The Mooney Flyer

The Official Online Magazine for the Mooney Community

www.TheMooneyFlyer.com

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Editors

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Ron Blum | Richard Brown

Departments

Features

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The Mooney Flyer's goal is to educate, inform, and entertain Mooniacs.

From the Editor

Phil Corman

Winter's Coming

As they said in Game of Thrones, winter is coming, (for most of us). There is no Knight King awaiting us, but the cold weather can wreak havoc on our Mooneys.

Preheating

First and foremost, you really must pre-heat your engine if you expect temperatures at or below freezing. Most of the wear on the gizzards of your engine occur the first 15-20 seconds after you start. In cold weather, the damage is amplified by congealed oil, which takes longer to warm up and reach the upper engine. Preheating can keep your oil more viscous. There are several ways to keep your engine warm in cold weather. The easiest is with a heated hangar. But if you are outside, this is not a viable option. The next option is an engine heater. I have a Tanis, which includes a cylinder heater and a sump heater. All I need is electricity to warm that big IO550. Lastly, you can inexpensively make your own heater. John Hillard has written in this issue and shows us his own heater design. It is inexpensive, safe, and effective. NOTE: Do not continually keep your engine on a heater; only before a flight. Leaving it on can increase condensation which is counterproductive to our engines.

Frost & Ice

Do not plan on departing with frost and/or ice on either your wings or empennage. Those laminar wings rely on smooth air and ice or frost disrupts that flow, especially rime ice. If you have the option, turn your Mooney around so the sun's rays can warm your aircraft. Additionally, you can use a deicing glycol/water mixture if you cannot wait for the sun to do its job. Be careful of rubbing too hard on your Mooney, especially the plexiglass.

Shock Cooling

In spite of OWTs (Old Wives Tales), shock cooling is usually not an issue in our Mooneys, and with an engine monitor, you can ensure this doesn't occur. In winter's cold temperatures, especially at altitude, consider leaving the MP at the cruise setting during your descent. This will help keep the CHTs from dropping precipitously in the cold temperature.

CO Monitoring

With the cold weather, most of us will close the air vents and crank up the heat. This is good for comfort, but closed vents could lead to disaster if you have a Carbon Monoxide leak. Consider investing in a CO monitor. Additionally, you should check your tubing for cracks or leaks before winter strikes. CO, like hypoxia, is sneaky and you will not know you are being affected until it is too late. This easily can kill you. Perhaps you should open your vents periodically to ensure a fresh source of oxygen. If you have oxygen on board, you might consider using it.

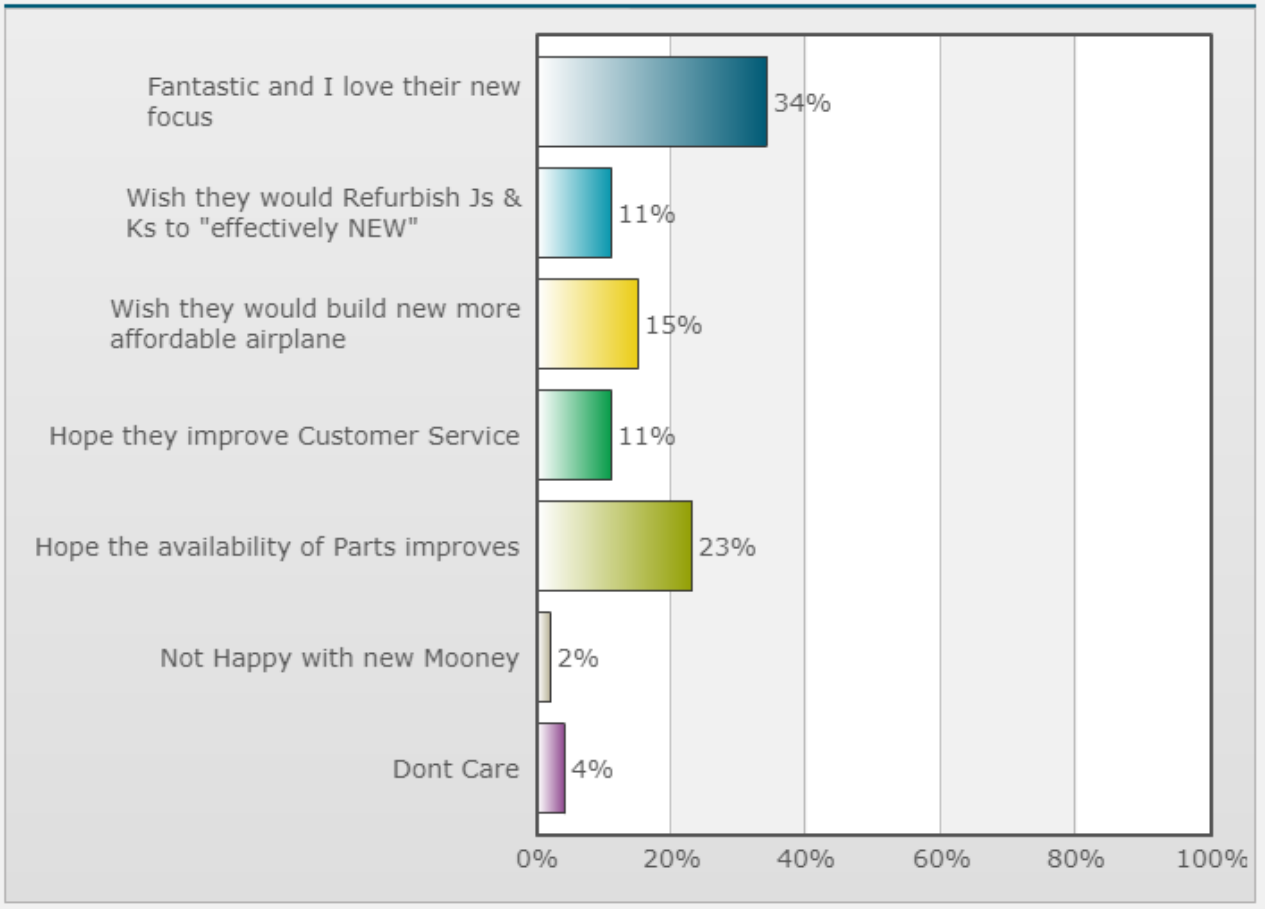
Oil

Lastly, don't forget to ensure that you have the right oil viscosity for your winter temps. We believe in Phillips XC 20W50.

How Do You Feel About the New Mooney Owners

Poll created by Phil Corman on 10/01/2020

Poll Results



Next month's poll: "I hope the new Mooney Owners will" **CLICK HERE** to vote.

Letters to the EDITOR

Editor@themooneyflyer.com

As for enjoying my Mooney I have a story to relate that may be of interest to your readers. In May I received a letter from the FAA Aerospace Medical Certification Division requesting documentation for a MOHS procedure I had performed in the spring. I had 60 days to submit and on June 10 my dermatologist confirmed he had forwarded the docs to the FAA. I considered following up with the FAA to confirm, but forgot about it. Two weeks ago, I received notification my Special Issuance of Medical Certificate Authorization had been withdrawn, effectively revoking my medical certificate. I had 14 days to mail my medical certificate to OKC. I have since complied and provided the requested docs. An FAA Doctor called last week and asked about other medical issues dating back to 2010. Apparently when this happens, it is Carte Blanche for their doctors to review all historic medical interaction with the FAA. They are also requesting additional info other than the initial MOHS questions. Had I known where this would end, I would surely have confirmed receipt of the originally requested docs. Hopefully, I will be airborne again soon.
Ron B

In the Flyer, it was noted that Amelia Earhart's N16020 will never be re-issued. Here is a famous N-number that HAS BEEN reissued: N3794N. It was previously on the Bonanza that crashed February 3, 1959 near Clear Lake, Iowa, with three passengers aboard: Buddy Holly, Ritchie Valens, and J.P. Richards (the Big Bopper). "The Day the Music Died."

N3794N is currently sported by (wait for it) ... a Mooney M20F in Alabama.
Damon T

Excellent publication that always seems to fire on all cylinders. Keep it up and stay safe.
Mike G

West Coast MAPA

A social flying group of Mooney pilots, organized in the early 1980's and active through May 2002

by Shery Loewen

Paul and I had the pleasure of being involved in the West Coast Mooney Club's Sun River event in August 2020, put on by Michael Rodgers. It was so fun being with old and new Mooney friends, and it brought back many fond memories of past visits to Sun River with West Coast MAPA, a social group of "Mooniacs" which was organized in the early 1980's and remained very active for over 20 years.

Delightful time on Tom & Susie's airport deck, Sunriver 2000

The idea for an article about West Coast MAPA began with the announcement of the Sun River event. Thank you, Michael, for organizing it. I was reminiscing with Phil Corman about several previous Mooney trips to Sun River with West Coast MAPA, and he suggested I write an article about West Coast MAPA for *The Mooney Flyer*.

West Coast MAPA began in the early 1980's at a MAPA Convention (Mooney Aircraft Pilot's Association) in Kerrville, TX, (home of the Mooney Factory), when we and a few California friends came up with the idea. We then talked with the organizers of MAPA, Mark and Bobbie Harris, and they gave us their blessing. Thus, began a wonderful 20+ year association.

Originally, it was decided to have three couples as Directors, but over the years, we had 3 to 6 couples or single Directors who planned the various events. At some point, it was decided that we should have quarterly fly-ins; some 2-3 day events and some lunches at airport restaurants. In the beginning, Jonesy's Restaurant at NAPA Airport was a popular spot for get-togethers, as was Columbia Airport in the Gold Country, which features an overnight camping site area alongside one of the runways. Columbia became an annual spring event, and we had many wonderful speakers at the Saturday potluck luncheons.

For those who made it a weekend outing, the town of Columbia never disappointed, nor did the camping. For Paul and I, it was a fun family time, and our young children looked forward to their yearly tent-camping adventure. I must admit that the last few years, with our children grown and on their own, our camping was in a motel!!! We had the usual weather issues on occasion, but Columbia was almost always well attended. The weather must have cooperated when Bing Lantis, former CEO of Mooney, was the speaker, because we had 48 Mooneys and 85 people in attendance. We got to see Bing again when we had a fly-in to Sun River/Bend, Oregon, and toured the Lancair Factory where he was CEO at the time.

Several years we flew into Baja, Mexico, landing most often in Mulege, staying at the Serenidad Hotel, alongside the runway. On one occasion we flew with a group of about 18 Mooney Airplanes to the tip of Baja and stayed in Punta Pescadero. The highlight of that trip was that almost all the guys who chose to go deep sea fishing caught a marlin! (Pictured is Dick Benjamin). One year, we teamed up with the Baja Bush Pilots for an amazing trip of whale watching at Loreto.

Over the years, we had a few adventures into Lake Havasu, AZ. One highlight of our trip in March 2002, (where wind issues prevented the boat ride through Topcock Gorge), was a fun "Who Dunnit Mystery" evening with dinner. On Sunday morning, we were treated to a complimentary breakfast by the Partnership for Economic Development and learned about the "fastest growing city in Arizona." The group graciously awarded our organization a piece of the London Bridge, inscribed with a tribute to the Mooney Pilots Organization. How many of you can say you have a piece of the London Bridge???

I can't highlight all of the wonderful fly-ins we've had in the past. In all honesty, a lot of the data describing the fun we have had with the group over the years was lost when my computer crashed several years ago. Thank you, Gary, and Lorrene Watters, who sent out our Newsletter for many years. They helped me reconstruct several of our events. Also, thanks to another contributor, Bea Benjamin, who with her late husband, Dick, was one of the original Directors.

I would encourage you to check out some of the other places that we enjoyed in the past. Other weekend events were held at Jackpot, NV, Laughlin, NV, two trips to Grants Pass, Or, which included a Rogue River Jet boat ride, Death Valley – Salinas / Monterey, CA, three trips to Friday Harbor, San Juan Islands, WA and the Boeing Factory Tour. There were lots of California trips, including a Sonoma County, CA Wine Country Tasting Tour, Trinity Lake, Lake Tahoe, Coast of Mendocino and San Diego. Our best attended event was the June 2000 "Gold Country Fly-in" at Jackson Westover Field, CA, with 57 Mooneys and 139 people enjoying the BBQ lunch. Some of the other lunch events over the 20+ years were held at Anza/Borrego Springs, Rosamond Skypark, Lake Almanor and the Train Museum, Cameron Park Show & Shine Fly-in, Harris Ranch, Pine Mountain Lake, Gold Beach and of course, Jonesy's.

Just prior to our decision to disband West Coast MAPA due to a lack of leadership, the Vintage Mooney Group was formed in Southern California. It made it a bit easier to "let go," knowing there was another social group enjoying their Mooneys.

It has been fun reminiscing!

You know you've landed with the wheels up when it takes full power to taxi.

It's Tricky Sharing Expenses

Since 2015, the FAA has been operating under a new, so-called "Compliance Philosophy," showing a kinder and gentler treatment of those charged with potential violations of the Federal Aviation Regulations and other aviation laws. It is wonderful to see the FAA handle the minor infractions with a productive dialog and other tailored remedial measures aimed at improving aviation safety with less emphasis on violations and certificate actions. However, Order 8000.373, Federal Aviation Administration Compliance Philosophy states that ". . . reluctance or failure in adopting these methods to remediate deviations or instances of repeated deviations might result in enforcement.

One thing that the FAA will not tolerate is unauthorized commercial operations and accepting compensation for flights.

You might be asked to transport someone for compensation or just reimbursement for gas. Perhaps a friend would ask you to give their friend's kid a joy ride, and they'll pay for the gas. In each case, if you do it, you will be wrong. Would anyone, including the FAA know you did this? Probably not unless there was an incident or accident. Then, civil liability and Federal enforcement could get scary.

On February 25, 2020 The FAA published Advisory Circular (AC 61-142), containing ***"….guidance on how a pilot may [legally] share flight expenses with passengers…."***. It was followed in May 2020 by the FAA's "Informational Letter to Pilots". The FAA is clearly not happy with "Unauthorized 135 operations . . . putting the flying public in danger, diluting safety in the national airspace system, and undercutting the business of legitimate operators."

Highlights of the Advisory Circular

6.1 Commercial Pilot vs. Commercial Operator

Although you might have a Single Engine ATP or Commercial license, when you fly your Mooney, you are most likely exercising PRIVATE PILOT privileges. A Commercial Pilot/ATP license only permits you to work for and be compensated by someone with an Air Carrier or Part 119.1 Operating Certificate (i.e. Airline, Part 135 charter, etc.).

6.1 ***As a general rule, private pilots may neither act as PIC of an aircraft for compensation or hire nor act as PIC of an aircraft carrying persons or property for compensation or hire. Refer to § 61.113(a). Conversely, a person who holds an ATP Certificate or a Commercial Pilot Certificate may act as PIC of an aircraft for compensation or hire and may carry persons or property for compensation or hire if the pilot is qualified in accordance with part 61 and the requirements that apply to the operation being conducted (e.g., 14 CFR part 135). Refer to §§ 61.133(a) and 61.167(a).***

6.2 The Pilot Pays His or Her Share

6.2 THIS AC PRIMARILY DISCUSSES THE EXPENSE-SHARING EXCEPTION CONTAINED IN § 61.113(C), which permits a pilot to share the operating expenses of a flight with passengers provided the pilot pays at least his or her pro rata share of the operating expenses of that flight.

The pilot can equally share the operating expenses of a flight with his or her passengers. For instance, if the pilot is flying with two friends, the pilot must pay 1/3 of the expenses.

7.2 & 7.3 What can be Shared?

7.2 The only operating expenses that may be shared are specifically listed in § 61.113(c). Those expenses are fuel, oil, airport expenditures, or aircraft rental fees.

Authorized shared operating expenses are *fuel, oil, airport expenditures (tie down, hangar, landing fees), or aircraft rental fees.*

7.3 Any expenses not specified in § 61.113(c) must be paid by the pilot. Examples of these include, but are not limited to, aircraft maintenance, aircraft insurance, aircraft depreciation, and navigation charts.

Example: Although oxygen may be consumed during a flight and is a direct operating expense, the cost of oxygen cannot be shared with passengers because it is not specifically listed in § 61.113(c).

The pilot cannot ask his friends to share the cost of *aircraft maintenance, aircraft insurance, aircraft depreciation, oxygen or navigation charts. If it isn't listed in 7.2, the pilot must pay 100% of the cost.*

8.1 Compensation is not Always Money

8.1 Compensation does not require a profit, profit motive, or the actual payment of funds. Reimbursement of expenses, accumulation of flight time, and good will in the form of expected future economic benefits can be considered compensation. Furthermore, the pilot does not have to be the party receiving the compensation; compensation occurs even if a third party receives a benefit as a result of the flight.

A few years ago, a pilot was asked by a friend to take his business associate's kid for a joy ride. He did so without being compensated in any way.

He was subsequently sanctioned, based on an assessment that the friend garnered future favor in the business relationship. His case spent some time in court, but the violation was upheld. You can probably imagine many ways to step into this trap, such as bartering for future services or tangible goods.

9.1 & 9.2 The Common Purpose Test

9.1 …. a private pilot [must] have a common purpose with his or her passengers and have his or her own reason, other than the receipt of compensation for the flight, for traveling to the destination. …. common purpose is determined on a case-by-case basis depending on the facts and circumstances of each individual case.

9.2 …. the FAA considers whether the pilot has his or her own reason for traveling to the destination. When the pilot, not the passenger, chooses the destination, it suggests that the pilot is not simply transporting passengers for compensation. The common destination satisfies the common purpose test even if the pilot and the passengers have different business to conduct at the destination.

The pilot, not the passenger(s) choose the destination. Otherwise, to the FAA, it appears as though the pilot is transporting passengers for compensation. The destination must be a one in which all have an interest, and all must have a common purpose.

10.2 No Holding Out

10.2 Historically, pilots have been found to be holding out when advertising services via rolodex, brochures, newspapers, magazines, telephone directories, posters, and website/internet postings.

A pilot could find a way to seek passengers with a common purpose, to share expenses. The flight may be perfectly legitimate, with a "common purpose", "pro rata share", "pilot selected destination", etc. However, any kind of public solicitation or advertising in any form is considered **"Holding Out"** and judged as non-compliance.

This article contains just a small fraction of the verbiage in the Advisory Circular. If you wish to read the entire document, click on "AC 61-142".

Thank you, Ray Reher, for your wonderful help with this article.

Fly Safe and stay out of trouble,

Jim

Preheat Your Engine

By John Hillard (Australian Mooney Pilots Association)

Depending on where you live, the outside air temperature can be quite cold on winter mornings. There are many articles that warn of the risks of abnormal wear when starting on cold mornings – e.g. https://www.avweb.com/ownership/the-whys-and-hows-of-preheating/

How cold is "cold"? Mike Busch says, "As a general rule, we consider any start in which the engine is cold-soaked to a temperature below freezing (32F or 0C) to be a 'cold start', and any start below about 20F (-7C) to be nothing short of a capital offense against your powerplant."

Very few places in Australia would get down to -7C, (especially in a hangar), but it is not uncommon in many places for the temperature to be around zero C.

You can deal with the problem simply by staying in bed and waiting until the day warms up. But some of us do want to leave early on cold mornings and, in such cases, a means of pre-heating the engine is desirable. Tanis makes a wired heating system for 230v, but it costs US$830, plus GST, plus freight, plus installation, so it is not cheap.

I've made up a simple system using a 2000w fan heater, a length of 200mm insulated air conditioning duct and a round-duct-to-rectangular adapter. Some large diameter heat-shrink has been used to tidy up the connections. I block the air intakes and throw a blanket over the cowl and the duct fits neatly into the left cowl opening.

On a cold morning, I head to the hangar an hour or so before I am due to leave and start the generator. An hour later, the engine is warm when I'm ready to push out and start up. Even if it is just used for 20-30 minutes while you are opening the doors, packing the airplane and doing the pre-flight inspection, a short pre-heat is better for the engine than doing nothing.

Interpreting Your EGTs and CHTs

Most of us have an Engine Monitor in our Mooneys, helping us monitor what is going on inside our engines. I hope to provide some valuable information on interpreting what your engine monitor can reveal.

CHT measures heat energy wasted during the **power stroke**, when the cylinder is under maximum stress from high internal pressures and temperatures. EGT measures heat energy wasted during the **exhaust stroke**, when the cylinder is under relatively low stress. CHTs, therefore, are a type of proxy that measures "heat" but is reflecting the critical Internal Cylinder Pressure. This is like indicating "Angle of Attack" by measuring Airspeed. Remember that CHTs measure the heat in one location on the cylinder and are slow to respond to changes in temperature

High CHTs generally indicate that the engine is under excessive stress. That's why it's so important to manage the powerplant in a fashion that limits CHTs to a tolerable value. A reasonable rule-of-thumb is that optimum engine longevity is achieved by limiting the CHTs to 380°F. CHTs above 400°F should be considered abusive, and grounds for "doing something right now" to lower the temperature(s).

By contrast, high EGTs do not indicate that the engine is under excessive stress. They simply indicate that a lot of energy from the fuel is being wasted out the exhaust pipe, rather than being extracted in the form of mechanical energy and sent to the propeller. High EGTs do not represent a threat to engine longevity. The engine is simply not capable of producing EGTs that are high enough to harm anything. Therefore, attempting to limit EGTs in an attempt to be kind to the engine is simply wrongheaded.

It's obvious that CHT will increase when power is increased, and that it also increases when cooling airflow is decreased. But there are a number of other factors that also affect CHT. Alternatively, changing the mixture can affect CHT because it changes the rate at which the air-fuel charge burns.

On the other hand, EGTs are affected by the mixture. Leaner mixtures cause EGT to decrease simply because less fuel produces less energy. Richer mixtures also cause EGT to decrease because excess (unoxidized) fuel absorbs heat energy when it vaporizes. Finally, a burned exhaust valve can increase EGT if it allows some of the ultra-hot gas, during the peak-temperature phase of the power stroke, to leak past the valve and impinge on the EGT sensor probe. This probe is located a few inches beyond the cylinder exhaust port. Since even a badly burned valve permits only a tiny amount of gas leakage, the EGT increase caused by a burned exhaust valve is usually quite small.

Normal Expectations

On a Run Up, expect a rise of about 50^{o}F on all EGTs during each magneto check as well as a uniform rise with mixture control. Pay attention to an abnormally high CHT or a higher EGT on a single cylinder. These might indicate a fouled spark plug.

On Take-Off and Climb

Know your engine and expect EGTs and CHTs to be consistent with past climbs. A high EGT in a single cylinder (300^{o}F above the others) usually indicates a plugged injector or leaky manifold gasket.

In Cruise

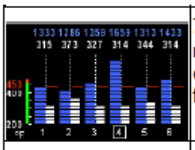
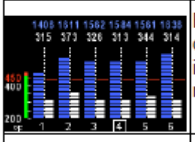
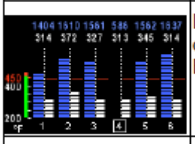
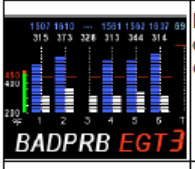
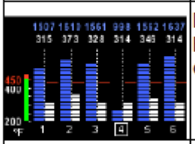
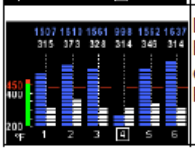
With a carbureted engine, if you observe uneven EGTs, and/or CHTs, make fine adjustments to throttle, then RPM, then the mixture and level them as best you can. Consider putting your engine monitor into “Normalized” mode, which will let you see changes in EGT more easily. Set to Normalized after you are in cruise with all settings established on MP, RPM and Mixture.

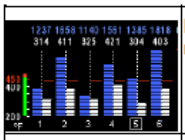
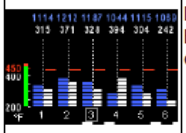
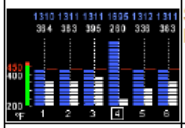
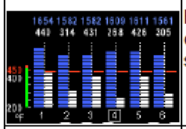
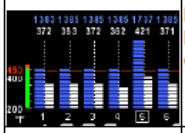
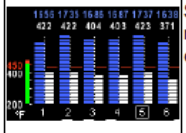
Troubleshooting using CHT and EGT

Having an engine monitor that displays and records CHT and EGT for each cylinder is invaluable when detecting and diagnosing a wide variety of engine problems. The art of troubleshooting with an engine monitor is a subject that's so rich and fascinating that I'm in the process of writing a book about it. To make a long story short, here's a list of common engine problems and how they show up in CHT and EGT:

- **Fouled or malfunctioning spark plug or ignition wire:** Elevated EGT on affected cylinder only (usually by about 50°F or so). Slightly reduced CHT on affected cylinder. Confirm by doing an in-flight mag check and note which mag causes the affected cylinder EGT to go cold.
- **Malfunctioning magneto:** Elevated EGT on all cylinders (usually about 50°F or so). Slightly reduced CHT on all cylinders. Consider confirming by doing an in-flight mag check, but be careful. If you turn off a mag and the engine quits, pull the mixture control before turning the mag back on to avoid possible after fire-damage to the exhaust system.
- **Partially clogged fuel injector:** If ROP mixture, elevated EGT and CHT on affected cylinder. If LOP mixture, reduced EGT and CHT on affected cylinder, and possible engine roughness.
- **Completely clogged fuel injector:** Engine rough, EGT cold, CHT dropping. Attempt to unclog by going to full-rich mixture and high boost. Land as soon as practicable.
- **Burned exhaust valve:** Slightly elevated EGT on the affected cylinder only, (usually by about 20°F to 60°F, depending on how badly the valve is burned). EGT usually varies between normal and slightly elevated, often (but not always) in a rhythmic fashion with a frequency of roughly one or two cycles per minute. If a burned valve fails completely, the affected cylinder EGT will go cold and the engine will run rough.

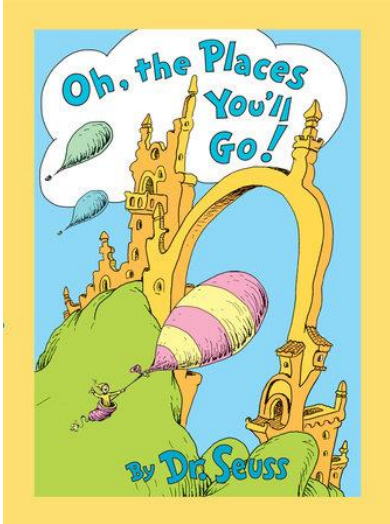
From JPI

Display	*Symptom*	*Probable Cause*	*Recommended Action*
	75° to 100° EGT rise for one cylinder during flight	Spark plug not firing due to fouling, faulty plug, wire or distributor.	Enrich mixture to return EGT to normal. Have plugs checked.
	EGT Increase or decrease after ignition system maintenance	Improper timing: high EGT → retarded ignition; low EGT → advanced ignition.	Check EGT for each magneto to determine any uneven timing.
	Loss of EGT for one cylinder. Engine rough	Stuck valve. Other cylinders are okay.	Have valve train checked.
	Loss of EGT for one cylinder; *no digital EGT*	Failed probe or failed wire harness.	Swap probes to determine if probe or wire harness is bad.
	Decrease in EGT for one cylinder	Intake valve not opening fully; faulty valve lifter.	Have valve lifter or rocker arm checked.
	Decrease in EGT for one cylinder at low RPM	Low compression.	Check compression.

Display	*Symptom*	*Probable Cause*	*Recommended Action*
	EGT and CHT not uniform	Dirty fuel injectors or fouled plugs.	Check injectors and plugs. Non-uniformity is normal for carbureted engines
	Decrease in EGT for all cylinders	Decrease in airflow into the induction system. Carb or induction ice. Engine units set to Celsius	Check for change in manifold pressure. Check that the alarm limits are set to Celsius degrees
	Slow rise in EGT. Low CHT	Burned exhaust valve. CHT is low due to low power output.	Have compression checked.
	High CHT on cylinders on one side of engine	Obstruction under cowling.	Check for improper installed baffling, cowl flap misalignment or bird nests.
	Rapid rise in EGT/CHT of one cylinder	Detonation.	Reduce power.
	Sudden off scale rise for any or all cylinders	Pre-ignition, or Normalize view, or failed probe.	Full rich and reduce power, Change to Percentage view, Check probe.

Engine Monitors should really be required in your Mooney. They can tell you what's going on and perhaps alert you to a problem ahead of a failure.

Oh, The Places You'll Go – Part I



by Richard Brown

Oh, the Places You'll Go! is a great Dr Seuss book, and possibly the impetus for buying a Mooney.

Some of you bought your Mooney after having flown for hundreds or even thousands of hours because you wanted to be able to travel further and faster. Some of you were a fresh pilot like me with less than one hundred hours in your logbook, (I had 58.6 hours). Some of you have owned your Mooney for years or decades and flown all over the country in it.

Hopefully, this short series will have something to offer all of you. For the experienced cross-country pilot, it might just be a trip down memory lane, bringing back the excitement and thrills of your adventures. For those of you stuck in the $100 burger run rut, maybe this will help you "get back on the horse" and explore new locales. For those of you dreaming of new destinations, I hope this helps you begin to live those dreams.

My experience pales in comparison to most pilots who are reading this, so I hope that you will humor me and make it to the end of the article. None of this is meant to brag about what I have done. Think of it more as me saying, "If I can do this as a fairly new VFR pilot, then surely the rest of you can!" For the experienced cross-country fliers, if you want to share some of your tips, I would be happy to include them in the next few parts of this series. You can email me at richard@intothesky.us.

I know pilots who, after finishing their PPL, never ventured far from home. I am not trying to knock anyone and their flying plans. If all someone wants to do is beat up the pattern or hop over to their favorite diner, then more power to them. However, I am going to venture to say that if you bought a Mooney, it was because you wanted to travel. After I got my PPL I jumped right into the long cross-country adventures and never looked back. A couple of weeks after my check-ride, with about 50 hours in the logbook, I rented a Cherokee and made the slow trip from SoCal to Phoenix. Slogging along at about 120 mph was less than exciting, but the real purpose was to take my dad flying. He spent 20 years in the Air Force with time instructing in the T-38 and flying C-130s and HC-130s. My dad is my hero and to be able to take him for a flight and even land at the former Williams Air Force Base, where he taught others to fly, was a dream come true. One of my sisters even came.

We bought the Mooney primarily for the 300nm trip to Phoenix and 500nm trip to Utah, with an occasional 650nm trip to Idaho to visit family. In our four years of ownership, we've flown about 450 hours with about 370 of those hours falling into the long cross-country category. We even flew coast to coast in the summer of 2019.

I have heard it said that you are not on a true cross-country until you are still outbound after your first fuel stop. There is a special feeling and even a little nervous excitement when you land, refuel, take-off, and think, "I am still heading away from home. I've never flown this far from home before."

Regardless of whether you jump right in or ease your way into becoming a long-distance flyer, the first step is to envision it. If you have a mission, such as me wanting to see family, it is easier, but if you don't, then you "need" a mission.

When we bought the plane, I also bought a VFR wall planning map. I drew circles on it at 2, 4, 6, and 8-hour radii based on my cruising speed. I put it on the wall by the kitchen table. Note that you may need clearance from the other boss in the house to hang it up. It helps visualize just how far I could go in a day if I wanted to. When I casually mention to my wife, "I still can't believe we could be in Dallas in eight hours," she says, "Why don't we go?" I also put pins on the map at all the airports I have landed.

Keep a “bucket list” of places you want to fly. Anytime you see someone post about someplace they have been that looks interesting, or you see an advertisement, or read an article, or watch a show with someplace interesting, write it down. Even if it is on the other side of the country and you think it is too far away, write it down. If you can dream it, you can do it. I have notes about places all over the country that are sorted by State, with destinations on my list as far away as Alaska and the Bahamas. Some are far away, but all are doable in my M20D. I use OneNote because it syncs between my computer and phone so I can always add something to it. Regardless of what you use to keep your bucket list, it needs to be easy to use and accessible. Handwritten notes will get lost, but if it works with your phone, you will have the list handy to add to it when inspiration strikes. When you are bored, just scroll through it and let those planning gears in your head start turning.

Read blogs, magazines, and forums about GA travels, or watch YouTube videos of cross-country adventures. A quote attributed to the well-known motivational speaker Jim Rohn is, “You are the average of the five people you spend the most time with.” Do not underestimate the influence that those we spend time with have on us. If all you do is hang out with folks at the airport that make and talk about burger runs, you will probably spend most of your time doing burger runs. While reading articles and watching videos of flights is not “technically” spending time with people, it will progress from, “I really wish I could do that,” to “I really think I could do that,” to “I can do that!”

One of the concerns people have about long-distance flying is navigating over areas without any familiar ground references. When we lived in Alaska from 1980-1984, my dad was flying HC-130’s with the 71st Air Rescue Squadron at Elmendorf Air Force Base. Their motto was, “That Others May Live.” He has some incredible stories to tell about his experiences. One of the more humorous ones involved a flight to a remote dirt/gravel strip. This flight was not for rescue purposes, but to take a couple of guys to do some survey work. Their passengers were also integral to finding the strip because navigating there involved flying to a certain river and then flying along the river until they saw the strip. My dad and the crew had never been there, but the passengers knew the way.

They found the strip which had one building on the “field”, a wooden shack about two thirds of the way down the strip where a guy manned the radio. The crew announced they were a **C-130** inbound and proceeded on with their approach and landing.

They touched down and threw the props into reverse. As they slowed, they trailed a cloud of dust and gravel, which proceeded to tear into the side of the wooden shack. The next transmission on frequency was the guy in the shack yelling, "What the hell kind of a Cessna are you!?"

Thankfully, we have a lot more tools at our disposal than my dad did when he was flying around Alaska forty years ago. Stay tuned for Part II next month, where I'll write about how to have, for about $100 with no subscription fees, a moving map in the plane (not for IFR, but VFR and situational awareness). If you want to spend about $150-250 more, (depending on how handy you are), you can even have free weather and traffic subscription.

Between now and then, pull up a sectional and find two or three airports that you have either never landed at or haven't been to in a long time. It isn't important for these airports to be very far away. It's more important that they are new or unfamiliar. If they are close by, it will work even better as you can fly to two or three on the same flight. Study out everything about the airport before flying there – remember my Mesquite experience. You can look up and watch a few YouTube videos of people landing at those airports. Once your homework is done and you are prepared, go out and make a few landings at the new locations. This will be instrumental in your next step.

My panel with an 8" tablet on the yoke and a 10" tablet on the right side.

Wing Tips, Winglets and Sharklets

By Ron Blum (7th in the Series)

There are many, many types and styles of wing tips and even more combinations of those many, many types and styles. One thing they all have in common is that they all claim to increase wing efficiency. What is the real purpose of a wing tip? The answer depends on what one wants to maximize.

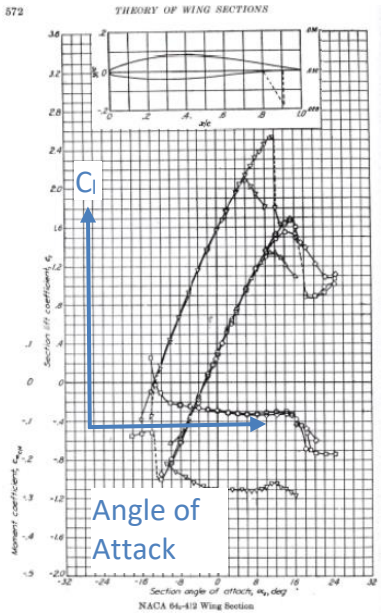


Figure 1, C_l vs. alpha

We've all seen C_l versus alpha curves, (Figure 1). To begin, there is a very subtle item that has to be noted to understand wing tips. Yes, I am getting a little technical, but together we'll get through this quickly. C_l is the 2D (two dimensional) lift coefficient. In other words, the wing would need to have an infinite span to produce this lift. But, we live in a 3D world, where the wing spar must be structurally capable and the airplane must fit in a hangar, (typically a 40' wide GA hangar). The 3D wing lift coefficient is C_L. Restating, C_l (2D) is what we call section lift coefficient, and C_L (3D) is what we call wing lift coefficient. The goal is to make C_L as close to C_l as possible. Wing tips are one way we try to accomplish this goal.

All wing tips shed a vortex as higher-pressure air on the bottom of the wing curls around the tip to try to get to the lower-pressure air on the upper surface. If one is only looking for top speed, especially at lower altitudes, the typical squared off tips on the airplanes up through the early "J"s are good. How is this possible? The problem is that there is always more to the story than just one parameter. Sorry, Mooniacs, speed isn't the only thing. The goal of all wing tips is to: shed a clean vortex, which reduces drag, push the vortex out as far as possible, which makes the wing appear aerodynamically longer, and reduce the size of the vortex. Let's take a quick look at a couple of generic categories of wing tips.

Figure 2, plain wing tips

A plain wing tip, (Figure 2), is considered to be non-structural and with little to no vertical component of the tip surface above or below the wing surface. I consider all Mooney wing tips to be in the plain wing tip category. Hoerner wing tips also fall in this category.

A second category would be winglets, (Figure 3), which add a vertical component to the wing tip. Winglets are considered to be structural. In this case the aerodynamic loading of the wing is modified, more lift is being generated further outboard, and the spar bending moment has been increased. The winglet also wants to fold inward, which adds additional bending moment at the wing tip.

Figure 3, winglet

Wing tip design is based on many parameters, but the parameter almost everyone focuses on is reducing induced drag. Induced drag is a concern while climbing at low airspeed or while cruising at higher altitudes where wing C_L is required to be high. In the case mentioned above, with earlier and lighter Mooney aircraft wanting to go fast at lower altitudes, the C_L is low. In this case, a fancier wing tip could actually slow the airplane down. Al knew his stuff.

The tradeoff is that a wing tip, by definition, adds drag (area and profile). The question then becomes can the wing tip reduce the overall wing drag more than the drag it adds? If the answer is "yes", a wing tip should be added. Let's look at the airlines, and why they all seem to have winglets … or sharklets.


Figure 4, B787 without winglets

When a new model of airliner comes out, (Figure 4), few, if any, have winglets. Why? The simple answer is that a properly designed wing is most efficient as a plain wing … without a special wing tip (winglet or sharklet, Figure 5). In other words, extending the wing is more efficient than adding a winglet or a sharklet. So why all the winglets and now sharklets on almost all the older airliners?

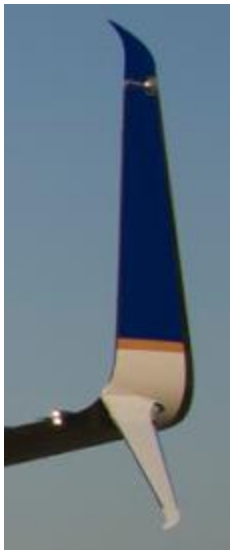


Figure 5, B737 sharklet

The answer to this question has nothing to do with aerodynamics. It has to do with economics. Over the years, an airplane model gross weight increases substantially. The best aerodynamic solution is to design and build a new, longer wing. However, that is expensive and time consuming, especially with certification. In addition, all the airport terminal gates would need to be reconstructed to accommodate the larger wingspan airplanes. That is just cost prohibitive.

Instead, engineers add winglets, and now sharklets, which are modified winglets, so that the wingspan is the same/similar. As a result, all the airport terminal gates are still okay to use. The aircraft OEM also has the structural model of the wing to analyze the new span loading caused by the winglet/sharklet. Adding the winglet/sharklet increases the wing efficiency for both lower airspeed, climb and high-altitude cruise conditions, where the airliner spends the vast majority of its time. It is a win-win compromise.

Looking back at Figure 2, by adding the wing tip beyond the aileron (lower picture), the aileron is made more effective and the roll forces will be higher. Putting a winglet right next to an aileron can

also cause problems with early separation at the wing to winglet intersection. All is not win-win. All design is a compromise.

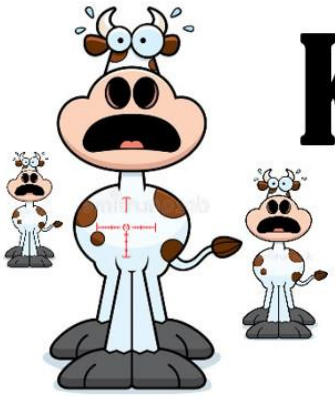
Next month will actually be a new year! By then, I hope to have good 2020 hindsight … like way back in the rearview mirror. It was my fault we did not get the rest of the story on the Mooney tail this month, but it is still on the short list. Art of the tuft rudder-aileron interconnects are on the list. 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.

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.

Calculating a 3° Glideslope – GS x 5 Rule

Multiply your groundspeed by 5. If your groundspeed is 80 kt, a 400-fpm descent will give you a 3° glide slope.

If you are flying a visual approach, start at pattern altitude (usually 1,000 feet AGL) and begin a 3° descent when you are 3 miles from the end of the runway.



Killing Sacred Cows

Installment XV

Brian Lloyd, CSEL/CMEL, CFIA/CFII

by Brian Lloyd, CSEL/CMEL, CFIA/CFII

Well, I am finally back on flying status. The kidney stone from hell is gone, but not without a fight. It took longer and involved more pain than I ever imagined. Last Friday the doctor removed the stent and pronounced me fit to fly again. The stent-removal story is best told over beers and when the kids are not around. It is good to be back. In the ensuing 10 days, I have flown six different types of aircraft, including a couple of Mooneys. I sure missed flying!

Last month I wrote about emergency landings. I must admit, I misidentified the high-key and low-key positions. The illustration Jim added was correct. High-key is the upwind point over the airport where you begin the engine-out landing sequence. You want to arrive at the selected landing spot in the high-key position, i.e. overhead and upwind. From there, everything in the emergency landing is as practiced.

From the high-key position we progress with a 180 degree turn to downwind, arriving at the low-key position, which is on the downwind abeam the desired touchdown point. If you are practicing the commercial-certificate power-off spot landing maneuver, low-key is where you start. Every emergency landing should be all about somehow getting to low-key so the landing will be assured. High-key is the beginning of the flight path "funnel" that bleeds off speed and positions the aircraft precisely at low-key.

Then I mentioned that, if one finds oneself high, fast, or both, to use a forward slip to increase drag in order to increase descent rate without increasing airspeed.

Imagine my surprise when later I read my article where I purportedly told you not to do a forward slip to a landing in a medium or long body Mooney because Mooney test pilot Bob Kromer recommended not to. I hadn't written that. Phil Corman edited my text. That is all good because, this month, it takes me straight into the death of a very significant Sacred Cow, which is:

You shouldn't necessarily believe what an expert tells you.

There is no question in my mind that former Mooney Test Pilot Bob Kromer recommended that you not slip a M20K or a Long Body because, "with nose up trim, these models have a high negative angle of attack and this puts the airflow over the horizontal tail at an extreme condition. Extending the flaps adds to the downwash angle over the horizontal tail, making the negative angle of attack over the horizontal tail even greater."

I am going to disagree with Bob, not with his characterization of the airflow over the horizontal stabilizer and elevator because I believe that is correct. I am going to disagree with his suggestion not to do a forward slip in medium-body (J, K, Encore) or long-body, such as a Bravo, Ovation, Acclaim, etc. Why? Because I have done it on many occasions and find the aircraft handles a forward slip quite well.

When I write something here about how to fly an airplane, it is because I have done it and found the safe margins. The forward slip is one of those cases. Before we go too far, I will also add that I looked in the POH to see if there is an admonition against slips. In the POH for all the K models the only admonition I could find was a note recommending against forward slips with the flaps extended and the engine producing partial power (15"-25" MAP). I don't see that as an issue because when I am doing a slip it is to slow down and/or go down, both cases where the engine is going to be at idle anyway.

Consider that a crosswind landing is a forward slip (it is, but most people call it a side slip) and we know that is normal as well.

Taking a step back, the forward slip is an interesting maneuver. Many of us learned to fly in Cessna products where some versions of their trainer aircraft have limitations on forward slips in some configurations. Unfortunately, we all have a tendency to generalize from our early training. What is learned first is learned best. (That is one of the things they teach us CFIs when we are learning to become CFIs.) Just because the C172 you learned to fly in was placarded against slips with full flaps does not mean that applies to all aircraft. The Mooney slips just fine and that can be a very convenient way to slow your Mooney down.

So why was Bob Kromer concerned? Do we need to be concerned? Are we going to meet a dragon if we try it? Well, let's start by going over what happens to the Mooney in a slip at forward CG, where the "problem" could happen.

Airplanes have CG limits for a reason — to ensure that the aircraft is stable and controllable under all conditions. It is common knowledge that things can go bad in a hurry if the airplane is loaded beyond the aft CG limit. For example, when I flew my 231 around the world with 210 gallons (1250 lbs) of avgas aboard, 95 of those (570 lbs) in the back seat, along with tools and spare parts in baggage, my 231 was 10% over gross AND loaded right at the aft CG limit. Take offs were SCARY and elevator inputs had to be very small and very precise. I had to allow the airplane to accelerate to flying speed, while trying to control pitch when every bump made the nose wheel come off the ground and the airplane trying to pitch up before it was ready to fly. Every take-off was ripe for a departure stall accident. From the moment I passed about 60% take off airspeed until I got the wheels in the well and the aircraft accelerating past 90 knots, I held my breath. Like I said, scary.

But what about loading to forward CG? The airplane is more stable there. I would like to direct your attention to the CG graph in the W&B section of your POH.

Two things immediately present themselves when you look at the CG graph:

1. The aft CG limit is a straight line at all weights. You do NOT go past the aft limit, period.
2. The forward CG limit moves aft as the gross weight of the aircraft increases, so the CG range gets narrower. The key to our puzzle is here.

Think back to learning what the horizontal stabilizer does. The horizontal stabilizer (HS) provides a down-force to hold the aircraft in balance. The HS, which is an airfoil (wing), must operate at some angle-of-attack (AoA) in order to produce the necessary lift in a downward direction to hold the airplane in balance. As you slow the airplane both the wing AND the HS must operate at a greater AoA. Eventually one or both of them are going to stall. Usually it is the wing and we get a normal wing stall with buffet, wing drop, etc. – all the "normal stuff".

Now let's move the CG to or beyond the forward limit. We are asking the HS to produce more down-force than before. As we slow down, we have to increase the AoA of the HS more than we do the wing. When we get to the point where the wing is going to stall, the HS may be near a stall as well. It is even possible that the HS will stall first.

So what DOES happen if the HS stalls before the wing? The pilot may feel a buffet in the elevator and, as the HS stalls, the HS produces less lift and the nose drops. It is not all that much different from a wing stall, but, like any stall, it is not something you want to have happen close to the ground until you are actually within inches of the runway. Still, at a higher altitude, it is not a hair-raising event.

If the HS stalls before the wing on landing, it could cause the nose to drop suddenly, causing the aircraft to touch down hard on the nose-wheel first and bounce. I can see this leading to a “Mooney Bounce” of large proportions and it is not something we want to have happen.

But imagine this is happening to you as you are entering the round-out phase of your your landing. The aircraft has been descending toward the runway and you pull back on the yoke to arrest the descent near the runway. You are probably 10’ – 15’ off the runway. As you apply back-pressure on the yoke, the HS stalls. There is no clear wing buffet to signal the stall and trigger your stall-recovery reflex. You are above stall speed. The nose pitches down so your reflex is to pull back on the yoke even more. What do you think is going to happen to your pride-and-joy Mooney in the next two seconds? Right. Someone is going to have to clean up a mess on the runway.

So, let's get back to the forward slip and forward CG.

We know that, at or ahead of the forward CG limit, at airspeeds near stall, the HS is also likely to be near stall as well. In all probability, if you are trying to trim the aircraft for approach speed, the trim wheel may be at the full nose-up stop, indicating that the HS is already at a high AoA and you may be holding back pressure on the elevator as well. Now let’s introduce a slip.

In a slip the airflow is no longer smooth along the fuselage. On the downwind side of the fuselage, (left side with left rudder, right side with right rudder), there is probably turbulence coming off the fuselage and onto the HS. This turbulent flow may trigger a stall of the downwind HS before the wing stalls.

So, is this bad? It is, but only if you are approaching a stall. Getting back to the very beginning, i.e., last month, when I was talking about using the forward slip as a way to get the Mooney to come down and slow down in the case of an emergency landing and being too high or too fast. In this case we are likely to be nowhere near a stall. In fact, putting the nose down and gaining some speed in the slip, makes the slip more effective and has the secondary purpose of keeping the HS well away from a tail stall. So if you are in a situation where you really NEED to slip the airplane, you are already in a state that will very likely keep you safe during the maneuver.

Now comes the important part: You have to go practice this stuff at altitude first. If you have a K, Encore, or one of the long-bodies with a 3-blade metal prop, you probably already find yourself at or ahead of the forward CG limit with two people in the plane, no luggage, and partial fuel. This is why you want to go up and do stalls and slips for practice. Get a solid feel for how your airplane behaves before doing it on short final at 50’ AGL. That is ***not*** the time to discover how surprising a tail stall can be.

So, now that I have talked about all this stuff intellectually, maybe is time to talk about how the rubber meets the road.

With the kidney stone out of the way and with the urologist's blessing, I am back in the cockpit doing instruction. A young man called, asking for transition training in his very first airplane, a 1977 J. Steve has about 300 hours total time, all of it in Cessna and Piper products. The first time he got to fly a Mooney is when he started training with me.

I tend to spend quite a bit of time on ground school, going over the POH, working W&B problems, and going over performance numbers. I make a point to calculate approach speeds for different weights and emphasize why Mooney puts an approach speed adjustment table in the later POHs. We talk about the Mooney Bounce, how it develops, and why the right answer is 'go around'. Go-arounds are free except when out of gas or on fire. Not out of gas or on fire? Go around!

After perusing the POH, I move to the aircraft where we can spend time walking around the airplane, going into detail about preflight, and checking things that one doesn't find on other aircraft, such as rubber shock disks and the tail hinge. Since this is the first airplane Steve has owned, I spend a lot of time discussing things like choosing an A&P, what maintenance you may and may not do as a non-A&P owner.

Heading for the air we begin with a coached standard take-off with a departure to the practice area for air work. Rolling in and out of turns establishes aileron/rudder coordination. We do steep turns to Commercial standards (60 degrees of bank). Power-on departure stalls and power-off approach to landing stalls. We do the Falling Leaf, a full stall with the yoke held all the way back with the ailerons held neutral, keeping the aircraft under control with the rudder. The latter maneuver is to break the habit of trying to use the ailerons in a stall. We do accelerated stalls in left turns to see how the aircraft could try to roll inverted, reinforcing that recovery reflex.

We then figure out "presets", pitch and power settings, for different phases of a flight — climb, cruise, letdown, low cruise, pattern clean, and then landing configuration. That reduces the amount of thrashing in the cockpit from trying to fly while figuring out the pitch and power settings.

Then it is time for landings – lots of landings. Normal landings, crosswind landings, no-flap landings, power-off emergency landings, and forward slips to a landing.

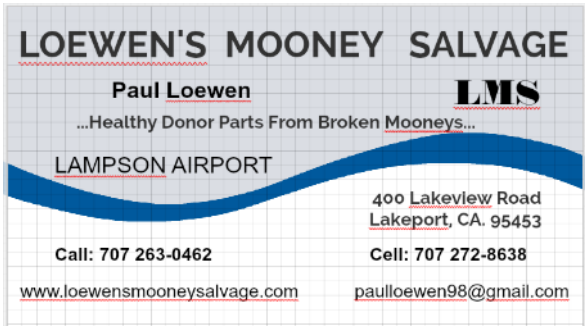
Ah, here we are in a mid-body Mooney doing full-rudder-deflection forward slips to a landing. Remember how our Mooney Test Pilot suggested not doing forward slips to a landing? Of course, we had done W&B calculations and determined that our CG was far enough back from the forward limit. Still, we were at almost full nose-up trim on landing. No sign of any abnormal behavior from the aircraft in this configuration.

So with five hours, six different airports, and about 35 landings under his belt, Steve was ready to head home to Kansas City with his "new" Mooney. After the flying and post-flying debrief were over, we were just a couple pilots talking over a beer. Steve said several times, wide eyed in wonderment, "I can get in my own airplane and go anywhere I want, whenever I want!"

Exactly Steve. In your 201 time machine, nearly every place in the USA is less than a day's flight from your home in Kansas City. It is moments like this that make being a CFI in Mooneys really worthwhile.

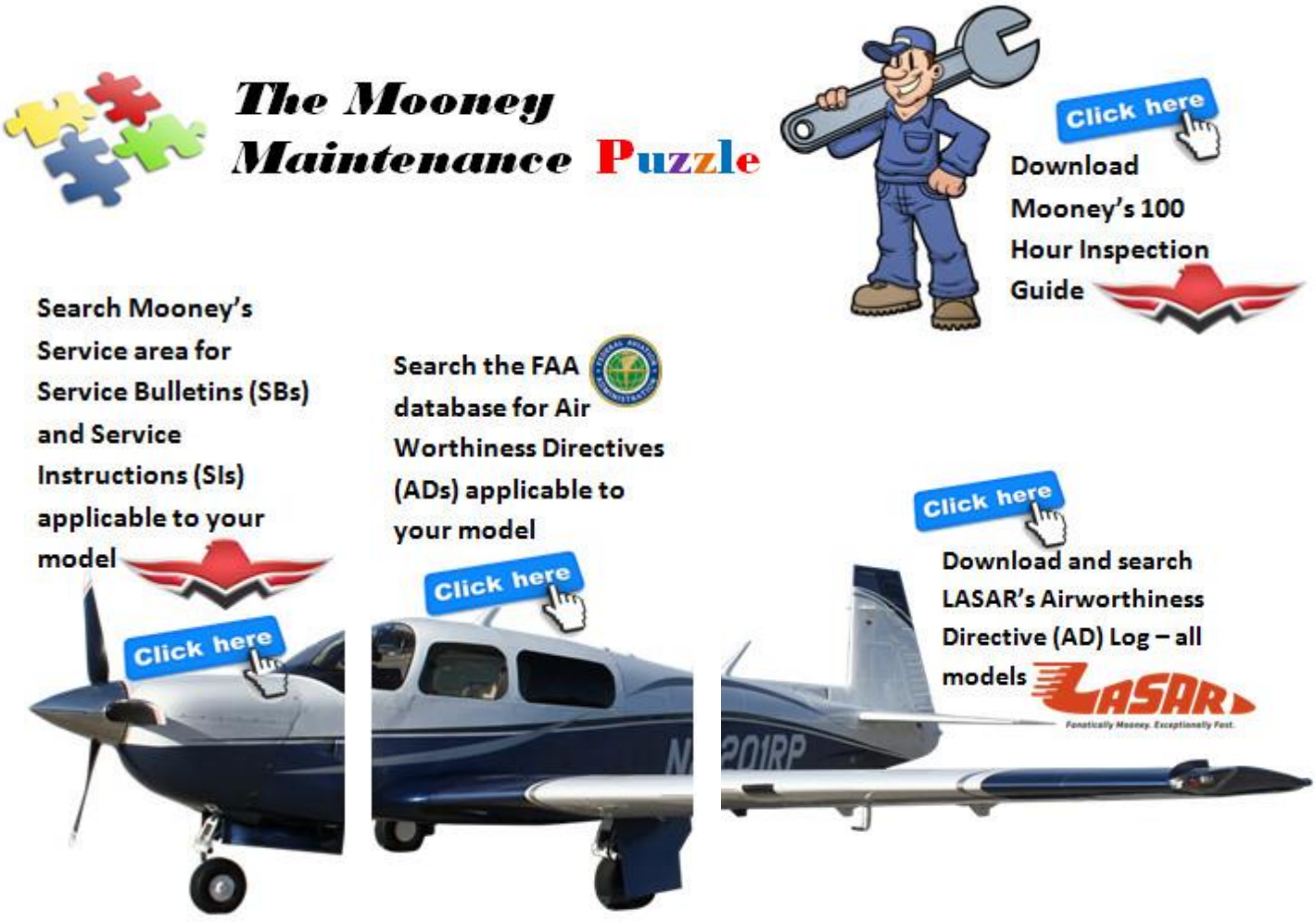
So, until next month, get out there and fly! Go practice your forward slips, forward slips near stall and be ready to recover. Practice finding high-key in your airplane so you can be the Ace of the Base doing power-off emergency landings. Be like Steve and remind yourself how lucky you are to own a Mooney time machine. Let me know how you like it.

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

Dear Tom,

Question:

In your years of experience, what are the top 3 recurring repairs that you saw. Were they avoidable?

Answer: What an interesting question! I thought about this for quite a while, trying to decide to go with scheduled maintenance, i.e. an engine overhaul, Annual Insp, window change, etc. Ultimately, I decided that unplanned fixes would be more interesting than the problem deciding what three were recurring enough to qualify. I did decide on three that came to mind quickly and the first was easy.

1. Gear Up Landings

The first one I saw was a B-52 at Castle Air Base in 1956. It landed and then the gear retracted as it was going down the runway. It came to a stop, everyone got out and then it blew up and burned to a crisp.

Cause: The gear handle came unlocked and flipped up, retracting the gear. Does that sound familiar?

I never thought I would see that again in my life. However, an older Johnson bar Mooney had the same thing happen. The gear lever came unlocked and the gear retracted. I have repaired several of these unlocked gear lever accidents, but the most gear ups I have repaired were simply caused by the pilot forgetting to put the gear down. Very few occurred when something broke in the plane and the gear just wouldn't work. My worst experience was when I got a call from a long term customer over the Bay that couldn't get the gear down. I said, "Come to Stockton and with the longer runway, you could shut the engine down; maybe center the prop and save the engine." It was a good plan, but he cut the engine short of the runway and just made the numbers, but stalled about 40 feet high. He was OK, but the plane went to a salvage yard and I didn't get to repair that one. In my opinion, about 9 out of 10 gear up accidents were avoidable.

2. Prop Strikes

I can't decide if most were during landing or taxing or starting engines with the tow bar attached. In my early days, we just replaced the prop, did a dial measurement on the crankshaft for runout. I think because of insurance costs, many regulations were changed, and we ended up with required engine teardown inspections, which made a prop strike really costly. I feel most were overkill and if the crankshaft wasn't bent, then just a prop change would be sufficient. I think most prop hits were caused by porpoising on landing, and there were a number of them that the pilot didn't even know about until after the flight. I had one 201 owner that came in from Lake Tahoe. While landing, he realized the gear was retracted, so he did a go-around. However, he was so

close to the ground that he lost one inch of the blades. Prop strikes were pretty common. When I was in Hayward, we had four in one month. Almost all prop strikes were avoidable.

2. Tires with Flat Spots

My last unscheduled repair, and not too interesting, would be tires with flat spots. You really don't give this much thought, but I know that through the years, we probably changed more tires because of flat spots than tires that had worn / no tread. These of course were almost totally avoidable if pilots would just be careful and not hit the brakes while landing. I think the main cause would be when pilots use the rudder pedals for a crosswind. It usually happens on just one side.

I am sure there are many other items to make the list. Maybe we can get some input on your question.
Happy flying!

STEP UP TO SPEED

Discover how many more advantages are yours in the fast ones.

- Power Console
- PC Flight Stability
- Electric Gear and Flaps
- Tubular Steel Cabin
- Full Trim Tail
- Laminar Flow Wing
- Integral Wing Tanks

It is a fact—Mooney's modern line of aircraft incorporates more advanced engineering advantages than you'll find in any other plane near the price. You get top performance, jet age construction and unmatched economy in the fast ones for '69. Join the revolution—come on over to modern flying! Discover what real performance is all about. Speed is the only real reason for flying and Mooney gives you more speed per horsepower, more range per gallon, more built-in safety . . . in fact, more plane for your money than any other plane flying. Isn't it time you joined the revolt against the wheel-dragging, slow-flying buggies and discover crosscountry speed at its best? Step up to retractable! Fly modern—fly Mooney.

MOONEY

MOONEY AIRCRAFT CORPORATION KERRVILLE, TEXAS

AOPA Go to be Folded into *AOPA app*

AOPA is making it even easier for pilots to plan their flights, check weather, get their news, and manage their membership by consolidating its AOPA GO app into the main AOPA app. The AOPA app will provide more flight planning functionality than AOPA GO, which will be retired at the end of 2020.

Through the AOPA app, pilots can access and even download the Airport and Destinations Directory, which not only includes pertinent airport data, but also information about amenities and activities near the airport; the mobile version of iFlightPlanner for AOPA, which offers more robust planning tools than AOPA GO; and a new weather tool powered by SiriusXM Aviation (get a sneak peek and provide your feedback on this **beta version**). In addition, AOPA app users can still get the latest news, participate in the Pilot Passport monthly challenges, receive alerts for temporary flight restrictions, and manage certain aspects of their membership.

The AOPA app can be downloaded for free on **Apple** and **Android** mobile devices.

READ MORE HERE

Certified for **all** Mooney Models

Click Here for More Info

BendixKing AeroCruze 230 – Certified: M20K & J

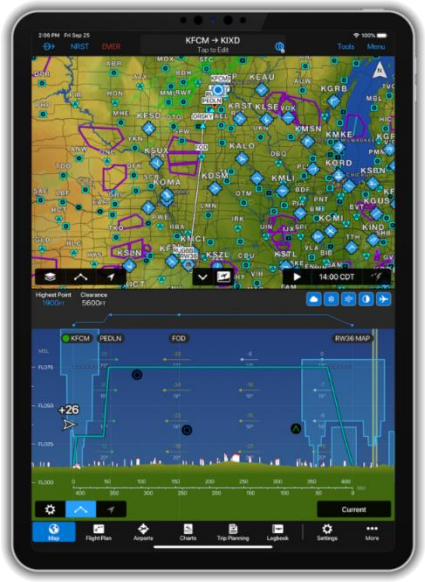
The AeroCruze 230 is a form-fit replacement for legacy BendixKing KFC 150 and KFC 200 autopilots.

"We understand the need for affordable, high-precision autopilots in the general aviation segment that help reduce workload and allow pilots to concentrate on important tasks while flying," said Roger Dykmann, BendixKing director of offering management. "AeroCruze 230 is designed to not only meet, but exceed those needs and now this upgrade option is available for even more aircraft."

AeroCruze 230 features include a touchscreen, mode annunciation, dedicated controls for frequent tasks and automatic wing leveling. The autopilot offers coupled approaches, roll steering and altitude pre-select options. Pricing for the unit starts at **$9,800**. More Info

Garmin, ForeFlight Update Pilot Apps

Both Garmin and ForeFlight have announced updates to their popular apps that add functions beneficial to in-flight use as well as flight planning. Garmin's version of the Pilot app for Apple devices is adding graphical airspace and obstacle NOTAMs and a tweaked user interface for the profile view. ForeFlight has added a new Clouds layer in both plan and profile views, and has included traffic in its 3D Airports feature, which is available in its upper-tier plans.



READ MORE HERE

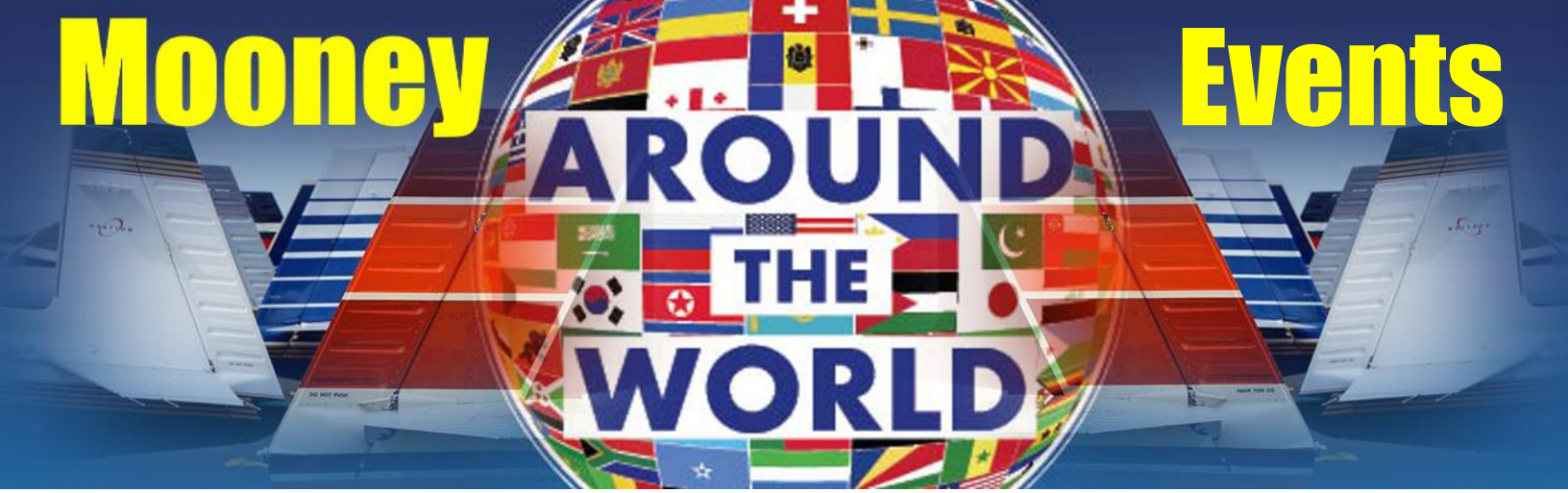
Sporty's Videos

More than 150 new videos have been uploaded so far in 2020, ranging from in-depth product reviews and technical how-tos to flight training tips and webinar recordings

Sporty's YouTube channel is organized into multiple playlists, including:

- Video Tip of the Week: New tips every week, taken from Sporty's Learn to Fly and Instrument Rating courses
- Ask a Sporty's CFI: Five-minute tips for safer flying, from the instructional staff at Sporty's Academy
- Product PIREPs: Hands-on flight tests with the latest new products, from headsets to smartwatches
- Touch & Go: How-to videos for using radios, ADS-B receivers, and E6Bs
- Flight Simulators: Videos to help pilots set up Microsoft Flight Simulator and use it efficiently
- Webinars: Recordings of Sporty's webinar series, with in-depth presentations on hot topics in aviation

READ MORE HERE.



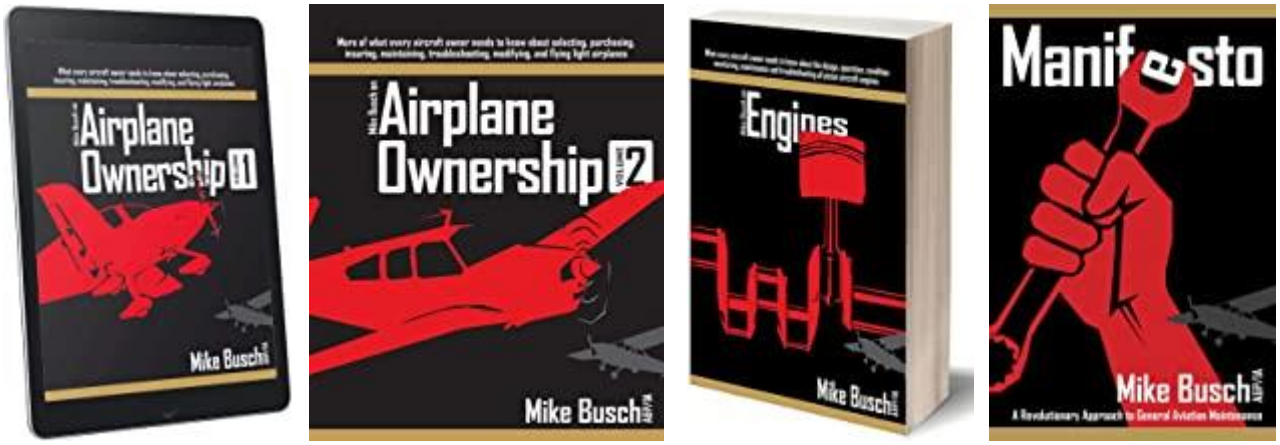
Florida Mooney Lunch Group	*Contact Dave at daveanruth@aol.com or (352) 343-3196, before coming to the restaurant, to have an accurate count. Events begin at 11:30* CANCELLED
Mooney Caravan	
MooneySafety.com MAPA Safety Foundation Pilot Proficiency Program	**2021** Jan 28-31: Lakeland, FL April 22-25: Santa Fe, NM June 17-20: Fort Worth, TX **Sign Up at** https://www.mooneysafety.com/ppp-registration/
MOONEYSUMMIT	CLICK HERE for details
Australian Mooney Pilots Association	March 25-30, 2021 - AGM 2021 at Annuka Resort, Coffs Harbour
EMPOA	CLICK HERE for details
Other Mooney Events	May 21-23: *The Mooney Flyer* is planning a Fly-In to Paso Robles, CA (KPRB). Dinner on Friday.. Saturday Ramp Arrivals, Wine Tasting, Seminars for Pilots and Passengers at Estrella Warbird Museum (Tours available) Sport competitions, Horseback Rides and SPA Treatments, Wine & Food Party on Saturday night

TMF PRODUCT REVIEW

Some Great Books

The more we understand about our Mooneys, the better pilots we become. One way to do this is to perform an Owner Assisted Annual. I have done this twice, once for each Mooney I have owned. It was hard work for me, since I am not mechanically inclined, but it was a phenomenal learning experience.

Another way is to read a lot of good books. Mike Busch, of Savvy Aviator, has written several books which I recommend. He makes it easy for pilots to understand.



The first two books on *Airplane Ownership* include what every aircraft owner needs to know about selecting, purchasing, insuring, maintaining, troubleshooting, modifying, and flying light airplanes.

Engines includes what every aircraft owner needs to know about the design, operation, condition monitoring, maintenance and troubleshooting of piston aircraft engines

In *Manifesto*, Mike writes about his revolutionary approach to Airplane Maintenance.

All the books are packed with good information and are easy to read. You'll learn a lot, and it's enjoyable.

These books also make great gifts during the holiday season.

CLICK HERE to learn more

Parts for Sale

This Cowling was removed from a M20E and replaced with a M20J (201) cowling. The cowling is located at Fullerton Airport (KFUL) and is in excellent condition. Offers accepted

Contact: Bernard Lee – leebern@msn.com (562-865-2547)

P/N 310309-501
P/N 310309-502

These fairings are new and priced @ $280.00 each or $525.00 for both. Priced elsewhere @ $362.69 each.

Contact: Bernard Lee – leebern@msn.com (562-865-2547)

Bushing P/N 914007-003 - 2- Bushings in the original package @ $35.00 each. Priced elsewhere @ $45.00 each.

Bushing P/N 914007-005
1-Bushing in the original package @ $59.00
1-Bushing loose @ $50.00
Priced elsewhere @ $69.00 each

Contact: Bernard Lee – leebern@msn.com (562-865-2547)

Access Covers P/N 3000-901 (2-available) - 1-without nuts attached.
Make offer. Contact: Bernard Lee – leebern@msn.com (562-865-2547)

1/3 SHARE FOR SALE

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

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

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


Rusty Pilot or Old Pro
INSTRUMENT PROFICIENCY CHECK
Study Guide
J D Price, CFII, MEI, ATP
FLIGHT REVIEW
Study Guide
J D Price, CFII, MEI, ATP
Prepare online
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