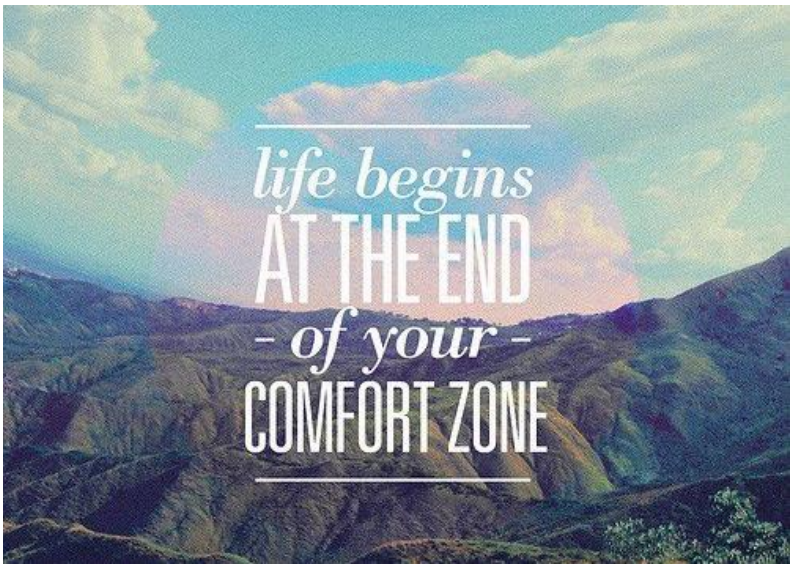
I read a partly amusing thread about "balance", in that if you burn a tank down too much, your Mooney becomes unbalanced and bad things might happen. The thread went on for some time, but never mentioned the balance due to the pilot. An FAA standard pilot weighs about 175lbs and can really screw up that balance.

Methinks we think too much about balance and to our research, no Mooney POHs have ever mentioned imbalances due to fuel imbalances. I did find that I should not do a climbing turn with less than 12 gallons in my Eagle. So, like Bill Murray said in Caddyshack, at least I've got that going for me.

What is the Best Oil?

Another thread we've seen recently centered on the best oil for your Mooney. The usual arguments were 1) It depends on the weather over the year, or 2) Whether you owned a Lycoming or a Continental, and more.

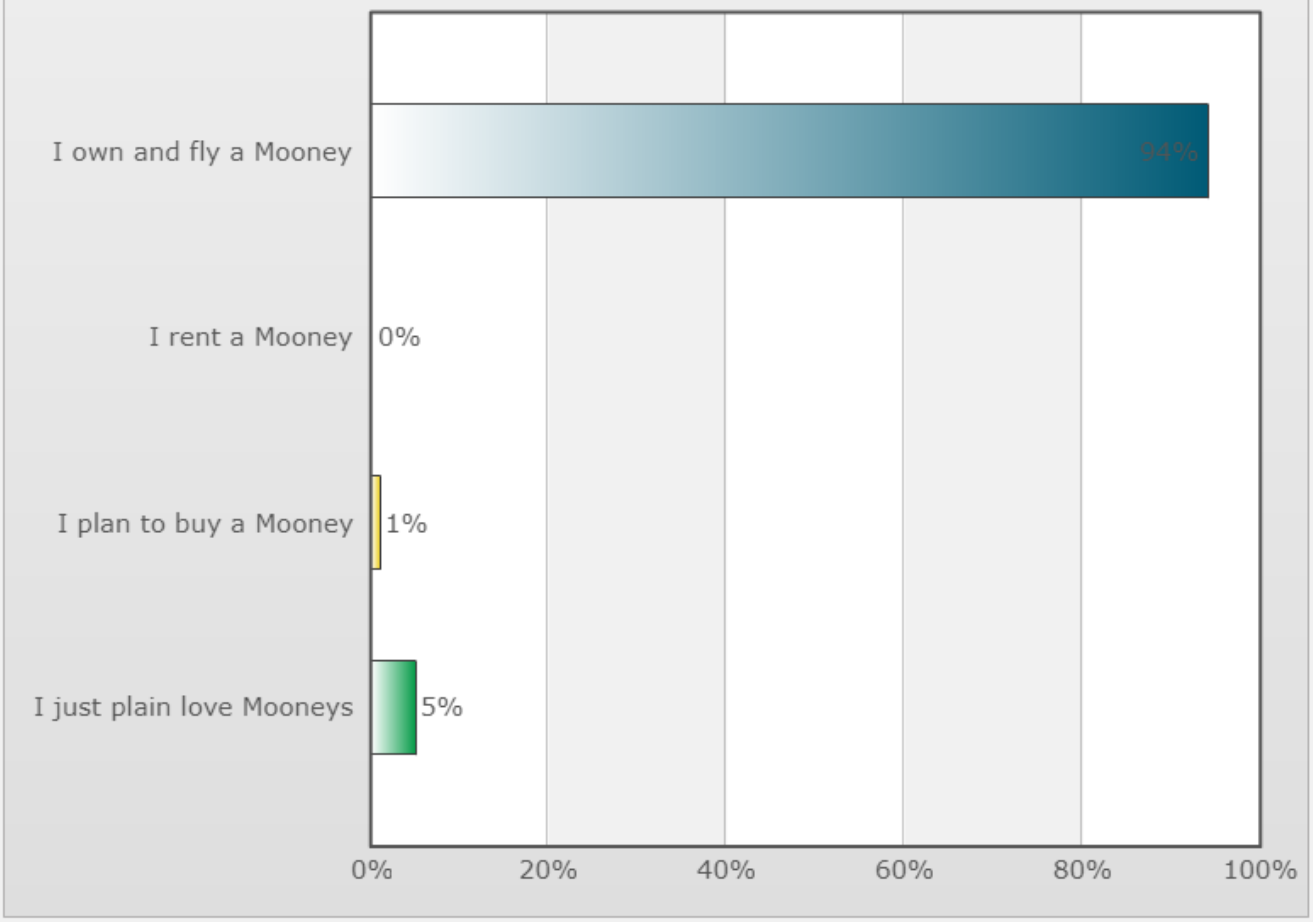
Here at The Mooney Flyer, we don't think that is the right question to ask. The question behind the question is what oil is best for your engine's longevity. Science says all the oils are pretty darn close. The more relevant question of how to increase your engine's longevity yields more results. The answer is an overwhelming, "Fly your Mooney regularly". By that we mean, 1-2 times per week. Second, change the oil and filter every 25-35 hours, and lastly, keep those CHTs below 380^{o}F. The science says that CamGuard is really, really good for our engines. First, it lubricates the top of your engine for more than 500hrs in the hangar, compared to 36-48 in the hangar without it. It also reduces friction and keeps the moisture away from the rustable surfaces. By the way, I use Phillips XC 20W50 cause it's pretty well priced.



I am a Mooney Flyer Reader and:

Poll created by Phil Corman on 07/01/2019

Poll Results



Next month's poll: "Commenting on Mooney Accidents": **CLICK HERE** to vote.

Send your comments to editor@themooneyflyer.com

RE: Mooney Gust Locks - I read last month's reader's solution. Here is another. Just get a simple strap made for the Mooney that tucks into a pocket when not in use! No long pieces of plastic to store and break during storage. Secures the ailerons and elevator. I have been using mine for 20 years without a hitch. Go to: https://airplanethings.com/#home/locks

The FAA wants you to call ATC directly instead of Flight Service. Today, if you want a clearance on the ground, you can call them on the phone or in your Mooney via an RCO (Remote Communications Outlet) or a GCO (Ground Communication Outlet). You can still utilize the RCO or GCO, but should call ATC directly. You can get this frequency from the Chart Supplement or your favorite EFB, such as ForeFlight. In a pinch, you can still call FSS and ask them for the direct phone line to ATC.

Maximum Allowable Gross Weight

I once knew a pilot who would routinely fly his M20J to fly-ins with three adult passengers and a full tank of gas. He never told his non-Mooney pilot passengers what they were getting into. They happily boarded his Mooney because they thought that this pilot owner was a lot of fun and a great pilot.

Is an aircraft's maximum gross weight a guideline from the manufacture? Is it just a recommendation, or is it a number that should never be exceeded under any circumstances?"

Mooney has established a maximum gross weight for each Mooney model. This weight constitutes a limitation which ***must not*** be exceeded. It was established during testing by the manufacturer.

A pilot who exceeds this takeoff weight has no knowledge or assurance that the flight characteristics of the airplane will be acceptable.

Additionally, FAR 91.9 *specifically prohibits a person from operating an aircraft without complying with the operating limitations specified.*

Information regarding an aircraft's weight and balance is located in the POH (Pilot's Operating Handbook). The POH must be on-board the airplane where it can be used as a reference before a

flight, and to determine whether the proposed loading of the airplane meets the limitations described in the weight and balance section.

With many Mooney models, it is sometimes necessary to operate with less than a full fuel load to meet the weight limitations specified for that model.

I don't think that pilots who plan to fly a Mooney that is heavier than the maximum allowable gross weight, share that secret with their passengers. Why? Because these pilots don't want their passengers to know that today, they are assuming a greater risk.

Overload Tragedy

In April 2018, a PA-24 Comanche with six people on board took off from the Scottsdale Airport (SDL) on the way to North Las Vegas, Nevada. The plane seemed to rise just feet off the runway and failed to gain altitude. It alarmed the tower controller and she radioed the pilot, asking if there was trouble.
Tower: "Comanche 5 6 ... experiencing any difficulty?"
Pilot: "Ah, we're good… we're just in training mode." (The pilot with the ATP was in the right seat, and the student pilot/aircraft owner was in the left seat).

Sources say the pilot likely saw the 30-foot tall berm just 300 yards or so from the end of the runway. The pilot likely pulled back on the stick to clear the berm, putting the airplane in a stall. The plane crashed inverted and nose down, killing all six people on board. Preliminary reports suggest that the aircraft weighed in excess of the maximum allowable gross weight and had an aft CG that was "greater than normal".

Another Overloaded Aircraft

On January 2018, a Mooney M20E Super 21 Chaparral with four adults on board, crashed after takeoff in San Bernardino County, California. A few minutes after departure, the private pilot reported that as the airplane neared the top of a Ridgeline, it encountered a downdraft, aerodynamically stalled, and then impacted the terrain.

One of the passengers reported hearing an aural tone, which was consistent with the stall warning horn, for several seconds before impact. One person was seriously injured. One had minor injuries and two passengers were not hurt.

Weight and balance calculations have since determined that the Mooney was loaded near its maximum gross weight and the CG exceeded the forward limit (increasing the aircraft's stall speed). The calculated density altitude was 6,550, which likely reduced the available power and affected the climb rate. (See the Koch Chart article in the August 2019 issue, pages 8 through 12). The pilot attempted to cross the ridgeline with insufficient altitude and was likely only 50 feet above it when the crash occurred.

The NTSB Concluded (Probable Cause)

1 - The pilot's failure to establish the proper airspeed after departure and to maintain adequate clearance from a ridgeline in high-density and downdraft conditions and his subsequent exceedance of the airplane's critical angle of attack, which resulted in an aerodynamic stall with insufficient altitude to recover.

2 - Contributing to the accident was the pilot's inadequate preflight weight and balance calculations, which failed to consider the gross weight, high-altitude conditions, and center of gravity limit.

Conclusion

None of these pilots had a clear understanding of either their airplanes' performance capabilities or how to attain those capabilities. They're not alone. Botched takeoffs are the second most common accident cause, and while some are purely stick-and-rudder lapses, more than half—including nearly three-quarters of those that prove fatal—arise from errors of planning or procedure.

Please spend a little time with your POH's performance tables or graphs. If a 3,000-foot runway is unexciting when taking off solo with light luggage, what would it be like at max allowable gross weight? Now add three or four thousand extra feet of density altitude and perhaps five knots of tailwind just in case you need to take off away from the hills? The idea isn't to nail down every possible combination of factors ahead of time, but to build a sense of when familiar rules of thumb can no longer be trusted. Err on the side of caution and run the numbers any time are close.

Once you have those numbers, don't trust them. Assume you'll use more distance to break ground and that you'll be climbing more slowly than the POH seems to promise. Why? Well, first off because you probably will, but also because having runway left over always beats finding out that you didn't have enough.

90% of the pilot community believe that the cause of hot starting issues is fuel vapor in the fuel lines that needs to be purged. Unfortunately, it turns out to not be the cause, nor is it related to the cause.
The cause is this:

A) Shut down hot;

B) Engine driven fuel pump heat soaks from the accessory case which is 175 to 200^{o}F.

C) Internal portions of fuel pump get HOT, about 150 degrees 20 minutes after shutdown.

D) Pilot "purges" the fuel lines of vapor (yes, the fuel in there may well have boiled off).

E) Pilot hits the starter. Engine turns. HOT fuel pump turns. HOT Fuel is "sucked" uphill from the fuel tank. Hot fuel has a very high (highly nonlinear with temperature) absolute vapor pressure.

F) HOT fuel under a suction vacuum lifting it from the fuel tank - - hits the HOTTER vanes at the inlet to the slowing spinning (HOT) fuel pump - - and that fuel flashes to vapor AT THE INLET TO THE FUEL PUMP.

The scenario one often sees on the ramp is this:

Pilot primes the engine, cranks the engine, and it starts. The engine runs just long enough for the HOT fuel in the tanks to then hit the inlet to the fuel pump, where it promptly turns to vapor.

The positive displacement pump now tries to pump VAPOR, not liquid, and the engine quits due to fuel starvation.

Hot Starting Comments from Walter Atkinson (11/2017).
Scientific starting technique answer:

1) Mixture – Idle cutoff

2) Run Aux Pump for 60 seconds **to cool the engine driven fuel pump**.

3) Mixture – Full rich; Aux pump – To peak Fuel Flow

4) Crank starter and move throttle forward slowly, being prepared to retard it when it starts. It WILL start when the Fuel to Air mixture is right--every time. Period. If the engine is cold, omit steps 1 & 2.

Now you have a starting technique that always works, no matter what the engine condition--hot or cold. If it's exceptionally hot, run the boost pump for 90 seconds.

by Brian Lloyd, CSEL/CMEL, CFI/CFII

Happy end-of-summer! I've been busy instructing, helping people transition to their new Mooneys, going to Oshkosh, and working on my own airplanes. Annual time for my 231 snuck up on me rather unexpectedly. It seems I got confused about the month of the last annual because I had gone substantially less than a year for the previous annual (I did two annuals in the space of 3 months because of my flight around the world) and then … well, you know the story. Oops, the plane is out-of-annual and I need to fly the plane! Better call the IA.

One thing I am lucky about is that I work with Brian Kendrick, a great A&P/IA, brian@mooneysupport.net. Those of you who have 2005 and later Acclaims and Ovations may be using his services as he will come to you rather than making you come to him. He normally doesn't work on legacy Mooneys. He made an exception for me because of my flight around the world. Also, I have an air-conditioned hangar, so he doesn't mind working on my 'K' during the Texas heat in August. (There are two seasons in South Central Texas – Summer and August).

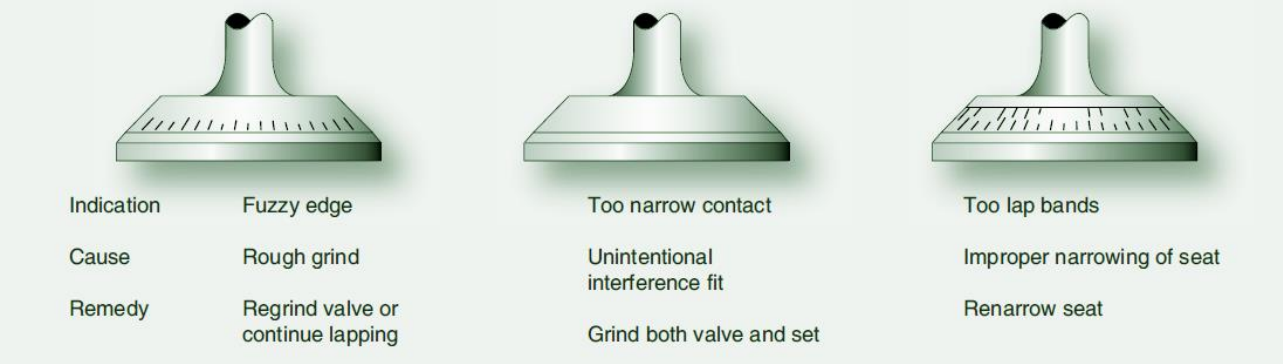
Brian responded positively to my groveling and headed my way. I pulled off the cowling and started in on things like solvent-washing the engine, removing and cleaning plugs, doing the compression check, removing the airbox and turbocharger plumbing, etc. Oops, the plugs are worn out. Over to the computer to place the obligatory order for $500 with Aircraft Spruce. I needed a few other things too, but darned if it doesn't seem like every time I visit the Aircraft Spruce web site, my credit card gets about $500 heavier!

Troubled Cylinders on Continental

The compression test was the big ouch as #2 was 20/80 which is not good. There was a clear hurricane going past the exhaust valve. If this was the first time, I would chalk it up to “stuff

happens". However, here I am with just slightly over 1,000 hours on the engine and this is a problem with the SECOND set of new cylinders this engine has had since overhaul. I'm sorry, but I don't think that having to put on new cylinders every 500 hours is normal, even for a Continental engine. Yes, I have heard that it is normal to do a "top overhaul" at mid TBO run for Continental engines, but TWO in 1000 hours? That's ridiculous.

While I was at Oshkosh, Brian did a borescope inspection, which showed a clear hot-spot on the #2 exhaust valve. A look around the valve shoulder and at the valve seat showed that the valve just wasn't seating properly and had almost no contact with the seat. That is what had happened to the first batch of cylinders that came with the overhauled engine. Fortunately, I was at Oshkosh when Brian broke the news to me. So, I trucked on over to the Continental pavilion to ask, "What's up with this?"



The techs at Continental asked a lot of questions and fortunately, I had the answers. In the end they said, "You know, a lot of shops lap the valves on new cylinders that they get from us." I managed to refrain from saying, "Uh, if the valves on new cylinders need lapping, why don't you do it and ensure they are properly seated before you ship the cylinders to your customers?" Anyway, Brian has seen this problem enough times and has recently tried lapping leaking exhaust valves while still in the cylinder. So, we lapped the #2 exhaust valve in-place. A cold compression test came up to 68/80; well within normal range and now nothing was going past the exhaust valve. Now we know that lapping an exhaust valve in-place belongs in our cylinder-maintenance bag-of-tricks. We'll check the compression and do a borescope inspection of the exhaust valve again at the next oil change to see if this is potentially a long-term solution to a long-running problem.

Before anyone gets worried about valve-lapping compound being left in, Continental techs responded that when valve-lapping compound remains in the cylinder or on the valve, it's not a problem. The Continental Techs said that as soon as the engine is started, the compound blows out of the cylinder without causing any problems.

Why is this an issue with Continental and not with Lycoming? The two companies have completely different approaches to cooling the exhaust valve, so it doesn't burn up. Lycoming uses a sodium-filled exhaust valve and Continental uses a Nitraloy valve.

In Lycoming's case, the intake and exhaust valve stems are hollow and partially filled with metallic sodium, which carries the heat from the valve face to the valve stem, and from there to the head via the valve guide. The problem with this is oil "coking" (turning to carbon) in the guide which reduces stem-to-guide clearance until the valve starts to stick when cold. This is the cause of

"morning sickness" and, eventually, valve sticking when hot. You really don't want this to happen in flight. I know from experience. With Lycoming engines you need to periodically do the "wobble test" to check valve guide clearance. If you have a Lycoming engine you need to grab a copy of Service Bulletin 388C to see what to do. Make sure your A&P does it and logs it.

With Continental, things are a bit different. The heat in the valve is transferred to the head via the valve seat. When the exhaust valve is closed, the heat picked up during combustion and during the exhaust stroke is transferred to the edge of the valve and then on to the seat and the head. If the valve does not seat properly, the heat can't transfer, and the valve gets too hot, potentially leading to a burned valve. Lapping the valve, using an abrasive valve-lapping paste between valve and seat, wears the valve and seat together to ensure a good seal and good heat transfer. If you have a Continental-powered Mooney and you see declining compressions with leakage past the exhaust valve, a borescope inspection of the affected valves is in order, with a possible valve-lapping session to follow. It doesn't take long and costs WAY less than installing a new cylinder! It just takes about an hour per cylinder and only costs a few dollars for labor and valve-lapping compound. I will let you know how mine works out in the long term.

"This is a second opinion. At first, I thought you had something else."

First Annuals and Second Opinions

As long as I am talking about annuals and maintenance, I am going to share an interesting call I got from a former student. A year ago, she and her partner had acquired a 201 and I did their transition training. It was their first airplane and first Mooney. Another smart Mooney owner! A year ago, they did everything right with a thorough pre-purchase inspection, a good annual at a well-respected Mooney Service Center, and a thorough check-out in the airplane. You can imagine my consternation when she wrote me with an SOS during the annual at the end of their first year of ownership.

The Mooney Service Center informed them that the fuselage tubing structure was corroded and needed repair … to the tune of $20,000 and about 4 months of down-time! Yes, I understood her consternation and I could definitely feel her pain.

My advice was to get a second opinion and pointed her to several other shops with whom I have had good experience for quality and reasonable service, including the shop that used to care for my airplanes, including my 231, when I still lived in California. After looking at the pictures, the first thing my old A&P/IA said, "But they didn't even remove all of the side panels in the cabin so how could they have inspected the lower tubes?" He looked at the pictures more closely and

suggested that, while there was clearly some rust on the tubes, it looked like surface rust which could be dealt with by cleaning, priming, and repainting the tubes. Last I heard, they were progressing in that direction. I am hoping that it turned out to be the much simpler and much less expensive solution than originally suggested.

So, here is another “No Sacred Cows” rule: get a second opinion. Even good shops can make mistakes. Really busy shops can, in their haste, unintentionally skip some due diligence. Be sure YOU stay on top of things and be ready to get a second opinion. Just because a shop is supposed to be a big name doesn't mean they necessarily do better work. You want your A&P and IA to be willing to work with you as a participating partner in keeping your Mooney flying.

Oil Selection

OK, it is time to kill a sacred cow. All aircraft lubricating oils perform equally well.

This is one of those things that will start an argument almost as quickly as how to enter the pattern at a non-tower airport or lean-of-peak operation. There is no end to opinions on this subject. Everyone knows a 'Joe', that crusty old A&P/IA who used to work on Wright Flyer #1 and everything since. He is going to tell you how terrible multi-viscosity oils are, how you need to use Marvel Mystery Oil (that is another item that will start a flame war), and other pearls of wisdom. The problem is, while there is no end of opinions, there is not a lot of empirical evidence floating around out there upon which you can base your opinion. Or is there?

Let's take a moment and think about what oil is supposed to do. Oil in our aircraft engines has three main functions:

1. Provide lubrication so that components do not touch and wear;
2. Carry contaminants and wear products in suspension until they can be removed by the oil filter or drained away during oil change;
3. Carry away heat from internal components.

If you have regular oil analysis, you can tell if the oil is doing its job. The nice thing about our modern ashless dispersant oils is that they hold the microscopic wear products in suspension so that they can be carried away when the oil is drained. These wear products are so small that they pass right through the filter and remain circulating in the oil. A sample of the oil is taken when the oil is drained and then sent to a lab to be analyzed using a mass spectrometer. The microscopic wear products are identified and quantified, providing an over-time measurement of the wear

behavior of your engine, allowing you to see trends. If there is a sudden change, you could have a problem.

There are several good, competent companies that do engine oil analysis. I happen to use Blackstone Labs (https://www.blackstone-labs.com). They analyze each sample, compare it to previous samples from your engine, and compare them to the overall fleet of similar engines. This gives you a really good idea where your engine stands compared to others and if any significant trends are developing. Several times they have pointed me to potential problems long before they became issues, saving me money and down-time.

Flying your Mooney regularly completely outweighs which oil you use in your engine. If you live where it gets below freezing, then multi-viscosity makes a lot of sense. Most engine wear happens in the first 15-20 seconds after start, which only gets worse in cold weather.

The interesting thing is, these labs have mountains of data from thousands of engines, all running different brands and types of oil. They can see exactly which oils provide better wear protection. What is their take on which oil works best?

If you go to the Blackstone Labs web site or CLICK HERE, you will find a very detailed and clear discussion of how they analyzed the data for engines running different oils. They specifically talk about how Aeroshell and Phillips, single-viscosity and multi-viscosity, oils perform. I find the next to last paragraph lays it out clearly. It says:

"After looking at the first couple of engine types, it was starting to look like Aeroshell W100 Plus might lead the pack, but we did this to illustrate the danger in drawing conclusions based on just a couple of data points – the more engines we looked at, the clearer it became that there was no overall pattern. That's why we're pretty confident in saying that, in general, it doesn't matter what oil you use, as long as you're following the manufacturer's recommendations. If you want to try something different, feel free to give it a shot! We'll track the trends and let you know if it's making any difference in your particular engine." They have the numbers. They have the measurements. It's not opinion. In our marketing-oriented world it is nice to have some unbiased information upon which to base our decisions.

Using CamGuard is a no brainer for us. This is especially true if you don't fly a few times per week. It decreases friction and lubricates your upper engine considerably longer while sitting in the hangar. Go check the science. Changing oil and filter and using Camguard are two of the cheapest things you can do to show the love for your Lycoming or Continental.

So, if you like Aeroshell W100+, use it. If you like Phillips XC 20W50, use it. It really doesn't matter in the long run. I happen to use 20W50 in my airplanes because the lower cold viscosity means that, on start-up, oil gets to the bearings more quickly. Does that make a difference? Maybe. OTOH, flying your airplane a couple times per week and changing oil regularly will probably make a much bigger difference in the long run.

Expect the UnExpected

I rode motorcycles before I became a pilot and I remember learning to always expect the unexpected. I developed several never assume rules. Because the drivers have blind spots, and motorcycles are relatively small, it's difficult for a motorist to see riders. Never assume a motorist will not turn directly in front of you or won't change lanes right into the side of your motorcycle. These adages have saved me several trips to the hospital and perhaps to the morgue.

So how does this translate to flying your Mooney? I'd like to cover a few scenarios for your consideration. But first, there is a key point to ram home. My wife was a lifelong Deputy Sheriff. She had a challenging and risky job. Flying is also challenging and risky. She had very long periods during her patrols that were boring. Nothing exciting happened, according to her. Nobody shot at her, or otherwise tried to harm her. Over the months and years, this could cause complacency. Flying our Mooneys is a little like this. Although I will debate that any flight is not boring, I'll admit that flying is repetitive, and we expect similar results on each flight. This can cause complacency, so the moral of this article is "Always Expect the Unexpected… Always".

First Scenario – Takeoff

Most of us have only experienced wonderful takeoff rolls and departures for hundreds, if not thousands of takeoffs. It would be considered human nature to think the current takeoff will follow that same pattern. But on each and every departure, we should expect to have an engine problem, or some other issue that forces us to abort the takeoff.

Are you expecting that? Have you taught you muscle memory to immediately push the nose aggressively down to avoid a departure stall? You don't have time to think about this. You need to be ready for this and react with your muscles and not your brain. Once you do this, you have some time, albeit not much, to decide where to touch down and walk away. But if you are expecting a normal takeoff, you are NOT PREPARED. You may not respond correctly, and those few seconds could mean the difference.

Have you ever run out of runway? Most of us have never done so. It would be human nature not to plan to abort a takeoff roll if you do not have the necessary airspeed at the halfway point of the runway. Remember the 50/70 rule? If you have not reached 70% of your takeoff speed at the 50% (halfway point) of the runway, it might be wise to pull the power and stay on the ground. Expect that this will happen, and you will be more committed and respond with more authority than if it is unexpected. Recently I saw a Mooney landing long. He bounced and kind of set it on the runway. He didn't have much runway left and locked the brakes while simultaneously adding power. What happened? He wasn't expecting to run short of runway and selected conflicting solutions to the problem. Be prepared by expecting the unexpected.

Landings

Being prepared for the unexpected on landings is a little different than departures. Usually you have more time, but expecting the unexpected and being prepared is essential.

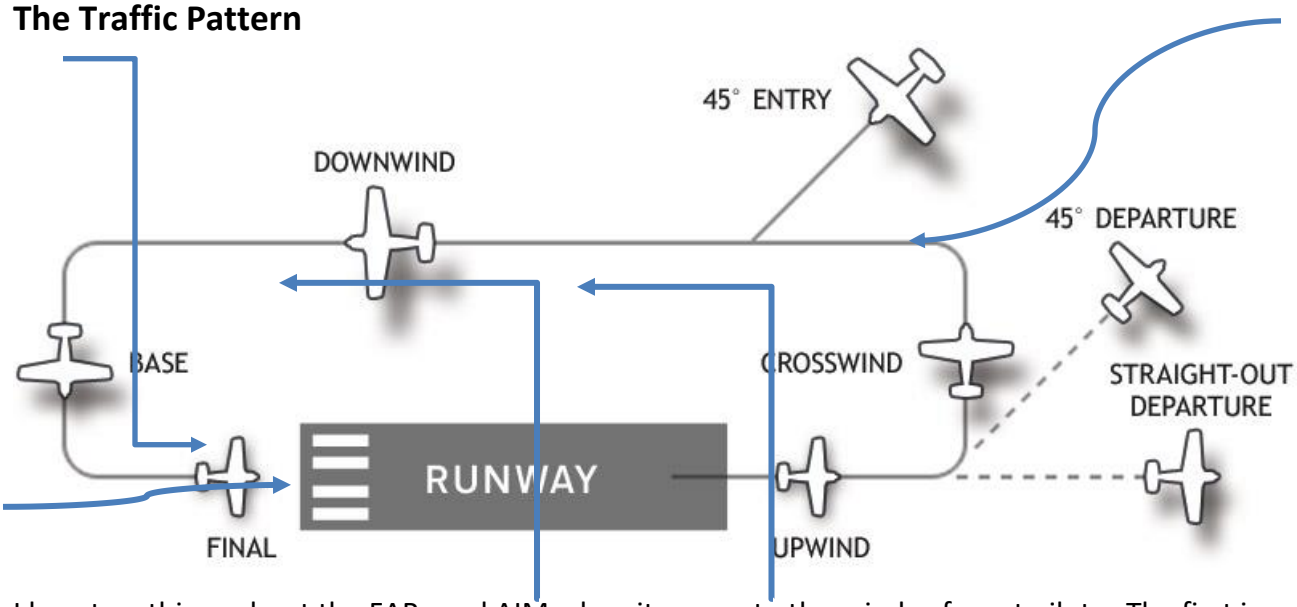
If you expect that there will be wildlife on the runway, or an airport vehicle, or grass cutting, or an aircraft runway incursion, then you will be better prepared to take the appropriate action, which is almost always a Go-Around.

The two things to do to expect the unexpected is 1) Assume there might be a runway incursion and 2) Have an eagle eye on the runway and the areas in proximity. A friend of mine who has a gazillion hours in his Malibu did not see a two-seater Robinson helicopter sitting on the midway of the runway until he was into the runway environment and about to flare. The helicopter blended in to the runway. He didn't expect that since there was no radio, etc. He saw it in time, but had he expected the unexpected, he might have been more vigilant in checking out the runway and environs. Coyotes, fox, and flocks of birds on the runway can be equally hard to spot unless you are expecting it.

Maybe adopting a mindset of every approach to landing could be an approach to an option, meaning to land or go-around. With that mindset, you will be more mentally prepared to initiate

a go-around. This is also a good mindset if you do not have a stable approach or are landing too long. Consider every approach and option to land. Remember, a go-around is almost always the right choice for something on the runway, an unstable approach, too long down the runway, or a Mooney bounce. The win is that you get to log 5 more minutes and have no dents on your Mooney or your ego.

The Traffic Pattern



I love two things about the FARs and AIM when it comes to the minds of most pilots. The first is the FAR's "right of way" and the second is that all the other pilots are following the FARs and AIM. Both are fatally flawed in airplanes.

FAR 91.113 spells out the rights of way and we should all respect these rules. But for me, I will almost always yield the right of way, regardless of who has it. Now clearly if I'm on short final, I'm not going to yield to another plane on base. But almost always, I will yield when it's a closer decision on who has the actual right of way. There are no second chances, so it makes sense to my survival and to my sense of courtesy.

In the pattern, we shouldn't trust/expect that the pattern is clear simply because there is not radio chatter. We should expect the unexpected by looking for NORDO traffic on every pattern arrival. A similar, but different pattern issue is other airplanes flying patterns for the "other" runway at the same time. In this case, often the downwind legs intersect. Ouch, are you looking for this, especially at uncontrolled fields? Expect someone will be doing that and you will increase your chances of seeing that plane.

Are you expecting all the other planes will fly the prescribed pattern? Of course, all Mooney pilots do, but what about the Cessna/Piper/Cirrus guys? I can't count how many times I have seen pilots on both right/left base at the same time, or other right/left pattern infractions. Are you looking for other planes to enter the pattern from almost every direction? You should because it happens regularly. Do you expect a plane on a long straight in final while you are on base? Are you looking for that? Don't rely on your ADS-B TIS-B traffic… it's incomplete.

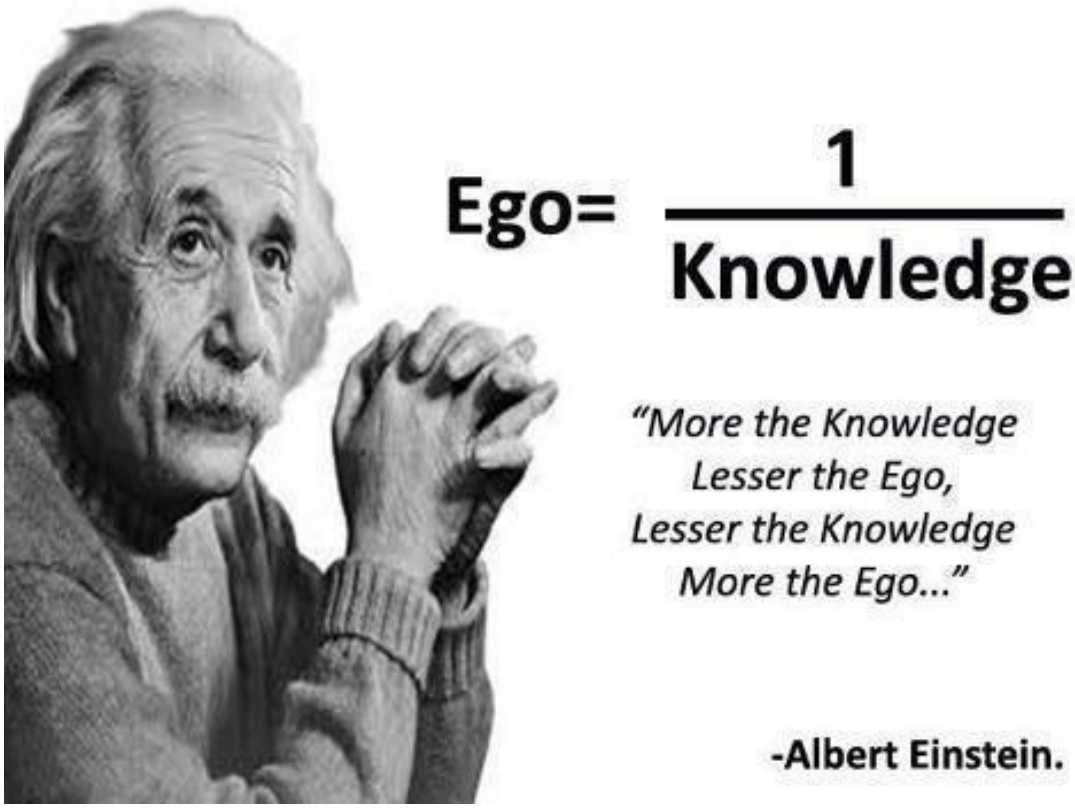
Again, expecting other planes to be NORDO and not entering in standard ways keeps your head on a swivel. And because you have adopted the expect the unexpected attitude, you are more alert

and more prepared on the authoritative action(s) you will take when that unexpected event occurs.

Summary

Expecting the Unexpected is mostly common sense, but as we all know, common sense isn't always that common. If you adopt this philosophy every time you take to the sky, then you will be prepared and ready to take assertive actions without surprise or delay.

By the way, my wife had been on patrol for almost 20 years without ever shooting her weapon or getting shot at. One Sunday, her mother suggested she change jobs because it worried her that my wife would get shot on patrol. A year or so later, the Sheriff's Office assigned my wife as a Bailiff in the Courts. On the first week, a guy ran past the metal detector into the courtroom with his gun blazing. I called my wife's Mom to tell her Linda was OK, and never to suggest a job change again. But Linda had been trained to expect the unexpected and now, in retirement, flies right seat in our Mooney Eagle. She's never bored, never complacent, and ready for the unexpected.



Learn from the mistakes of others, because you won't live long enough to make all of them yourself.

Bartlesville, Oklahoma: On August 2, 2017, the 1980 Mooney M20K had just been released from a repair shop after the engine exhaust system had been rebuilt.

According to the 1,000-hour pilot, the engine was tested before being released from the repair shop, and no mechanical anomalies were noted.

#1

While completing the preflight run-up, the engine quit running when it was at 1,800 RPM. He got out of the airplane and did a walkaround and noticed nothing abnormal. He then attempted multiple engine starts, and "the engine would try to start, but would not keep running."

#2

He was finally able to get the engine started. He conducted a preflight, but did not visually check or measure the fuel in either tank. He believed the left fuel tank was empty.

The left tank "low fuel light" was on, the right fuel tank "low fuel light" was off, and the fuel level in the right tank was between 1/8 and 1/4 full. The fuel selector was selected to the right fuel tank.

Undeterred, he then took off and circled the airport in a right traffic pattern, flew down the runway at 2,000' mean sea level, then proceeded to his destination, Skiatook, Oklahoma (2F6).

#3

About 7 nautical miles from Skiatook Municipal, the right tank low fuel light illuminated for about 3 to 5 seconds and then extinguished.

As he turned the airplane onto final, he added power and "pumped the throttle several times with no response from the engine."

He added that when the engine lost power, he switched the fuel selector from the right tank to the left tank – the empty tank – out of habit.

The airplane continued to sink, so he made a slight right turn to avoid power lines and a street with several cars and landed hard in a large yard in Skiatook. The right wing sustained substantial damage.

An FAA aviation safety inspector reported that, after the accident, he and the pilot drained the fuel from the airplane. He reported that they sumped about 3.25 to 3.50 gallons of fuel from the right tank and about 1 gallon of fuel from the left tank.

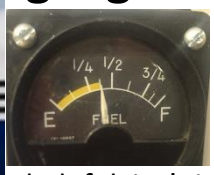
The Airplane Flight Manual (AFM) stated that the airplane had a total unusable fuel volume of 3 gallons and was equipped with left and right fuel low annunciation lights that indicated when 2.5 to 3 gallons of usable fuel remained in the respective tanks. The AFM further stated, “switch to fuller tank.”

Estimated fuel requirements for the flight, based on the pilot’s statement that the airplane normally burned “28-30 gph gallons per hour on takeoff power and 18-19 gph on cruise power” and the reported flight profile, indicated that a minimum of 8.7 gallons were required for the flight. When an additional 30-minute reserve was added, a total of 17.96 gallons were required for the flight.

The pilot reported that, before flight, the fuel gauges read 1/8 (4.7 gallons) to 1/4 (9.4 gallons) full on the right fuel tank, and he believed the left fuel tank was empty. It is likely that the engine was starved of fuel after the pilot completed multiple turns in the traffic pattern with low fuel in the right fuel tank, and that, subsequently, when he switched the fuel selector to the left fuel tank, which contained only about 1 gallon of fuel, fuel starvation occurred.

Probable cause: The pilot’s improper decision to conduct the flight despite the fuel gauges indicating that there was insufficient fuel for the flight, which resulted in the low amount of fuel in the right tank becoming unported during the multiple turns, and his subsequent improper decision to switch to the nearly empty left tank, which led to a loss of engine power due to fuel starvation.

What do we know about fuel gauges?



We know that they are never accurate. In fact, the aircraft certification rules only require fuel tank gauge accuracy when they read “empty”. That is so helpful, isn’t it?
The FAA Pilot’s Handbook of Aeronautical Knowledge states that **“Any reading other than empty needs to be verified”.**

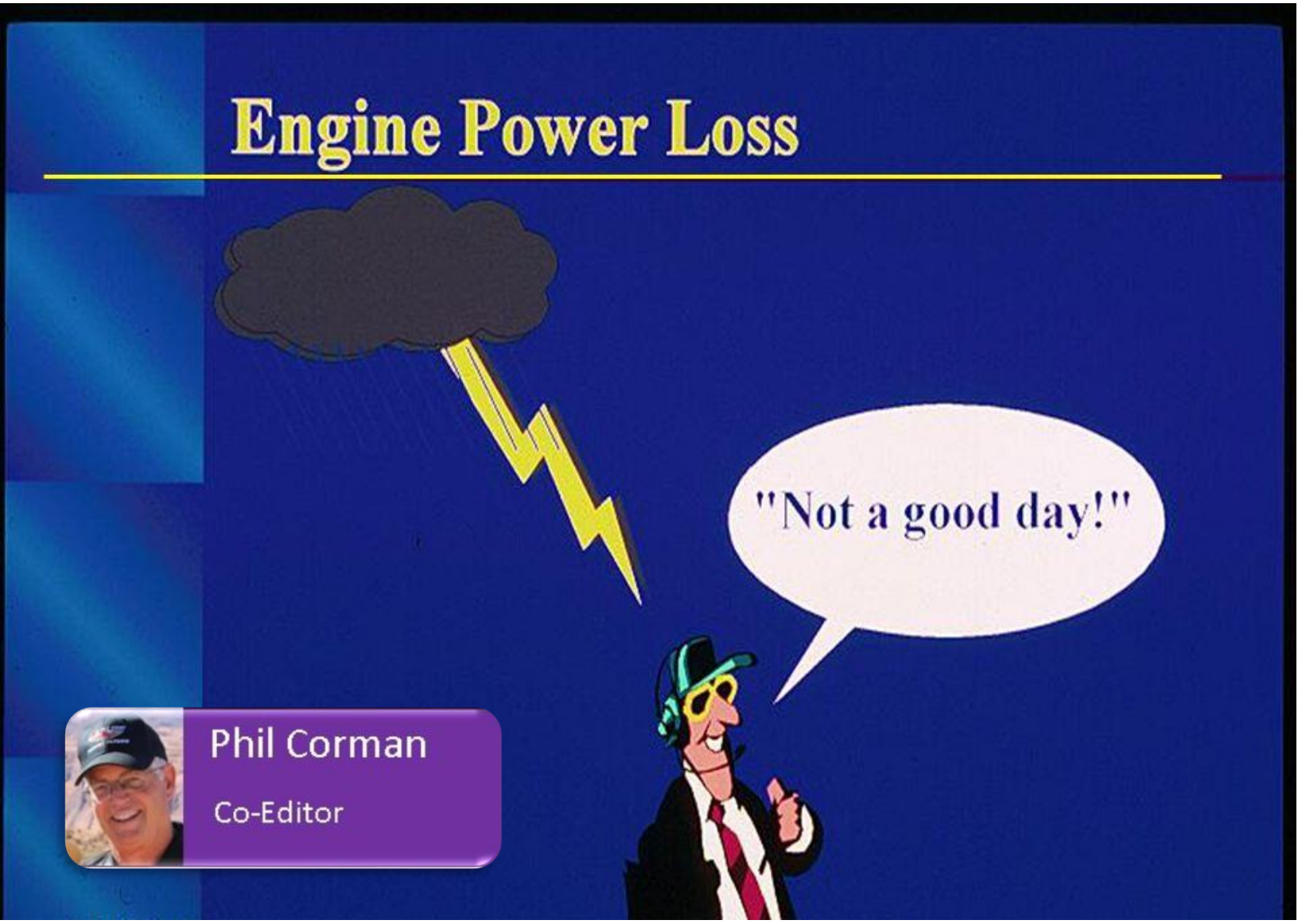
Red Flags

When we receive our FAA Medical or BasicMed, there’s no certification process to determine if a pilot has any common sense. That’s something that Doctors assume that you have a great deal of, because after all, you’re a pilot. Those Red Flags that pop up from time to time are trying to alert you, shouting with all their might, “Don’t fly until you get this fixed!”
I recommend that you always take those red flags seriously.

Jim

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



Statistically, your engine is most likely to fail on takeoff, but there are things that you can do to minimize this risk.

You can ensure that your engine is in good shape by flying it regularly, changing the oil and filter regularly, and watching that Engine Monitor for aberrant EGTs or high CHTs.

Reduce the Risk of an Engine Failure

After takeoff, engines often fail during the initial power reduction, so you can leave the throttle in the full power position until you are at a safe altitude. Then, you can return to the runway without any impossible turn antics, or you can leave the throttle at full power, also known as Wide Open Throttle (WOT), until you are at cruise altitude.

I spoke to an MSC or two who claim you should leave your Mooney engine WOT for the duration of your flight until you need to descend to land. It's good for your engine.

Yeah, don't touch this one!

If your CHTs are getting high, keep your fingers off the throttle and do three other

safer things. **First**, flatten your climb. **Second**, if you have cowl flaps, open them up, and **lastly**, keeping the mixture on the richer side will help cool your engine.

After Engine Maintenance

Another time your engine is vulnerable is within a few hundred hours following a top overhaul, a complete overhaul, or a Factory ReMan. It's called "Infant Mortality". Mike Busch often laments that owners overhaul a perfectly good engine simply because it reached TBO. If you properly care for and monitor your engine, reaching TBO will be a non-event, like crossing state lines.

I might as well complain about owners who choose to do a complete Top Overhaul if only one or two cylinders aren't operating well. That's like getting all of your teeth pulled on the top row because one or two of your teeth have cavities. That's a lot of extra expense and a lot of unnecessary maintenance. This statistically increases the chance of an engine malfunction.

Things you Can Do

Hopefully, you are already flying regularly and changing the oil and filter regularly. In addition, you also need to scan your Engine Monitor looking for aberrant EGTs or CHTs. Looking for a trend is also important. Sometimes things like a sticky exhaust valve fail slowly over time. Sticky exhaust valves will sometimes show up without the aid of your engine monitor. If your engine runs a little rough after startup, sometimes referred to as "morning sickness", that could be a sign of a sticky valve. It's easy to Borescope your cylinder and search for the burn pattern indicative of a failing valve seal.

After your prop and mixture have settled at cruise power, set your engine monitor to "Normalize" Mode. This will show all EGTs as "level". Then, you can easily spot a deviation of hotter or cooler. Interestingly, if your EGT varies hotter/cooler over a minute or so, it can indicate an improperly sealed valve which can lead to a more serious problem. There are lots of little things that can warn you of an impending issue.

Another thing to keep an eye on is your Oil Temp and Oil Pressure. Any significant change warrants a landing and inspection. Your oil pressure will tend to drop as its temperature increases and low oil pressure can result in higher CHTs and/or oil temps.

Lastly, any change in engine noise or a new vibration, could be a warning sign that you can attribute to the engine's "sixth sense". If it concerns you, then you should have it checked soon. Roughness can often be attributed to a failing spark plug or a clogged injector. These are easy to check and fix.

Safe Flying, Fast Flying

The Mooney Maintenance Puzzle

Click here

Download Mooney's 100 Hour Inspection Guide

Search Mooney's Service area for Service Bulletins (SBs) and Service Instructions (SIs) applicable to your model

Click here

Search the FAA database for Air Worthiness Directives (ADs) applicable to your model

Click here

Click here

Download and search LASAR's Airworthiness Directive (AD) Log – all models

Ask the Top Gun

Tom Rouch

TG

Founder of Top Gun Aviation, Stockton, CA

Send your questions for Tom to TheMooneyFlyer@gmail.com

Question:

Mr. Rouch, I have an M20E. Can you tell me the pros & cons of installing a 3-bladed prop?

Answer: The question about a three bladed prop on an E model is very good, since there are real pros and cons.

My choice would be a composite prop, preferably an MT and mainly because of the considerable weight savings of at least 15 plus lbs. Years back, I installed a metal Hartzell and it worked fine and had a good rate of climb, but the owner had problems in the climb with overheating the engine. We finally found that he was climbing at best rate. When he switched to cruise climb, the heat problem was solved.

The main advantage of the three blade is a significant improvement in climb performance. Also, generally it is smoother, but you may lose a couple of knots of cruise speed. When we put a three blade MT on my F model, it was faster, smoother, and a great improvement. I do need to caution that we did a lot of mods to the F, so results will vary from plane to plane. However, I do like the three-blade prop on any model. It made a huge difference when they put a three blade on the Eagle.

The three blade is most effective on models that have been modified with the 201 nose cowl mod. Because of the huge inlet on early models, it's a drag. On these models, the three blade changes the airflow over the engine.

OGDEN, UTAH – IT' S A WONDERFUL CITY

By Ted Corsones, Mooney Safety Foundation

The Mooney Safety Foundation has waited 28 years to bring its acclaimed Mooney Pilot Proficiency Program to Utah. The wait has ended. **On the weekend of October 4-6, 2019, we will land in Ogden.**

We will be using the Ogden-Hinckley Airport (KOGD); our FBO host will be Kemp Jet Services; and our hotel is the historic Bigelow Hotel & Residences-with beautiful exterior mountain views and an interior friendly staff. When you step into your bedroom you will quickly notice a ceiling covered in white tiles like something you would encounter in Europe. When you wake up, the hotel will provide you with a complimentary breakfast.

Ogden, situated at the confluence of the Ogden and the Weber rivers in Weber County in northern Utah, has had a long and varied history. Eons of years ago, it was part of the

North American Inland Sea, also called the Cretaceous Seaway. It was a huge inland sea that split the continent of North America into two halves during most of the early and mid-Cretaceous

Period. The Inland Seaway was created when the Pacific and North American tectonic plates collided, causing the uplifting of the Rock Mountains.

From about 400 – 1350 A.D., the area was home to the Great Salt Lake Native Americans followed by the Northern Shoshone and Goshute Native Americans.

The first permanent settlement by people of European descent in Utah was made here, and was originally named Fort Buenaventura. Then the Mormon settlers bought the fort for $1,950 in 1847, and Ogden was incorporated as a city in 1851, making it the third incorporated city west of the Missouri River – after San Francisco and Salt Lake City.

It became a typical Mormon settlement of homes and businesses centrally located with farms surrounding the outlying areas.

Over the years all sorts of visitors found Ogden and it became known for its rough and tumble character. A newspaper in 1888 stated that Ogden was a place to witness gambling, narcotics, robbery, rape and even murder. Then, in the 1920's crime boss Al Capone was heard to comment that Ogden was too wild a town even for him.

Suffice it to say that all of the foregoing has diminished, and art, culture, museums, recreation and education are the norm. Ogden also offers a range of breathtaking recreation opportunities, such as proximity to the Wasatch Mountains, and national and state parks – all within easy reach. Whether you settle in out-of-the-way campgrounds or modern meetings and event venues, you will find that Ogden is an ideal travel destination offering one-of-a-kind recreation and metropolitan delights throughout the year.

The Mooney pilot proficiency program invites ATC to participate with attending pilots in the ground school. The representative from the Tower, Approach Control or Center provides information on the safe navigation of the airport and adjoining airspace – and then responds to the specific questions posed by the trainees.

The Mooney pilot proficiency program features eight hours of informative lectures on Friday, which include ATC procedures, Weight & Balance, Flying a Mooney By the Numbers, Landing a Mooney, High Performance Engine Management, Emergency Procedures and Aviation Physiology. Then, on Saturday and Sunday we have a minimum of four hours of flight recurrent training with Mooney specific instructors. This involves Normal Takeoffs, Crosswind Takeoffs, Slow Flight, Spiral Demonstrations, VFR Go-Arounds, Approach to Landing Stalls, Takeoff and Departure Stalls, Steep Turns, Forward Slips, Shortfield Takeoffs and Landings, Softfield Takeoffs and Landings, Emergency Procedures, Partial Panel Navigation, Recovery from Unusual Attitudes, Instrument Approaches (GPS, VOR, ILS, Localizer Back Course, autopilot coupled approaches, Circle to Land, Missed Approaches and Holding Patterns. In between your training flights, you will have an opportunity to attend seminars on Mooney Accident Reviews, Mooney Aircraft Systems, Mooney Aircraft Maintenance and Mooney Owners Inspections.

During the program you will hear lectures, and receive flight training, from Mooney specific instructors. Then, at the completion of the program, eligible pilot will be endorsed for a flight review, instrument proficiency check, and will receive earned FAA WINGS credits. They will also receive a Certificate of Successful Completion of a Mooney specific recurrent training program.

We are all aware that most insurance carriers are now asking pilots whether they have received recurrent training during the previous year. These same carriers recognize MAPA Safety Foundation as a pre-eminent source for such training. So, be prepared to give a positive response when the question is presented to you. The certificate that you receive at the completion of the weekend will be of considerable value to you. As the late John Allen of Falcon Insurance Agency stated: “The Pilot Proficiency Program offered to MAPA members through the MAPA Safety Foundation is an excellent source of training by proficient Certificated Flight Instructors”

Come join us and have some fun while you hone your flying skills during a weekend of Mooney immersion and the friendship of other Mooney pilots and aviation comrades; and, remember, that family members are always welcome to attend our programs. There is so much for them to see and do during the event.

As we always do on your behalf, we have successfully negotiated favorable hotel rates and FBO prices. So that you will not be disappointed, I encourage you to make your reservations without delay. Complete the registration form and make your check payable to MAPA Safety Foundation, Inc. Then mail them to MAPA Safety Foundation, Lela Hughes, PO Box 455, Mountain Home, TX 78058. Further, you may contact Lela Hughes by telephone at 210-289-6939 or by email at lelahughes49@gmail.com .

Safety Is No Accident

Phillip's New Multi-Weight Oil

Phillips 66's new Victory AW 20W-50 oil combines the multi-viscosity, ashless-dispersant oil pilots are familiar with (as Phillips X/C) with the Lycoming LW-16702 additive. Previously, only Shell offered a multi-weight oil with the additive already in place.

Victory is a multi-grade engine oil that requires no expensive top-treating to simplify the process when cam lifter wear is a concern.

There are significant differences between the new Phillips Victory multi-grade and the more familiar Aeroshell 15W-50. First is that Phillips' product is a conventional oil while Shell's is a semi-synthetic. In addition, the viscosity range is narrower for the Phillips: 20W-50 vs. 15W-50.

FlyQ EFB 4.0 launches with visual logbook, analysis graphs and pilot network

Seattle Avionics has launched FlyQ EFB version 4.0 with post-flight technologies, wherein you can relive your flights by playing them back in 2D and 3D, map airports visited, and analyze flight performance with beautiful graphs and tables.

FlyQ's new Visual Logbook saves time by auto-generating entries from the built-in flight recorder. Pilots can also import logs from ForeFlight and MyFlightbook or manually create log entries.

FlyQ automatically performs a detailed post-flight analysis that generates graphs about every flight. Pilots can review any flight in either 2D or 3D (or both), control the playback speed, and jump to any point in the flight.

Floq (pronounced "flock") is a private system that optionally connects pilots with their friends, flying clubs, instructors or students, corporate flight departments, and more. It shows where the connected pilots fly on a color-coded "heatmap" or in a list view. The Floq Network makes it easy for CFIs to follow their students' flights.

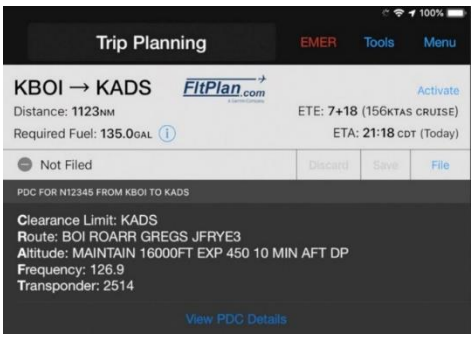
Clear customs easier with Jeppesen's QuickClear

Boeing has introduced a new app, Jeppesen Mobile QuickClear, which simplifies the international clearance process with the U.S. Customs and Border Protection (CBP) for pilots.

"Mobile QuickClear helps pilots manage the entire customs process in one place.

The launch of Mobile QuickClear expands the capability of the existing Mobile Passport app to include passengers of private aircraft. It is expected to reduce clearance errors and related consequences, such as fines or penalties, by up to 30%.

Garmin Pilot app adds PDC, eAPIS and route optimization



Garmin released their next big update at Oshkosh 2019 and it's focused on bringing FltPlan.com's premium features to the app. This includes Pre-Departure IFR Clearances (PDC), Electronic Advanced Passenger Information Service (U.S. Customs eAPIS) and Optimized Routing functionality. Unlike the free flight plan filing service from FltPlan.com, PDC and eAPIS are premium features that require an annual fee.

Garmin Pilot users can take advantage of FltPlan.com's Preferred and Optimized Routes when planning a flight. This will display previously cleared ATC routes along with the time en route and fuel burn for each proposed route based on the flight details. The routing will be sorted by shortest time en route and fuel burn and it will show how many times ATC has issued the route to other pilots.

Get Immediate METAR or TAF Text Messages

It all starts with a text to **358-782**

Current Weather (METAR)

If METARs are issued for an airport, text **METAR** and the desired airport to 358-782. For instance, **METAR KSFO**

Forecast (TAF)

If forecasts are issued for an airport, text **TAF** and the desired airport to 358-782. For instance, **TAF KDEN**

Adverse Condition Update (ACU)

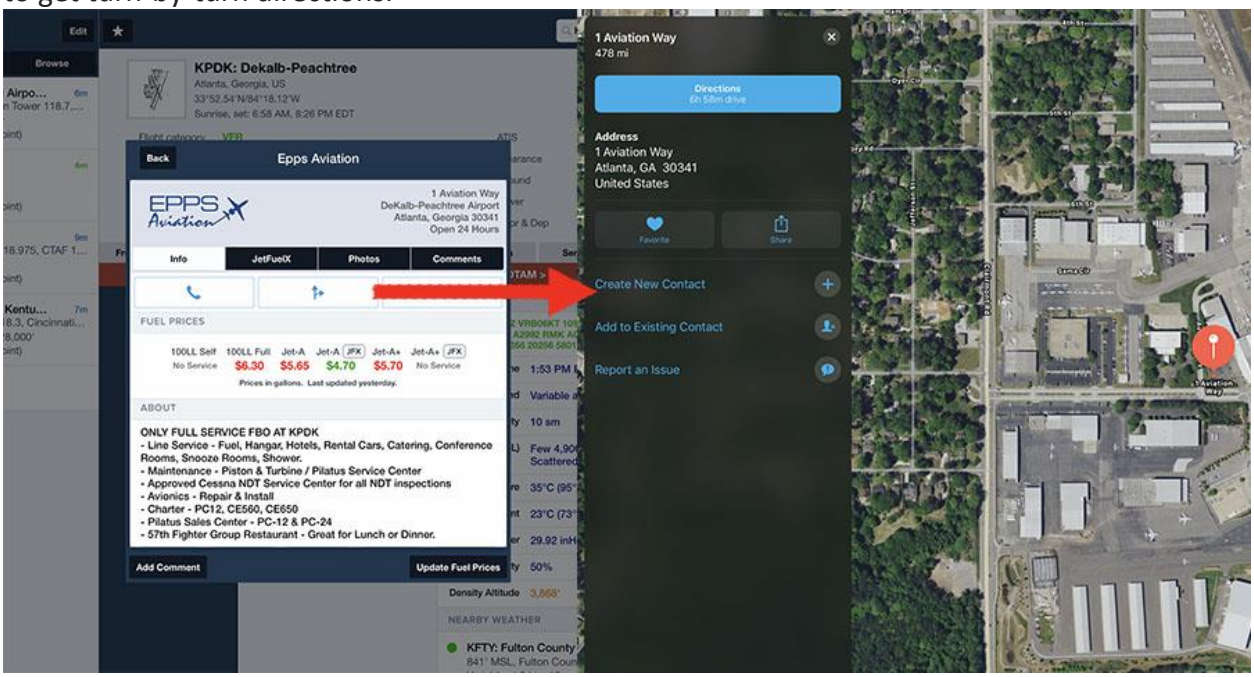
Text **ACU** and the desired airport to 358-782. For instance, **ACU KLAS**

Alexa has Aviation Weather

Sign in to your Amazon account, then search for “Aviation Weather”. Click on the “skill” that you want to enable it. For instance, “Aviation Weather”.
Now, you can say, “Alexa, Aviation Weather” and Alexa will prompt you to spell the ICAO identifier for the airport you want to check. For instance, if you want to check the Las Vegas McCarran International Airport (KLAS) METAR, you can say, “Kilo Lima Alpha Sierra. Alexa will read the METAR to you.

ForeFlight now has FBO driving directions

You've finished your lunch or meeting and it's time to head back to the airport, but you don't know how to get there. Simply open ForeFlight, go to the Airports page and tap on the FBO button. The pop-up window shows options for calling the FBO (phone symbol), emailing them (letter symbol), or getting directions (arrow symbol). Just tap the arrow and the address will open up in the Maps app on your device. Tap Directions to start navigating. It's a fast and reliable way to get turn-by-turn directions.

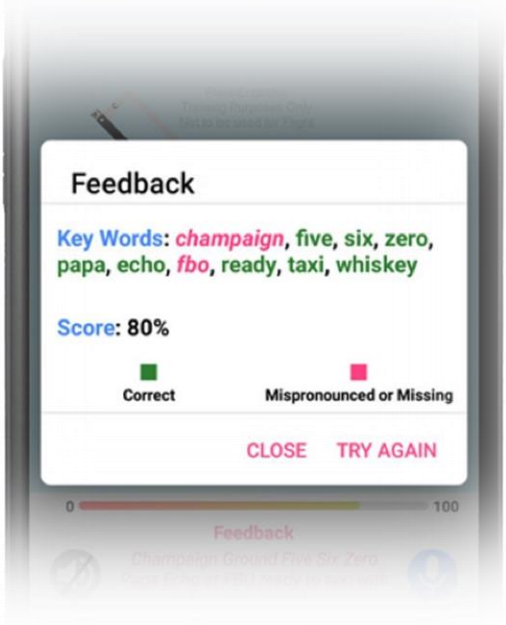


New app helps with communication training

For most pilots, learning to talk on the radio is a challenge. New technology makes it much easier to perfect those communication skills. PlaneEnglish, an app for Android and iOS devices that uses speech recognition to coach you through different scenarios.

The PlaneEnglish app offers hundreds of training scenarios.

PlaneEnglish starts with a review of basic communication tips, then offers a variety of scenarios to learn and perfect your skills. The app includes 65 airports and hundreds of potential scenarios, so you can practice getting an IFR clearance at a Class D airport, talking to tower at a Class C airport, or making position reports at a non-towered airport. The scenarios are complete with taxiway diagrams and both audio and text transmissions so it's a very realistic training experience.



The unique feature is how PlaneEnglish listens to your replies and then grades your performance. So instead of just talking out loud and hoping you got it right, the app uses sophisticated voice recognition technology to score each scenario on phraseology, speech rate, and delay. If you say “nine” instead of “niner,” the app will point it out. Likewise, if you talk too fast or you don’t start with “Lafayette Tower”, you’ll be corrected. When you’ve worked through some scenarios, you can take quizzes to test your knowledge.

We’ve found the app to be both powerful and easy to use. The app’s voice sounds like a computer, but it’s perfectly understandable and after a few sessions you really do feel like you’re talking to ATC. It’s a great way to learn proper radio procedures, because you’re actually talking (instead of just reading about it). This makes it a great way to turn theory into practice, and since it requires nothing more than a phone or tablet, there’s no complicated setup or additional equipment to buy.

PlaneEnglish is 100% app-based, so no internet connection is required. The app is free to download from the App Store or the Google Play Store. To unlock all the features, you’ll need to purchase a one-year subscription for $59.99.

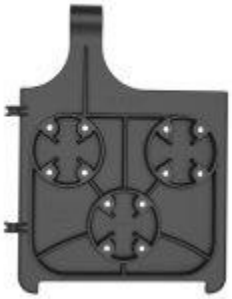
CLICK HERE FOR A DEMO VIDEO

New RAM Perfect Fit Cradles for iPad Pro 11" and 12.9" models

Mounting options can be somewhat limited when new iPad models are released, and that has definitely been the case with the latest iPad Pro.
RAM Perfect Fit Cradles allow you to secure the iPad Pro 11" and 12.9" models using their custom, form-fitting EZ-Roll'r cradles.

RAM Cradles for iPad Pro

Simply slide your iPad into the cradle and roll the top clip over the device to secure into place. The side buttons, camera, and charging port are conveniently exposed and accessible.
The new RAM cradle also features three separate attachment points on the back to provide flexibility when attaching a RAM round ball base. An attachment point on the side of the cradle allows for the placement and removal of the Apple Pencil.
If you just want to upgrade your existing RAM Mount, the 11" cradle and 12.9" cradle are available as standalone products and include the 1" ball attachment. If you're looking for a complete kit, check out the Custom RAM Mount Builder to create a custom option using the new Pro cradle

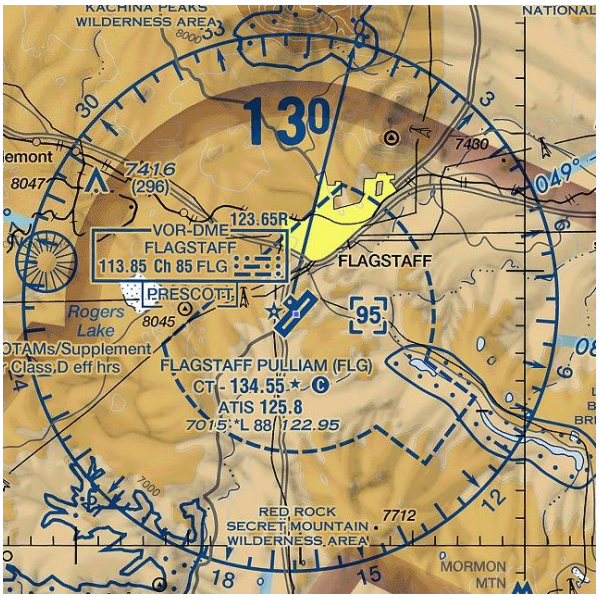


If your iPad Pro 11" has a case, consider the large X-Grip mount from RAM, which utilizes a spring-loaded cradle. This is an easy, one-handed mechanism that grabs the iPad (with or without a case) using four rubber fingers. This is the best choice for really thick cases, like the Otterbox. It's pretty handy, but the mount ends up being fairly large and heavy. Again, there are suction cup and yoke mount kits, or you can buy the cradle by itself for $78.95.

Prescott Flight Service moves to Ft Worth

On August 1st, 2019, Prescott Flight Service turned off the lights and locked the doors. One third of the Prescott Flight Service Specialists relocated to the Ft. Worth facility.

Currently, there are only two Flight Service Stations in the United States; Ft Worth, Texas and Leesburg, Virginia, (Washington D.C. area).

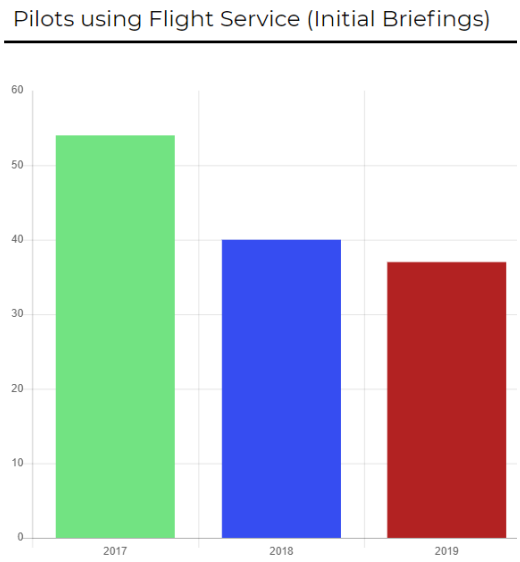


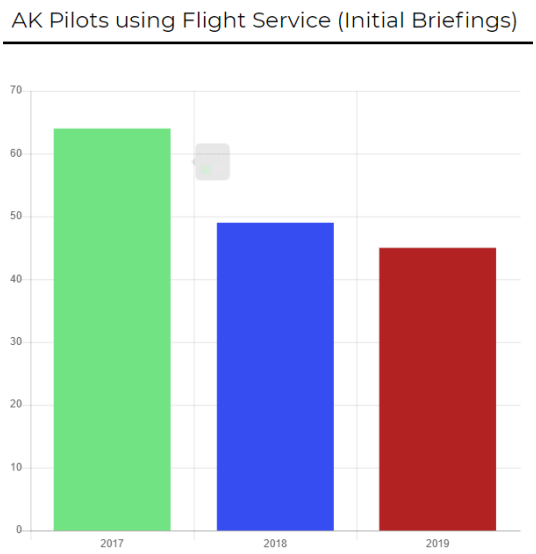
With the closure of Prescott, are the sectional charts that depict VORs associated with “Prescott” correct?

Yes, they are. Ft Worth and Leesburg Flight Service Specialists answer calls assigned to their area. Calls to Prescott are now answered by Ft Worth Specialists.

Percentage of Pilots using Flight Service for Initial Flight Briefings Down Slightly

This year, AOPA conducted a Weather Survey. Participants included 2,056 in the continental United States, 160 Alaskans, and 29 Hawaii pilots. The percentage of those who used Flight Service for Initial Flight Briefings was 37%, down slightly from 40% in 2018 and 54% in 2017. The decline was most pronounced in Alaska, with 45% in 2019, compared to 49% in 2018 and 64% in 2017.





Pilots still value Flight Service

Pilots consistently indicate Flight Service is an important safety resource when a question comes up regarding weather for a given flight. Flight Service specialists should remain available and accessible, during preflight and inflight, for general aviation pilots as they are a primary resource when it comes to weather understanding.

In the survey, pilots reaffirmed that they place a high value on receiving pilot reports, but the number of unsolicited PIREPs pilots received also continued to decline.

Pilots depended more heavily on Flight Service for weather information immediately before flights, and from 2017 to 2019, the service held its position as second-most-relied-on information source behind aviation apps. In Alaska, the use of weather cameras—not available in the other states—is becoming more of a factor in the immediately-before-flight briefing category.

The survey also found that a "larger number of pilots are using Electronic Flight Bags (EFBs), to access the Flight Information Service-Broadcast (FIS-B) component of ADS-B. FIS-B use increased in the continental U.S. from 62 percent in 2018 to 66 percent in 2019.

Florida Mooney Lunch Group	***Contact Dave at daveanruth@aol.com or (352) 343-3196, before coming to the restaurant, so we can have an accurate count. Events begin at 11:30*** September 14: Winter Haven (GIF) October 12: Flagler (FIN) November 9: Sebring (SEF)
Mooney Caravan	September 6-8: This is a Mooney Caravan event targeted toward pilots who have already achieved basic formation proficiency, but want to learn intermediate/advanced formation maneuvers. The event is open to all aircraft types of similar performance, such as money, Bonanza, Cirrus, etc. CLICK HERE for details
MAPA Safety Foundation Mooney Pilot Proficiency Program	September 6-8: Atlantic City, NJ October 4-6: Ogden, UT
MOONEYSUMMIT	September 27-29, 2019: Mooney Summit VII, Panama City www.mooneysummit.com
Australian Mooney Pilots Association	September 6-9: Spring Fly-In to Mt. Hotham Go to https://www.mooney.org.au/ for details October 2019: Pilot Safety Program in Perth March 2020: Annual General Meeting at Coffs Harbour
EMPOA	
Other Mooney Fly-Ins	

TMF PRODUCT REVIEW

Phillips Victory AW 20-50 Oil

Phillips 66® Victory AW 20W-50 Oil is an ashless dispersant, multi-grade engine oil specially formulated for year-round use in aircraft piston engines. Victory AW 20W-50 is pre-blended with the proper concentration of antiscuff/antiwear additive (LW-16702) mandated by Lycoming Service Bulletins 446E and 471B and Service Instruction 1409C. It provides distinct performance benefits compared with single-grade engine oils, including easier starting and faster oil circulation at low temperatures, reduced warm-up time, and reduced oil consumption in most engines. It maintains its film strength under high loads and at high temperatures to protect against wear and piston scuffing.

The ashless dispersant formulation helps minimize the formation of engine sludge, varnish, piston deposits and combustion chamber deposits, resulting in a much cleaner engine compared with the use of straight (non-dispersant) mineral oils.

Features & Benefits

- Ashless dispersant helps minimize engine sludge and varnish deposits for a cleaner engine
- Pre-blended with Lycoming-approved antiwear additive
- Easier starting and faster oil circulation at low temperatures compared with single-grade oils
- Reduced warm-up time and cooler operating temperatures compared with single-grade oils
- High film strength for protection against wear and piston scuffing, even under high-load conditions, such as takeoff, and at elevated operating temperatures
- Provides cleaner and quicker break-in than traditional all-mineral, non-additized, single-grade oils
- Protects against rust and corrosion
- Reduces oil consumption in most engines
- Suitable for year-round use

1979 M20K For Sale ($88,000)

Call Tom at: 925-595-8969

Engine 1262 TSIO360 LB1B	King HSI
McCauley prop 152 hours	3M WX10A Stormscope
Airframe 3215	Hoskins Fuel computer
Turboplus intercooler	All King radios (KNS80 KY197)
Merlyn automatic wastegate (deck pressure controller)	Built in SKY-OX oxygen system
GAMI fuel injectors	Mods by Lake Aero Styling and Repair
Insight Graphic engine monitor	Including fiberglass belly panel and fiberglass gear doors with brake rotation
TKS inadvertent icing protection	Inflatable Door Seals
Precise Flight Speed Brakes	Rosen Sunvisors
Precise flight Pulselite	Exterior paint is good
KFC200 autopilot slaved with altitude hold	Interior leather worn but presentable
Electric standby vacuum	**Annual: 5/31/2019**
King Attitude indicator with flight director	

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

Wanted

Time on your Mooney. Hangar available. I only need 20-30 hours yearly. I have an empty hangar in Cartersville, GA for your Mooney or Cirrus @KVPC. 3500 hours, 3000 Mooney INST CML no accidents. Please email to: mooney201@gmail.com


Whether you're a Rusty pilot, dreaming of becoming active again . . .
. . . or you're a proficient, veteran
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The Flight Review
J D PRICE
Prepare online
Free!
Master of
The Instrument Proficiency Check
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