The Mooney Flyer

The Official Online Magazine for the Mooney Community

www.TheMooneyFlyer.com

July 2022

Editors

Phil Corman | Jim Price

Contributors

Bruce Jaeger | Tom Rouch | Ron Blum | Richard Brown | Linda Corman

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

From the Editor

Phil Corman

Fly-Ins

This past month we saw two significant Mooney Events.
The first was Wings to Walla Walla, hosted by Henry Hochberg. Henry has hosted this event for a long time. It was a weekend long fly-in with many planned events. Henry arranged discounts at local hotels, FREE wine tasting, a Friday evening Soiree, sponsored by The Mooney Flyer with food and wine, more wine tasting on Saturday and prizes and fun on Saturday evening. A million thanks to Henry for all his arduous work for Mooniacs. For more information, checkout Henry's article in this edition of The Mooney Flyer.

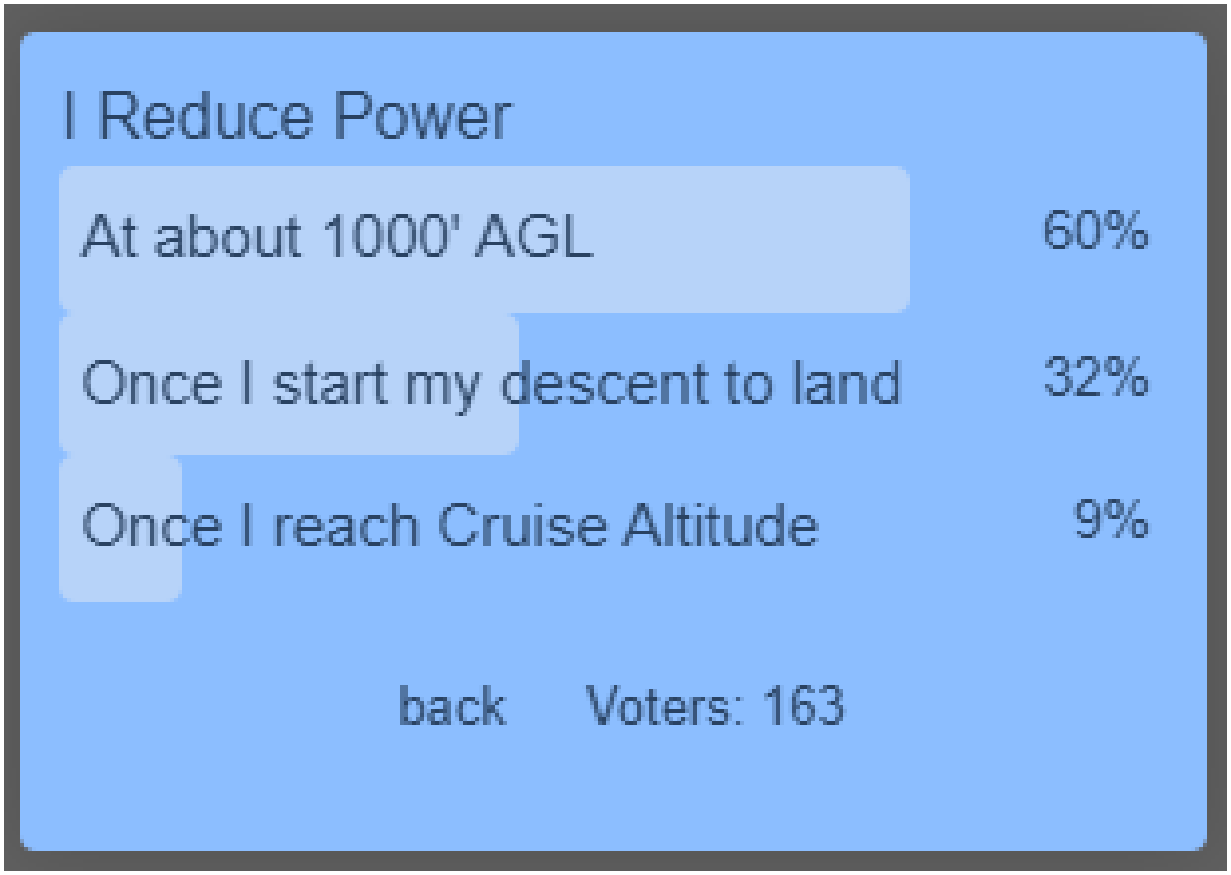
The other event was the MooneyMAX Convention, held in Longview by Don & Jan Maxwell. This event was chock full of amazing speakers and food. The Maxwell's really know how to plan and execute a 5-STAR Mooniac event.

Prices for 100LL

Prices for 100LL always seemed high to me. However, I understood that it is a very low volume product for the oil companies and therefore the prices were higher. But with prices hitting $6.xx and higher, it's become insane.

I wonder if people are flying less due to the prices. Surely for some this is true. When 100UL (Unleaded) hits the market, the price increase won't seem so big (sigh). I'm still wondering where 100UL is hiding. It'll be a lot easier for the oil companies to refine, but I don't think it'll cost less (Sigh again).

When you look at the overall cost of owning and operating an airplane, this price jump doesn't add too much to the annual cost. Think 1) Insurance ($1500-$2500), 2) Hangar ($3000-$6000), 3) Annual plus Repairs ($1000-$5000), 4) Avionics and Mods upgrades ($10000+) and 5) Reserve for Engine. I burn 13.5gph in my Eagle and average 100 hours per year. If 100LL is up $2/gal, then it costs $2700 more per year. For you vintage Mooney owners burning 9 gph, it's a lot less as a percentage of total costs. Isn't this an amazing rationale? I guess I need to always think this way. I'm also very glad that, though I budget most expenses in our household, I do NOT pay attention to my flying expenses ever. It's such a major joy in our lives.



Next month's poll: "The Price of 100LL has affected my Flying" **CLICK HERE** to vote.

I just read your article in Vol 1 Number 7. A couple of points.

Swept wing aircraft do not have the same stall indications as a straight wing aircraft. The nose does not typically pitch down. So, you have the nose on the horizon, some buffet and wing rock, and a massive loss of altitude. When I did them in USAF UPT in a T-38, the VVI was pegged at over 600 fpm decent.

And the pilot with control, did not realize that they were stalled, even though they were level, with full power, and rapidly descending.

The takeaway from this for Mooney (and any other aircraft) is to understand some basic pitch/power setting for flying without functioning airspeed. If you are at cruise power and cruise pitch, you should be close to holding your altitude, and at about normal cruise airspeed.

Terry C

Second Thought: What he is referring to in the first paragraph is a controllability demo from the T-38 called "Full Aft Stick Stall" in which the stick is brought fully back in one motion. This quickly reaches 1.0-1.1 AOA but feels relatively benign in the cockpit. VVI reaches SIX THOUSAND down and again, it feels pretty benign and lacks the nose drop we see in GA as Mr. Carraway mentioned. Practicing more normal (Traffic Pattern) stall entries in the 38 are marked by heavy buffet (we fly the final turn in a light buffet referred to as "the tickle") and verified by AOA.

The portion about the wing rock with swept wing aircraft is alluding to the famous "Sabre Dance" (F-100 style) in which the wing stalls tip to root resulting in loss of aileron authority earlier in stall progression.

As far as known pitch and power settings in the event of a loss of A/S I don't think it's bad to have them in your hip pocket. It's harder in a Mooney to be accurate due to Manifold pressure being your primary reading of power output. Most military aircraft display % of power so it's a lot easier (especially in light aircraft like the T-38) to know what performance to expect from a known Pitch and Power.

Phil S

PRESS RELEASE

SECOND RETIREMENT COMING UP!

Loewen's Mooney Salvage NEEDS A NEW OWNER!

Paul Loewen has enjoyed over 50 years in the Mooney family……first in the Los Angeles area as a Mooney Service Center at Whiteman Airport in Pacoima. He moved to Lakeport in 1973 and began Lake Aero Styling & Repair (LASAR) in 1975. The rest is history, as they say!

Paul sold LASAR in 2017, and he would love to see a "Mooney person" acquire the remaining salvage business that provides Mooney parts from a collection of more than the past 50 years. Paul has enjoyed selling parts from his collection that are no longer available new from the Factory to Mooney owner's world-wide.

If interested, contact Paul by home phone 707-263-0462, text 707-489-6423 or email PaulL@sonic.net.

LOEWEN'S MOONEY SALVAGE (www.loewensmooneysalvage.com)

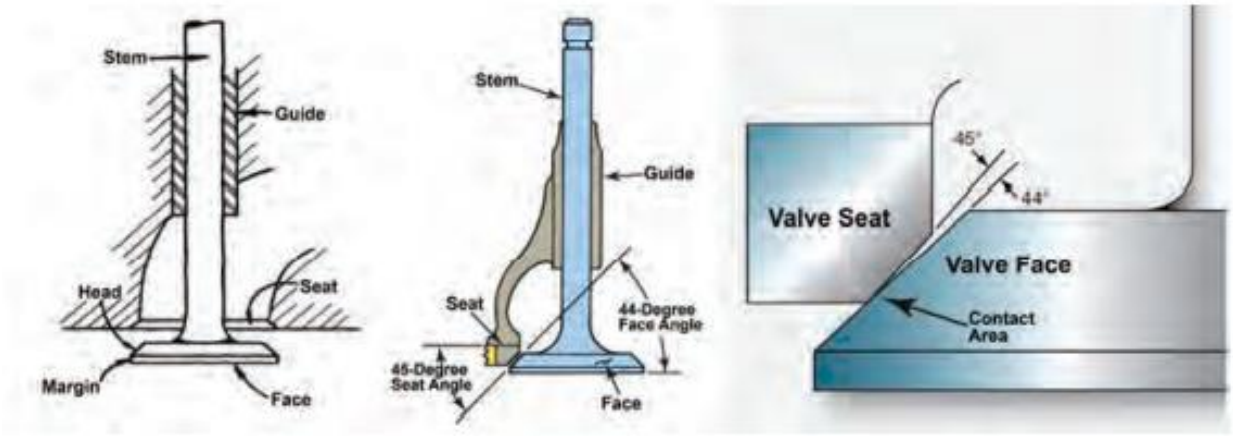
I Like my Exhaust Valves Medium Rare, Not Burned

Phil Corman
Co-Editor

This article is about detecting issues with your Exhaust Valves and addressing discrepancies before you encounter an inflight problem and/or the need to replace a cylinder.

The point is, if you monitor the condition of your exhaust valves regularly, you can significantly improve the likelihood that you can salvage your valve and your cylinder without removing or replacing the cylinder.

It is important to understand that pilots do not cause burned valves. Additionally, burned valves are not caused by hot EGTs. So, purge your preconceptions of these and read on.



There are at least three kinds of Exhaust Valve issues:

- Sticky Exhaust Valve
- Exhaust Valve not Seating due to deposits
- Exhaust Valve not Rotating

With a borescope of your Exhaust Valve, you should see a symmetric burn pattern. (See the rightmost valve in the illustration below). The asymmetric pattern in the two leftmost valves is indicative of a problem.

Sticky Valve

The valves open and close by sliding in and out through close-tolerance tubes called valve guides that are press-fit into the cylinder heads. The valves are opened by a valve train which consists of a cam lobe, a lifter (tappet), a pushrod, and a rocker arm. They are closed by a pair of strong concentric valve springs.

A sticking or stuck valve is one that no longer slides smoothly in and out through its valve guide. This can happen when there is a buildup of deposits on the valve stem and/or inside the valve guide.

A first indication of a sticky exhaust valve is what is often referred to as “Morning Sickness.” In this case, immediately after starting, the engine runs rough and then smooths out soon after. This is because while the engine is cold, the tolerances in the valve-to-guides are tighter and then expand as the engine warms up.

If the valve sticks closed, then when the valve train tries to open it, something’s gotta give. What usually gives is the pushrod, which is the weakest link in the valve train. The pushrod typically bends and puts the valve action permanently out of business.

If the valve sticks open, then the face of the valve can be struck by the rising piston, snapping the valve face right off the stem. This always shuts the cylinder down permanently. Occasionally, it shatters the piston and causes a catastrophic engine failure.

The cause is NOT carbon or oil deposits as many pilots think, but an involved chemical process starting with the lead, (TEL), in our 100LL. The compounds derived from the TEL in the engine all have a condensate temperature and if you run your cylinders too cold, that condensate builds up and causes your valve(s) to stick.

You can stop this from happening by keeping your CHTs from running too cool. Geez I hear you saying, I’m more concerned about hot CHTs. Both too hot and too cool are not good for your engine. Keep your CHTs at about 340-360^{o}F to avoid these condensate deposits. And did I say to “lean” as aggressively as possible whenever taxiing, since your CHTs will be quite cool/cold.

Exhaust Valve Deposits

The next Exhaust Valve discrepancy is deposits between the valve and the valve seat.

Exhaust valves must survive in an atmosphere of incredibly hot and corrosive gas where temperatures can reach 4,000 degrees Fahrenheit at the peak pressure point of the combustion event. To make matters worse, the valve stem must oscillate smoothly through a valve guide without benefit of lubrication. That is because the stem runs so hot that engine oil would just carbonize. Key to the exhaust valve survival is the valve's ability to shed this intolerable heat by transferring it to the cylinder head, which acts like a giant heat sink for the valve. There are two ways the valve can transfer its heat to the cylinder head: 1) via contact between the valve's head and the valve seat (when the valve is closed) and 2) via constant contact between the valve's stem and the valve guide.

Exhaust valves burn when the heat transfer path from the valve to the cylinder head is compromised. If the valve loses its heat sink, it can overheat and start to warp and begin to crack around the edges. This causes it to lose its seal with the valve seat, allowing extremely hot combustion gas to leak past the valve during the hottest part of the combustion event when the valve is supposedly closed. The escape of this extremely hot gas results in metal erosion and warping, which increases the leakage of hot gas past the valve.

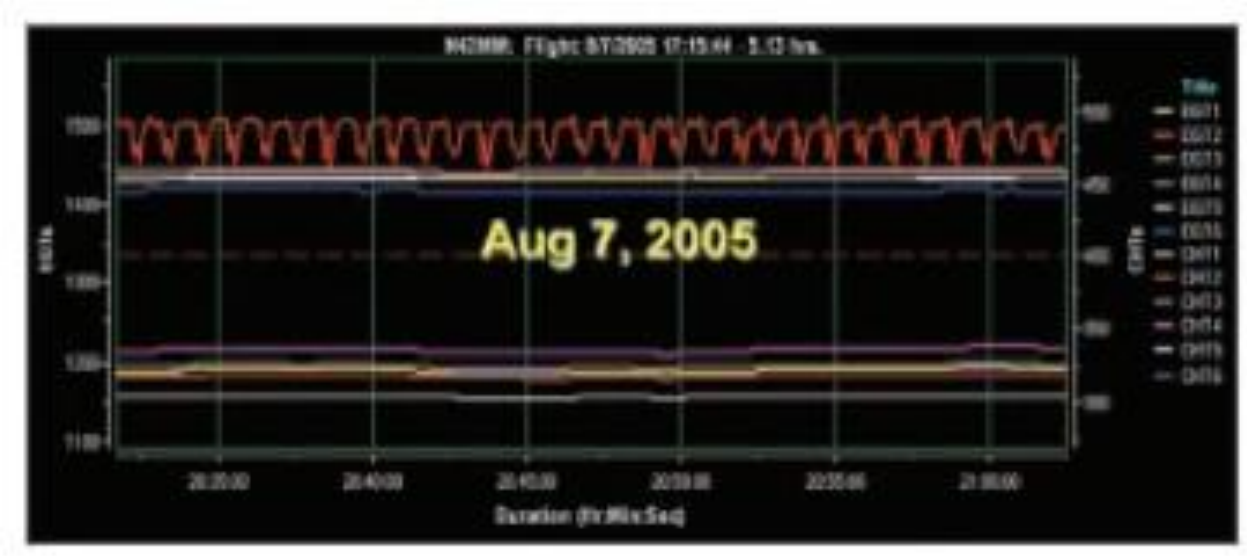
Lycoming sodium-filled valves are more dependent on the stem-to-guide heat transfer path, so worn guides that have a sloppy fit to the valve stems can lead to burned valves. This is one reason that Lycoming recommends regular "wobble testing" (Service Bulletin No. 388C) to check for play in the stem-to-guide interface. This is much less important for Continental engines, which tolerate worn guides far better.

If you catch this early, you can perform a straightforward process called "lapping," to remedy this situation. ***"Lapping" is the process of putting some grinding compound between the edge of the valve and the valve seat, and spinning the valve, in order to restore a good fit between the valve and the valve seat.*** Combustion deposits and irregular wear are contributors to a poor fit between the valve and its seat. If we can safely restore the contact area between the exhaust valve and the seat, it's possible that the cylinder can continue in service for many more hours. The good thing is that this process can be performed without removing the cylinder from the engine. And when it's successful, it has the potential to save time, money, and the risk of further issues that can be a by-product of removing and reinstalling a cylinder.

Failure of Exhaust Valve to Rotate

Rotation is also essential to exhaust valve survival. Most Continental and Lycoming engines employ exhaust valve rotators. Lycoming calls them "rotator caps" and Continental calls them "rotocoils." These valve rotators cause the valve to rotate a fraction of a degree each time the valve opens. At typical cruise rpm, the valve typically rotates a full 360 degrees each minute.

If you have a digital Engine Monitor, you can easily detect a valve that is not rotating by a small amplitude sine wave on that cylinder's EGT.

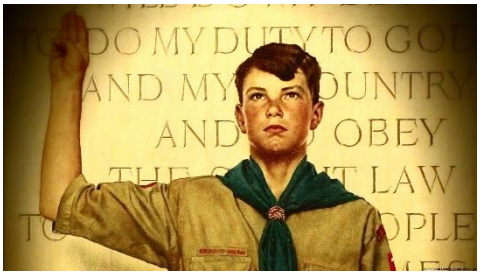


This is simple to perform, but you need to download and analyze your EGTs on a regular basis because catching this issue early is key to healing your valve and cylinder. Like most issues, it's easier to fix if caught early.

In addition, I recommend doing a regular borescope and looking for any asymmetric burn patterns on your valve. Just pull a sparkplug and insert a borescope. (These are not expensive).

If caught early, you can replace the rotocoils without pulling the entire cylinder. If caught early, the valve will return to normal, and you will NOT have to replace your cylinder. The key is to review the engine monitor data regularly and to perform borescopes regularly.

Prior to beginning takeoff, military and professional pilots always go through a departure briefing. It is just the way they have been trained – to be professional.



If you brief what you are going to do in normal or emergency conditions, this briefing helps solidify things in your mind. Being prepared is not just for Boy Scouts.

Aloud or Under your Breath?

You should brief aloud, even when you are flying by yourself. Sure, you may have heard your amazing departure briefing a thousand times, but why not one more time? Even when you are alone, when you brief aloud, you make sure you do not overlook any procedures. Phrases said aloud are more likely to be remembered, especially in a high-stress situation like an engine failure on departure. Think of it as the same reason you say your checklist items aloud when you are alone.

If you always brief prior to departure, this will improve your survivability in the case of an abort or engine failure/fire.

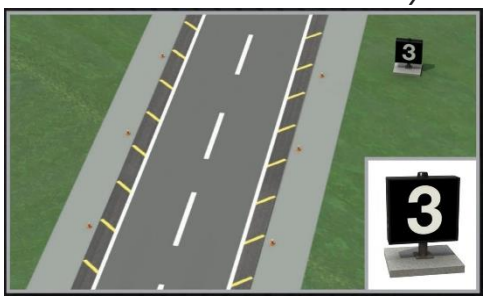
This article will suggest some great ideas to start you on the Departure Briefing path. As you become more comfortable, your briefings will become increasingly amazing.

Normal Brief

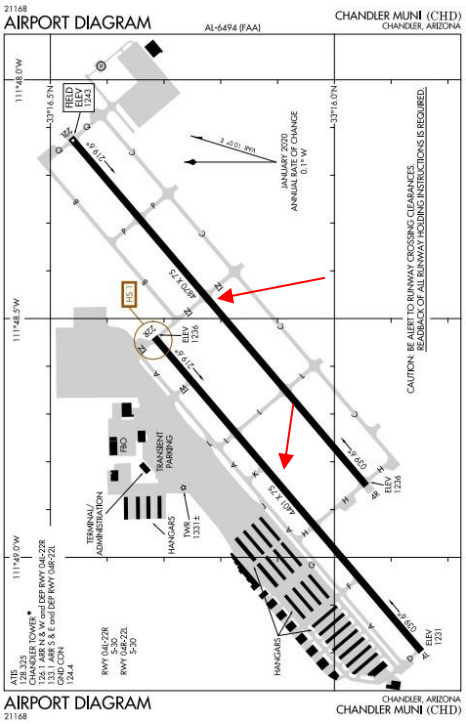
- **If you are flying with a pilot friend or CFI, please identify the Pilot in Command (PIC)**
- **Discuss the takeoff runway, the runway length, and reported winds**
- **Discuss the type of takeoff, and runway length required**

- **Identify the Abort Point**

If you have not reached 70% of your takeoff speed by the time you reach 50% of the length of the runway, abort the takeoff. If your takeoff speed is 70 knots, 70% of that is 49.
Use the airport diagram to determine the halfway point on the runway and find a visual cue that you can use to determine when you have reached the halfway point.



If your airport has Runway Distance Remaining Markers, you could use those to determine the halfway point.



- **Discuss the planned Rotate Speed**
- **Discuss the planned Climb Speed(s)**
- **Discuss the Pattern Altitude**

Rehearse the steps that you will use to stop safely, should you fail to achieve 70% of takeoff airspeed at the halfway point. Such as:

- Throttle - IDLE
- Brakes – APPLY
- Fuel Selector – OFF
- Magneto/Starter Switch – OFF
- Master - OFF

Emergency Brief

Every airport is different, and you will be grateful that you took a few minutes to think through what you will do in the event of an emergency, such as:

- Engine failure or fire on the runway
- Engine failure or fire in the climb
- Engine failure or fire at or above pattern altitude

Once you are finished with your briefing, if you have passengers, ask if anyone has questions.

This would be an exciting time to address their concerns.

Wings to Walla Walla Fly-In

by the Fly-In host, Henry Hochberg

Well, Wings to Walla Walla 2022 is in the books. We thought we had arranged for everything. Somehow, I forgot to order good weather. Even the intrepid editor of the Mooney Flyer was unable to make the short hop from Sun River to Walla Walla! Something about convective and thunderstorms in the way.

However, those who came were undeterred. We vowed to eat and drink as much as the 50 who had originally signed up!

Eighteen of us did make it. Three planes came while everyone else drove.

Friday afternoon started at Caprio Cellars where the owner has a sign next to his hangar at the Walla Walla airport: “VIP tasting for GA pilots!” (see photo here and remember for your next Walla Walla visit). That consisted of three excellent wines and a few delectable side dishes in a stunning vineyard venue.

Friday night we were wonderfully taken care of by a hosted event courtesy of none other than The Mooney Flyer. Phenomenal wines at Kontos Cellars with more delectability featured by steak, lettuce wraps and crab and shrimp hors d'oeuvres.

One of the great features of the Marcus Whitman hotel where most of us stayed, is the great buffet breakfast. WE were scheduled to go out and ogle each other's planes after breakfast, but did I mention that the weather got in the way? So, we all met up at CAVU Cellars owned by Jim who flew Pilatus Porters in Vietnam (Group photo in front of the C-54 mural). Our second tasting at Tranche Vineyards also included a four wheel tour of the vineyards themselves.

After dinner, on our own in smaller groups, (Walla Walla steak House is awesome), we met on the Sun Patio back at the Whitman. There we opened special bottles that we had brought and had a raffle for aviation related items. The grand prize was a B-

Kool aircraft cooling system donated by Jim Price that went to Mooney M20F pilot Igor and his wife Jelena.

I know many of you wanted to come and would have had the weather cooperated, (did I mention the weather was poopy?)

Vague plans are in the works to have another go at this in 2023. This time we will aim for September when there's more of a chance that the weather gods will cooperate. Hope to see you there!

Letters from Fly-In Attendees:

Many thanks, Phil and Jim. We had a great time, and even bought some wine! The weather sucks here, so you probably won't get here today. Phil, you might not remember, but we met on the ramp in Sedona a few years ago. **Chris S**

Henry Hochberg sent me your email. I wanted to thank you for hosting such a terrific event at Kontos last night. So sorry you couldn't make it. Due to weather, we only had a little over 20 people, but we finished all the food regardless. A terrific spread and the wine was also excellent, and the staff was fabulous.

I hope we all get a chance to meet you at some future event. Henry mentioned you like sponsoring events in Paso Robles. He and I actually went to a wine fly-in there many years ago. Some terrific wineries there as well.

Anyway, thanks again. **Jim G**

I'm sorry it didn't work out for you to fly into the Wings to Walla Walla event last weekend. I was looking forward to meeting you, but I guess it will happen some other time. I ended-up driving over (from Seattle) due to weather. Still, it was an amazing weekend – so much fun and an impressive turnout considering the weather impacts.

Thank you for sponsoring the Friday event at Kontos. It was one of my favorite events from the weekend. The cellar door is beautiful / charming, and we had the whole place to ourselves. It was fun to walk around, catch-up with people I knew, and meet new people. The food and wine were delicious too. It was such a great way to start the event! **Tim F**

Take the "Pain" out of "Painting"

By Kevin Knight

Planes look better, are more valuable and make passengers feel safer when they have nice paint schemes. Why? Shiny, attractive paint says, "I'm being well taken care of!"

Anyone who disagrees should walk down a flight line that includes a few planes with dull, oxidized, peeling paint. They may be mechanically sound, have great glass and avionics, even brand new engines beneath the cowlings. But they look old, decrepit, unloved… even dangerous.

That may sound dramatic, but ask yourself: If I walked into an engine shop and it looked disorganized with lots of old, rusty parts shoved in various corners, would I feel confident in the owner's work? If I interviewed an A&P about doing my annual and that person seemed indifferent, kept sloppy records and was unkempt, would I feel comfortable? If someone was selling a plane with paint that resembled the bottom of a rat's nest, would I wonder what else was wrong with it?

The good news is, it's easy to have a terrific paint design created and applied to your

plane. It won't be cheap but will add value and, if properly cared for, will last 20 or more years.

Since the waitlist for most shops is two months or more and finalizing a design usually takes at least a month, you have time to educate yourself before transforming your plane into a showstopper.

I've owned Mooneys, Cessnas and Pipers. I just had a 1983 Cessna TR182 painted in Las Cruces, New Mexico, with oversight from John Calhoun of Fresh Aircraft. (I sold my 1967 M20F to buy the Cessna at a great price. Once it's refurbished, I'll sell it to buy a nice Eagle or 252 Encore.)

The design was by Craig Barnett of Scheme Designers, (see sidebar), and the paint was a two-stage, clear coat, metal flake, tour de force from Sherwin-Williams. To quote everyone who's seen the plane, "It's spectacular."
I spent many hours on that restoration and am sharing some ideas and insights to save you some time and money.

Regarding costs, Art Craft Paint in Santa Monica, California, was rated a "standout" shop by **Aviation Consumer**. For a sense of expense and time, Sales Manager Brenda Maldonado told me they paint 15-20 planes a month and usually have them in and out in six weeks.

Half the customers have paint schemes locked down and half don't. Before their in-house designer left recently, they'd charge $1,250 for two designs, with up to three revisions after one design was selected.

Painting a 201 or Piper Cherokee white with up to three stripes cost $17,000. That includes removing and balancing the flight controls, ten hours of bodywork, since most planes have some dents and dings, plus stripping, priming, and applying a single-stage paint.

Prices go up from there, based on design, complexity and paint selection. When I was finishing this article, I spoke with a Cessna 182 owner at my local airport who had his plane painted to resemble a hornet. That cost $40,000, but it was a great looking hornet!

A career in cutting edge medicine has taught me to rely on experts with decades of experience. I thus had a lengthy Q&A with Richard Giles, Global Technical Services Manager for Sherwin-Williams Aerospace Coatings. I have a strong bias for Made in USA products and Sherwin-Williams's aero division is in Kansas, the same state where Superman grew up!

Q: When is an airplane's paint so bad it should be stripped and replaced?

A: "Corrosion is the first and most important consideration. Is it severe, is there a lot of paint detachment or skin thickness depletion, called erosion? If you have a leading edge with no paint, there's only one option: painting. When you walk around the plane, you look at the vibrancy and gloss of the finish. Has it been cleaned, are there any repairs, dents, and dings that need to be fixed? In a very few minutes, you can assess whether it needs a repaint. It's a very quick visual calculation."

Q: If my paint isn't great---but not horrible---can I restore it?

A: "There are lots of clever people out there who are committed to paint resurrection, but they're just delaying the inevitable. When you have to sand and polish, you're removing the DFT, or dry film thickness. The guys who do this professionally are very mindful of not removing too much pigment or clear coat. Paint restoration is achievable, but you have to be mindful of each situation, including the paint type and colors. Sometimes, there's just no hope."

Q: What should I look for in a paint shop?

A: "Experience, particularly with your kind of plane. Geography is also a consideration, although good shops can share progress photos as things move forward. I recommend asking for some references, search the internet for feedback, and get a couple of quotes. You can tell a lot by that, and how detailed the staff is in their work. Preparation is the foundation of a great paint job. If you want special effect colors, make sure they have expertise in applying them. There are lots of tricks of the trade that expert shops have learned through the years."

Q: Can the paint shop use automotive paint instead of aerospace?

A: "Aerospace coatings are more durable, flexible and weather resistant than automotive paints, and engineered to handle the rapid thermal cycles airplanes regularly experience."

Q: My plane has a single-stage paint. How does it compare with a two-stage paint?

A: "Single-stage paints are self-contained and don't have a clear coat. Initially, they are just as glossy as two-stage paints that include a clear coat. But over time, the clear coat paints retain gloss longer. The clear coat provides ultraviolet protection, color fastness and environmental protection since wind is very abrasive. If you want to use metal flake, pearlescent or a hybrid paint, they must be two-stage. They cost more but hold up better over time and can be easily repaired by a competent paint shop."

Q: Are "metal flake" paints actually metallic?

A: "Metallic colors contain numerous aluminum flakes, but there are also mica pigments made primarily of glass and plastics. Micas are mined, then processed to get a microscopic dish shape that reflects light from different angles. Micas are a really exciting addition to airplane paint schemes. You can get chameleon finishes with multiple mica layers. If you look at it head on, then from the side, the translucence, color and clarity change. That's called a flop.

"Candy paints are a translucent material that rely on the background. Many of those beautiful finishes are over black backgrounds. They're very attractive and getting brighter and brighter. It's a different look and a step beyond the mica. A shop has to be on its game to produce those finishes." (Author's Note: To see what different colors and schemes can look like, Sherwin-Williams has an easy-to-use, online color visualizer that's fun to play with at https://acv.sherwin.com)

Q: Can I use single-stage and two-stage paints in the same scheme?

A: "Yes. That's called 'splitting.' It's very common. If you use plain white on the upper half and red metal flake on the bottom, your paint shop can 'split' the scheme with single-stage paint on top and two-stage on the bottom.

Q: Can new clear coat be shot over an old, two-stage paint to renew it?

A: "You don't want to do that since there are two adhesion bond principles: mechanical and chemical. There's no chemical bond left on old paint so you'd need a mechanical key, which would be sanding. But you can't just clear coat a 10 year old paint. You'd have to sand, prime, base coat and clear coat the entire plane for it to look OK. However, those 'scuff and paint' jobs are heavier than new finishes since you're building on top of the old paint. Generally speaking, you're better off going with a clean palette and chemically stripping it.

Q: If I get some localized paint damage, can it be repaired?

A: "Yes. Sherwin-Williams design materials for ease of use. Many aviation paint shops have mixing facilities where they can exactly match a paint's color and appearance for repairs, similar to automotive shops."

Q: How much weight does a new paint job add to a plane?

A: "Roughly 25 pounds for a single engine plane."

Q: How long does it take a new paint job to cure?

A: "After 14 days, it's typically as cured as it's going to get."

Q: What is the biggest enemy of paint?

A: "Keep it clean. Remove carbon and fluids as they appear. And, if possible, keep it in a hangar to block the sun's UV rays. If you're going to use a cover, get a quality, breathable cover, e.g., Bruce's Custom Covers, that doesn't let moisture sweat on the surface."

Q: Is there a safe way to protect my leading edges?

A: "We see the 3M aerospace tape a lot. I think it has its place. It ages, yellows, and has to be replaced occasionally. (Contact Aircraft Spruce or 3M for details.) We offer an erosion system for leading edges that has a Teflon additive. It requires another step for the painter, and it's mostly used by commercial clients."

Q: What are the best cleaning and protective products for my paint?

A: "We aren't partial to any specific products, but prevention is better than cure. Keeping an airframe clean is the most important thing. New paint, by its nature, provides good runoff. If you can keep your plane hangared and clean, and quickly address any fluid leaks or carbon deposits, that's critical."

Author's Note: Since my plane is undergoing its annual, I haven't applied any cleaning products or protective coatings. I'm intrigued by the new ceramic coatings and studying products offered by Aircraft Spruce and Sporty's. I prefer environmentally friendly items that require minimal elbow grease to apply.

If you decide your plane deserves a new paint scheme, I suggest scanning the internet for ideas and visiting schemedesigners.com. There are hundreds of variations, ranging from factory original looks to multicolor paints and patterns. You're only limited by your imagination and budget.

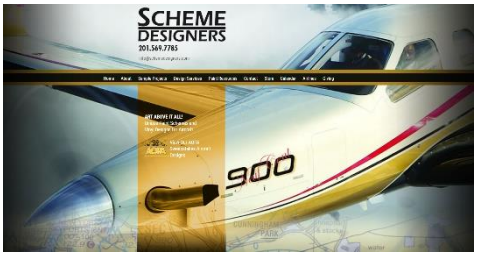
You will doubtless come across some vinyl wraps, which are increasingly popular on sports cars. Craig Barnett of Scheme Designers designed some eye-catching ones for my plane that resemble carbon fiber. He said vinyl wraps are most appropriate for "plastic planes" like Cirrus and Diamonds, since they don't have rivets. For those of us flying metal planes, vinyl can offer some nice accents but won't replace paint.

One final thought. My loving wife's support and happiness are critical to my flying "hobby." It thus seemed like a win-win to request a new N number from the FAA before the paint was stripped. As she proudly tells friends and family, her initials and my birth date are now "our" plane's call sign.

There's Nothing Plain About Craig Barnett's Planes

by Kevin Knight

Craig Barnett grew up in South Africa, spending hours of his childhood, flying with his father in a Bonanza and an Aztec, across that spectacular, diverse, colorful country. They even restored a Spitfire IX fighter plane together. "My favorite plane of all time," he says. As a young man, he earned his wings and a degree in Civil Engineering.



Twenty-five years ago, he literally left the farm and founded Scheme Designers, which is based in New Jersey. The dedicated staff has since created paint schemes for nearly 16,000 planes, and more than half the Original Equipment Manufacturers (OEMs), including Cessna, Piper, Mooney and Cirrus.

Based on my design collaboration with Craig, I found that he's a responsive, engaging perfectionist with boundless enthusiasm for aviation. His knowledge of how shapes, light, color and hues interact are peerless.

Working with him, I was reminded of a story I did with World Series MVP pitcher Curt Schilling. His understanding and explanation about the physics of throwing a fast ball was like a lecture from Einstein. Craig is like that with planes, paint and design. His opinions are strong, but always supported by experience. For instance…

"Design services are more than getting a beautiful design perfected for your tastes. Detailed documents convey everything to your paint shop to ensure accurate replication. To paraphrase Mark Twain, the difference between the right design and the almost right paint design is the difference between lightning and a lightning bug. Details matter."

I want that kind of obsessive-compulsive fixation from everyone involved with my plane's restoration and care. If you do, too, check out https://schemedesigners.com/

Head on a Swivel

by Richard Brown

By the time you have gone on a flight or two you have probably heard the phrase, “Have your head on a swivel.” The only “swivel” I am familiar with is the little metal contraption that you tie on a fishing line which then clips on to a lure. It allows the lure to spin around and around without twisting up the fishing line. Having your “head on a swivel” implies constantly turning your head to stay alert and aware of what is going on around you, trying to avoid potential danger.

The often-used phrase conjures up images of flying along looking this way and that to avoid the constant danger of another plane flying into you. But Richard, what about the “Big sky, Small plane” theory? My M20D, a short body, is 23’ 2” long, 8’ 4” high to the top of the vertical stabilizer and has a 35’ wingspan. If I had to make a box for it, the box would take up 6,756 cubic feet. That sounds like a big number but consider that one cubic mile of sky has 147,197,952,000 cubic feet in it, my plane only takes up 0.00046% of that airspace. Big sky, Small plane.

I know, as you get closer to an airport and the runway environment the sky shrinks, a lot. But even just a chunk of airspace that is a ¼ mile square and 200 feet high has 34,848,000 cubic feet in it and my Mooney is only taking up 0.019% of that airspace. Sure, everyone is ‘supposed’ to be flying the pattern at the same altitude and the same distance from the runway, but there are those pilots who fly their patterns like they are in a 747, buying you a little extra space. Also, there are pilots that are 100’ higher or 100’ lower than the typical traffic pattern altitude.

Then again, sometimes when you go up to punch holes in the sky, it seems as if everyone is just aiming for you. Big sky with a Small plane on a mission to run into your small plane.

Just before beginning another owner assist annual, I went up for a short flight. I wanted to get a little time in and run my right tank dry, knowing I would be pulling the drain to replace the O-ring. I had 26 gallons in the left tank and estimated 2-3 in the right. The plan was to take off on the left, switch over to the right until it was dry, then switch back to the left to return. I know many pilots who won’t run a tank dry, but with the O-360, it is actually in the POH, and having done it a number of times, it is no big deal. On a long cross country, this ensures I have all my fuel in one tank on arrival, and 10-12 gallons in one tank is better than 5-6 in each tank.

I departed KFUL and headed to the familiar Lake Matthews training area. At about 25 miles from KFUL, it is twice as far as the La Habra practice area, but I wanted to get some flight time. Having done all my PPL training out of KCNO, I was very familiar with Lake Matthews and all the landmarks and traffic calls. As expected, there were plenty of flight school planes droning

around the lake, so I went up to 4,500', the top of the practice area, knowing they rarely ventured that high.

After a couple of clearing turns, just for fun, I decided to try my hand at some steep turns. The first one to the left was a little rusty. The second one was much better, and I rolled level for a moment before rolling into a right turn. As I was rolling out of the right turn, I glanced down at the tablet on my yoke and saw a little red arrow with a -0- below it, pointed right at me. It was three miles away, so I banked to the right so I could head off at 90° to his current route, and so he or she could see me in a bigger cross-section. As I rolled wings level, I spotted him continuing on in level flight, passing behind me.

With him out of the way I rolled into another right steep turn, only to roll out of it and see the same N number showing up on the tablet. It was coming right back at me with that nice little -0- under his symbol. He had gotten to the north side of the practice area and just turned around to head south. Keep in mind that I had been on frequency the whole time, making calls and listening to the calls of the other planes. He was close enough I could see the color and type of plane, so I clicked the mic button and asked, "Yellow RV, are you on frequency?"

The reply came back, "I am now."

Big sky, with a Small plane on a mission to run into my small plane.

I droned around a little more until the fuel pressure started dropping, signaling that the right tank had run dry. I switched over to the left tank before the engine had a chance to stumble and headed back to KFUL.

One week later with the annual complete, my wife and I decided to fly to Catalina for lunch. Before that could happen, I needed to make a post maintenance flight. Anytime anything has been done to the plane, I always make a solo flight to check everything out. Having participated in owner assist annual, I knew everything that had been done to the plane. However, my personal rule is to make the first flight alone.

I made the short hop over to Corona (KAJO) to check everything and also get some less expensive *(there's no such thing as cheap anymore)* fuel. KAJO is known for being the "Wild West." I know pilots that won't fly there due to the not so standard patterns and radio calls that occur there. I was based there for a few years, and the reputation is well earned, but with your "head on a swivel" and staying vigilant, I've never had any close calls. Maybe some 'near calls', but not close. This trip didn't disappoint and KAJO was at its "Wild West" best, but that is a story for a different article.

I texted my wife before taking off from KAJO for KFUL. As I shut down in front of the hangar, she was pulling up in her car. After turning the plane around, taking a walk around it for a once over, and putting on our life jackets, we climbed in. I started up, and we taxied out to the run-up area.

Although I had just flown, I wanted to do another run-up prior to taking my wife out over the ocean. As expected, everything looked great so after going through my checklist to get configured, I called Ground Control for flight following. A few minutes later, we were in a climbing left turn to a heading of 120. We were handed off to SoCal Approach who had me hit the IDENT button and established radar contact.

SoCal asked, “What is your requested cruising altitude?”
I replied, “4,500.”
The controller said, “November 878, VFR climb approved, resume own navigation.”

We crossed the channel headed for Two Harbors. I was told to squawk 1200 and change to advisory when we started our descent. I easily worked into the busy traffic which was expected on a perfect Saturday mid-day flight to the Airport in the Sky.

I made my radio call on downwind, made my call turning base, and made my call turning final. There is one place where “Big sky, Small Plane” doesn’t apply, and that would be on short final. Everyone who is landing and everyone who is taking off are headed for that same little piece of real estate. On short final I heard, “Catalina traffic, Skymaster *xxxx,* runway 22 right downwind departure, Catalina.”

I glanced from the runway to the left and saw him move forward as he was making his call. My hand was on the throttle. (It always is in the pattern and on final). I was ready to advance the throttle and sidestep to the right of the runway. The second he finished his call I keyed up and just said, “Mooney is on short final.”

I saw him stop. He keyed the mic and said, “Sorry, I’m holding short for you.”

I thanked him and continued for a nice landing on a not so smooth runway. Yes, the runway was replaced by the Marines and Seabees in 2019, and while it is an improvement to the previous 77-year-old runway, they didn’t exactly make it smooth. My dad who spent 20 years serving in the Air Force, used to joke when we were building something and say, “It’s good enough for government work, but we’re not doing government work.” That was followed by additional work to bring it up to my dad’s standard.

My wife and I enjoyed a nice lunch, took the Airport Loop Trail to the west end to look out at the Pacific and watch planes depart over our heads. We then wandered around looking at planes before heading back to KFUL. The flight back was uneventful, Big sky, Small Plane, and I tucked the plane in the hangar until the next flight.

As always, thank you for taking the time to read. If there are things you would like me to write about (or not write about), or if you just want to say hello, drop me an email at richard@intothesky.com.

Learning at Oshkosh

Twenty Fifth in the series by Ron Blum

I don't consider myself old, until I look back at where these career choices have taken me, or count the number of Oshkosh Fly-Ins I've attended. In 1976, my Uncle Carl started me on this annual journey to Oshkosh (Photo 1). The "Harrier" was hovering over the runway as we drove into the airport. A hovering jet airplane? Really? Forty-six conventions later (yes, every year since 1976), and I still can't get enough. So much to see, do, experience, and learn. But the bottom line is: it all comes down to people.

Photo 1 – Early Oshkosh

Oshkosh through the eyes of a child is all about brightly colored airplanes, loud noises, airshow routines and smoke trails. I fell in love with the "Christen Eagles" (Charlie Hillard, Gene Sousy and Tom Poberezny). The team of three originally flew together in Pitts "Specials" as the "Red Devils". And OMG, R. A. "Bob" Hoover, flew aerobatic airshow routines in stock airplanes! Those types of routines are still my favorite. Later in life I would get to meet all these people and call all of them friends.

During and just after college, I had the privilege of working at EAA's Kermit Weeks Flight Research Center (on 20th Avenue, north side of airport), doing autofuel STCs. The 3 gentlemen there were fantastic mentors from which I learned so much … until Paul Poberezny found out I could draw. Yes, pencil or pen and vellum. No more autofuel STC work for me. It was off to Paul's workshop (now the PHP Conference Center), and the Poberenzy "Junior Ace" and "Super Ace" were born. The show as an employee is exciting but very, very different. The long, long hours are expected to be volunteered. Please say thank you to EAA employees when you see them.

As a degreed Aeronautical/Astronautical Engineer, the show takes a new perspective and Aerodynamics plays a role. Questions of why some propellers make a "rapping" noise and others don't are answered. Looking at why some airplanes are faster than others are fun, learning observations. It is also enjoyable talking to designers and builders to learn why they did what they did.

Photo 2 - Early Development

As a member of the Cessna "Oshkosh" Team, meeting customers was extremely exciting. With Honda Research & Development Americas (later Honda Aircraft Company, Inc.), it was fun to listen

to what people had to say about the Company and airplane without them knowing I was a part of the team. Kestrel Aircraft had a long history, so extended development time and financial backing issues normally dominated the conversations.

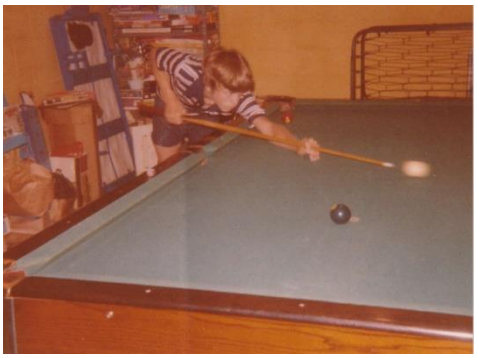


Photo 3 – Misspent Childhood

With Mooney-Chino, M10 potential customers were always upbeat and positive. Everyone was very complimentary about Mooney in both Kerrville, Texas and Chino, California. I still think the M10 concept of a 3-place trainer or 2-place with baggage, go fast machine is very viable. There is a good reason it was named the M10J.

The show used to run for ten days; Friday through the following Sunday. The opening day of the week has rotated through about every day of the week but has settled on Monday and seven days long for the past several years.

Good or bad, depending on one's point of view, I have known this would be my vocation since before I could walk (Photo 2). But I tell people I grew up on a pool table (Photo 3). Mooney CEO Jerry Chen and I often played 9-ball late into the night as we discussed work, of course.

For me, Oshkosh is a great, week-long training and learning exercise that I get to claim as "work". Let's meet up! Call me at (316) 295-7812. My list of forums is below. Hope to see you at Oshkosh!

1. Monday, July 25, 2022, 1:00 PM – 2:15 PM

Mooney (General Av) Aerodynamics - Forum Stage 2: GAMA

2. Tuesday, July 26, 2022, 8:30 AM – 9:45 AM

Demythifying Stall/Angle of Attack - Forum Stage 2: GAMA

3. Wednesday, July 27, 2022, 10:00 AM – 11:15 AM

Wright Gliders, Airplanes & Glider? - EAA Museum - Vette Theater

4. Friday, July 29, 2022, 10:00 AM – 11:15 AM

Loss of Control: The Hard Facts - Forum Stage 8

5. Saturday, July 30, 2022, 10:00 AM – 11:15 AM

Mooney (General Av) Aerodynamics - Forum Stage 2: GAMA

Blue on Top

Got a topic? Email me at solutions@blueontop.com. Until next time keep the blue on top.

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

My First Long Cross Country in my Mooney 201

by Michael C. Waters

I recently flew a 1,300 nm cross country. As a low-time Mooney 201 driver, with 150 hours in the plane and 250 total time, it really pushed me to grow as a pilot.

As I flew across the country in my M20J, I appreciated everyone's advice and guidance.

I recently moved to Colorado for work and needed to relocate my plane to Colorado Springs (COS). Until now my longest trip had been 450 nm so this nearly tripled my longest XC to date and would cover two days. A trip of this length required a lot of planning and caused me a lot of concern. I was going to fly this trip in three legs over two days. After flying into Washington-Dulles on a United flight, my first day was a flight from Eastern WV Regional Airport/Shepherd Field in Martinsburg, West Virginia to Springfield, Ohio. The second day would be from Springfield to Colorado Springs with a stop in Lincoln, Nebraska for fuel and lunch. I spent countless hours analyzing weather, NOTAMS, various airports and alternative flight paths/airports. Route, Altitude, and fuel consumption took up most of the planning.

I decided to study up on some engine operations and run the engine lean of peak rather than rich of peak (as I have until now). The good news is I had 10 hours of flight time to dial in my procedure. I ended up running about 25 deg lean of peak and burning about 8.5 gph while cruising about 150kts over the ground, (I didn't have a hard headwind until the last leg).

After the United flight to Washington Dulles, I got a great ride in a Glasair III from an east coast pilot buddy who picked me up at one of the GA FBOs. What a beast of a plane that Glasair is. “Cleared for takeoff runway 01C” and the trip was off. We flew up to MRB and without much hesitation, I loaded up and got Leg One underway to Springfield, Ohio (SGH) to bed down for the night. The air was smooth as butter at 8,000 ft and the views were beautiful. This 273 nm leg got the XC underway.

Day 2 started with a 4 hr. 600 nm leg to Lincoln, Nebraska (LNK), a class C airport with a wonderful FOB, Duncan Aviation. Departing Springfield, I overflew the Wright-Patterson Air Force Base Area B facilities and the Air Force Museum. Having spent a year and a half at WPAFB before moving to Virginia, it was great to fly over the base. Again, this leg was wonderful with more low fuel burn and smooth skies. Headwinds here were below 10 kts and only a handful of distant clouds to break up the clear skies. Landing at Lincoln was challenging because of the high winds and gust. Lucky the wind was nearly right down the runway.

After lunch, Day 2 continued with the final leg, a 387 nm trip to Colorado Springs (COS). With the high winds at Lincoln, the Mooney jumped off the ground and climbed like it was afraid of the runway. Leg three was going to prove to be the most challenging leg of the journey. The strong 30 knot headwinds slowed my progress and added turbulence to the ride. I guess my luck had finally run out after 7 hours of super smooth cruising. About halfway to my destination, a line of storms developed out of nowhere and ATC was vectoring people left and right, trying to stay ahead of the storm.

I got bounced around in some moderate turbulence for a little while and had pretty strong up and down drafts. It was enough to request a 1,000 ft. block altitude, while diverting left and right of course to avoid buildups and going through light precipitation. After getting through this weather "fun" I had to plan the landing at COS. ADS-B weather showed a 22-32kts crosswind. This was well above my personal max, but on an 11,000 or 13,500 ft. runway, each 150 ft wide, I was willing to make the approach and try it, then divert, should I not feel comfortable with the wind. As I neared COS, I got word the airport was closed due to a wildfire and all inbound flights were being diverted to either Denver or Pueblo (PUB). I decided to divert to Pueblo since their winds were almost right down the runway and it was getting to be a long day. As I approached PUB, I was vectored for the 26L pattern. I was getting blown around with the vectors and finally just asked for the RNAV 26L and a close IAF. Weather was VMC with great visibility, but I was at the end of a long day and the sun was in my eyes on approach. I felt it was safer to shoot the approach and trust the instruments the whole way into short final at 500ft.

Pueblo turned out to be a great airport, with several military aircraft, including the T-6 Texan II and a few helicopters that were either on the ramp or making approaches. The FBO had free water, hotdogs, and ice cream. The higher fuel prices were to be expected and the crew was super nice and helpful.

Since I live in Colorado Springs, my wife drove 45 miles to Pueblo, picked me up and we went home to stay for a day or so. The final destination was so close, but still so far away. I had to return to PUB to get my plane and complete the trip to Colorado Springs. I reached out to a vast network of pilot groups, such as this one, and found another Mooney driver that was nearby and wanted to fly. He came down to COS and picked me up. There, we got to meet some great Navy pilots who were on their way to the California coast, which is a 1.5 hr. flight for them in their F-18s. They were taking off right after us and they got to wait and watch this mighty Mooney take off. It was a bumpy ride down to PUB, but the scenery was amazing. PUB was super busy with training traffic, which might have been part of the USAF Initial Flight Training program, based at Pueblo. After a long wait on the ground, I was cleared to start my 15 minute trip to my final destination.

This was the longest trip of my flying experience, and it took a lot of work to make it happen, from all the planning to the great help from the group here at The Mooney Flyer. I learned a lot along the way and ran into several new situations. I learned that ATC is not perfect because they are people too. By going to four larger airports that were new to me, I ran into a few situations where I was unfamiliar with the area or airfield. Flying out of Lincoln, Nebraska and Pueblo, Colorado, I was given a taxi instruction I was unfamiliar with. So, I requested a progressive taxi. Ground was happy to help and got me rolling in the right direction. Don't be afraid to tell ATC that your unfamiliar. Springs approach told me to overfly an area. It was a local reference, so I had no idea where it was in relation to me. Letting ATC know I was unfamiliar with the area resulted in the controller saying, "No problem, I'll give you vectors to the pattern entry."

Other lessons:

- You can never be overprepared.
- 10 minutes of planning can help you avoid an hour of hard flying.

- Know your limits. Push them safely to expand your knowledge and experience but have a backup option. Don't be afraid to divert or feel pressured to make your original plan work out.
- Never be embarrassed to tell ATC you need help with something.
- Sometimes weather just happens, use your resources to try and avoid the worst of it.
- Don't get into planning paralysis. You can only plan so far with any flight and at some point, you have to start the flight and use your training.

I wouldn't have been nearly as confident in the trip without the support of my fellow Mooniacs. As a pilot, I feel like this trip expanded my horizons and pushed me to grow in ways I hadn't thought of before. In the future, I am really looking forward to making more trips similar to this one and keeping you all updated as I do.

Mooney Math

1) You are at 10,000 feet MSL with a ground speed of 150 knots. You need to cross the MAVRK fix at 6,000 feet which is 20 NM from your current location. What rate of descent should you use?

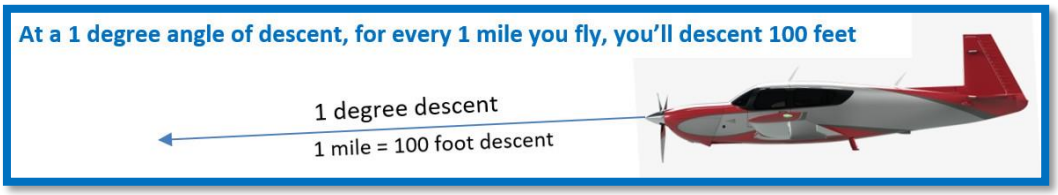
There are three basic steps to follow when planning your descent:

- **Step 1)** How much altitude do you need to lose? (10,000 – 6,000 = 4,000)
- **Step 2)** How much time before you reach the fix? Divide your ground speed by 60. 150 knots GS / 60 = 2.5 miles per minute. MAVRK is 20 NM away. (20/2.5 = 8) It will take 8 minutes to fly 20 miles to reach MAVRK.
- **Step 3)** Altitude to lose / Time = FPM Descent Rate. (4,000 / 8 = 500 FPM).

2) You're 30 miles from a VOR. If you are 1 degree off course, how many miles off course are you?

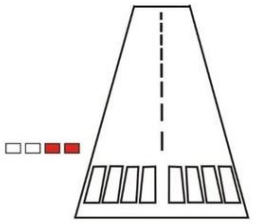
Here is the 60: 1 Rule: If you are flying towards a VOR and you are 1 degree off course at 60 miles, you're 1 mile off track. Using that same rule, if you are 2 degrees off track at 60 miles, you are 2 miles off track. Likewise, at 30 miles and 1 degree off course, you are 1/2 mile of track and at 15 miles and 1 degree off course, you are only 1/4 mile off track. So, using the above 60:1 rule – if you are 30 miles from the VOR and 1 degree off course, you are ½ mile off course/track.

3) If you descend at a 3-degree flight path angle for 2 miles, how many feet will you descend?



If you lower the nose 1 degree, you'll descend 100 feet in one mile. (1 deg * 1 mile * 100 = 100 feet).

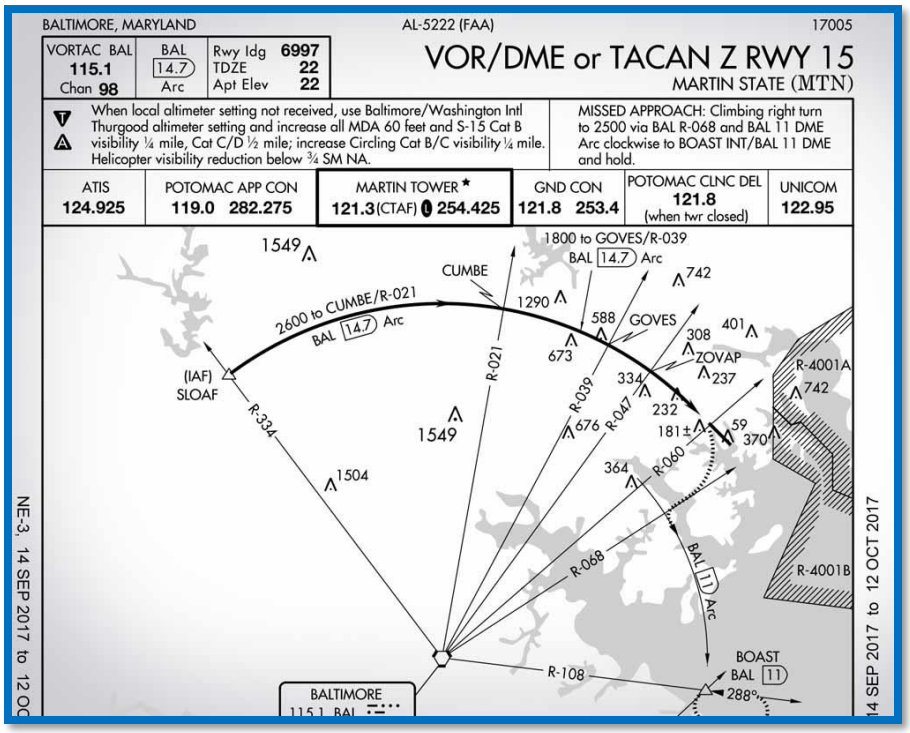
Since you are descending at 3 degrees for 2 miles, you will descend 600 feet (3 deg * 2 miles * 100 = 600 feet). The answer is 600 feet.



4) The Chart Supplement (formerly known as the A/FD) indicates that the PAPI on Runway 4R has a 3° glideslope. You are on final approach to 4R and the PAPI shows that you are "On Glide Path". If your groundspeed is 80 knots, how many feet per minute (FPM) do you need to maintain to stay on the glideslope.

Simply multiply your groundspeed by 5. 5 x 80 = 400. If you maintain 400 feet per minute, you will stay on the 3° glideslope. Likewise, if your final groundspeed is 120 knots, (5 x 120 = 600) the rate of descent to maintain a 3° glideslope is approximately 600 fpm. If you cannot remember how to multiply by 5, you can divide your ground speed by 2, then add a 0 to the end. Same result!

5) You have been cleared to fly the Martin State VOR/DME or TACAN Z RWY 15 approach and cleared direct to SLOAF. SLOAF starts at the BAL 334° Radial on the 14.7 Arc. How many miles will you travel to the BAL 060° Radial, (the missed approach point)?



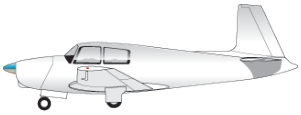
To make it easier, let's round up the BAL 14.7 arc and call it 15. At 15 miles, every degree flown around the arc takes .25 mile. The arc spans from the 334° radial to the 060° radial, which is 86 degrees.
Since every degree of the arc is .25 miles, this approach is 21.5 miles of arcing (86 x .25 = 21.5).
Other arcs examples:
12 DME arc
12/60 = .2 miles per degree of radial. (.2 x number of degrees)
10 DME arc
10/60 = 1.7 miles per degree of radial. (1.7 x number of degrees)

DM

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

Mooney Maintenance



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

Click here

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

Click here

LASAR
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Ask the Top Gun

Tom Rouch
Founder of Top Gun Aviation, Stockton, California

Send your questions for Tom to TheMooneyFlyer@gmail.com

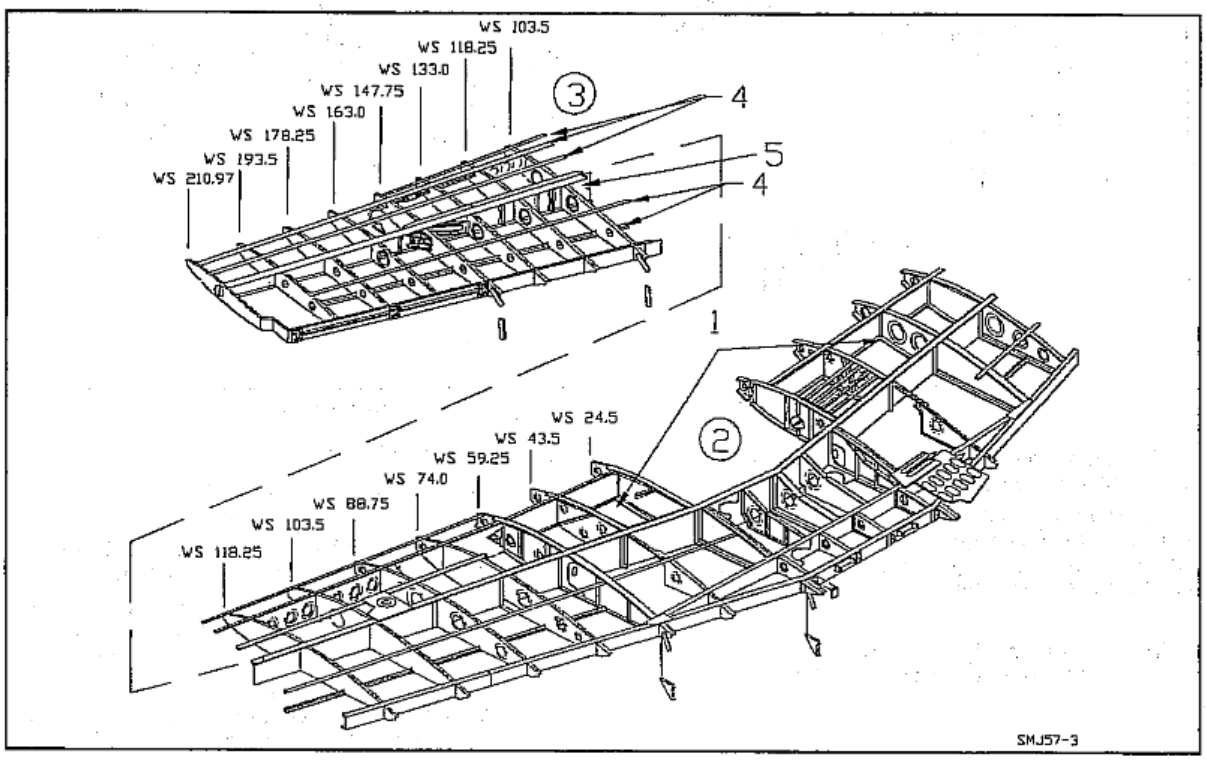
QUESTION

I'm considering a used 1980 M20J. In the FAA airworthiness file for the plane, it has this 337:

Repaired right wing lower skin at Station 80" and 120" with oval patches approximately 3" x 8" x .040 of 2024T3 sheet aluminum.

The forward lower stringer at Station 80" was repaired per paragraph 2.1.1, page 3 of the Mooney M20 Series Structural Repair Manual.

There's no drawing of the repair included with the 337. I cannot find the manual referenced in the 337 (the Mooney M20 Series Structural Repair Manual) online, but I did find this in the Mooney M20J Service and Maintenance Manual:



WING STRUCTURE - FIGURE 57-3

12-98

57-20-02
5

So, the questions are:

1. From your experience, do you have any idea what kind of event might have caused this

damage to the bottom of the wing? (There is no FAA incident/accident report for this airplane).
2. Should I be concerned about this? Since it happened in 1982, I'm thinking 'no', but I am curious about what happened.
Thanks very much for your thoughts.

Tom's Answer

Well, it's hard to say what could have happened here. Because I can't see it, I can't even guess. It could have run into something or just had a hanger accident. For most incidents, if no one is hurt and property has not been damaged, there is no requirement to file a FAA report. Most of these incidents are only found in the logbooks. It has a 337 for the repair so that is a big plus. I come across this kind of thing often and never know what happened. Sometimes during the logbook review, you might see other items that can give you a clue as to what might have happened.

Being that I cannot see the repair work I cannot say for certain, but the fact that is has been there for so long with no issue, it would be safe to say that this would not be an issue. I would have someone take a good look at it during a pre-buy. If all looks good, move forward.

I hope this helps.

new 180 hp

fixed gear

"convertible"*

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Here is the most modern fixed gear plane on the market to day . . . rugged all metal construction, high performance laminar flow wing, wide stance landing gear with steerable nose wheel, 33° hydraulic flaps, dependable 180 horse power Lycoming engine, 1100 pound useful load, 780 fpm climb at full gross.

FLIGHT PROVEN ENGINEERING . . . you get all the same rugged quality construction and flight safe engineering found in the nations number one seller in retractables — the Mooney Mark 21.

INVITES COMPARISON . . . FLY ALL THREE—the Cherokee, the Musketeer, and the Mooney Master — compare quality, construction, performance and versatility. See if you don't agree — you get more for your money with Mooney!

YOU GET MORE FOR YOUR MONEY WITH MOONEY

FEATURE	MOONEY MASTER	BEECH MUSKETEER	PIPER CHEROKEE
Horsepower	180 hp	160 hp	180 hp
Cruise (75% Power)	141 mph	135 mph	141 mph
Climb	780 fpm	710 fpm	720 fpm
Useful Load	1100 lbs.	1000 lbs.	1135 lbs.
Take-off Roll	890 ft.	890 ft.	775 ft.
Landing Roll	550 ft.	595 ft.	600 ft.
Stall Speed	57	62	57
Range (75% Power)	680 miles (48 gal.)	792 miles (60 gal.)	695 miles (50 gal.)
Propeller	Constant Speed Controllable	Fixed Pitch	Fixed Pitch
Cowl Flaps	Standard	None	None
Flaps	Hydraulic (0° to 33°)	3 Position	3 Position
Controls	Dual (Standard)	Dual (Extra)	Dual (Standard)
Cyl. Head Temp. Gauge	Standard	None	None
Brakes	Individual Toe (Standard)	Individual Toe (Standard)	One Hand Brake
Generator	50 Amp	35 Amp	35 Amp Alternator
Super Sound Proofing	Standard	.....	.....
Manifold Pressure Gauge	Standard	.....	.....
Retractable Entrance Step	Standard	None	None
Steerable Nose Wheel	Standard	None	Standard
Tinted Glass	Standard	None	None

From Manufacturer's published figures

MOONEY

MOONEY AIRCRAFT, INC. • KERRVILLE, TEXAS

Bivy Stick Offers new Option for In-flight Messaging

Staying connected in flight is not easy, since most cell phones are useless above about 500 feet and installed WiFi systems cost nearly $100,000. There are some decent portable options, especially if you're mostly interested in sending text messages. These typically use the Iridium satellite constellation, which is limited in terms of data speed but has the benefit of worldwide coverage at all altitudes. A portable satellite communicator is ideal for updating friends and family when your ETA changes or for tracking flights in remote areas.

Now there's a new player in this market. ACR Electronics, a well-known manufacturer of personal locator beacons, has launched the Bivy Stick to offer affordable messaging and SOS alerting. About half the size of a typical smartphone, the Bivy is small enough to fit in your pocket or be clipped to a flight bag. It is even compatible with GoPro camera mounts. The Bivy weighs less than 4 oz. but is a rugged little device, with just a few buttons along the side and a waterproof coating. You can check in or initiate an SOS from the device, making it a self-contained safety tool, but the real value is unlocked by pairing it to your smartphone. Simply charge the battery, turn it on (with a clear view of the sky), and connect it to your smartphone or tablet via Bluetooth. Since there's no screen, the free Bivy app—available for iOS and Android—is the main way to communicate. This allows you to send pre-composed messages, check-in with contacts, type custom messages, or get point weather forecasts (not aviation-specific). You can even send an SOS message, which uses Global Rescue to coordinate search and rescue services. The app also has a variety of other features aimed mostly at hikers, including maps and trip sharing options.

The Bivy app allows you to send custom text messages. Like all Iridium devices, Bivy requires a data plan and four options are offered, ranging from $15/month to $65/month, depending on the features and number of credits (messages, weather reports, and tracking points all use credits). These are competitive with Garmin's plans, although slightly higher. On the good side, there is no activation fee with Bivy and credits can be rolled over from month to month. Overall, Bivy offers a unique combination of features at an attractive price—it's just $249.95. For a basic, affordable option that can stand up to abuse, it's hard to beat the Bivy. There's certainly no less expensive way to send text messages in flight.

Closing Reid-Hillview Airport

Santa Clara County officials in California dug deeper into the leaded aviation fuel debate hobbling their local airport, and a study found the ground around the airport has acceptable levels of lead. However, it took some dogged determination by the local newspaper to bring the study to light. The $130,000 probe took samples from 32 locations around Reid-Hillview Airport the airport at 6 and 18 inches below the surface and none exceeded local, state or federal standards. A similar study of San Martin Airport, 23 miles south of Reid-Hillview, turned up similar results. The study was not publicly released until the San Jose Mercury News did a public records check.

It's another piece of the ongoing controversy that has led to Santa Clara County banning 100LL at both airports, forcing operators whose aircraft need the higher octane fuel to fill up elsewhere before going there. The ban came after a study released a year ago suggested kids living near the airport had elevated lead levels, but those findings were contested. The study says the highest level of lead in soil was found near a major highway intersection and came in at 46.7 milligrams per kilogram, just below the danger level of 50-800 mg/kg.

STC Approved for Hartzell Propeller 3-Blade Mooney Bravo Prop

A Supplemental Type Certificate (STC) has been approved to replace McCauley propellers on Mooney M20M/TLS/Bravo series single-engine aircraft with Hartzell Propeller's 75-inch diameter three-bladed aluminum props. Airplanes covered by the STC are powered by TIO-540-AF1A and TIO-540-AF1B Turbocharged Lycoming Sabre engines. CLICK HERE FOR MORE

Fly In and Drive Off

Wouldn't it be great if you could fly into an airport and instead of worrying about finding a hotel or campground, you could stay in an Recreational Vehicle (RV)?

That's the premise behind **FLY2RV**, a new online platform that allows pilots to reserve a recreational vehicle for their next cross-country adventure. Just fly into an airport and a RV is waiting for you on the ramp. You do a quick walk-through and then off you go on your vacation adventure. When the vacation is over, you drive back to the airport, drop off the RV, climb in your airplane and head home.

Launched in May 2022, **FLY2RV** had more than 1,500 responses and positive comments in just its first four days. Even better, it has received bookings from pilots across the United States and even one from a pilot from Europe.

The typical rental period is between three to seven days, but pilots can choose as few — or as many — days as they want.

Rental rates range from $120 a night for a Class C RV to $1,400 a night for a luxury Class A RV powered by diesel.

The RVs are available at 42 airports across the United States, from Miami, Florida, to Anchorage, Alaska. And the numbers continue to grow every week.

How It Works

To make a reservation, go to **FLY2RV.com** and select your destination airport from the drop-down menu, then enter your dates of travel, the number of people, and click search. You'll see a variety of RVs ranging in price. Once you select the RV you want and the number of days, you click "book."

The RV dealer will contact you to make arrangements to meet you at the airport when you land.

At the end of your vacation, simply return the RV to the airport, check out with the local airport RV rental dealer, and fly to your next destination.

Delaying the Full Rollout of 5G Until July 2023

The Federal Aviation Administration has come to an agreement with AT&T and Verizon that would delay a full rollout of 5G C-band wireless for an additional year, to July 2023. During the extension period, the

FAA will encourage operators of aircraft that may face 5G interference to replace radar altimeters or add filters that will minimize the risk. CLICK HERE FOR MORE

New Charging Cables include Status Screen

Now there are multiple options for the plug on ***both*** sides of the cable: USB-A or USB-C? Also, different iPad and iPhone models can accept different amounts of charging power.

1. Built-in screen. This is great way to confirm the plug is working and that your device is getting enough juice. For example, an iPhone often shows 7 watts, while an iPad Pro typically shows 15 watts. If you looked down and saw 1 watt on an iPad, you might check your charging plug to make sure you're using a high amp plug. Once the number drops to zero, you know your device is topped off.

2. High power charging. These cables can handle some serious power if you're connected to a high amp charging plug. This is what you need to charge your devices quickly, and it's one area where cheap cables often fall short.

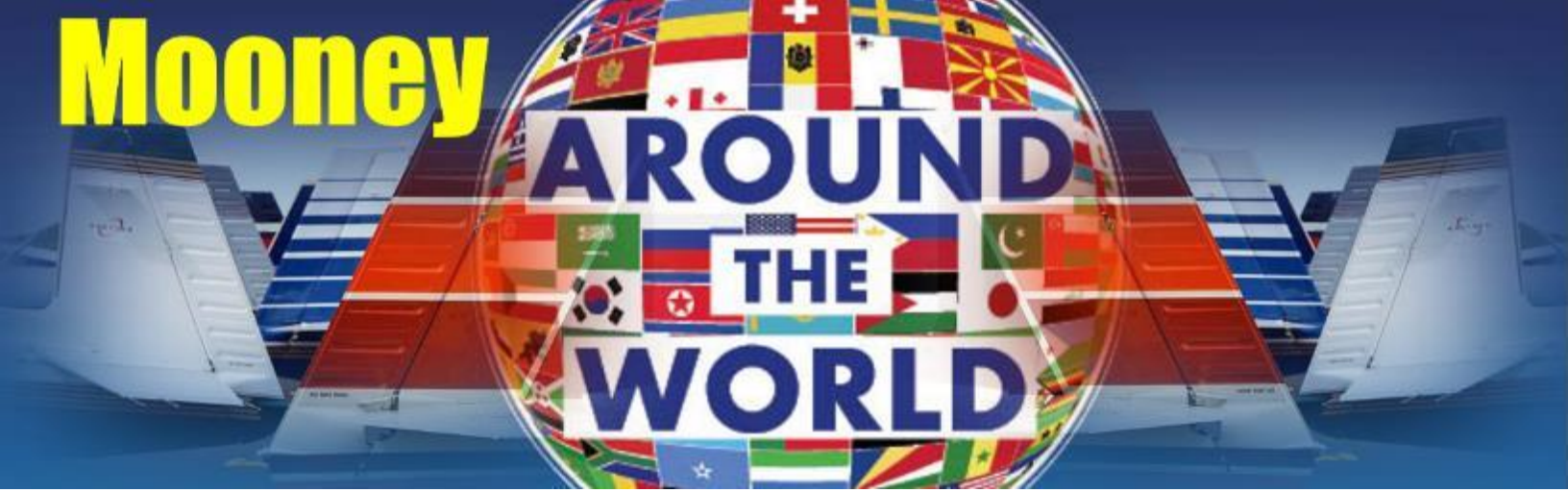
For new iPhones and iPads, these cables can take advantage of fast charging technology to quickly boost up your battery. The USB-C to USB-C cable, which can handle 100 watts, is even powerful enough to charge up a MacBook Pro. Here are the full specs:

- USB-A to Lightning – 12 watts
- USB-A to USB-C – 66 watts
- USB-C to Lightning – 20 watts + Power Delivery (PD)
- USB-C to USB-C – 100 watts + PD

3. Braided cables. A braided cable will simply last longer. Rolling up a cable and shoving it in your flight bag can cause cheap cables to crack and fail, but these Smart Charging Cables have strain relief around the plugs and a rugged sleeve around the cables themselves. They have help up quite well after a month of testing.

4. Multiple plug options. Their current in-flight setup includes an iPad Pro (USB-C cable), an iPhone 13 Pro (Lightning cable), and a Sentry Plus (USB-C cable). That means we need a variety of plug types to keep everything charged. The Smart Charging Cables are offered in all the different varieties to fit our gear. This includes: USB-A to Lightning, USB-C to Lightning, USB-C to USB-C, and USB-A to USB-C.

The Smart Charging Cables are available at Sporty's in the four versions listed above; each one is $19.95.

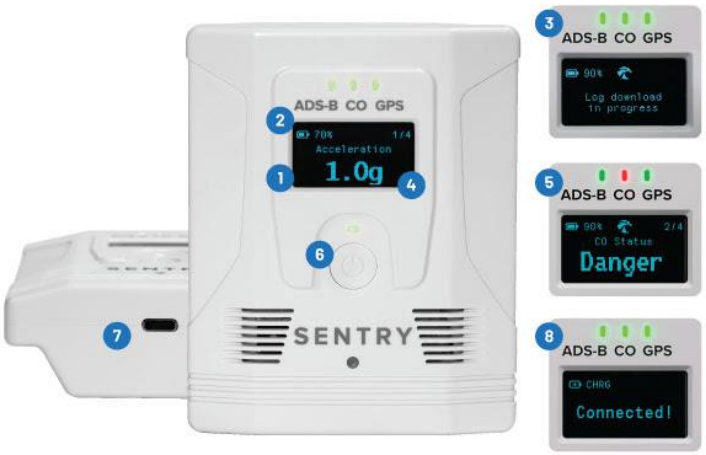


Florida Mooney Lunch Group	*Contact Dave at daveanruth@aol.com or (352) 343-3196, before coming to the restaurant, to have an accurate count. Events begin at 11:30* Jul 9: Williston (X60), Pyper Kub Café Aug 13: Okeechobee (**KOBE**)
MOONEY SAFETY.COM	**2022 Events** Sep 16-18: Oshkosh, WI (OSH) Oct 21-23: Redding, PA Sign Up at https://www.mooneysafety.com/ppp-registration/
MOONEYSUMMIT	**Learn more at** https://www.mooneysummit.com/
Australian Mooney Pilots Association	September 9-12: Spring Fly-In to Merimbula – More details later **Learn more at** https://www.mooney.org.au/
EMPOA	**Learn more at** https://www.empoa.eu/index.php/en/
Other Mooney Events	

TMF PRODUCT REVIEW

ForeFlight Sentry Plus

NEW SAFETY FEATURES



1. Integrated OLED screen shows key information at a glance
2. Incredible battery life - up to 18 hours on a single charge
3. Next generation flight data recorder with automatic track downloads
4. Built-in G meter displays real time status and records min/max
5. Improved carbon monoxide sensor with visual and audio alerts
6. Auto power on/off when connected to external power
7. Works with smart charging plugs and power delivery chargers
8. Smart network joining for airplanes with on-board WiFi

CLICK HERE

for more information

Parts for Sale

Item for Sale

Call Tom 303-332-9822

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

Price $3,999

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)

1990 M20M Mooney Bravo N756TB 27-0047 for sale

• Garmin G600 • Garmin GTN750 (with PTC Switch) • Garmin GTN650 • Garmin GTX33ES • Garmin GMA35 • Garmin GDL69A • Garmin GDL88 • STEC 55X Autopilot with optional remote annunciator • EDM930 • L3 Avionics ESI2000 • L3 Communications SKY497 • P2 Audio Advisory System TTAF: 2874 TSNEW:1291	• Davtron M803 • CO Guardian model 452 • Precise Flight Pulselite • LoPresti Boom Beam for both Landing and Taxi Lights • Gami Injectors • ACK Technologies E-04 ELT • Monroy Extended Fuel Tanks • Painted 4/2008 • AeroDynamics Vortex generators • Prop Overhauled 9/2016 • Turbo Overhauled 2/2014

Eric Trehus
RHV – San Jose CA
etrehus@gmail.com
(408) 644-2238
$260,000.00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