The Mooney Flyer

The Official Online Magazine for the Mooney Community

www.TheMooneyFlyer.com

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Editors

Phil Corman | Jim Price

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Ron Blum

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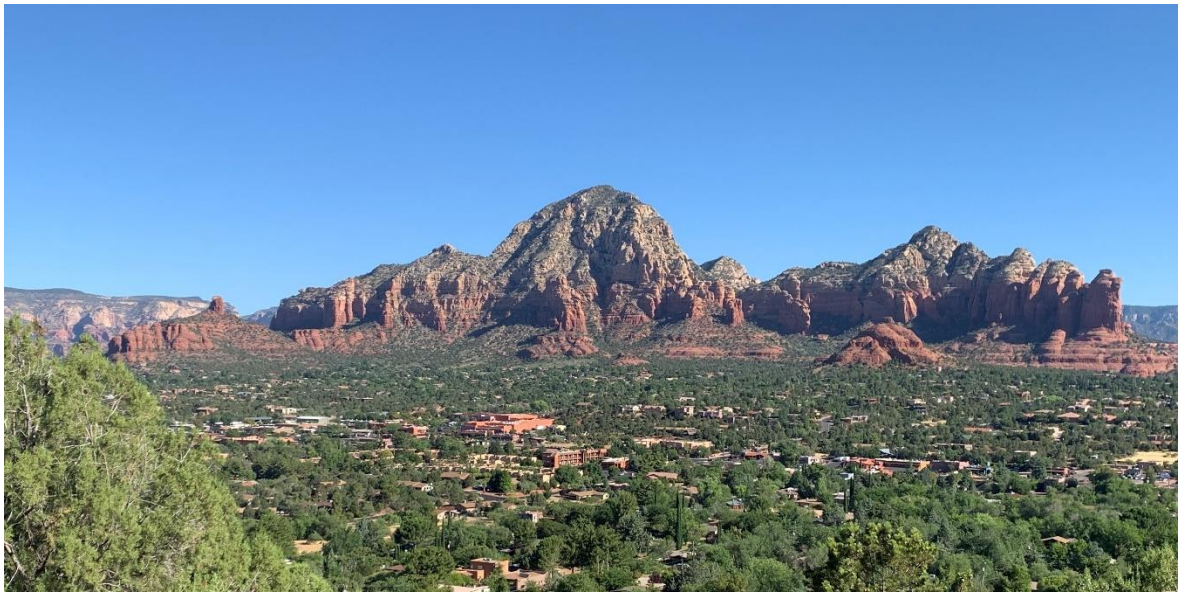
From the Editor

Phil Corman

We just got back from a Mooney Vacation to Sedona and then onto The Grand Canyon. It was three amazing legs via the Mooney. Two of the legs were clear and smooth. We got a late start from Paso Robles to Sedona. It was a 2 ½ hour flight and we experience moderate bumps the last 15 minutes from Prescott into Sedona.

We had a blast. The hiking is Sedona is spectacular. After a 4-mile hike around the airport viewing amazing Red Rock formations, we decided to schedule a pre-dawn Hot Air Balloon ride.



The Balloon Ride was a bucket list item for Linda and me, and there is no place better to do this than pre-dawn in Sedona. We were up at 4am because the Balloon lifts off a little before dawn.

It's an experience that everyone should enjoy.

High Density Altitude Takeoffs

We saw a discussion of high-density altitude takeoffs on the internet. The discussion centered around whether to use takeoff flap settings on such departures. The debate waxed and waned on both sides… Definitely use flaps or absolutely don't use flaps. Here at the Mooney Flyer, we feel the following is the correct answer (from CFII Wally Moran):

Ducks always Flap

Thanks for asking, Jim. It's always fun to joust this windmill once in a while.

I am with you, Phil and Mooney Aircraft company. All the POH's I am aware of call for flaps at ten degrees for takeoff. Ten degrees of flaps was obviously the number that Mooney found got them over the mythical FAA 50" obstacle in the shortest distance, EVEN at high-density altitudes. The Ovation takeoff chart goes well above 10,000 density altitude.

I typically retract my flaps at about 200 - 300 AGL. I think getting off the runway a little sooner is worth whatever penalty I might pay by having 10 degrees of flaps extended during the takeoff roll and my climb to 200 feet. This also means that my takeoff is the same every time and I am flying in compliance with the POH. That's always a nice thing to be able to say during the hearing.

Some airlines do use a lower flap setting for takeoff at high-density altitudes, but they are solving a different problem. After takeoff, airlines typically do not clean up flaps until 1,000 AGL or in some cases higher. Having flaps extended for that long creates a different scenario.

By the way, I retract my gear when I have a positive rate of climb. I don't wait until there is no runway remaining as some pilots do. That may be another windmill to joust someday.

Thanks for the good work you and Phil do for our Mooney family.
Best, Wally

Like Wally, I also retract the gear once I have a positive rate of climb. My goal is to get to altitude as quickly as possible to have options if an issue arises. My M20S Eagle flies like a banshee once the gear is retracted.

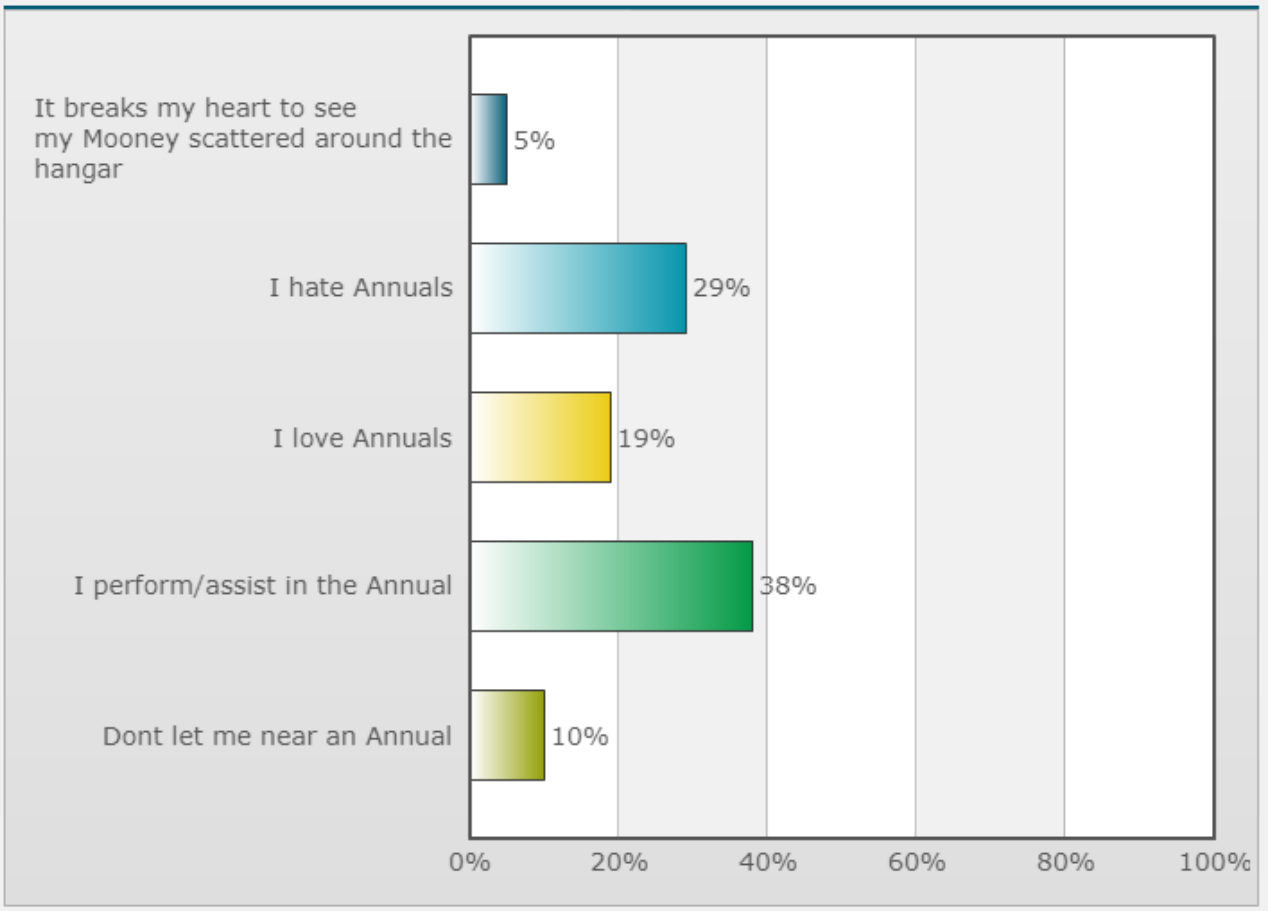
If you Have 2 Batteries in your Mooney – Here's Some Sage Advice

On long body Mooneys, those with two batteries and a battery selector switch on the panel, DO NOT change batteries in flight unless you have a failure on one. The battery for the flight needs to be selected at the beginning of each flight. If you select a battery in flight, under load and that battery is not fully charged, you will fry a lot of stuff and get to smell that smoke smell which is the smell of lots of burnt dollar bills. FWIW, DMax

My Thoughts on Annuals

Poll created by Phil Corman on 05/26/2020

Poll Results



Next month's poll: "I think Mooney's future is" **CLICK HERE** to vote.

Letters to the EDITOR

Editor@themooneyflyer.com

RE: Sticky Valves - A compression test and a Borescope exam will not discover exhaust valve sticking in a Lycoming engine. For that you need to do what is known as "the rope trick", followed by a wobble test. It involves removing the plugs, filling the cylinder with rope through one of the plug holes, bringing the piston up to press the rope against the valves to hold them in place. You then remove the keeper and the exhaust valve spring. Turn the prop to lower the exhaust valve part way down into the cylinder and "wobble" the valve stem in the guide while measuring the amount of play at the end using a dial gauge.

Lycoming shows how to do it and how to make the holder for the dial gauge. All of this is described in Lyc SB-388C.

https://www.lycoming.com/content/service-bulletin-no-388c
Brian Lloyd

RE: Sticky Valves - I haven't even finished reading the current edition, but felt I needed to give you a correction on the paragraph on valve sticking. I am familiar with this, because I believed as you wrote when I did my first SB388 check many years ago. The rope trick is NOT involved with a wobble test...it is used as part of the work to ream a valve guide to correct valve sticking.

The correct way to measure valve wobble is with the valve and valve springs in place. Only the rocker arm needs to be moved out of the way or removed. You need a dial indicator with a fixture. At one time Spruce sold both for about $130...much more today.

Let me know if you have more questions about valve sticking and the wobble test. I had valve sticking on my Mooney that I believe caused my cam and lifters to begin the death spiral of pitting and spalling, which led to my engine overhaul.

Kelly M

RE: Airspace Quiz Correction - Your quiz, you do not need a Mode-S/ES ADS-B/transponder to enter class-B airspace. You may enter class-B airspace with a mode A/C transponder and a UAT.
Brian Lloyd

RE: Airspace Quiz Correction - I'm a big fan of your newsletter and read it immediately as soon as it comes out, and really appreciate your work. I've found helpful info in every edition. I have a '66 E model.

Just want to give you a small heads-up, in the July issue of the Mooney Flyer, at the beginning of the Airspace quiz, in the Q and A's— it says that an operating "ES" transponder is required inside the 30nm Class B veil.

While I agree that ADSB-out is required, your answer implies that it has to be a 1090 as opposed to the cheaper UAT ADSB (like the uAvionix SkyBeacon). I did some quick research on the AOPA website and it sure appears that the UAT is acceptable anywhere in the US below FL180. You may want to just verify—it's a confusing subject at best and I could be wrong.

Anyway, thanks again, your newsletter is a true service to the community.
Best, **Andrew C**

Answer: Thanks Andrew. By mistake, I indicated that a 109ES transponder was required in Bravo. We fixed it and the current July 2020 issue reflects the correct information. Jim Price

RE: Engine Failures - In all of my single airplane flying over the last 60 years, probably the scariest incident of mechanical failure was recognized in a post flight walk around of my M20E in late February of 2020. While attaching the tow bar I noticed fluid dripping on the nose wheel of the aircraft.

The plane had been flown regularly every week for the previous months after a long x-country last October. The first recognition of a problem was the engine having a tendency to falter after closing the throttle on final approach to landing. To keep the IO-360 running it was necessary to crack the throttle on landing and rollout. Adjustments of mixture didn't help the situation. Engine start, including indicated fuel pressure, and pre-flight run ups seemed normal. Take off and cruise power settings were normal on the EI monitoring system.

Over the years, I'd flown airplanes that would drip engine oil for various reasons, but this seemed different. Closer examination revealed 100LL aviation fuel. Several days later we used the electric fuel pump to pressure up the fuel system. A streaming leak was noted at the bottom end of the flexible fuel hose from the servo to the injector manifold. Fuel leaking/dripping less than one foot from the exhaust stack put visions of a 'fuel fire in flight' keenly in my mind. A new 16-inch 303 fuel hose solved the problem and resolved issues of engine stoppage on landings.

Engine and Aircraft logs were reviewed. The Lycoming IO 360 was replaced with a mid-time engine May, 2002. At that time an aircraft log entry was made showing all flexible fuel lines were installed new from the airframe up to the mechanical fuel pump. No record indicates the short fuel hose was ever replaced on the current engine since it was installed. The engine and all components were completely overhauled, 2012.

Perhaps this information could be used in helping other Mooney owners avoid serious maintenance issues.

Thanks much for the Mooney Flyer,
Tim R

I'm the owner of an "Older" Mooney. 1963 'Converted" D Model. Well over 30 years with it and a lot of cross country; been to Norfolk, VA for example. I assist with annuals at Nervino Aero, Beckwourth, CA. I'm a Mechanical Engineer and car, bike and plane nut still. Also, a UFO. Reached 87 this month and have a Medical. Wish there were places to go. We had to cancel a dinner invitation to Martha Lunken because of this virus. I am about to prepare some "One Day Trips." So, we can go do something authorized, like maybe pick up a case of something from Mario Andretti's Winery to take home for later dinners.

But to reality. One thing I noted in helping with annuals was that "Carb Heat" also opened Alternate Intake Air. I thought I should remember that; the manual that long ago did not mention that. Also, my 180 Lycoming has never had a carb ice event, but I always had checked that it

worked. It now has a low time Factory Reman. Engine. Wore out a home done overhaul in only 3,000 hours, or I was concerned that I had done that.

Some years ago I had to go from Reno Stead Airport to Salt Lake City in winter. Flight service said I could get there VFR. I do not do "Ice." They were wrong. About Elko or maybe Wells it was solid in front of me and somewhat below freezing at 11,500. They said things looked better for getting through to the south. I climbed, got to 16,000 as I neared the Airway from Tonopah to St. George. ATC said it was benign Stratus and cleared before St. George. As it was Minus 20 C or a bit lower, I filed and entered the clouds; clear behind me. No ice as expected! About halfway to St. Gorge I heard a "Splat" for about one second. The windshield became opaque, I had light rime on the wings and the engine stopped. Obviously, I had ice on the engine air intake. I told ATC and that I expected a restart. Their question, "How many Souls on Board", captures one's attention. I pulled the Carb heat and had power again. Somewhat reduced power due to the warmer intake air. I could only hold 15,000. As there was no IFR traffic that low, they had let me remain at 6,000. I broke out to VFR soon and the ice sublimed. I went VFR from there to SLC. One bit of knowledge saved me something. Likely only the Mooney damage and cost of emergency recovery. The bases would have been high and I was between mountain ranges as some very small holes had shown. But maybe worse was in store.

Looking at a VFR Chart later, I saw the south end of a mountain range just north of the airway about where this happened. There must have been a south wind near ground level carrying moisture that the mountains diverted upward in that narrow area. So Mooney pilots, I presume only older machines, had best know for sure how to handle Intake Air cutoff as the manuals don't tell you, or not in 1963.

Lin M

How the 737 MAX Disaster looks to a Software Developer is a very interesting article. It discusses how software can cover up hardware design issues. In this case the larger engines and nacelle created a nose up when power was added. The MCAS was poorly designed and overrode the pilots. CLICK HERE to read it.

The FAA has established a voluntary **Aviation Safety Reporting Program** designed to stimulate the free and unrestricted flow of information concerning deficiencies and discrepancies in the aviation system. This is a positive program intended to ensure the safest possible system by identifying and correcting unsafe conditions before they lead to accidents. The primary objective of the program is to obtain information to evaluate and enhance the safety and efficiency of the present system.

To ensure receipt of this information, the program provides for the waiver of certain disciplinary actions against persons, including pilots and air traffic controllers, who file timely written reports concerning potentially unsafe incidents. To be considered timely, reports must be delivered or postmarked within 10 days of the incident unless that period is extended for good cause. Reports should be submitted on NASA ARC Forms 277, which are available free of charge, postage prepaid, at FAA Flight Standards District Offices and Flight Service Stations, and from NASA, ASRS, PO Box 189, Moffet Field, CA 94035.

You can also file an ASRS via the web at https://asrs.arc.nasa.gov/report/electronic.html

Some of us have utilized the ASRS program when we have broken some FAR or simply performed an unsafe action while flying our Mooneys.

When must you report an incident or accident to the NTSB?

Most pilots do not know the full extent of this answer, so we aim to address it in this article.

The FAA is clear about what must be reported:

- Flight control system malfunction or failure.
- Inability of any required flight crew member to perform their normal flight duties as a result of injury or illness.
- Failure of structural components of a turbine engine excluding compressor and turbine blades and vanes.

- Inflight fire.
- Aircraft collide in flight.
- Damage to property, other than the aircraft, estimated to exceed $25,000 for repair (including materials and labor) or fair market value in the event of total loss, whichever is less.
- For large multi-engine aircraft (more than 12,500 pounds maximum certificated takeoff weight):
    - Inflight failure of electrical systems which requires the sustained use of an emergency bus powered by a back-up source such as a battery, auxiliary power unit, or air-driven generator to retain flight control or essential instruments;
    - Inflight failure of hydraulic systems that results in sustained reliance on the sole remaining hydraulic or mechanical system for movement of flight control surfaces;
    - Sustained loss of the power or thrust produced by two or more engines; and
    - An evacuation of aircraft in which an emergency egress system is utilized.

Here is how you must report it

The most expeditious method for the operator to notify the NTSB will be determined by the circumstances existing at that time. The NTSB has advised that any of the following would be considered examples of the type of notification that would be acceptable:

- Direct telephone notification.
- Telegraphic notification.
- Notification to the FAA, who would in turn notify the NTSB by direct communication, i.e., dispatch or telephone.

If you porpoise and ding your propeller, that will most likely be a very costly event. But you may not have to report it to the NTSB unless you were injured or if your illness caused the event. Unless other people or property was affected with more than $25,000 in damages, no report is necessary. However, you should file an ASRS report within 10 days. That is why the program was established.

Accident vs Incident

The NTSB defines a reportable **accident** as “an occurrence associated with the operation of an aircraft that takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage.”

A serious incident is one of a specific list of events, such as a complete loss of information from more than 50 percent of the aircraft cockpit display, according to 49 CFR 830.5(a)(9). In contrast, **a non-serious incident** is “an occurrence other than an accident (or serious incident) that affects or could affect the safety of operations.” The words and phrases used in these regulations are further defined.

Considered Substantial Damage **Ref: CFR 830.2 Definitions Section**

Damage or failure which adversely affects:

- The structural strength, performance, or flight characteristics of the aircraft, and
- Which would normally require major repair or replacement of the affected component.

NOT Considered Substantial Damage **Ref: CFR 830.2 Definitions Section**

- Engine failure or damage limited to an engine if only one engine fails or is damaged,
- Bent fairings or cowling,
- Dented skin,
- Small punctured holes in the skin or fabric,
- Ground damage to rotor or propeller blades, and
- Damage to landing gear, wheels, tires, flaps, engine accessories, brakes, or wingtips.

Gear Up Landings – not considered Substantial Damage

While common sense might suggest that a gear-up landing results in "substantial damage" to the aircraft and is a reportable accident, the definition of "substantial damage" (defined above) actually excludes typical gear-up landing damage, as long as

- No one is injured,
- The damage fits within the definition, and
- The specific incidents within 49 CFR 830.5 did not occur.

Notify the NTSB

Part 830.5 requires that the operator of an aircraft provide notification of any "accident" and certain "incidents" immediately. ***It is important to note that you must notify the NTSB, not the FAA.*** The NTSB is a federal agency separate from the FAA and it has the authority to investigate aircraft accidents and reportable incidents. Although the NTSB delegates some accident investigation to the FAA, the notification required by Part 830 must be made to the NTSB.

If you must report to the NTSB, they will require the following information:

- Items to be Reported.
- Date and time (UTC) of incident.
- Location of incident and altitude.
- Identification and type of reporting aircraft, aircrew destination, name and home base of pilot.
- Identification and type of other aircraft, aircrew destination, name and home base of pilot.
- Type of flight plans; station altimeter setting used.
- Detailed weather conditions at altitude or flight level.
- Approximate courses of both aircraft: indicate if one or both aircraft were climbing or descending.
- Reported separation in distance at first sighting, proximity at closest point horizontally and vertically, and length of time in sight prior to evasive action.
- Degree of evasive action taken, if any (from both aircraft, if possible).

- Injuries, if any.

REPORTING – IF NOT SUBSTANTIAL DAMAGE

You must report within 10 days of the occurrence.

REPORTING – IF SUBSTANTIAL DAMAGE

An occurrence must be reported immediately.

Summary

If you have some type of Mooney occurrence, whether it be an incident or an accident, your first action after being safe is to file an ASRS at https://asrs.arc.nasa.gov/report/electronic.html. You should have the link available on your smartphone, and you have 10 days to report via this program. Always refer to NTSB Part 830, but if the occurrence involves substantial damage, you must report it immediately. Otherwise, you have 10 days to file. Do NOT file with the FAA. File only with the independent NTSB.

It is important to note that you must notify the NTSB, not the FAA.

And, oh by the way, don't forget to contact your Insurance carrier.

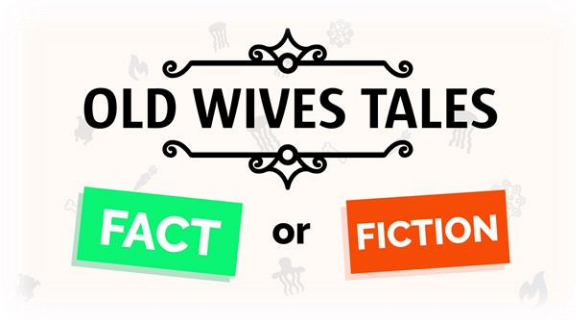
None of us ever want to have to deal with the NTSB or FAA, but if you do, we hope this article provided you with some critical information to guide you through the process.

For more Information, go to:

https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title49/49cfr830_main_02.tpl

An EFB Weather Briefing is Legal

The Electronic Flight Bag (EFB) has revolutionized flying. I know that I'm spoiled and sometimes wonder how I managed to fly a T-38 with just one TACAN and DME. Recently, my friend was preparing to leave his summer home in Durango, Colorado and to his horror, his iPad died an ignominious death. Although his state-of-the-art Cessna Conquest has a glass panel with two Garmin GTNs, he felt uncomfortable without his trusty EFB and ForeFlight. After many prayers and the help of sympathetic controllers, he made it back to his home base in Chandler, Arizona.



Pilot untruths

untruth #1 **"The iPad isn't a legal replacement for paper charts."**

The definition of "legal" depends on what type of flying you do and what you're using your iPad for, so there's no one-size-fits-all answer.

The quick answer is that for Part 91 General Aviation flying, the iPad is a very legal replacement for paper charts in the cockpit. For a deeper dive into what is acceptable, CLICK HERE.

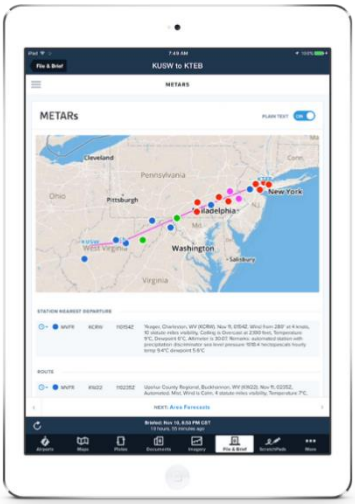
untruth #2 **Untruth #2) "Your fancy iPad app doesn't count as an official weather briefing. You have to call Flight Service or the FAA will nail you."**

That might work for the most paranoid of pilots, but it's chock full of twisted logic and here'd why.

There is no such thing as an "official weather briefing."

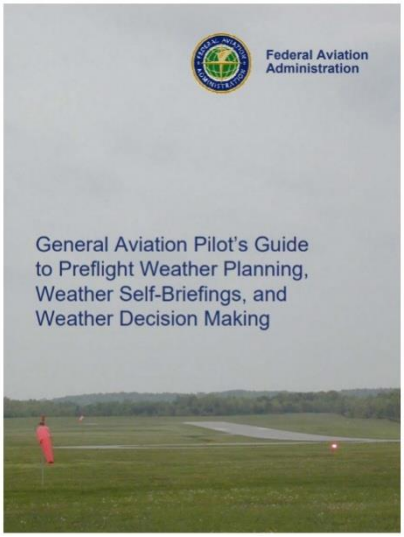
The FARs, AIM, or the Pilot/Controller Glossary doesn't mention an official weather briefing. However, FAR 91.103 touches on **pre-flight briefings**:

Basically, it says that before each flight, PICs should become familiar with "*all available information concerning that flight.*" Pilots need to consider stuff like, weather reports and forecasts, fuel requirements, alternates, and traffic delays. Also, pilots need to think about whether their aircraft can make it and consider takeoff and landing distance required.



Yea, yea, yea. You and I know all that. Did you see anything that mentioned where you get that information? Fortunately, any decent aviation app – even *Garmin Pilot* or *FlyQ*, should give you this information. Fltplan.com and ForeFlight record/document your electronic presence at a preflight briefing.

AIM 5-1-1 simply says, "Every pilot is **urged** to receive a **preflight briefing** and to file a flight plan. This briefing should consist of the latest or most current weather, airport, and enroute NAVAID information." AIM also states that Flight Service is still the main way that many pilots receive weather and enroute NAVAID information. However, the AIM DOES NOT require it.



The FAA has published the "General Aviation Pilot's Guide to Preflight Weather Planning, Weather Self Briefings, and Weather Decision Making". It is specifically designed to help pilots conduct a good weather ***self-briefing***. They know that more and more pilots are getting weather information from sources outside of Flight Service, so they are offering to help pilots do a better job of it. Would they encourage that if such briefings weren't "legal?"

untruth #3

"In the event of an accident or incident, the FAA will throw the catchall 'careless and reckless' charge at you if you didn't call Flight Service for a briefing?"

ForeFlight CEO Tyson Weihs confirms that they log all briefings. So, when you use ForeFlight's File & Brief tool, that information is saved on a ForeFlight server.

At one time, the FAA had a formal program for approving pre-flight weather providers. It was called Qualified Internet Communication Provider (QICP). Even though QICP is no longer around, both ForeFlight and fltplan.com still maintain QICP standards.

So, if you do have an accident, and you received an EFB preflight weather briefing that was recorded, the NTSB can never write in the accident report, "Prior to the flight, the dipstick pilot did not check the weather". Your preflight briefing reputation will remain untarnished. However, when evaluating your flying skills, you can bet that the NTSB will be merciless.

If you like to call Flight Service, keep calling them, but there is no reason to do it just to create a paper trail. You're not cheating on Flight Service if you receive a an online or iPad preflight.
I'll never tell.

Did you GUMPFFLB?

Hope so!

by Jerry Proctor, CFII

Grumman OV-1 Mohawk

Although I started flying 46 years ago, I am only in year 11 of flying a Mooney. In between was this thing called the Draft and a special relationship with my Uncle Sam and his plan for me. I was only going to be with my Uncle two years, but I missed that estimate and ended up being with him for 40. While there, I had the great opportunity to learn to fly helicopters, plus lots of training and flying in twin turboprop reconnaissance airplanes.

With months and months of regimented military flight training, the use of a checklist became more than just a suggestion. If you want to flunk a check ride, don't use a checklist. The Army has some logic in the flow of its checklists. I know that sounds strange, because how could logic and a large government organization like the US Army work together?

I remember that when I purchased my first Mooney, I was uncomfortable with the plain old "GUMPS" check. It seemed to miss things and I didn't want to forget anything. So, I set out to improve on "GUMPS" and made my own pre-landing check called "GUMPFFLB". If you're trying to pronounce it, good luck!

Let me explain how "GUMPFFLB" flows

The "G" doesn't stand for what you think, but when it comes to landing, it's what I consider most important. It stands for Gear, which is not only the single most important thing in a Mooney prelanding check, but it is also the starting point of the flow.

"U" is for undercarriage. After you put the gear handle down, this is where you look at the annunciator and check the floor indicator to confirm that the gear is down.

From the top of the panel, flow your hand down to "M" – the red Mixture control. Normally it should be at full rich, but it depends on the Density Altitude.

Next to the Mixture, it's "P" for the Prop control – full forward.

The flow then continues down to the first "F" – Flaps. I like "Full" Flaps no later than 500' above the runway, even on an instrument approach. That's because I would rather get that big trim adjustment done prior to the base to final turn or while I'm still high on an instrument approach. Now I am stabilized for my VFR or instrument landing, even if I break out at minimums.

The other "F" prompts me to flow down for Fuel, looking at the fuel tank and switching to the fullest tank for landing.

"L" is not mandatory, but it is still worth doing. This is where I check the landing light – as required.

Finally, "B" is for Speed Brakes. I added Speed Brakes to my list after I somehow landed with the speed brakes extended. My mechanic examined my airplane, trying to learn how the Speed Brakes could have just popped out on their own. He applied a bit of prop blast, and now it seems to have corrected the mystery.

It Works for Me!

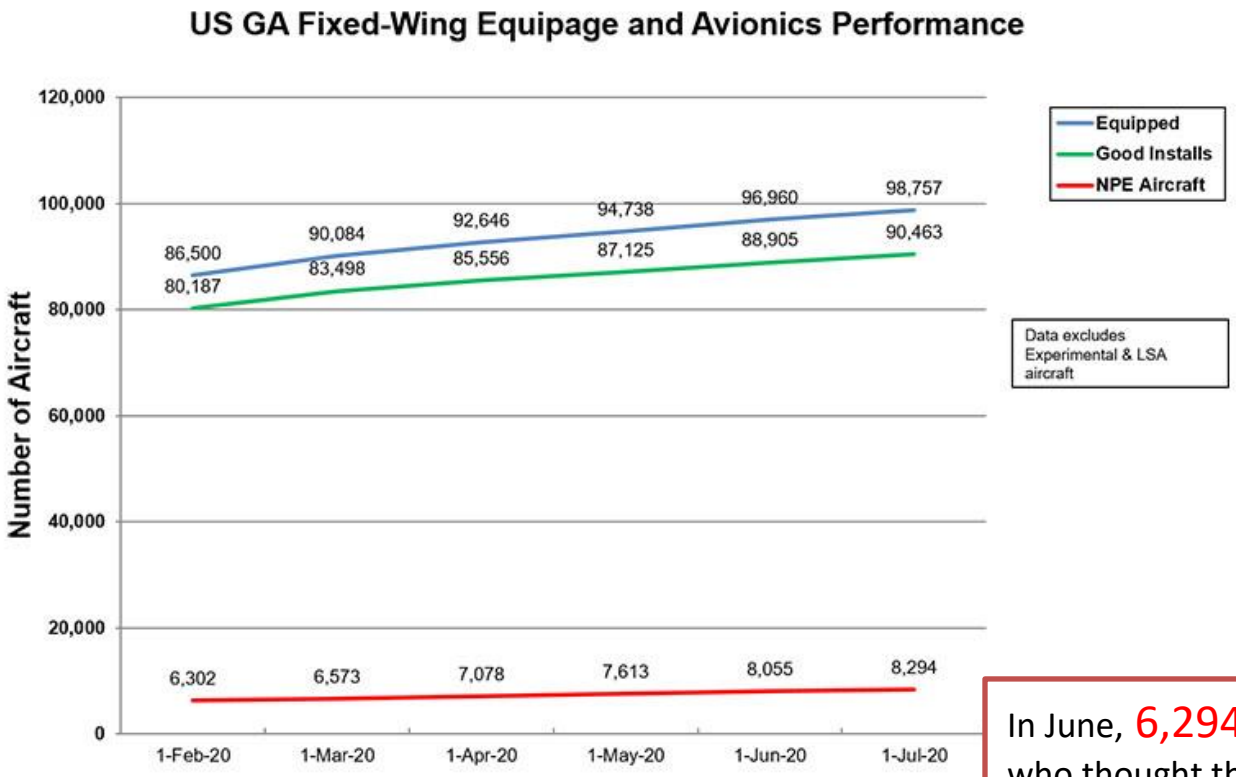
I have had three Mooney models, and I have always started with the gear, "G", and then continued with the flow. I can't remember my own 7-digit phone number, but I can remember this 8-step GUMPFFLB flow.

Regardless of the approach, whether I am cleared for a straight in, a pattern entry or an instrument approach, I like to initiate my before landing check prior to reaching pattern altitude or prior to the Final Approach Fix (FAF).

Try **GUMPFFLB**. It works well for me and I haven't landed gear up . . . yet.

ADS-B

GA Equipage Stats



US GA Fixed-Wing Equipage and Avionics Performance Data

Date	Equipped	Good Installs	NPE Aircraft
1-Feb-20	86,500	80,187	6,302
1-Mar-20	90,084	83,498	6,573
1-Apr-20	92,646	85,556	7,078
1-May-20	94,738	87,125	7,613
1-Jun-20	96,960	88,905	8,055
1-Jul-20	98,757	90,463	8,294

Data excludes Experimental & LSA aircraft

99.98% of equipped aircraft have performance data (Oct 1, 2019)

In June, 6,294 owners who thought that they were ADS-B "equipped" were not reporting properly.

To check that your ADS-B is reporting properly, go to: https://adsbperformance.faa.gov/PAPRRequest.aspx

Reference: https://www.faa.gov/nextgen/equipadsb/installation/current_equipage_levels/

Window Tinting

by Richard Brown

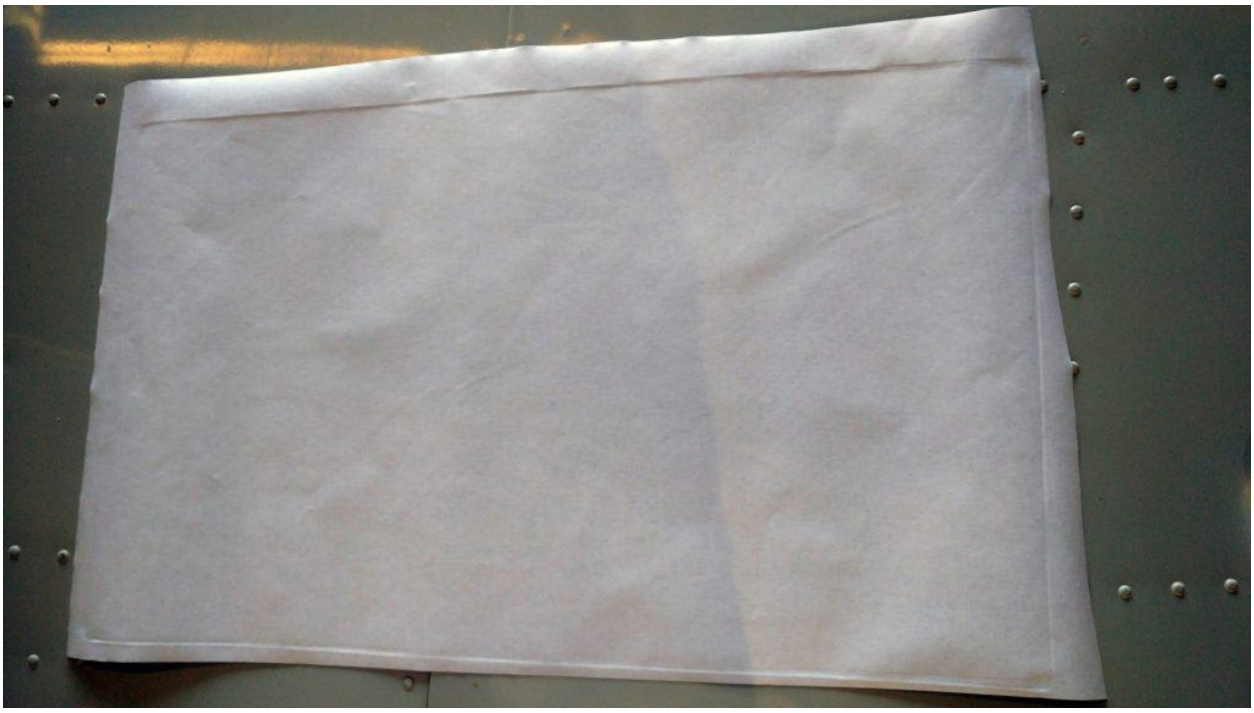
Here we are in the middle of the "Dog Days of Summer," which makes for some high temps inside the cabin. An easy, inexpensive way to combat those temps is to tint your windows. When choosing tint, make sure you only buy **static cling tint**. That's because the tint that has adhesive in it has warnings about not using it on plexiglass. Fortunately, tinting your windows is easy to do and inexpensive. So, if you mess up a few times, just throw that piece of tint out and try again. Here is a step by step guide.

1. Clean the windows **really well,** inside and outside. When you put the tint on the outside to outline it, (step 3), you don't want to scratch the window. You don't want stuff between the tint and the window.
2. Both Lowes and Home Depot sell GILA brand tint. I used the **Static Cling** GILA Smoke tint from Lowes, costing just $12.97. One roll will do the windows more than once (if you mess up). Some people have used darker tint, but I like flying at night too, so I didn't want it to be too dark.

3. Cut out a piece of tint a little larger than the window and place it on the window with the white paper out. This is the direction that it will go on the window inside, so everything is going to line up. The tint will stick to the window a little, which makes it easy to trace.

4. Use your thumbnail to trace the outline of the window. This will leave a mark on the paper that is easy to follow while cutting.

5. Remove the tint and use scissors to cut along the marks that you made. You can see, by just using your thumbnail, it leaves a good outline.



6. Put the tint back on the outside and trim any areas where it may be a little too big.

7. Prepare a spray bottle filled with water and add just a couple drops of dish soap. If you just use water, the tint won't slide around, and it will be more difficult to line up. The couple drops of dish soap helps it slide into position easier. You can buy the actual window film installation kit for $9.00 if you want to, or go the cheaper route like I did. I also used a plastic squeegee/applicator that was laying around. There are a lot of squeegee options, including your driver's license, a rubber squeegee that's used to put a screen protector on your phone/tablet, etc. Just make sure that what you use won't scratch the tint.

8. After a final check that the tint fits on the inside, lightly spray the window, peel the tint off the paper, and put it on. Before you start smoothing it out, slide it around to get it in position. If you need to, you can pull the tint away from the window in places, spray just a little more water and slide it around to get the tint lined up.

9. Once you have the tint in place, start smoothing it out. I like to push the water up and to the sides, rather than down. However, at the bottom edge, you do have to push it down. By pushing it up and to the sides, if you have a cloth handy, you can soak up the water instead of having it run down inside the panel. Just keep working on it to get as much of the water out as you can. It may appear a little hazy, but it will clear up.

10. If you need to remove the tint, begin pulling away at a corner and it will peel right off. It comes off easily and won't leave any residue behind.

I put tint on my front windows, but later decided to remove it. While I could see out, at night, it made things a little hazy, which I didn't like. I went back to having just a strip across the top of the window to help with the sun.

The side windows are an easy job. If you are feeling ambitious, you can put a “brow” across the front of the windscreen. I do not have sun visors and having the piece across the top of the windscreen is very beneficial. It is <u>not</u> just a straight across cut; it is more parabolic shaped. To get this shape, pull some twine across the windscreen and secure it with painters’ tape. Sit inside and adjust the width to the location that you desire. Be patient, because getting the tint on the inside of the curved, sloping windscreen is a little more challenging.

The tint stays on very well. The first tint I applied lasted for about 2 ½ years. I removed it because it had a few scratches, courtesy of young flying companions. After removing it, the side windows looked just as nice as the day I put the tint on.

Using the leftover scraps, cut out a few smaller squares or rectangles, fold them up, and keep them in your seat back pocket. On the next flight, when the sun is beating on you through your side window, pull out a scrap, unfold it, and smooth it out on the window to help block the sun.

You will be amazed at the immediate change in the amount of heat you feel from the sun. You can move it around as you continue through your flight and the sunlight shifts. When you land, just pull it off and put it away.

When the plane is parked on the ramp, if you want to make some shades for the inside, you can buy some Reflectix bubble wrap insulation for $24.00. The small roll is more than enough. Cut out pieces to fit your windows. It will actually stick to the tint and stay in place. I put a few tape tabs along the edge to make them easier to remove. Don't worry, it doesn't pull the tint off. We have even placed it in the back windows on some trips, much like older planes with curtains, and kept the cabin much cooler.

⇦ My son, enjoying movies on his tablet in the back seat, with the ramp sun shades in place.

Before You Take a Prescription or OTC Medication

If you plan to fly and need to take a prescription or Over the Counter (OTC) medication, please look at the label. Some drugs may compromise your ability to control an aircraft or adversely affect your judgement and decision-making prowess. The medicines you take are important to your safety, and the safety of those with whom you fly.

The standard label included with drugs indicates the active ingredients, directions for use and highlights potential side effects like drowsiness.

Warnings

Do not use ■ to make a child sleepy ■ with any other product containing diphenhydramine, even one used on skin

Ask a doctor before use if you have ■ a breathing problem such as emphysema or chronic bronchitis ■ glaucoma ■ trouble urinating due to an enlarged prostate gland

Ask a doctor or pharmacist before use if you are taking sedatives or tranquilizers.

When using this product ■ marked drowsiness may occur ■ avoid alcoholic drinks ■ alcohol, sedatives, and tranquilizers may increase drowsiness ■ be careful when driving a motor vehicle or operating machinery ■ excitability may occur, especially in children

While medicines can help you feel better, they can also lessen your ability to think clearly or react quickly.

Antihistamines – First-Generation

Drug Facts

Active ingredient (in each tablet)	Purpose
Diphenhydramine HCl 25 mg	Antihistamine

Some of the most potentially impairing medications are antihistamines. These medications have powerful sedating effects, so much so that the primary "offender" **Diphenhydramine**, better known by its trade name *Benadryl*, is often used as an over the counter sedative and as a sedating agent in many nighttime pain medications. Antihistamines adversely affect pilot performance, impairing psychomotor performance, attention, and memory.

In 1990, 10% of pilots killed in crashes had over-the-counter prescription or illegal drugs in their systems. In 21 years, the percentage was 40%. Currently, sedating antihistamines are the most commonly detected medications in pilots involved in fatal aircraft accidents.

Be aware also that the impact of a medication — prescription or OTC — can change with altitude and stress. In addition, when flying in reduced visibility, on a clear dark night, or over open expanses of water, you have got your hands full. These conditions substantially increase the likelihood of task saturation, visual or vestibular illusions, loss of control, and controlled flight into terrain.

So, even though you are feeling fine on the ground, you don't have a pass for flying with "drowsy drugs" in your system.

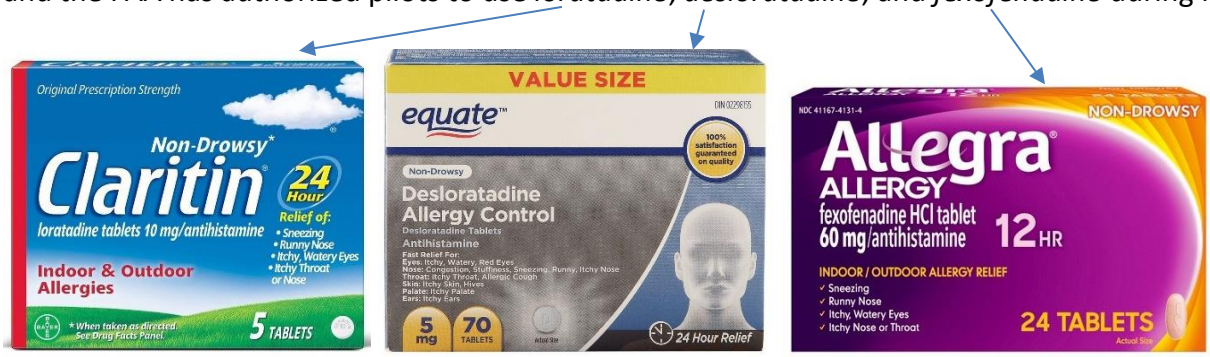
When is it Safe to Fly after Taking an Antihistamine?

A good rule of thumb is 5 times the half-life of the medication. The **half-life** of a **drug** refers to how long it takes for it to become 50 percent less active in (or eliminated from) the bloodstream.

If a medication indicates that it should be taken 4 times a day, the dosing interval would be every **six** hours. (6 hours x 5 = 30 hours). Therefore, you should wait 30 hours after taking the last dose. Pilots need to be aware of the medications that they take, dosage requirements and when it's "FAA safe" to get back in their aircraft.

What about Non-Drowsy Medications?

Second and third generation antihistamines are substantially less likely to cause such impairment and the FAA has authorized pilots to use *loratadine*, *desloratadine*, and *fexofenadine* during flight.



Other second- and third-generation antihistamines are approved only if five maximal dosing intervals have passed prior to your flight. (Just like the first-generation antihistamine rule).

Where Can I Get More Information?

What Medications can I take + fly? and the AME Guide to Pharmaceuticals

Virtual AirVenture from Our German Mooniac

Rolf Winterscheidt

Although I live in Germany, I was lucky to attend AirVenture twice. One time I was sitting in the pilot's seat of a Mooney M20E (N9303M), which gave my logbook the famous entry "KOSH". That means much a lot to me. In 2020, my brother in law, who now owns a Mooney Eagle (N131MA), lives quite close to KOSH, so that would have been a perfect fit for me. As we all know, things changed this year and we didn't hear "rock your wings" on 120.7. And sadly, this is the end of the story. Really?

Not for me. I wanted Oshkosh, I got Oshkosh. So what did I do? Staying in Germany, it turns out, I can visit KOSH a virtual way with a flight simulator. Some of you might have used a sim for IFR training. To be honest, they suck. It's ok for training, but that's it. The best thing is, they are certified, and you may be able to log some hours. Don't expect too much fun there. Private sims might be underestimated and thought of as toys. There are whole (real) planes in some cellars; rebuilt as sims and software like X-Plane 11. With some good plugins and add-on hardware like my costly, but worth it, Brunner yoke, It gives an immersion that is quite good.

I read about a virtual AirVenture for 2020 and checked it out. Reading the NOTAMs is the same as in reality. After checking ATIS 125.9, I circled around Green Lake, trying to stay at 1,800 ft and 90 knots – I even needed flaps for this. When flying via RIPON to FISK, it is at your own discretion, if you are spaced within half a mile of the plane in front of you. I switched to FISK Approach 120.7, and I was assigned runway 27 then I switched to the North Tower, 118.5. Landing on one of the dots is not Cessna easy. A Cessna will drop in at any point, but a Mooney is harder because it wants to stay in the air and float.

After landing, the fun isn't over. I felt the bumpy taxiways, thanks to my Buttkicker (real name), and experienced an endless taxi. I could look around and could see the world's busiest tower, the planes on the ground and some in the air or just landing. Oshkosh doesn't know how to be quiet – even in a simulator.

Since text cannot really give an impression on how this felt, I made a short video of less than three minutes with my iPhone. Video quality is not that good, but you might see what I mean.

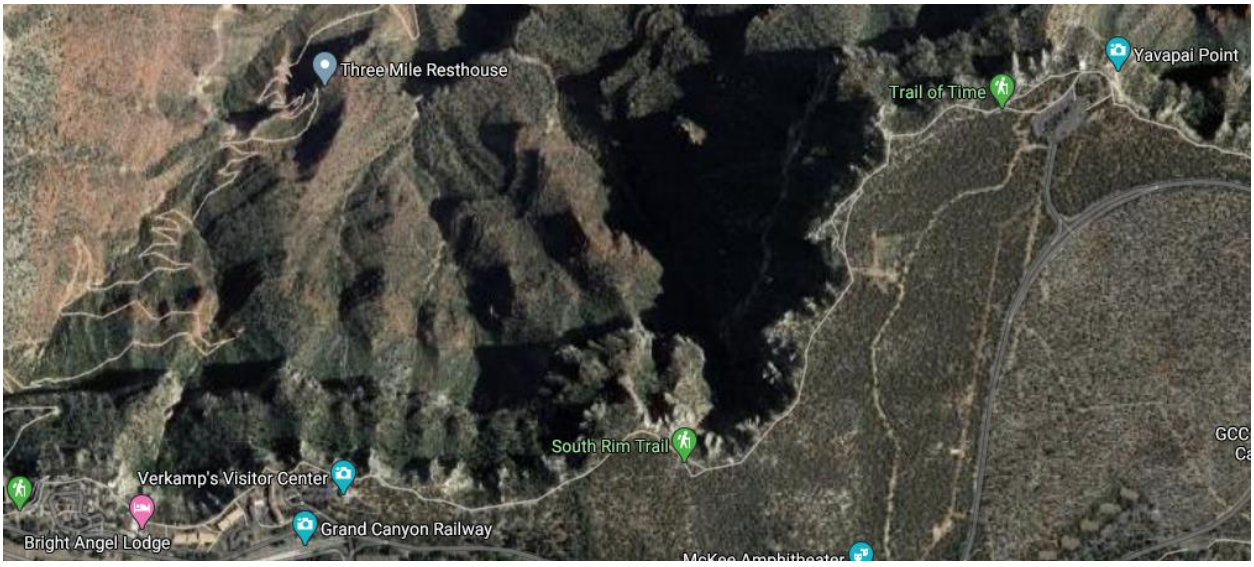
I really liked it, even if it was just a virtual visit. It almost felt real after some minutes of being in the air and looking out for other planes.

The Grand Canyon

We flew to the Grand Canyon Airport (KGCN) for a short vacation. Fortunately, we got there early in the morning before the winds whipped up. The Tower was still closed as it does not open until 8am in the summer months. Winds were calm and the ride was smooth and quite beautiful. It was a short flight from Sedona.

If you go, try to book accommodations at the Bright Angel Lodge, which is right along the Rim. The rooms are rustic, and you should ensure that you book a room with a private bathroom. Because of the Corona Virus, their restaurant was closed. But, no worries, we walked 5 minutes to the El Tovar, which is a magnificent and affordable restaurant. You can also stay at the El Tovar, an historic hotel that was built in 1905. It's grand and elegant.

On the first day we walked the Rim Trail, which is magnificent. We walked from the Bright Angel Lodge to Yavapai Point. It is breathtaking. The trail goes for 13 miles if you are so inclined. We would have walked further, but in July the temperatures are in the 100s and there was no shuttle due to the Corona Virus. Nonetheless, it is worth it.



At the El Tovar, we recommend the Trout lunch. It is fresh trout prepared in some sort of fine bread crusting and the herbs were delicious. The prices for most everything was reasonable for a National Park. During the virus, all the bars/lounges were closed, which bummed us out.

The second day, we hiked a little way down the Bright Angel Trails, but the weather got hot and we turned back after 2 ½ miles. We recommend hiking the trail to Indian Gardens which is about 4 miles, but don't hike it in July. Get an early start for cooler weather and better sun angles on the canyon walls. It is worth it.

It's also worth a hike to a canyon point to watch the sunset. The entire canyon takes on different hues and has a completely different look.

A trip to the Grand Canyon in your Mooney is not complete without flying a few of the "corridors" over the canyon. We flew up the Zuni and back down the Dragon corridor. Flying north in Zuni, you must be at 11,500 MSL or greater and southbound at 10,500 MSL or higher.

The FBO at Grand Canyon is extremely helpful. There were no taxis or shuttles running due to the virus, so Monty asked his wife to give us a ride to the Lodge. On the return at 6am, we got another ride back. Great FBO and Monty, Pam and Sandi saved our vacation.

The airport is at 6,608' and very warm in the summer. Density altitudes frequently exceed 10,000'. We arrived and departed during the cooler and calmer times. The

runway is 9,000' which is plenty. It's a tad rough and has a few swales, but is otherwise perfect. The ramp is huge, but we found rows 8-10 for transient GA. Tie downs are available in trunks at the end of the row near the fence. Finally, beware of Elk in and at the airport. They are beautiful, but can definitely ding your prop or bend your wing.

This is a great place to fly and the best way to see the Grand Canyon in a way that most people cannot.

The above pictures were taken from the Bright Angel Lodge at Sunset. The view is even nicer at Yavapai Point or Mather Point, a flat walk along the rim trail to the east.

Stalls at Pattern Altitude - or Below

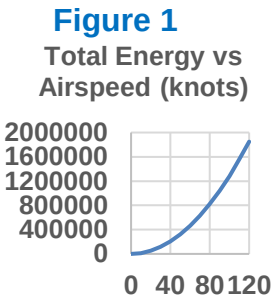
Fourth in the series by Ron Blum

If you have read this far, congratulations! Odds are extremely high you have not stalled an airplane at or below pattern altitude. We are not talking about the mythical perfect landing where the airplane stalls mere inches above the runway surface, followed by a gentle erk, erk … erk as the tires touch down and the wheels spin up. We are talking loss of control below 1,000' above ground level (AGL).

We begin this discussion on a positive note. About 50% of those that stall below pattern altitude and hit the ground, survive. To me this is a surprisingly high number. Our glass is nearly half full! Now let's look at why this is the case, which will lead us to learn where the loss of control fatal accidents occur.

Accident severity can be directly correlated to the velocity (speed) vector at impact. This sounds really technical, but we will see how a pilot should control the airplane to increase the odds of survivability in an accident. This velocity vector has both magnitude (speed) and direction. In other words, how fast we are going and at what angle and/or attitude when we contact the ground?

For an easier look, let's keep those two values (speed and direction) apart for now. Speed determines the total energy which must be dissipated in the crash. Total energy increases with the square of the speed (reference Figure 1). In other words, an accident at 50 knots will have 25% or 1/4th the energy of an accident at 100 knots. Our goal is to have as little energy as possible and to transfer as little of that energy to the occupants as possible. Lower total energy greatly increases the chances of survival.



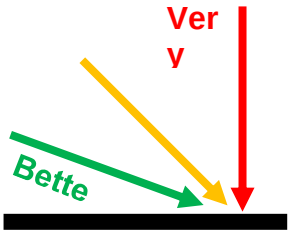
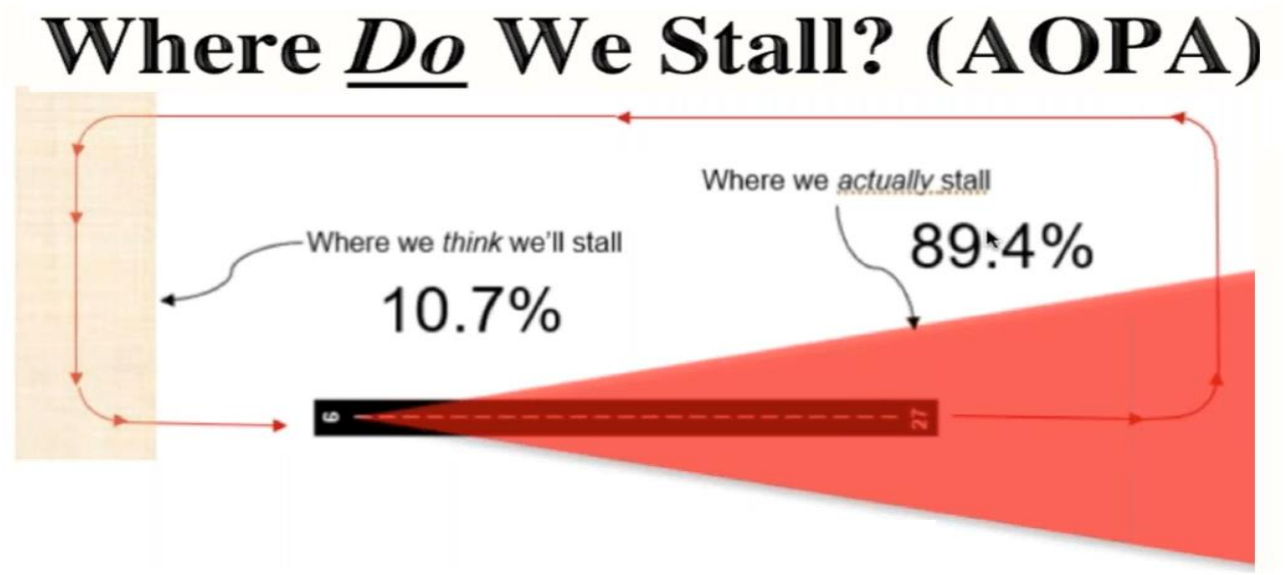


Figure 2

Now for the direction/attitude. Direction/attitude determines the time over which the total energy is dissipated. This is critical because the longer we can take to dissipate the energy, the less deceleration forces (and energy) we put into the occupants. For those that have "gear upped" an airplane, the energy was high, but the direction/attitude was good (level), so the dissipation time was longer, and the forces imposed on the occupants was low. Impact to the ego is a whole different topic.

Some airplanes have a "canted bulkhead" where the lower section is canted (angled) back 45 degrees. So, when the airplane hits the ground (especially soft ground), it won't dig into the ground and stop instantly. Instead, it will cause the airplane to bounce back up into the air again. This bounce extends the time to dissipate energy, and therefore, imposes a less deceleration force on the occupants. Today's certification regulations require the seats/occupant area to be protected to 26Gs. Also, you should always wear a shoulder harness, as crash survivability goes way up. What does all this have to do with stalls below pattern altitude?

Since survivability odds go up when less total energy is available (lower speed) and when the angle of impact is lower, it makes sense to not stall the airplane in the pattern. Duh, right? That's easier said than done. Our natural human tendency is to pull back when the ground comes up. If you have never performed an aircraft spin, I highly recommend that you go out with a qualified instructor in an approved airplane (not an M20) and spin the airplane at least once. The nose will drop well below the horizon, and the world will start rotating. With the nose so low, you assume the angle of attack (AOA) is also low. In reality, the AOA is still high (above stall AOA) … and that's what got you into this mess. So where do stalls in the pattern really happen?



There is a great AOPA report entitled, "Keep the Wings Flying" (2017). The illustration above is a graphical illustration by Gordon Penner. The hottest topic, the base-to-final turn only produces about 5% of the fatalities. Why? If the airplane is stalled on final, the energy is low, and the altitude is low, so the airplane doesn't have enough altitude to gain more speed. There is a direct relationship between fatality percentages and altitude. Higher AGL altitudes produce more fatalities because the flight path of the airplane has more time to become more vertical (reference Figure 2).

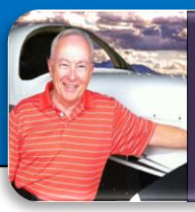
So where are the vast majority of fatal loss of control accidents happening? Three areas stand out. The first is takeoff. If the airplane is not climbing as fast as we want it to, we pull back more. If the obstacle is straight ahead of us, we turn to avoid it … without sacrificing rate of climb. If the engine quits, we have to lower the nose to keep the airspeed up (or lower the AOA). The second area is the go-around, where high power and previously applied nose up trim require a lot of push if you don't want to stall. The third area is the moose turn (low altitude maneuvering), where ground fixation consumes all of our attention.

The next article will be on how we tailor stall characteristics, both during the initial design and during the Flight Testing. Until then, I hope your attitude is always Blue on Top.

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

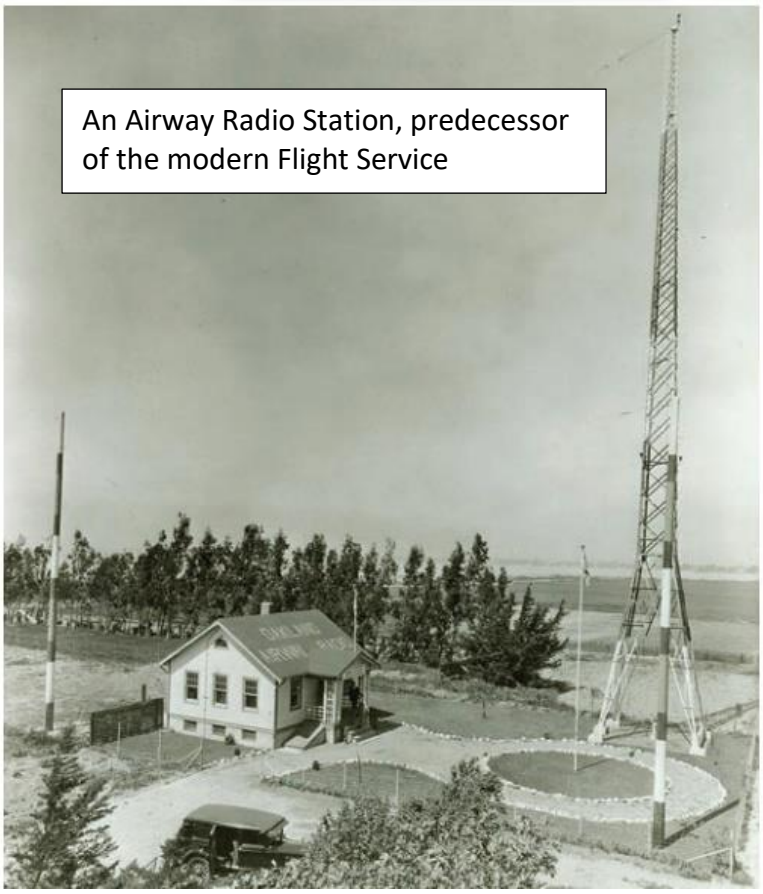
Blue on Top

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.



Jim Price
Co-Editor

After the first World War, countries around the world sought to establish routine air mail service. In 1920, to increase flight safety, the U.S. Post Office Department ordered the creation of air mail radio stations on the route between New York and San Francisco. On **August 20**, the first station was established. Air mail radio station personnel provided an early flight following service, with the departure time and a coded flight plan teletyped to all stations along the route. As the pilot passed each station, he would report by radio or, if he had no radio, he would flash his lights or gun his engine. His new position would then be relayed to the next station. The first station personnel communicated with other ground stations using Morse code over radiotelegraph. They later used a Morse code shortcut called Phillips Code, which gave us acronyms such as ETA (estimated time of arrival) and WILCO (will comply). In addition to tracking flights, operators provided weather information, sorted mail, maintained the equipment, and kept the runways clear.



An Airway Radio Station, predecessor of the modern Flight Service

In 1939, the Civil Aeronautics Authority (CAA) completed a $7 million modernization and improvement program, and with that, the federal airway system grew to 231 radio stations. By the early 1960s, the Agency was operating 297 flight service stations.

Cedar City Flight Service, Cedar City, Utah, 1970

Consolidation Begins

By the mid-1970s, with the advent of new automation technologies, the Federal Aviation Agency (FAA) began planning to decrease the number of flight service stations. Gradually, the knowledge that only a local briefer could have, plus the network of direction-finding (DF) facilities, which were used to locate lost pilots, disappeared.

Self-Briefing

Between 2013 and 2019, flight plans that were filed by FFS specialists decreased from a high approaching 30,000 per month to less than 5,000. During that same period, web-filed plans increased from less than 5,000 to a peak of over 40,000 per month. To support this trend, the Flight Service website, www.1800wxbrief.com, has been enhanced to include a mobile-friendly format, ICAO flight plan support, graphical flight planning, the ability to filter extraneous NOTAMs, and a 45-day retention of pilot history data.

Operators are Standing By

While the current emphasis is on self-briefing, in the Continental United States, specialists in Fort Worth, Texas and Leesburg, Virginia are still available to take your call. Start with the Flight Service website or other approved sites/apps like ForeFlight, Garmin Pilot or https://fltplan.com/. If you are confident about your grasp on current and forecast conditions, you can file and be on your way with a few clicks or taps. If you have any doubts or questions, just call Flight Service, and **tell the briefer what type of forecast you already have**. The briefer can then answer your questions and help you with any concerns you might have – just like the good old days – only better.

Referencing Controller.com, Barnstormers.com, and AllAmericanAircraft.com

M20C (6) Low: $39,336 High: $61,000	**M20J (15)** Low: $79,000 High: $159,500	**M20R Ovation (14)** Low: $159,000 High: $589,000
M20E (2) Low: $52,140 High: $62,500	**M20K 231 (18)** Low: $77,500 High: $124,900	**M20U Ovation Ultra (2)** Low: $639,000 High: $719,000
M20F (6) Low: $59,00 High: $79,900	**M20K 252 (3)** Low: $147,500 High: $179,900	**M20 Acclaim Ultra (4)** Low: $685,000 High: $799,000
M20G (1) Low: $65,500 High: $65,500	**M20M Bravo (8)** Low: $129,000 High: $299,000	**M20 Acclaim (4)** Low: $253,710 High: $379,000

Installment XI

by Brian Lloyd, CSEL/CMEL, CFIA/CFII

The expression, “May you live in interesting times,” is said to be a translation of a Chinese curse. I have come to believe that and wish that my life would offer me a bit of boredom.

Right now, the most boring thing is the annual on *“Spirit”,* my Mooney M20K. I am lucky to have the tools, the location, and Brian Kendrick. He’s a great IA (FAA Inspection Authority), who will perform *Spirit’s* annual inspection in my hangar. The CAP 10B and the Tiger Moth are currently residing in neighbors’ hangars, which leaves the entire hangar for *Spirit*. I need that, because I have an anchor point in the hangar floor so I can tie down the tail, drag out my jacks and get her up in the air.

I always participate in my annual inspections and sometimes things are quiet enough to allow me to do most of the work. This time, I completed the initial work on the engine and opened up the airplane so Brian could do the inspection. The engine is a little past mid-time and running well.

With the plane up on jacks, it is much easier to remove the wing inspection plates and the belly pan. I wiped and lubricated things while Brian inspected. The gear-swing and pre-load were great and Brian finished the wing inspection. Not bad for one day. If it weren't for the fact there were a few discrepancies, this annual inspection would be almost done. Unfortunately, Brian determined that *Spirit* needs new main gear rubber donuts. I have started a parts list on my phone.
Compressions were good except for #6, which at 57/80, is a bit low. I could hear the air in the exhaust, which means the exhaust valve is leaking – not bad, but leaking bad enough. Leaky exhaust valves lead to hot spots, which lead to valve burning. On the off chance the leakage is caused by a bit of carbon caught between the valve and the seat, I tried "staking" the valve. "Staking" is where you use a block of wood on the top of the rocker arm and give it a couple of good solid whacks with a mallet. This usually dislodges any carbon particles and allows the valve to seat again. However, after "Staking", there was no change in the compression, so we turned to more drastic measures.
I did a Borescope examination and the face of the valve looked good – no half-moon-shaped pattern of a hot spot on the valve. What I could see on the edge of the valve looked good. This is a good candidate for lapping the valve in-place, so we won't need to pull the jug and replace the valve. More part numbers go on my list: rocker cover gasket, intake manifold gasket, rocker-arm shaft hold-down nut retaining clip, and some nut clips. That, plus the rubber donuts came to a little over $1,000 at Aircraft Spruce. It looks like I am going to learn how to change the donuts when the parts arrive.
To lap the exhaust valve, we removed the rocker arm and shaft. Then, did the "rope trick" to hold the valve in place while we removed the valve spring keepers and the valve springs. We carefully dropped the piston down, allowing the exhaust valve to descend into the cylinder far enough so we could paint valve-lapping compound on the edge of the valve. We pulled the valve back up and attached the valve stem to a drill using a piece of rubber tubing. We pulled the valve gently against the seat and started the drill motor. The spinning valve then ground a fresh mating face with the valve seat. We did that for a couple of minutes and then did a quick check of the compression. With the valve springs back on, the #6 compression changed from 57/80 warm to 75/80 cold. (A compression test when the engine is warm usually produces higher compression readings compared to cold readings.) The new compression reading made me happy.

Paint Touch-up

While waiting for the parts, I decided to clean and spot paint. The paint on Spirit is 1979 original and has pretty much failed completely. In the areas where it has worn through, I spotted paint. I used a Scotch-Brite pad to clean and get down to shiny aluminum, and then I hit the spot with my rattle-can of zinc-chromate primer. When that dried, I hit the spot with my rattle-can of white enamel. After it dried, I used a little rubbing compound and the result was great. At least now, the aluminum will be protected until *Spirit* is repainted. Touching up the gear legs is more challenging, but that just means that it will take a little more time.
Soon, the parts arrived from Aircraft Spruce and we buttoned up the engine and the wing inspection panels. Any screws I didn't like were replaced. I also learned how much of a pain it is to replace the rubber donuts in the gear. Still, it is nice to have that done. Now, we needed to finish inspecting and lubricating the elevator and rudder pushrod linkages so we could button up the belly.

As I started to button things up, Brian asked, “Hey, when was the Dukes fuel pump last replaced?” Hmmm. I couldn’t find any logbook entries, and as long as the belly pan was off, I decided I should look at the pump. Oh, wow. It was the original, 41 year old pump and it’s supposed to only have a 10-year life. We removed the pump and sent it to CJ Aviation for overhaul. What’s another $850, right?

Aircraft Ownership

This, of course, reminds me of that old joke about airplane ownership.
All out of breath, Little Johnny ran up to his dad, “Dad, dad! Billy says we are rich because we own an airplane. Is that right?”
Dad said, “No Johnny, we are not rich. We are not rich <u>because</u> we own an airplane.”

The fuel pump overhaul will take a week and then the belly pans will go back on. Finally, *Spirit* will be ready for another year of flying. The only remaining item will be that pesky IFR certification. I am not rich. I own an airplane.

FAA Safety Team (FAASTeam) Representative

Oh, did I tell you that I am now an FAA Safety Team (FAAST) representative? I am looking forward to doing my part to help fellow pilots fly better and safer. I think everyone knows that I teach upset recovery and how NOT to lose control of the aircraft.

Traffic Patterns

I am working on a traffic pattern seminar for my home airport, Kestrel Airpark (1T7), San Antonio, TX. Here, we have an eclectic mix of airplanes and it is not at all unusual for there to be a powered weight-shift trike, a Super Cub, a TBM-850, and perhaps a T-6 Texan, all in the pattern at the same time. Needless to say, there are some serious pattern speed differences. Getting into the pattern safely is an issue. As a result, here is the death blow to yet another sacred cow:

There’s more than one way to Enter the Traffic Pattern

Yes, of course the 45-degree-to-downwind is a perfectly acceptable way to enter the traffic pattern. Unfortunately, too many pilots think that it's the only way to enter the pattern and that if you are arriving from the other side of the airport, you should overfly the airport and then do a descending teardrop to enter on the 45 to downwind.
Even though the teardrop-to-45 is an approved or even recommended procedure, I don’t do it as I think it is unsafe, especially if you are in a low-wing airplane. You will be descending and turning to the 45 which could hide traffic from your view under the wing. For us Mooney drivers I prefer the “midfield to downwind” pattern entry. I actually call it a crosswind pattern entry and I adjust my arrival point over the airport so as not to conflict with traffic on crosswind or downwind. If there is any traffic in the pattern, it takes only a heading change to deconflict with other traffic. Since you are at pattern altitude, you can easily see other traffic in the pattern.

Overhead Approach

There is a third way to enter the pattern and it is described in AIM section 5-4-27. It is called the Overhead Approach Maneuver. Military and formation pilots call it an overhead break. Some pilots (like me) call it an overhead upwind pattern entry.

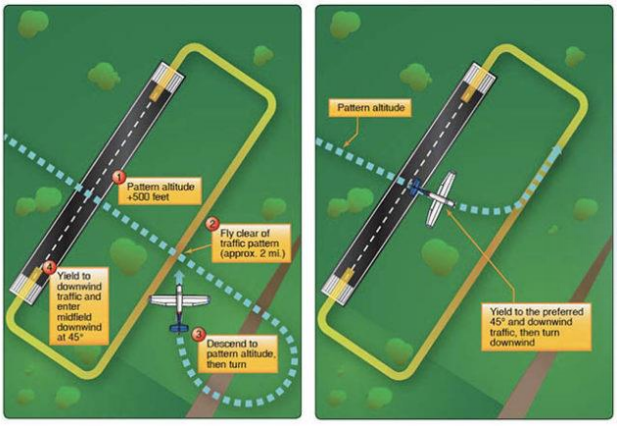
The Overhead Approach Maneuver begins like a straight-in-to-final, but there is no descent. The aircraft remains at or above pattern altitude. It begins from a point between 2 miles and 5 miles from the airport. This point is called the “initial point”, “IP”, or just “initial”. How far out it starts usually has to do with how fast the airplane is. Faster aircraft typically call from a more distant initial point.

So the pilot calls out something like, “Kestrel Airpark traffic, N916BL, 3 mile initial, overhead pattern entry, left traffic, runway 12, Kestrel Airpark traffic.” The pilot then flies to the runway at pattern altitude, turning on crosswind when convenient and when it best fits the flow of traffic in the pattern. If you offset slightly to the side opposite the pattern you can see the runway below you and spot departing traffic. If there is traffic, you can turn crosswind earlier. If there is someone ahead of you on upwind, follow them and turn crosswind to take spacing from them.

One of the interesting things is, the Overhead Approach Maneuver is the standard way to enter the traffic pattern at a non-towered airport in Canada and almost every country other than the United States.

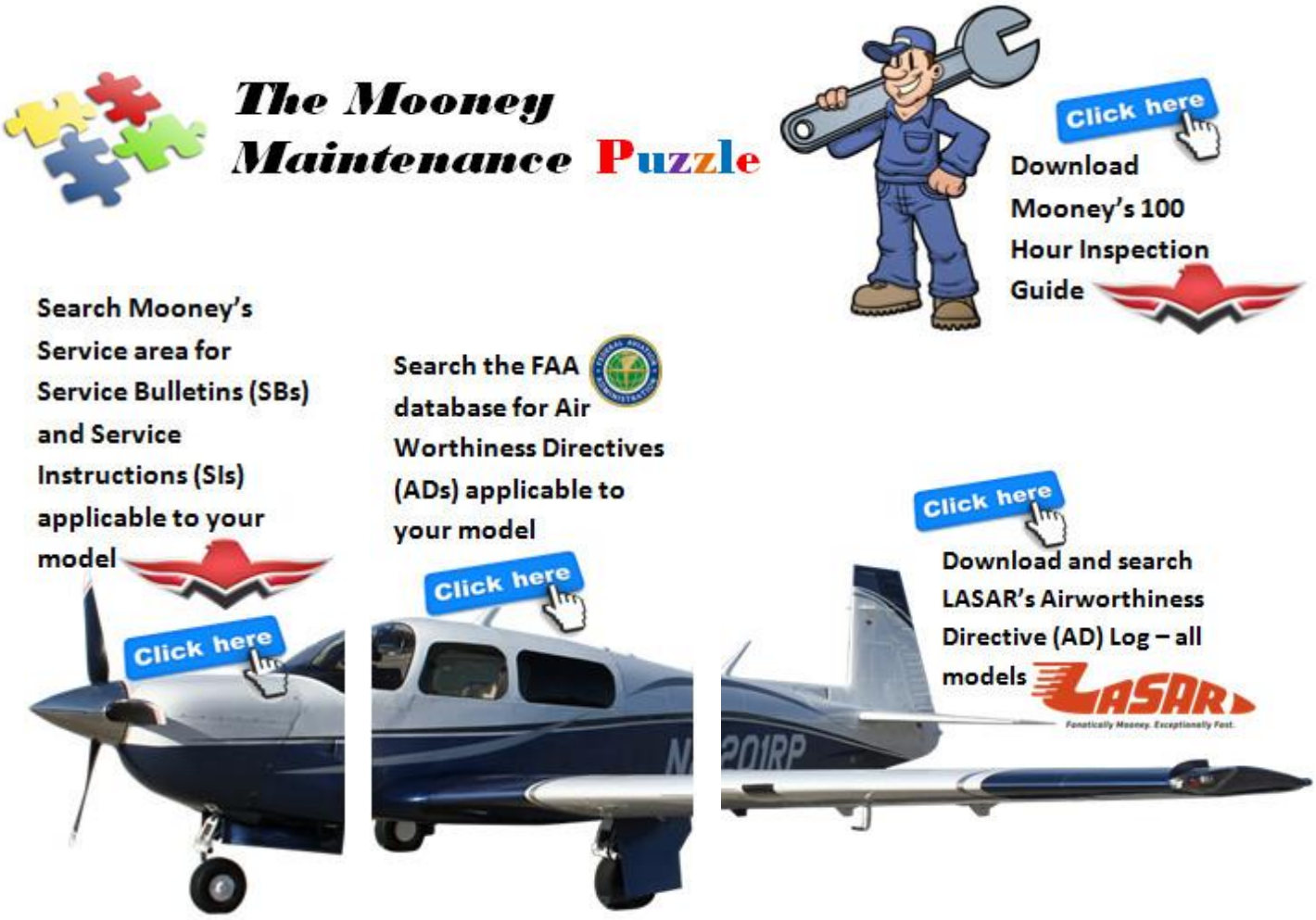
So what about the straight in? I avoid the straight in. I do the Overhead Approach Maneuver instead. If you are on straight-in final and then discover a slow-moving, non-radio aircraft on base turning final, you have no option but to accept the marginal separation and go around. It is so much easier to stay up at pattern altitude and execute the Overhead Approach Maneuver. It probably won’t cost you more than a minute or two AND it keeps you doing things in your normal order and flow. You won’t feel as rushed and you are less likely to forget to put the gear down. Remember, Mooneys don’t like to slow down and go down at the same time. The Overhead Approach gives you plenty of time to spot traffic, run your landing checklist, slow down, and prepare to land.

Ok, enough airplane chatter. The rain and wind from Hurricane Hanna are about to hit here and I need to make sure the hangar is closed up. Remember, flying is the best form of social distancing! 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'm new to the IO-550 and am having trouble starting it, both COLD and HOT. Can you advise me? The procedure in the POH doesn't work so well.

Answer: When asked the question about hot/cold start procedures for the IO-550, I had to think awhile on how to answer the question. So, I'll give a long answer based on my engine experience.

When Korea ended, I was an unemployed B-29 gunner. The Air Force decided I should be an A & P mechanic. So, I was off to Wichita Falls, Texas for the B-29/B-50 A & P school. I was in school for just over a year and part of the course involved dis-assembling and re-assembling an R-3350 turbo compound engine and running it in a test cell. That was the very first engine I had to learn how to start.

The day I finished that school, they put us on a bus to Amarillo, TX for jet engine school. My class had to dis-assemble, re-assemble a J-65 and run it in a test cell. This was the second engine that I learned to start. Finally, I was sent to Castle AFB in Merced, CA and was on a B-47 ground crew. We had to learn how to start six J-47s. In a little over a year, I was working on brand new B-52s and now I had eight engines that I had to start. It was really a kick to get to run eight engines at one time. We did this to get the thrust equal on all eight. Fast forward about 20 years and I retired. I went to work as Service Manager at a Bay Area Mooney dealer. It was like stepping back in time, but it was a real challenge.

The Mooney dealer also sold Grummans, Lake Renegades, and we had about 20 planes on the rental line, including two Cheyennes. There were lots of engines to learn how to start. My first challenge was when the salesman took a C-195 in trade with the engine in a box to be re-assembled. I had never seen a J 330 radial, so I really had a lot to learn. However, I finally got it together and learned how to start that engine. After about a year, I wanted to learn to fly, so I bought a C-150 and the O-200 engine was one of the smallest engines I had seen, except for a Crosley in a Mooney Mite that we had taken in trade. After several years, I decided I wanted to be on my own and in late 1979, I opened Top Gun in Stockton, CA. The rest is history, as they say.

Back to the original question, tips on hot/cold starting tips. Obviously, through my over 65 years as an A & P, I started almost every engine ever built and I never learned many starting tricks. My advice is, if you want to know how to start any engine, get the Owner's Manual and the Engine Operators Manual and really study that engine. It is easy to fly a plane, but it is more difficult to explain how the engine works. Obviously, most of the engines we start at Top Gun are for routine maintenance or to troubleshoot engine problems. The main objective in starting any engine is to have the proper fuel/air ratio for the conditions at the time. If you learn about the engine, it isn't that difficult.

The hardest engine start problem we ever encountered was when Mark was installing a new engine in a TLS that was under warranty. Once he got the engine and prop installed, we needed to ground run the engine. After a while, Mark came to me and said the engine would not rotate. I found that I could not move the prop. After removing that new engine and installing another, everything worked great. Eventually we found out that when Lycoming ran their new engine in their test cell, someone dis-connected the starter cable. Then, someone else turned the power on, which arc welded the crankcase to the crankshaft.

While I didn't give a direct answer, I hope that you can appreciate that each engine is different and requires some engine knowledge when starting – hot or cold.

Editor Note: Every engine is slightly different and the POH is a good starting reference point. **During a COLD start,** remember that this is a big bore engine and it likes a lot of fuel when starting. A technique that seems to work for many owners is:

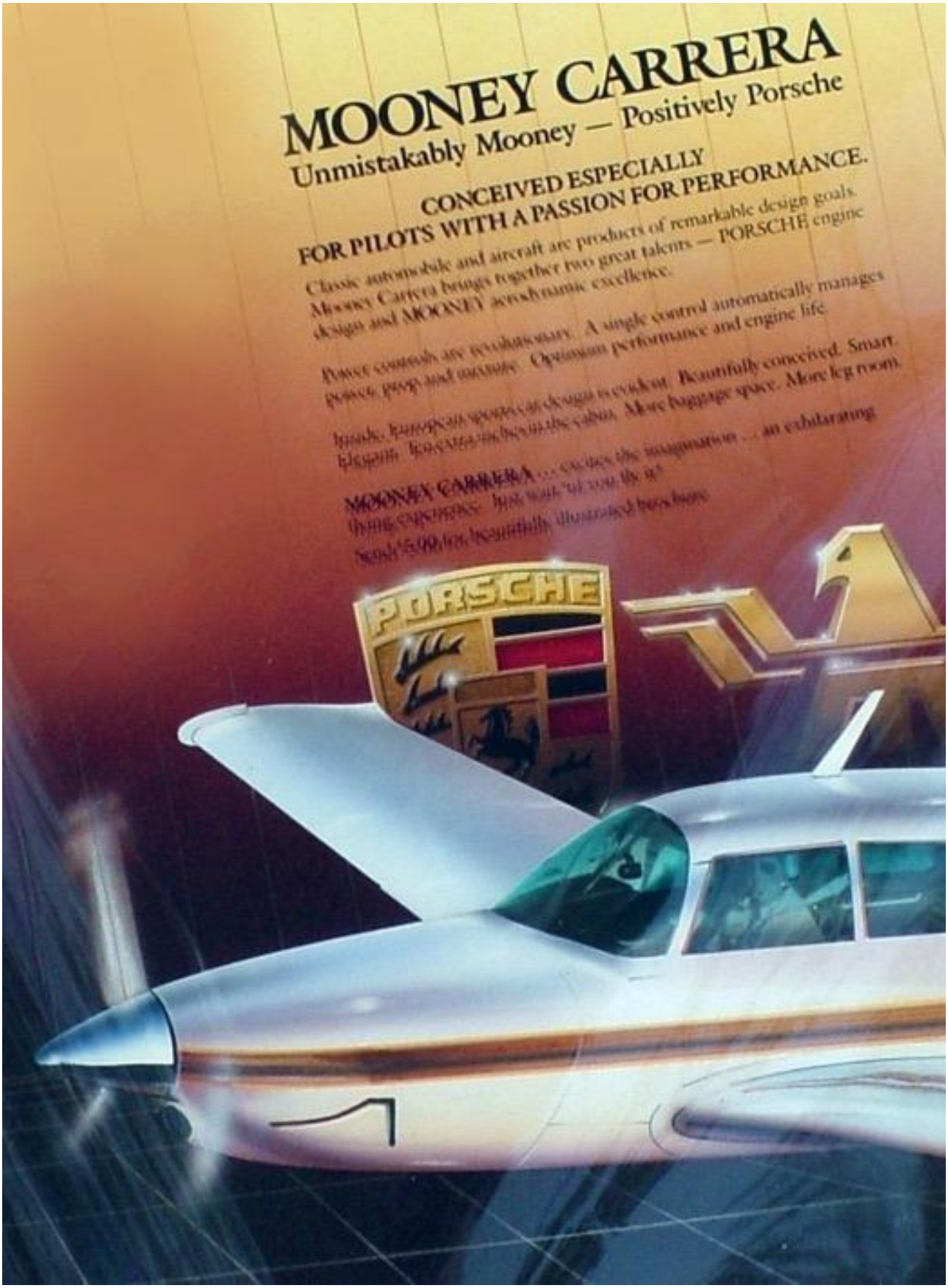
1) MASTER SWITCH - ON
2) Run the HIGH BOOST for 8-9 seconds before engaging the starter. (Sometimes you might want to run the LOW BOOST while cranking).
3) If the engine starts, then falters, give it an additional 5 – 6 seconds of HIGH BOOST.

After a while, you'll discover which procedure works best for your engine.

For HOT starts, you may need to cool the fuel lines and perhaps remove some fuel vapor. Here's the procedure:

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 FF
4) Crank starter and slowly move the throttle forward, being prepared to retard it when it starts.

It WILL start when the Fuel to Air mixture is right – every time.


MOONEY CARRERA
Unmistakably Mooney — Positively Porsche
CONCEIVED ESPECIALLY
FOR PILOTS WITH A PASSION FOR PERFORMANCE.
PORSCHE

The FAA is happy to release the newest animation to the [Runway Safety Pilot Simulator](https://www.runwaysafetysimulator.com/) https://www.runwaysafetysimulator.com/ This animation, "The Anatomy of a Wrong Surface Event" is the second in a three-part series focusing on causal factors for wrong surface events, such as incorrect runway or taxiway approaches, landings, or departures. Specifically, this episode highlights the importance of guarding against certain environmental factors that contribute to wrong surface events and other runway incursions.

A flashlight that can Charge your Phone

Flight Outfitters has introduced the Bush Pilot Flashlight, a rechargeable flashlight that can also charge your phone.

The Bush Pilot Flashlight's high-power LED light has 1,000 lumen brightness, features a green night vision mode, and an emergency power bank for charging a cell phone.

The flashlight has a Smart Select Dial that provides five light modes that can be accessed without scrolling through each one. Blast up to 1,000 lumens of white light for safe preflight inspections or provide up to 120 hours of low-level green light for night flight. An adjustable beam provides spot and flood light modes, according to company officials, who note there is even a strobe setting for emergency signaling.

The Bush Pilot Flashlight is charged via a USB port, so carrying AA batteries is not necessary. It will recharge from a cigarette lighter, portable battery pack, or wall plug. Plus, the same charging port can provide output for keeping a cell phone at 100% (does not charge tablets).

Constructed with aircraft-grade aluminum, the Bush Pilot Flashlight is water-resistant.

Price: $89.95.

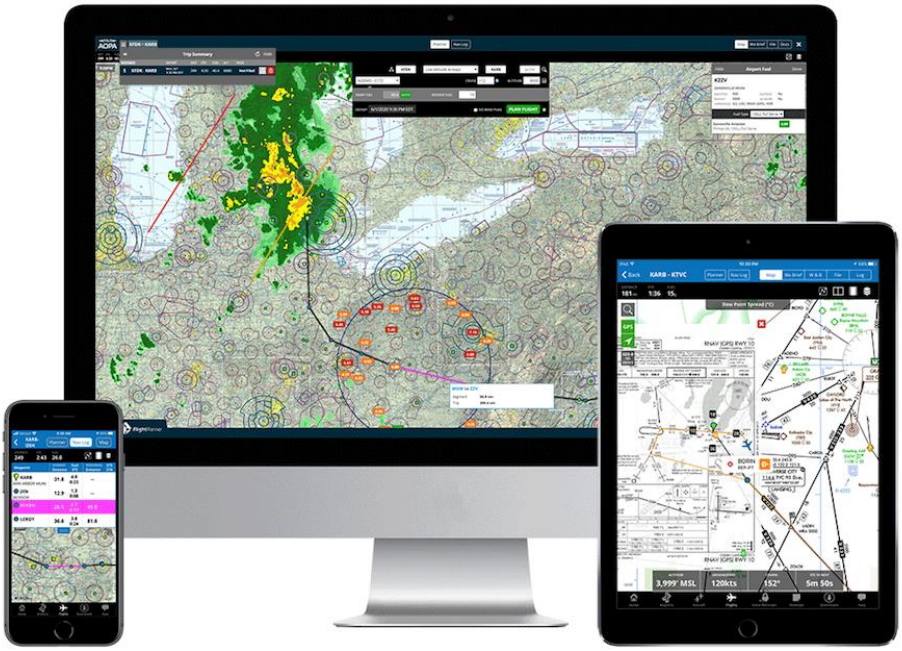
Garmin GFC 500 Digital Autopilot

Garmin's GFC 500 autopilot brings unprecedented levels of capability, reliability, and affordability. It is designed for light piston, fixed-wing aircraft, and approved for Mooney M20 models J, K, M, R, and S. Starts at $6,995.00. Learn more HERE

Waypoint Backpack

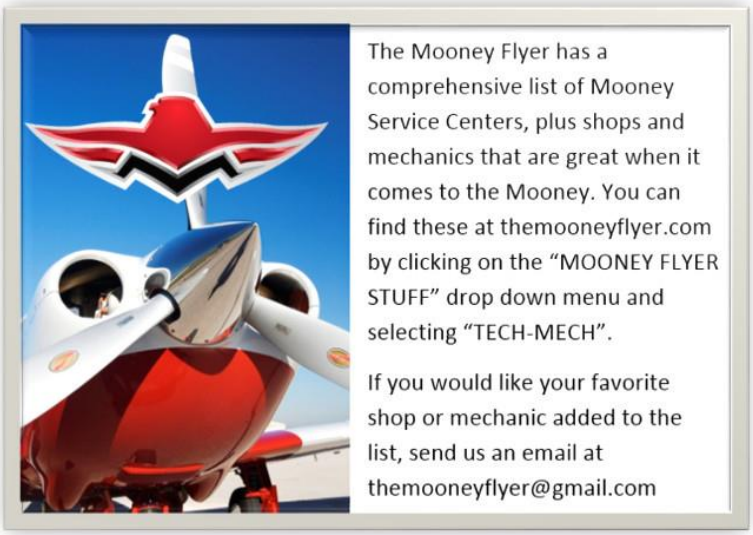
Flight Outfitters has introduced the Waypoint Backpack, a larger, more traditional size backpack loaded with features for pilots. The backpack, priced at $129.95, will be available in September 2020. Click HERE to Pre-Order.

iFlightPlanner's "Bring Your Own EFB"



iFlightPlanner has launched a new program that allows users to push flights planned with iFlightPlanner to their preferred Electronic Flight Bag (EFB).

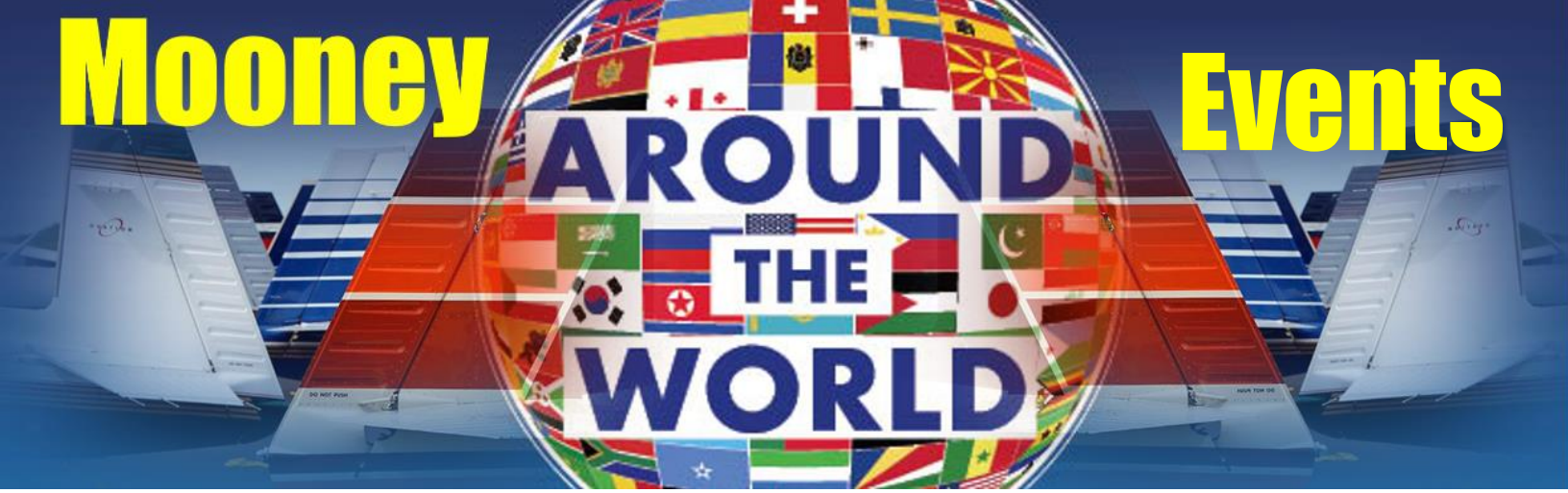
Members with access to iFlightPlanner for iPad and iFlightPlanner for iPhone will see a new "Bring Your Own EFB" setting to identify their preferred EFB. When selected, any flight planned with iFlightPlanner can be exported to ForeFlight, FltPlan Go, FlyQ, Garmin Pilot, Jeppessen, or WingX running on Apple devices.



New date: August 20 – 23, 2020

Wings to Walla Walla, September 4-6

This is an amazingly fun weekend with other Mooniacs. Stay at the Marcus Whitman. Call them at 866-826-9422 and use "Wings to Walla Walla" for the discount. Enjoy Wine Tasting and food with other Mooniacs. Contact **Henry Hochberg** at aeroncadoc@comcast.net for more info. CLICK HERE for a printable flyer.



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	~~Sep 10-13: Advanced Formation Clinic (PDT)~~ CANCELLED
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	~~October 16-18: Tampa O'Knight~~ CANCELLED CLICK HERE for details
Australian Mooney Pilots Association	
EMPOA	CLICK HERE for details
WEST COAST MOONEY CLUB FAST FLYING - FUN TIMES	August 20-23: West Coast Mooney Club Summer Fly-In, Sunriver (S21) CLICK HERE for details
Other Mooney Events	Sept 4-6: **Wings to Walla Walla,** sponsored by Henry Hochberg. Informal get together. Rooms at Marcus Whitman Hotel (866-826-9422, Use "Wings to Walla Walla" for discount). For more information, contact Henry at aeroncadoc@comcast.net CLICK HERE FOR THE WALLA WALL FLYER

TMF PRODUCT REVIEW

Novus Scratch Remover

My Mooney was jet blasted at KSJC, which covered it in grit. Before flying home, I gently wiped the windscreen. That caused a maelstrom of small scratches. I was devasted and wished I had asked for a garden hose instead. However, the damage was done.

A friend at Sunriver recommended Novus. They sell it in three levels of grit. For small scratches, my friend thought I could get away with using the middle one, Novus 2. I ordered it online.

When I got home, the Novus 2 was waiting for me. I went to the hangar and tried it on a small patch near the cargo bay. Voila! The plexiglass looked like new.

It looked so good that Linda said, “I can’t see the plexiglass anymore.”

I treated my windscreen and all my windows. They are like new.

All I needed were 2 microfiber towels. Start with clean windows. Squeeze some Novus onto the surface and spread it gently with one towel. Then, take the drier and cleaner towel, and rub gently in circles. Like magic, the scratches were gone. In a couple of spots, I did two applications. This stuff is good and safe.

If you are unsure, buy the Novus 1, 2 and 3 starter kit. That way you have more options.

Click Here for more information and/or to buy from Amazon.

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, Concord, CA (KCCR)

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


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