The Mooney Flyer

The Official Online Magazine for the Mooney Community

www.TheMooneyFlyer.com

December 2016

Editors
Phil Corman
Jim Price

Contributing Writers
Bruce Jaeger
Bob Kromer
Tom Rouch
Paul Loewen
Geoff Lee
Linda Corman
Mike Elliott

To Subscribe
Click Here

To Advertise
Click Here

To Submit an Article
Click Here

Features

Is This the End?
Co-Editor Jim Price wonders if the age of paper in the cockpit is ending…

Point v Counterpoint
AOPA is researching making our traffic patterns round instead of square… hmm

Winter Flying Judgement
Master CFII Don Kaye shares his judgement regarding a winter flight home to California from Weep No More in Minnesota

WAASat?
So many acronyms on Instrument Approaches… CFII Geoff Lee explains them all

How Much Do You Know about your Battery?
Get smarter about your Mooney battery and care

How many ways to Ruin an Approach to Landing
Co-Editor Phil Corman writes about the wrong decisions to make when the approach to landing isn't precise

In Every Issue

From the Editor

Appraise Your Mooney's Value

Mooney Mail – Feedback from Flyer readers

Ask the Top Gun

Upcoming Fly-Ins

Have You Heard? – Relevant GA news & links for the month

Mooney Instructors Around the Country – Mooney Instructors around the USA

Product Review – Pilot Sight Level

Click Here to Subscribe **Click Here** For Back Issues

If you would like to donate to keep **The Mooney Flyer** healthy, please send your donation via your PayPal account to sales@TheMooneyFlyer.com

Winter Flying Again

It's winter time again, causing us to pay attention to winter-specific details. I love winter flying, primarily because the air is cold and CLEAR. I refer to it as "Severe VFR". I love my engine and aircraft performance in the winter. Here in California, a lot of airports require a Density Altitude calculation, but in the winter, it's much less of a factor. Ya gotta love winter.

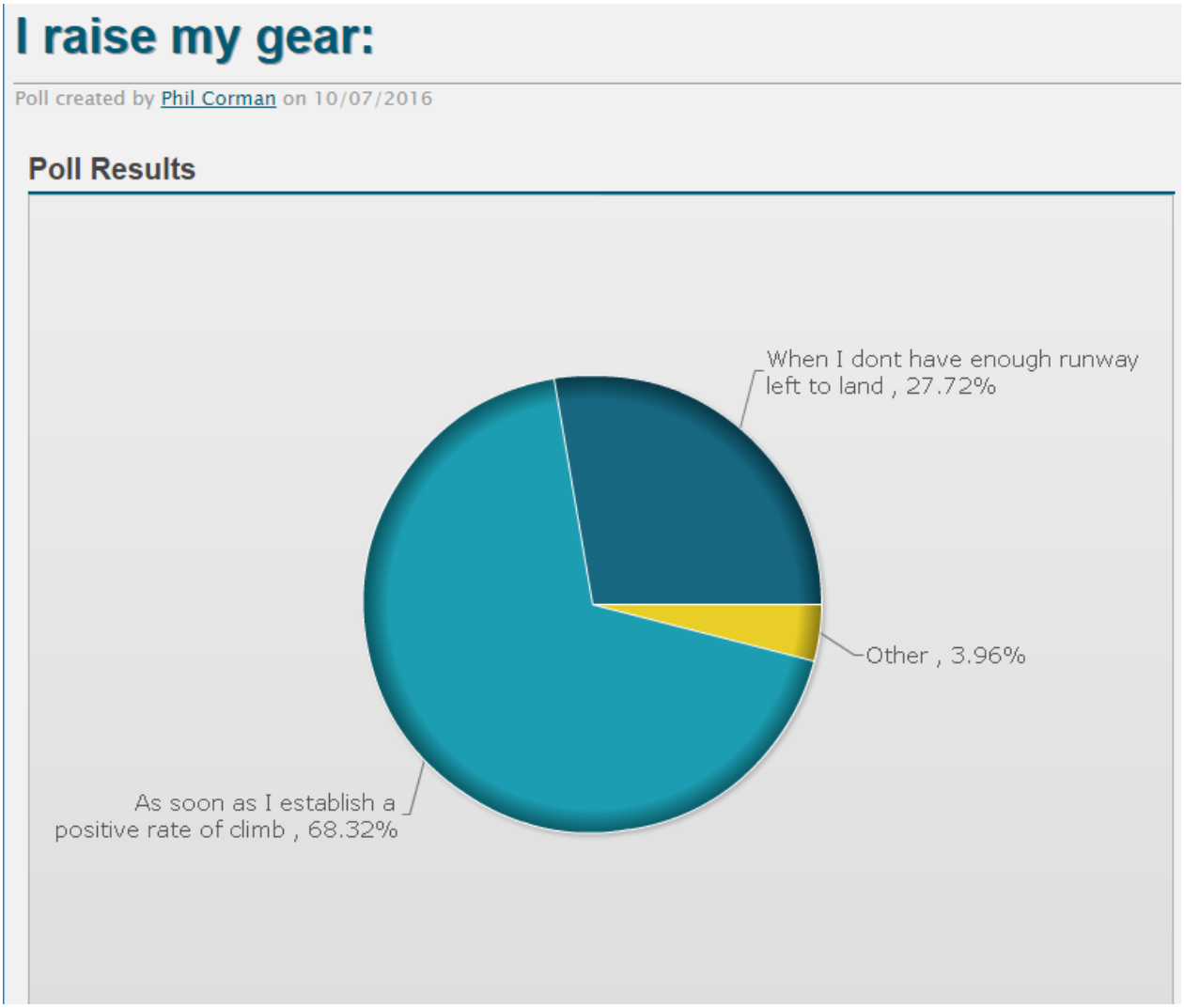
A downside is icing. I think there are two things we must keep in mind. One is to be aware of AIRMETs for Icing and avoid those areas. That's easy. Another consideration is icing on our control surfaces and even our landing gear. Your most recent landing may have kicked some moisture up into the gear and that moisture may have iced over while not flying. It's an easy check to ensure that there is not a buildup of ice and/or snow up in the gear wells.

What about Preheat? My threshold is 32^{o}F. If the temps are forecast to be below that, I pre-heat my Eagle. However, I don't turn the pre-heat ON until the night before. Eight hours is plenty of time to warm up the engine. Some owners leave their pre-heat on more often during the winter. We don't think that's a good idea, as it might be simply pushing moisture around in your crankcase, increasing the chances of oxidation. That isn't good. Just another consideration. Also, in the winter, after your Lycoming or Continental fires up, do NOT let the engine rev too high. The oil is thick, and sitting at the bottom of your engine where it is not doing your engine much good. Most engine wear takes place in the first 15-30 seconds after a start, and the thick winter oil doesn't help.

Flying without airspeed indications is not fun. It's a good thing to check your pitot tube during pre-flight and turn the pitot-heat ON for a bit while taxiing to the run-up. Again, this is a new twist during winter flying. We have a pitot cover, but there is still a chance that moisture has accumulated during the previous flight. It's an easy check and an easy fix.

What about those control surfaces? Check the ailerons for full and unimpeded deflection. It's also probably a good idea to throw the flaps out during pre-flight to ensure there's no iced areas. Can you take off with a little frost on your wings? The FAA says "NO". Our laminar flow wings are fast, but not terribly forgiving. Clear that frost. If it's in the morning, we turn our Eagle so that the morning sun will accelerate the de-icing. Have fun! Winter flying is the best, if you are safe!

Flying around the weather will get you there quicker."



Next month's poll: "I use this method on my approach to landings:" **CLICK HERE** to vote.

Appraise Your Mooney's Value

Don't forget about our cool new **Appraise your Mooney's Value** calculator.

M20C M20E M20F M20G M20J

RE: Flying Reliance on Avionics - Knowing the "presets" for your airplane, i.e. what pitch angle and power setting results in a particular performance -- airspeed and rate-of-climb/descent for a given configuration of gear and flaps -- will keep you safe if the ASI fails. This is a basic skill that is usually taught to student pilots. That skill will help you for your entire flying career. It is even very helpful when configuring your airplane when flying on instruments. So if one hasn't figured out these values, it is a good idea to go out and play test-pilot to determine the settings that will result in the desired performance for each phase of the flight, i.e. T/O, climb, cruise, low cruise, descent, pattern, and approach.
Brian L

RE: Point v. Counterpoint on Approaches –
The "stabilized approach" is a long-standing argument. Most people don't know how it came about. The stabilized approach was developed for the early jets that had long engine spool-up times when the throttle was changed. Many military pilots were killed in the early days of jets by forgetting that and asking the engine for a sudden power increase that didn't materialize. So the military and the airlines switched to the stabilized approach that required minimal change in engine power on final and could accommodate slow power changes. For those of us with piston engine where power is available immediately, this is much less of an issue.
The key point often missed is that the purpose of an approach is to arrive at a particular point above the runway at a particular speed that will facilitate a normal landing. How you manage to get to that point is up to you. A stabilized 3-degree approach will work just fine. A continuously-turning approach with a continuously decelerating airspeed will work just fine too. The key is to be at Vref (1.3Vs0) on short final before the round-out (transition from descent to flying parallel to the runway about 1' AGL).

And did I mention that every approach has an abort point? If the airplane has not touched down or will not touch down by your specified abort point on the runway, a point from which the airplane can be stopped normally, you go around. And that means that, even with the engine at idle and the airplane floating down the runway at 1' AGL, if you pass your abort point you GO AROUND. Period!

And you go around on the first bounce. No excuses and no rationalizations. Make that decision before you get to the runway. If your Mooney bounces on touchdown it means you forced it onto the runway too soon and too fast. There may be no good way to get the energy under control and get the airplane back to the round-out configuration, so GO AROUND. Go-arounds are free. Damaged airplanes are not.
Brian L

Mooney Landings
After reading the November issue of the Mooney Flyer, I think I've made you [Phil] a convert to the best method for making Mooney landings. You did a very good job on your write-up. Hopefully the word will spread and we'll end up with fewer prop strikes and better landings for the whole Mooney community.
I gave a landing presentation at the MAPA Mooney Homecoming that apparently was well received. I then flew up to Willmar and dropped off the plane for a complete tank reseal. I'll be going back to Willmar the week after this to pick it up. Keep up the good work, Phil.
Don K

No matter how much you push the envelope, it'll still be stationery

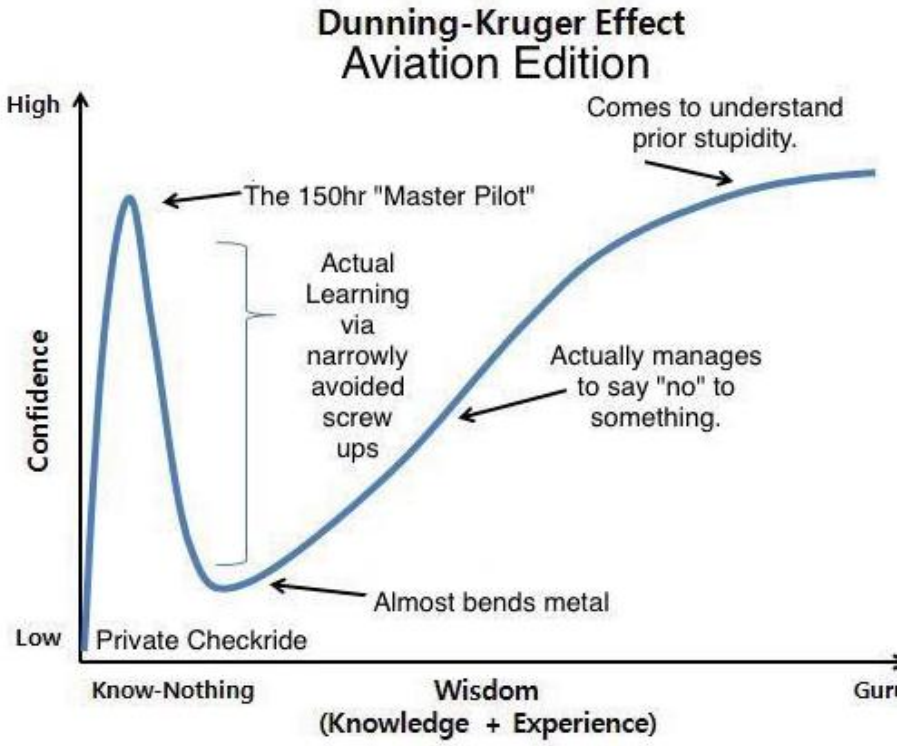
Lake Aero Styling & Repair "LASAR"

"Serving your Mooney needs since 1975" in Lakeport, CA

www.lasar.com

Office or Service: (707) 263-0412 accounts@lasar.com

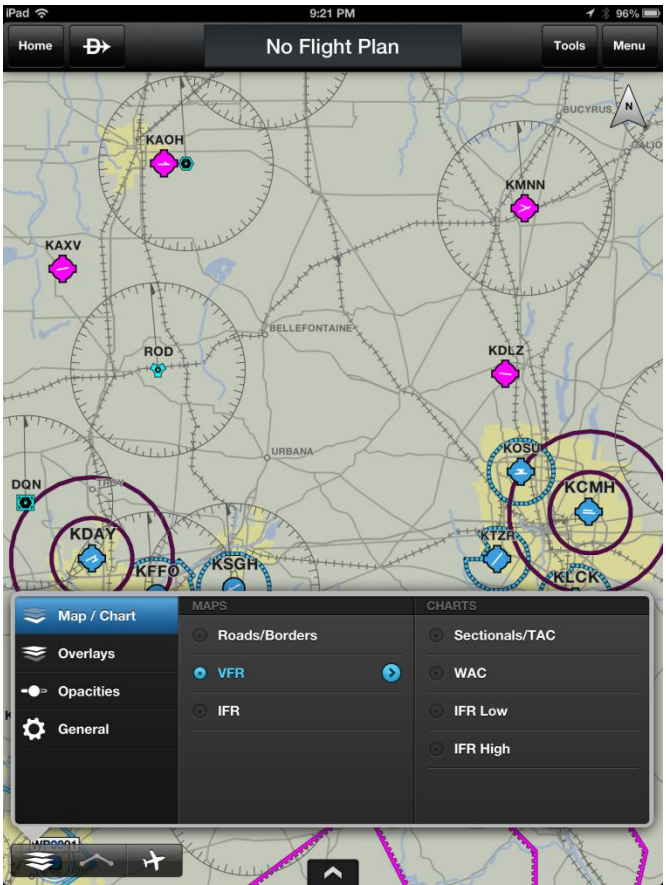
Parts: 707 263-0581, (800) 954-5619 Parts-Mods@lasar.com



For the past several years, we've seen a trend that leads pilots away from the traditional paper copies of sections and approach plates. In fact, recently, the trend has accelerated because of growing advances in technology and changes in the FAA's desire to supplement paper charts.

The App Revolution

A significant majority of pilots fly with an iPad and an aviation app. Yes sir, the electronic flight bag (EFB) seems to be the primary way pilots utilize aviation charts. The apps are changing the definiation of a "chart".



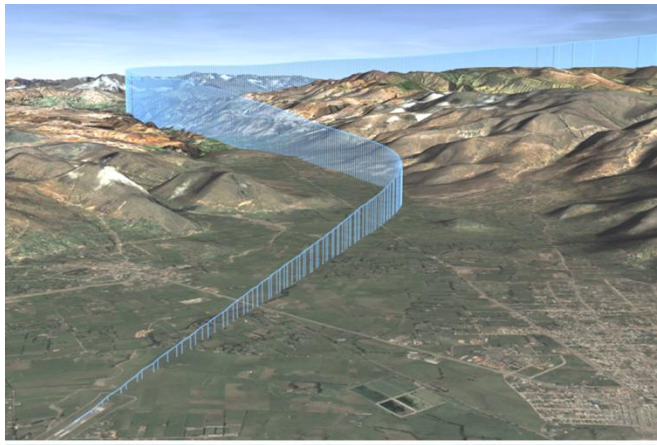
App Domination

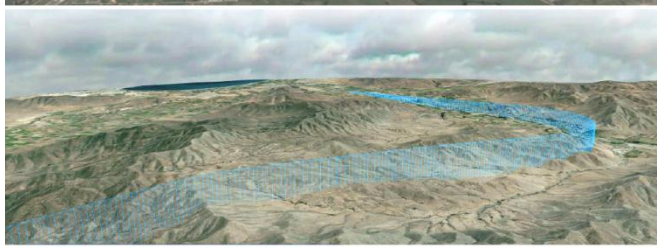
ForeFlight, Garmin Pilot and Jeppesen have dominated the market. These apps began their lives with scanned charts which became interactive moving maps. This summer, ForeFlight version 8 announced that they were introducing **data-driven charts**. All three of the leading apps now offer **data-driven charts**. That means that instead of an app displaying a copy of a sectional or IFR en route chart, the data-driven maps repackage them into custom map layers that are scalable, decluttered and customizable.

Has the FAA Lost Control?

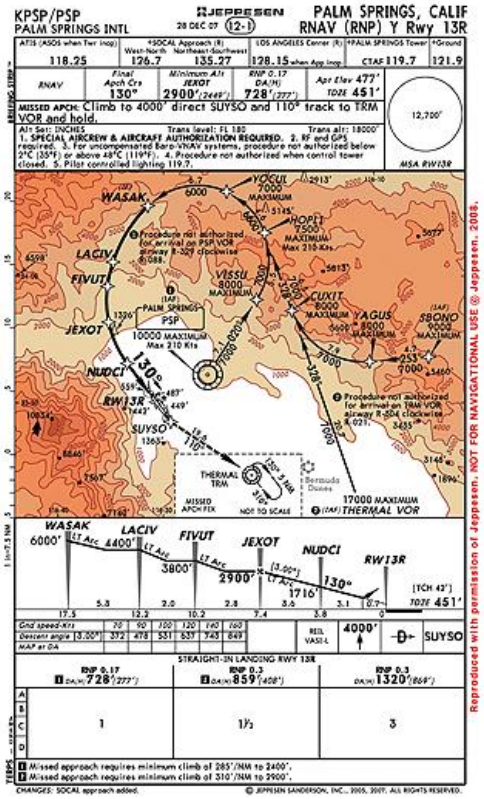
Scanned sectionals and IFR charts are static. Because the data-driven map is dynamic, this represents a major change. ForeFlight, Garmin and Jeppesen seem to be in control and the evolution is mind boggling. For example, if you have an emergency, Garmin's newest feature automatically highlights nearby airports and declutters the screen so that you are just exposed to essential information. This feature would be impossible with a scanned chart.

Recently, the FAA introduced the "Got Data" program. Its goal is to encourage app innovations and the development of new apps and services. The FAA has released data that they previously held close to their vest. Now the developers can use the FAA's airport, NAVAID, obstacle, approach and TFR data to create their own charts.





The "Got Data" initiative can accelerate new product development, like the data-driving maps from ForeFlight and Garmin Pilot. Approach charts have been off limits because of regulations and liability concerns. But now, a company called Naverus (part of GE), is making custom RNP approaches. This has allowed some airports that were previously VFR only because of mountainous terrain, to have IFR approaches.



Of course, RNP approaches require special aircrew training, so Mooney pilots will not be involved. The process is just nice to know information.

Private Chart Contractors

This summer, because of the decline in paper chart sales, and the FAA's reticence to continue subsidizing the printing process,things have changed.

The FAA gave the chart printing responsibility to private companies who will distribute the charts to retailers. The FAA still retains oversight of the printing process. Because of this, the cost of paper charts may increase in price and other charts may disappear as demand declines. We've seen this happen before with the demise of the WAC chart.

In addition, Jeppesen has moved to printing-charts-on-demand, instead of stockpiling charts.

Benefits

Data-driven charts offer multiple zoom levels that declutter and scale for each phase of flight. A VFR pilot can hide the IFR waypoints and other non-essential data. The helicopter pilot can turn on the obstacles for a low level

flight.

Because these charts are dynamic, you'll have the latest updates without waiting fo the FAA's 56-day chart cycle. If an airport frequency is changed on Monday, you'll have the correct information in the blink of an eye.

The EFB app companies – the new Elroy Jeppesen

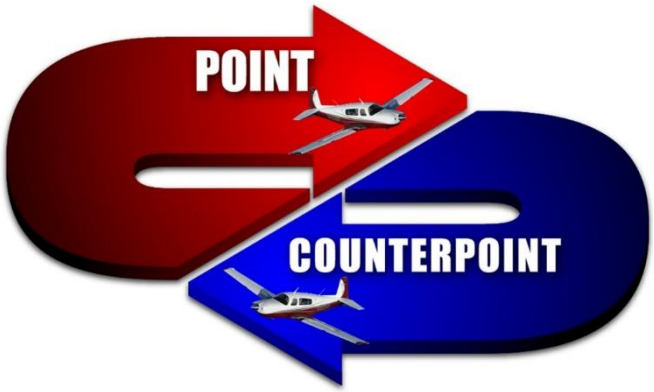
In the 1930s, to find their way, pilots depended on Rand McNally automobile road maps, railroad tracks and landmarks. Then along came a United Airlines pilot named Elroy Jeppesen, who purchased a ten-cent notebook and started writing down detailed notes about his routes. He even climbed hills to determine their height and got telephone numbers of farmers willing to provide weather reports. Word got around about his "Little Black Book", and soon he was giving copies to his fellow pilots. As demand picked up, in 1934, he founded Jeppesen & Company in the basement of his home in Salt Lake City, Utah, and sold his information for $10 a copy.

The new app companies are the innovators in EFB navigation. You can continue to fly without an iPad and aviation app and scorn technology in favor of good old paper charts. I salute you and your resolve to stay grounded in the 1990's. But things are changing and for the greater good. As aviation evolves, we should always remember that those marvelous EFBs might fail. We still need to maintain situational awareness and retain our old school navigational skills.

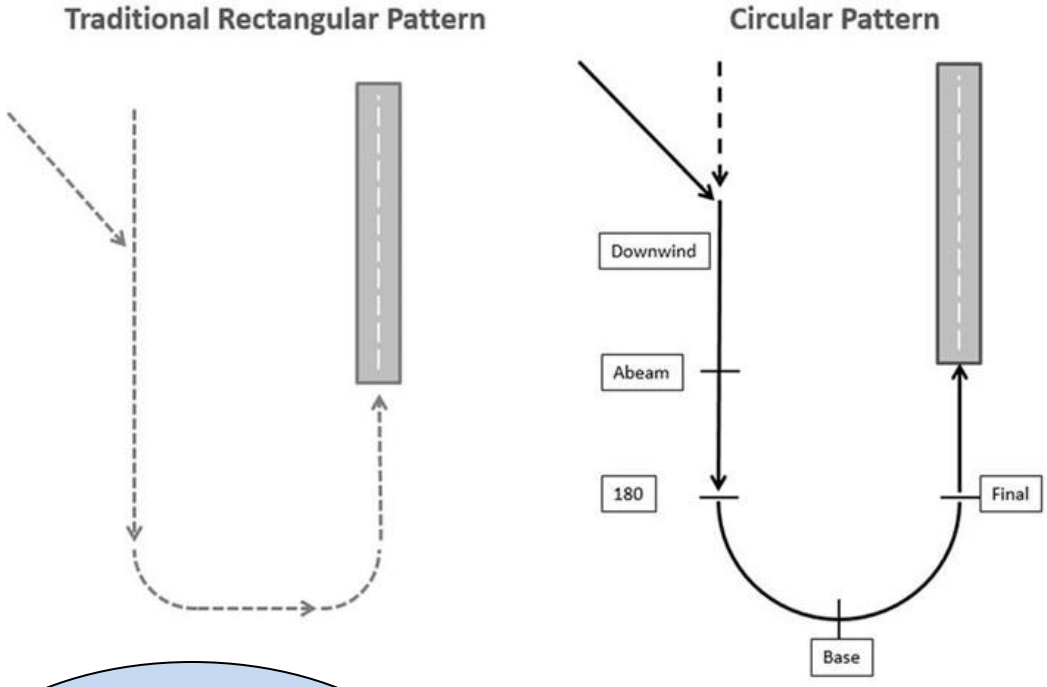
Smooth skies,

Jim

Early aircraft throttles had a ball on the end of it, in order to go full throttle the pilot had to push the throttle all the way forward into the wall of the instrument panel. Hence "balls to the wall" for going very fast. And now you know the rest of the story.



Point vs. Counterpoint – Square or Round Pattern



AOPA and the University of North Dakota think they have a better solution for Loss of Control accidents in the pattern. It's called a round pattern, depicted above, right.

The hypothesis to be studied is that in contrast with a rectangular pattern, a continuous turn from downwind to final may provide for increased stability, reduced pilot workload, and a constant bank angle throughout the maneuver. This would help pilots better manage angle-of-attack variances. In addition, the military uses this pattern.

There are so many things wrong with this scenario that I don't know where to begin. First, a high wing airplane will have no visibility to the runway during the 180° turn from downwind to final. In our Mooneys, our low wing will block out anyone on an extended final.

Perhaps the pilot could flatten the turn and take a peek at traffic that might be on final

Now it's looking like a traditional squared off pattern again. It seems like this is more of a fix for poor basic pilot stick and rudder skills. Why not simply address this issue?

But the use of a continuous turning approach has the potential to reduce the likelihood of overshooting a runway during base-to-final turns. This is a scenario that has resulted in multiple stall/spin accidents due to aggressive corrective maneuvering.

I think that's voodoo thinking. If the pilot has not taken the wind into account during their downwind, they probably will not account for it properly in a continuous 180° turn. Stick and Rudder is the answer.

During WWII, U.S. Airplanes were armed with belts of bullets which they would shoot during dogfights and on strafing runs. These belts were folded into the wing compartments that fed their machine guns. These belts measure 27 feet and contained hundreds of rounds of bullets. Often times, the pilots would return from their missions having expended all of their bullets on various targets. They would say, I gave them the whole nine yards, meaning they used up all of their ammunition

Winter Flying and Judgement

By Don Kaye

Winter flying can be challenging with many decisions to be made, and this trip was to be no exception. First, there was the big storm developing over the Midwest, and then there was the storm coming in from the Pacific. First things first, though. Darkness was fast approaching as I left Willmar, and I wanted to get as far South as I could before dark, so as not to be faced with a large snow issue. I also needed a big FBO that could provide hangar space for the first night, since there is no way I wanted the plane out in the weather. I had learned my lesson years before with below freezing temperatures and clear skies. During that trip, I arrived in the morning to find the plane covered with frost and it took hours to defrost the plane.

So, I chose Omaha, Nebraska as the stop. I really wanted Wichita, but it looked like I would have to cross the Front and arrive after dark. I wasn't interested. So Omaha it was. I arrived before dark and chose TAC Air over Signature, due to fuel prices and because I only saw jets in front of Signature. I asked for hangar space and they were able to provide it. I'm glad I didn't ask for their hangar price at the time. The most I had ever paid before was $55. When I paid my bill, it turned out to be a whopping $115/night, but was it ever worth it! Any thought of leaving Friday was quickly removed from my mind. Friday arrived with low ceilings and winds gusting to 49 knots. It was wild. The temperature drop was 30^{o}, so it was a wicked front. Temperatures were in the low 20s, and as politically crippled as California has become, I was reminded why I live there.

I spent several hours Friday reviewing the weather options, trying to figure out which way to go home. Should I choose the Northern route through Wyoming, the mid route through Pueblo (tackling the Rockies), or the Southern route through New Mexico? Saturday was looking good through the Midwest down where I was. It definitely was not so nice in Minnesota. However, the weather was quickly moving into California. The headwinds were going to be terrible the whole way back. I chose the mid route through Pueblo. It looked the most promising. I figured on a little over seven hours for the trip, but it turned out to be nine hours, with most of my tough decisions being made in the last hour and a half.

Because of time zones, I would pick up 2 hours on the trip home. I was off the ground by 6:30am California time. The Pueblo leg was uneventful and even though I stayed low, I still battled 35 knot headwinds. After topping off at the self serve in Pueblo ($3.98/gal), I climbed to 16,000 and took V244 to Milford, Utah. The headwinds were now up to 45 knots and I was seeing "J" speeds of 150 knots. The Rockies were beautiful and the ride was smooth. Around Montrose, some rapidly changing numbers on the MVP-50 showed either a disconnected or failed TIT probe. Because I knew my engine power settings, that was a non-event for the remainder of the trip. Milford is the only reasonable stop midway between Pueblo and the West Coast, so after a quick stop, I was off again on the last leg; a leg I knew was going to be a challenge.

Having all the new electronics provided a comfort level unknown just a few years ago. The headwinds were now up to 51 knots and ground speeds were at times like I was in a Cessna 172. The airlines were complaining about mountain waves and I saw them too, with oscillations in speed cycling between 120 and 170 knots. Additionally, a SIGMET popped up along my route of flight, with severe turbulence below 14,000 feet. As I came up on the SIGMET, I saw dust blowing North for miles and miles. The good news was that the winds were parallel to the Sierra Mountains. I cautiously went into the SIGMET area, knowing that if things started to get rough, I would deviate South to Bakersfield, which was reporting clear. The clouds associated with the Front were moving into California.

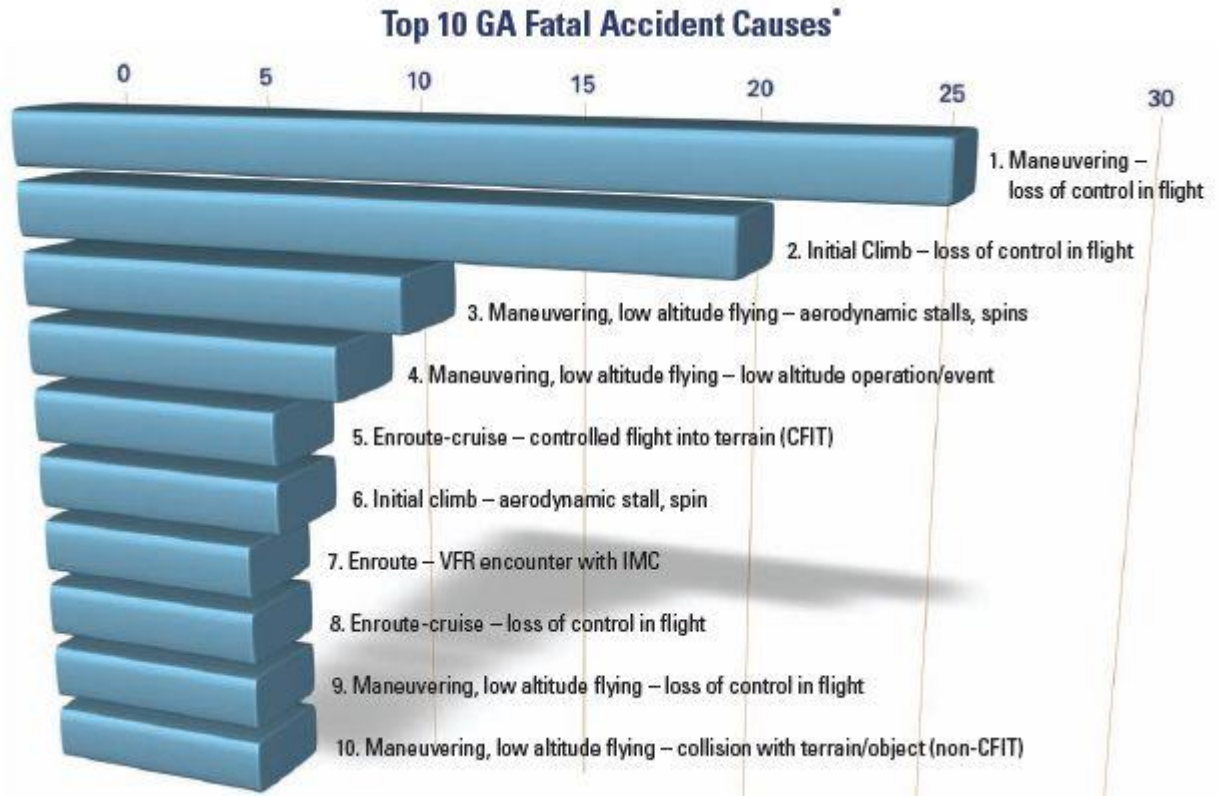
I left my Site Level in the hat rack and didn't want to try to get it. It was probably better that way anyway. As the Sierras very slowly came closer, with the mountain waves causing my view to alternately raise and lower, I sometimes thought I would top the clouds, and sometimes thought I would not. By Mono Lake, it became clear that I would not. I could see snow coming out the bottoms of the clouds. No way was I going into the clouds with their associated ice and turbulence. I asked for and received clearance to FL200. By FL190 it was clear that I would top them. I asked for and was cleared for a block FL180 to FL200. The headwinds were now 61 knots, but the air was now just light turbulence. I went over the Sierras at FL190. Now I started hearing reports of light rime between FL180 and 16,000, so I would wait to descend until into the Valley. Then I heard reports of clear icing at 10,500 near Stockton. I was monitoring Nexrad and the sight picture ahead showed a deviation to the South was in order. First, I picked Modesto and then the El Nido VOR (HYP) and ATC was accommodating to both. As I was coming out of the Sierras, ATC gave me a clearance for a pilot's discretion descent to 8,000 feet and requested that I report the freezing level. I was in the clear as I passed it at 10,200 feet. They were even more accommodating when they gave me a vector to San Jose. At 8,000 feet, I was in and out of moderate rain and IMC the whole way. I was treated to delay vectors while they got a couple of airliners in before me. I broke out at 2,000 feet and landed at my home airport after nine hours in the air and a very long day.

I am thankful for the Bravo. This trip could not have been made in one day in a less powerful airplane or one without turbocharging. FlightAware for N9148W shows the trip legs and the last one is the most interesting. It shows the importance of making that deviation to the El Nido VOR.

What a day! I'm glad to be home.

Avoiding Loss of Control

by Robert Reser



One study found that turning and/or climbing flight preceded 85 percent of fatal stall-only accidents. In other words, while the pilots were maneuvering. Another study found that 93 percent of accidental spins begin at or below traffic pattern altitude.

From this it appears that stall recovery is almost impossible. Maybe we should emphasize how not to stall in the first place. I have yet to see any discussion of what causes a stall or how not to stall!

All texts say a stall is caused by exceeding the critical angle-of-attack. Wrong! That is <u>when</u> the stall occurs. The <u>cause</u> is the aircraft being pitched to the extent it attains the critical angle-of-attack, ie., pulling and holding the elevator control aft. The pilot causes the stall!!

All texts say when turning, pull the control wheel to maintain level flight. Wrong! Added thrust will give the needed lift for a level turn, until reaching max thrust; approximately 35-40 degrees bank for most small aircraft.

Let's consider the Mar/Apr 2014 FAA Safety-Briefing, p.13 by Gene Hudson. From this you will likely wonder why we ever pull on the control wheel!

Central to the problem of the prevention of unintentional stalls is a general misunderstanding of how and why an aircraft will stall. Too often, we hear discussed the aircraft's stall speed. In fact, the aircraft stalls if, and only if, the wing exceeds the critical angle of attack.

Unintentional stalls occur when the pilot applies enough back pressure on the yoke to overcome the natural stability of the aircraft, leaves the trimmed angle of attack, and exceeds the critical angle of attack. It would seem then, that we could eliminate unintentional stalls by warning pilots to avoid applying excessive back pressure.

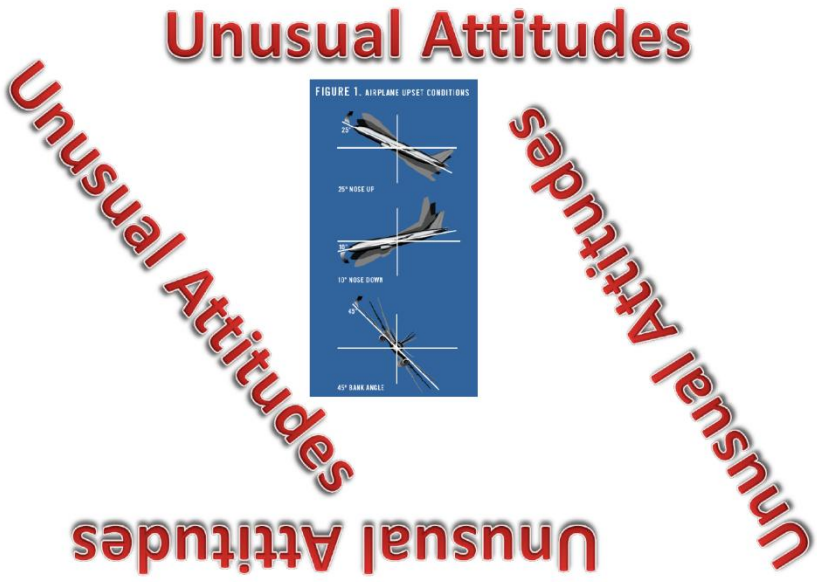
One would think this would work. However, history tells us that it does not. Discovering the reason for this paradox requires bringing some outside knowledge into play. In particular, I find it helpful to consider the 19th century contributions of German anatomist and physiologist Ernst Heinrich Weber (1795-1878**), and his student, physicist and philosopher Gustav Theodor Fechner (**1801-1887**).**

These two scientists developed the theory of perception, defining the "just noticeable difference (JND)," or, in other words, the minimum change in a stimulus required to trigger perception.

Several features of this are important to flight operations. First, any stimulus, (yoke pressure), which is constant, will fade from perception over a short time. A pilot who is flying in an out-of-trim condition will soon lose the ability to perceive that he or she is applying any elevator pressure. The out-of-trim condition becomes the new zero; the pilot cannot trim it off, because they do not perceive that it is there!

This leads to the concept of "hands-off" flight control. Few Pilots know or understand that the aircraft is designed to fly all by itself. We just steer. It is possible to fly from beginning of taxi to the approach and landing roundout, without touching the control wheel. Just use power and rudder control. Try it, you will like it!

I don't see any likely improvement in Loss of Control studies until we decide to define the real problem – How to apply control!



Geoff lee.
CFII

WAASat?

More acronyms, I am afraid. I do find that there is confusion regarding the differences between the following approaches:

- LPV
- LNAV /VNAV
- LNAV+V

Even the "L", evident in the abbreviated title of these approaches, does not represent a common designation. In the instance of the LNAV approach, it denotes "Lateral", whereas in the LPV approach it signifies "Localizer".
The V stands for "vertical". The **WAAS vertical guidance (*Glide slope*) provided is identical for all 3 approaches**. The question is, "*how low can you go"*? Both **LPV** and **LNAV/VNAV** have a Decision Altitude (DA). However, an **LPV** approach will get you closer to the ground (*lower minimums*) than an LNAV /VNAV approach.

The LNAV+V Approach

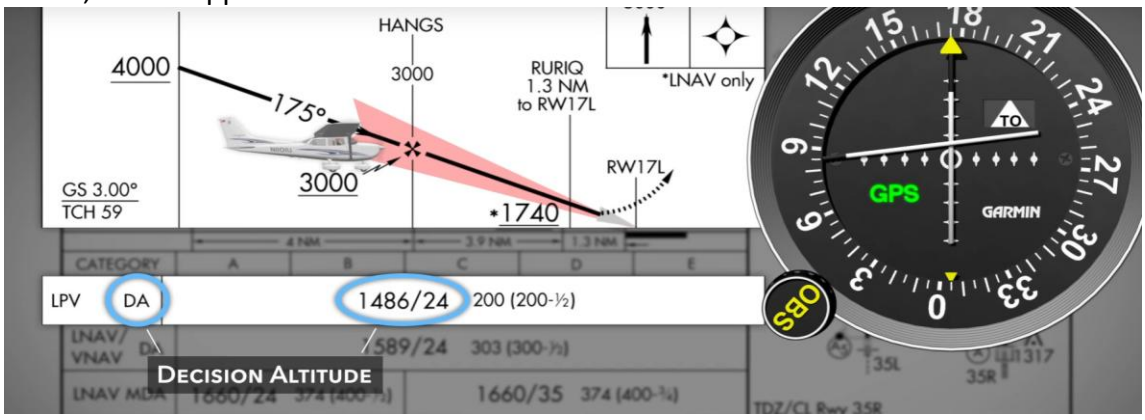
This approach has a minimum descent altitude (MDA). This approach has the highest minimums and the WAAS glide slope will help you descend to the MDA without violating the altitudes of the step down fixes depicted on the approach plate. In the early portion of the final segment of the approach, it has smaller obstacle clearance margins than the other two. ('*Tis prudent to carefully nail the alignment and glide path*).

Decision Altitude (DA) and Minimum Descent Altitude (MDA)

What's the difference? Decision altitude (DA) is referenced to mean sea level, MDA (Minimum descent altitude) is also referenced to sea level. Decision height (DH), noted on a precision approach (ILS), is referenced to the height above the threshold of the landing runway.

LPV Approaches

There are 3,567 LPV approaches serving 1,739 airports in the United States. Compare that to less than 1,450 ILS approaches.



The design of the **LPV** approach takes into consideration the precise measurement of the curvature of the earth and a progressive narrowing of the lateral safety zone for obstacle clearance in the

final segment of an approach, much as in an ILS design. The lateral protection area for the LPV is the same as that for a CAT1 ILS approach.

LNAV/VNAV Approaches

The design of the **LNAV/VNAV** approach does not include a similar narrowing down treatment of the lateral safety zone, as in the LPV, or the precise measurements of the curvature of the earth and certain other points. However, it does emulate the Baro. Nav. Glide slope to some degree. Hence, this approach has higher decision altitude minimums compared to the LPV.

How Does All This Relate to Y and Z Approaches?

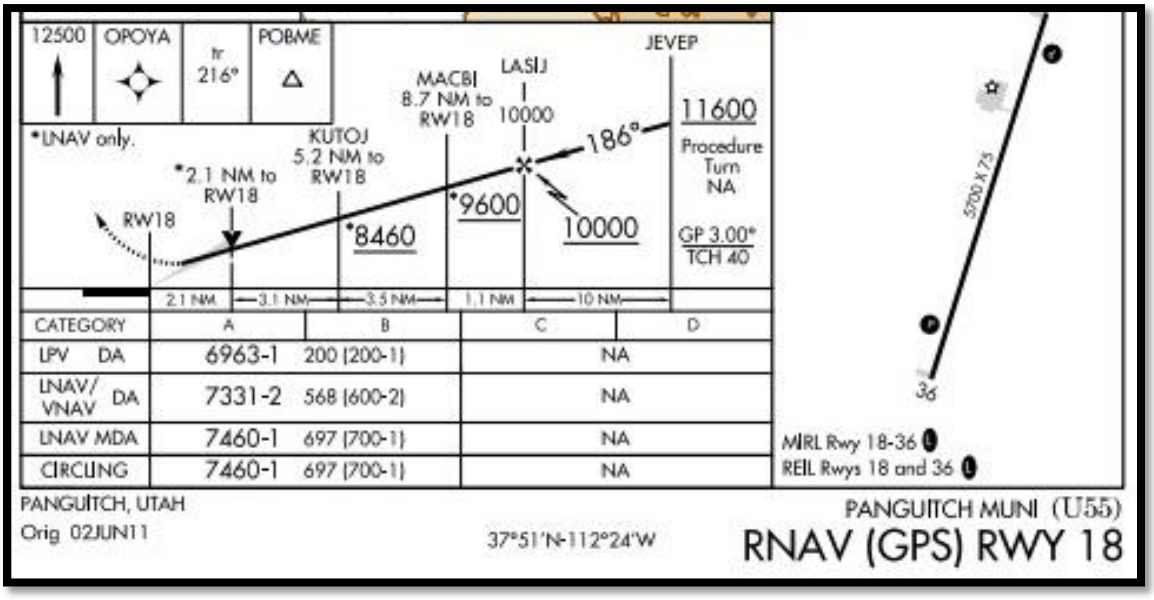
Multiple approaches to the same runway are assigned alphabetic letters commencing from the end of the alphabet. *For instance, the first approach is normally designated with a Z, the second Y, and so on.* The Z approach is normally associated with LPV characteristics, *but not always!* The Y approach to the same runway would have the LNAV /VNAV limitations. (See the illustration, this page)

It is prudent to examine the descent limitations on the approach plates for all instances relative to each approach to the same runway.

I think that the FAA uses DA and MDA designations instead of DH simply as a differentiation because these approaches are not classified as precision approaches, even though, in some cases, an LPV can get you down as low as 200 ft AGL. (It is *better to have the altimeter set to the local barometric pressure).*

The LNAV/VNAV will certainly get you down to circling approach minimums as necessary. In the final analysis, DA, MDA and DH are all *decision heights. T*he pilots' actions with the aircraft, in the event of no visual sighting of the runway environment at these points, should be the same in all cases.

I should emphasize that when using the WAAS glide slope for any of the foregoing three approaches, the "in panel" visual presentation of the glide path to be followed is identical. However, it is wise to be aware that the lateral safety zones relative to obstacle clearances vary considerably with the approach chosen, as does the altitude of the "missed approach" point.

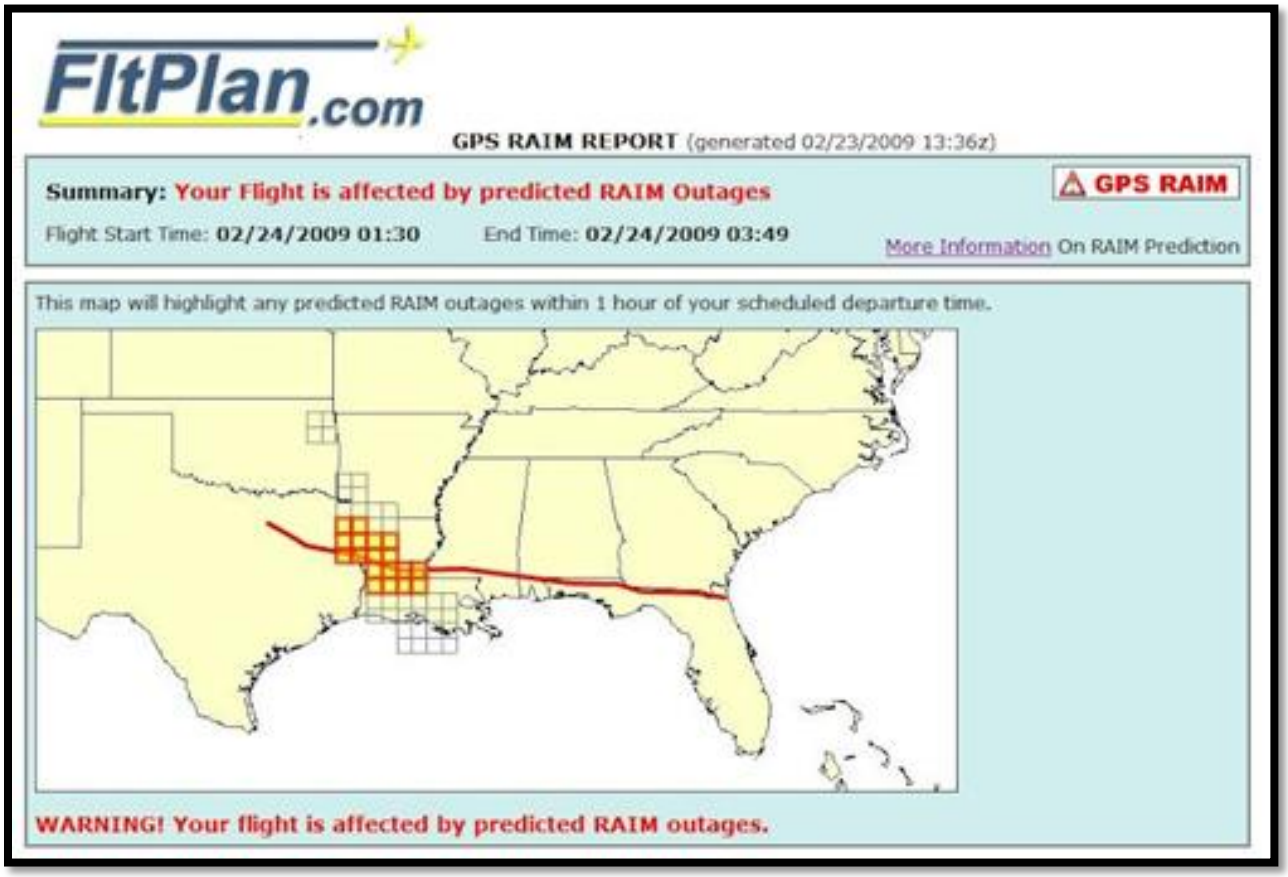


RAIM

RAIM stands for ***Receiver Autonomous Integrity Monitoring*** **system.** If you have a panel mounted WAAS receiver, there is no requirement for a RAIM check unless there is a WAAS failure or you are out of the coverage area. **If your panel mounted GPS is not WAAS, the functionality of this system must be confirmed prior to executing a GPS approach.**

The horizontal and vertical protection limits are calculated continuously by your WAAS GPS, but this calculation is based on the accuracy and integrity of the GPS signal at the specific time of the approach. **Outages can occur in different geographic areas at different times, so if you file a flight plan with GPS routing and plan to terminate the route with a WAAS approach, it is good common sense to acquire the predicted RAIM integrity along the route and at the time of your planned arrival.**

Certain commercial flight plan companies such as *FltPlan.com*, can provide great assistance with GPS routings, RAIM prediction and pictorial presentations of possible GPS outages along your planned route.



Fly safe

How much do you know about your battery? By Jim Price

I'll admit it. I'm not a genius about anything, especially when it comes to electronics. But recently, I have learned a lot about my aircraft battery.

When properly maintained, a good aviation specific battery (12 volt or 24 volt), should give you over five years of carefree performance. Some people think that they can occasionally charge the battery with an automotive or "trickle" charger and the battery will remain healthy. That's not true. Even a sealed, dry "maintenance free" aviation battery needs to be kept at full charge at all times. This will avoid something called "sulfate". When sulfated, a battery can never be fully charged, no matter how long it is connected to a charger. Yes, vibration, high-low temperatures or contamination can cause battery failures. However, sulfate is the number one cause of early battery failures. It's caused by failing to keep a battery fully charged.

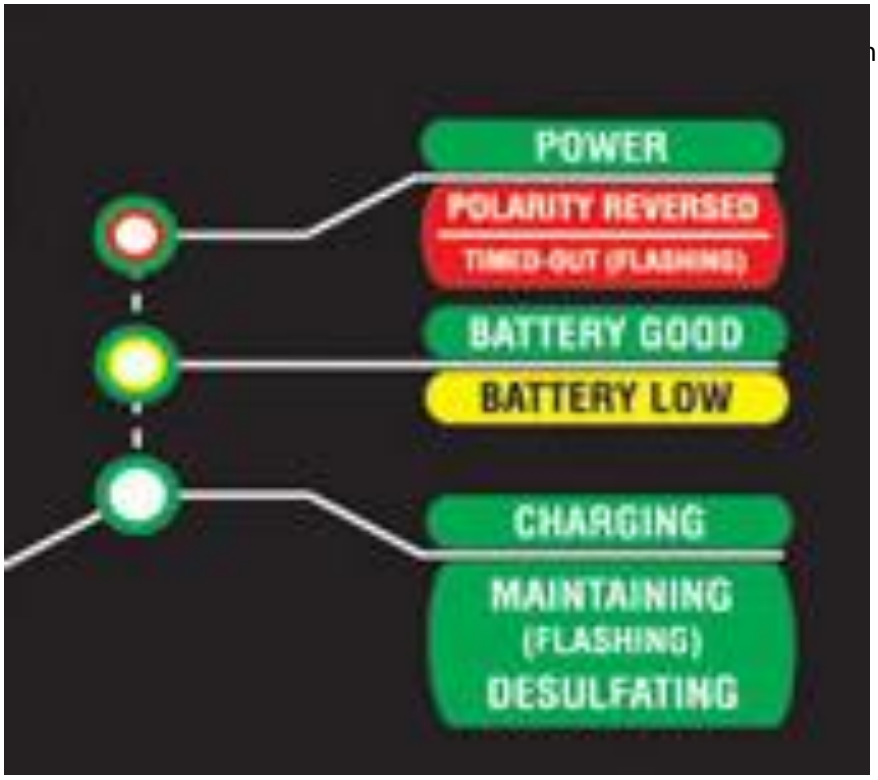
Aviation battery manufactures try to maximize the cranking amps and reserve capacity while keeping the battery size to a minimum. They do this by using a higher specific gravity electrolyte. This "hotter mix" has more sulfuric acid and less water and if an automotive charger is used, it will overcharge the battery.

If you have a battery with filler caps and you need to add water beyond just small amounts every three to six months, this means that the battery is being overcharge. Sealed "dry" maintenance-free batteries also lose electrolyte through the vent valve in the form of a vapor-gas. There is no way to replace this loss and the battery will not last as long as it should.
Undercharging in cold weather (below 60^{o}F or 15.5^{o}C) also results when using a charger that does not compensate for the cold by increasing its output voltage.

During your aircraft annual inspection, the mechanic(s) will check the battery. A sealed battery can be charged and tested for its reaction to an artificial load. If the voltage springs back after the load test, it passes inspection. A wet cell battery with filler caps, can be checked the same way, but because you can remove the caps and access each cell, the battery health can be checked cell by cell.
How can you monitor your battery's health?
Before you shut down after a flight, you can look at the load meter. If it appears to be charging the battery, then that's an indication of problems in Voltville.

I have a M20K 252 with a 28 volt electrical system. 17 months ago, I removed the Gill wet cell (maintenance) battery and installed a Gill sealed battery. Since then, whenever my beautiful Mooney is in its hangar, the BatteryMINDer is attached and plugged in.

The older model aircraft BatteryMINDer has three lights. The top light indicates power and polarity, (if your battery is correctly connected to the BatteryMINDer). When plugged in, it should be green.
The bottom light is steady green when first plugged in, indicating that it is trickle charging the battery. After a short while, it flashes green, indicating that the BatteryMINDer is now in maintenance mode; trying to keep the battery desulfated.



BatteryMINDers are "smart" chargers. As soon as they are connected, they start charging. They continue to take readings from the battery and increase or decrease output to supply exactly enough power to maintain the battery with no risk of overcharging or undercharging.

The middle light indicates battery health. Green is good and a yellow light means the battery is low and the BatteryMINDer can't keep it changed up.

Newer, advanced BatteryMINDers, as shown below, have additional battery health monitoring features.

Recently, just after my annual inspection, as I was about to remove my BatteryMINDer, I noticed something different about one of the three lights. The middle light was yellow.

I asked a few mechanics about it and their guidance was, "Keep an eye on it."

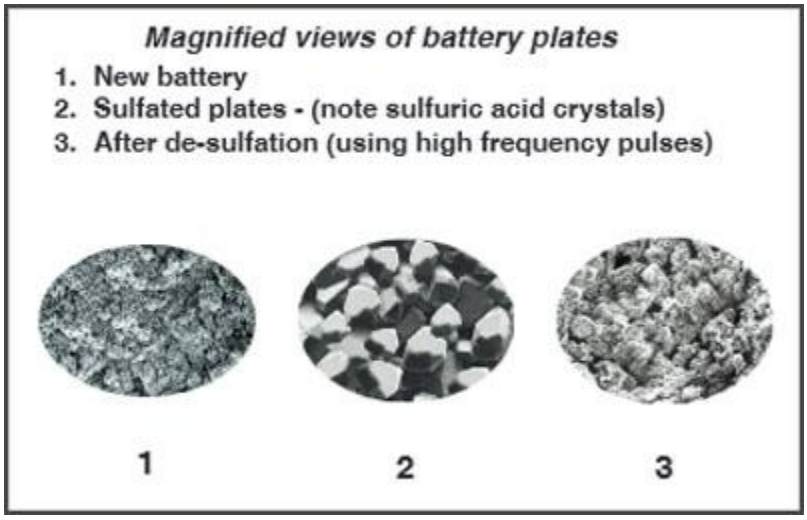
A few days later, when visiting my dentist, I mentioned the problem. He's not your usual dentist. He owns 4 1/3 aircraft and uses BatteryMINDers on all of them.

He said, "The BatteryMINDer is trying to tell you something. You'll probably need to replace your battery."

Upon further inspection and testing of this battery, we learned that one of the cells had a short in it. Left on its own, with no BatteryMINDer connected, the battery case felt hot. In 10 hours, it "took a dive" from 24 volts to 1.5 volts. I saved myself a lot of grief because the BatteryMINDer alerted me that something was wrong.

How can you extend battery life?

- Invest in a good battery and maintain it properly with a high quality charge-maintainer-desulfator like the BatteryMINDer.
- Charge the battery before it becomes completely dead. Most products require a minimum voltage in order to begin charging. Charging before it's completely dead will save you time and energy.
- Clean the dust and dirt from the top of the battery.
- Use a BatteryMINDer to charge a lead acid battery after each use. This will prevent sulfation.
- Check the water level frequently to make sure that the levels are appropriate. Overfilling the battery can cause spilled acid. Yuck!
- The plates in a flooded battery must always be fully submerged in electrolytes. If the level is low (plates exposed), fill the battery with distilled water. Never add electrolyte.
- Reduce the float charge if the ambient temperature is higher than 85°F (29°C) or use a temperature compensated charger/maintainer like a BatteryMINDer.
- Do not allow a lead acid battery to freeze. A partially discharged battery freezes at a higher temperature than one that is fully charged. Never charge a frozen battery.
- Do not charge at temperatures above 120°F (49oC).

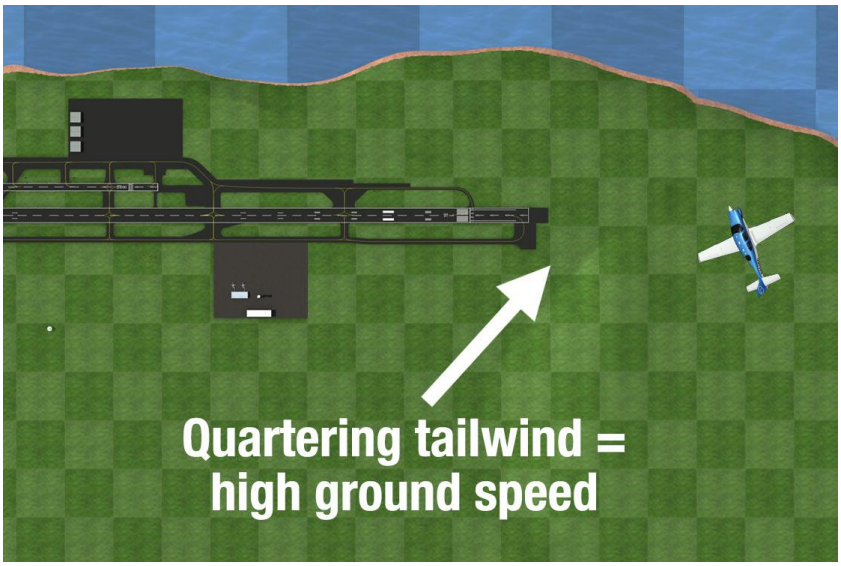


How to Mess Up an Approach to Landing

On almost every approach to landing, you must make changes to nearly every aspect of your Mooney. You need to adjust power, pitch, trim, flaps, airspeed, and rudder input. You can get away with a lot of sloppiness in other airplanes, but our Mooneys demand that we are ahead of it at all times. This means while we are setting various controls, we are anticipating what will be required next.

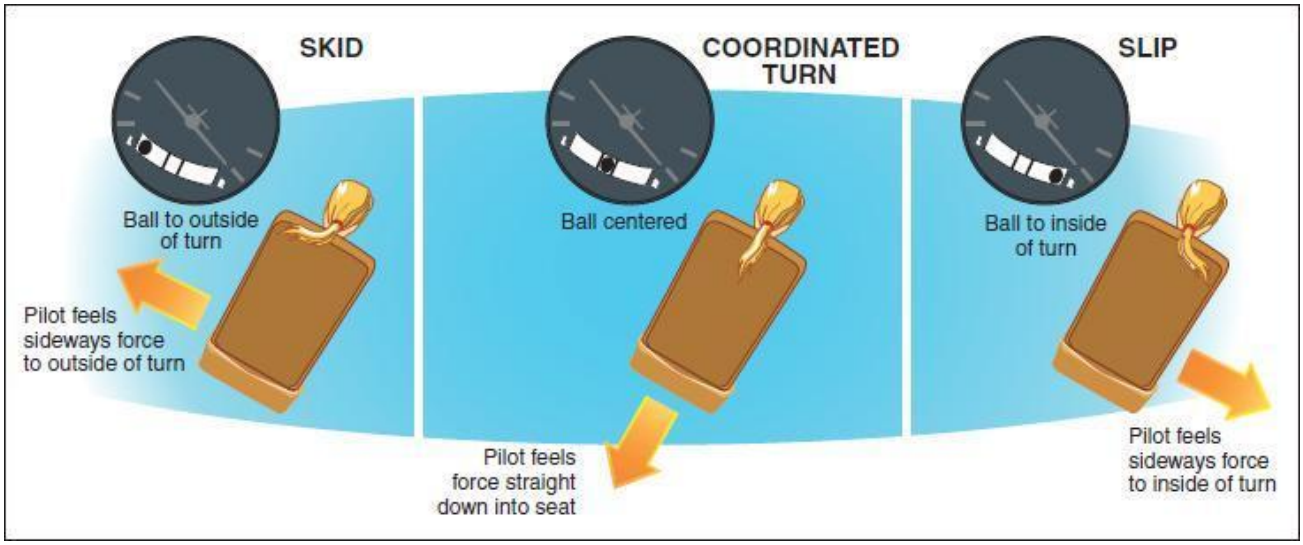
It is a given that each PIC is already doing a few things correctly in the Approach to Landing. First, they are Aviating.. Aviating… Aviating. Second, they have eyes outside the aircraft **looking for traffic**. Believing that all other pilots are following the AIM and entering patterns properly, is an assumption that will, sooner or later, bite you. Assuming that all aircraft are communicating is flawed. People don't always communicate, and sometimes when they do, they report inaccurately. Finally, don't rely on your new ADS-B traffic info. It probably does not have a TIS-B broadcast at pattern altitude, so you won't be getting all the traffic. Don't assume that all pilots are fully committed to a stabilized approach and ready to execute a go-around if they do not achieve that objective.

So, let's get down to it. You've entered the pattern, you are on a base leg, BUT YOU OVERSHOOT FINAL. This could happen for any number of reasons. You might have simply misjudged or you underestimated a possible tailwind component on base. If your base leg was tight, we think the only solution is a GO-AROUND. If you have ample time to correct with a gentle bank and corresponding control inputs, then it might be salvageable. But, only if all other factors are perfect, such as altitude, descent rate, etc..

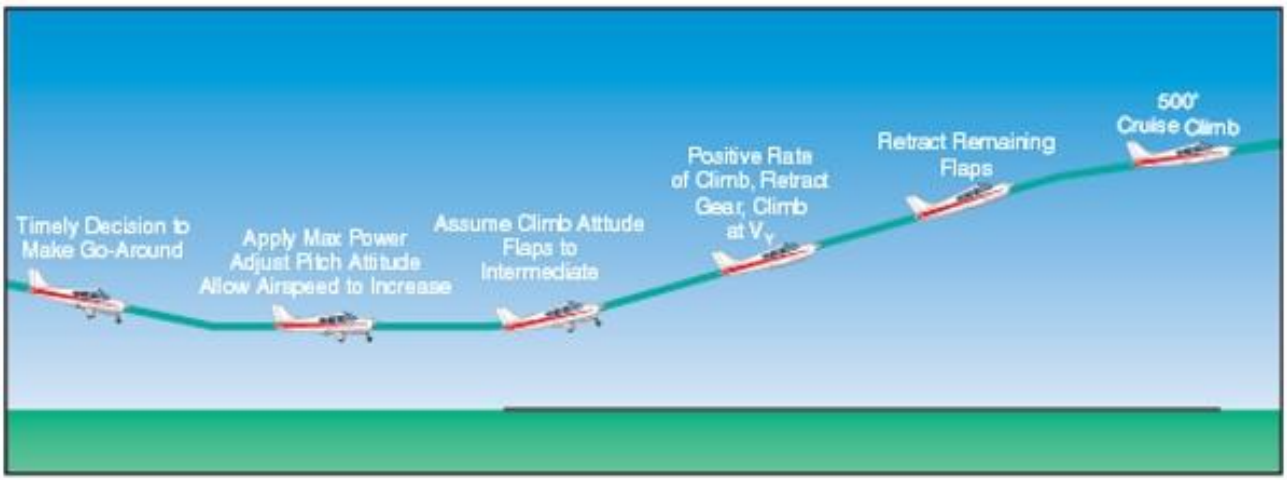


The worst decision that you can probably make is to increase the bank. We don't advocate more than a standard bank in the pattern at any time. But, by increasing the bank, you are also increasing the stall speed. What is your margin here? Do you know what your stall speed is, given your Mooney's current configuration? Remember that the heavier you are, the higher your stall speed. On my Mooney, I can deduct about 5 kts of stall for every 300 lbs under Max Gross. It's just a rule of thumb, but it's best to use Max Gross weight stall speeds when you are low and slow. Back to the bank angle. A 45^{o} bank will increase your stall speed by 20%. Given that we are typically flying at 1.3 VS, that reduces your margin of error to 10%. What if you had even a slight gust factor at this time? Not much safety margin there. Increasing Bank Angle shouldn't be your first choice.

So, the next mistake might be kicking the rudder to help with the turn. On most Mooneys, you are using opposite rudder to keep things coordinated in the pattern. So, you kick the rudder, maybe not opposite rudder, and end up skidding your Mooney. Do you remember which wing stalls first? Is it the raised wing or the lowered wing? Which wing is more affected by the skid? Kicking the rudder can increase the chance of you wing stalling sooner. Yikes… Another questionable response. Here's the answer: In the skid, the down aileron creates a higher angle of attack.



The right answer most of the time is to go-around. It's as simple as that. Put 5 more minutes into your logbook and go around. But, even this should be done with care, right? If you are like me, you have your nose trimmed up, so add power smoothly as you correct the trim and flaps for a climb. It would ruin your day to add power aggressively and have the nose shoot skyward. Most Mooneys don't need that much power to stop a descent and begin a climb. Get to VX and then complete the cleaning up.



Send your questions for Tom to TheMooneyFlyer@gmail.com

Question: I love your technical advice for us Mooney owners each month in the Flyer… It's outstanding and very valuable to me. My question is this: How long do I consider doing a hot start after my Mooney has been on the ramp? I have a Lycoming IO360

Answer: When I saw this question about "hot starts" I hesitated for a while. There is no pat answer, but there are some basic principles to follow. These basics apply to all engines.

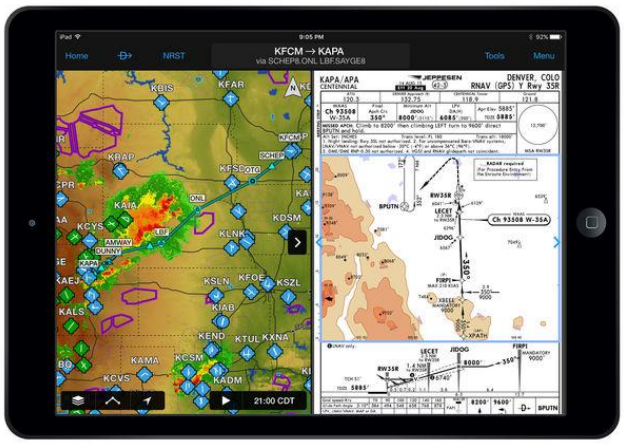
I used to have a lot of problems when we rented about 30 planes in the Bay Area. We rented them at a "wet" rate. So what? They were full when rented so the renters had to stop at the fuel island and fill up before bringing the plane back. Most renters have little knowledge about engines, so almost everyday, someone would flood the engine on a hot start and kill the battery. So then, I had to go recover the plane; a real pain. If they didn't kill the battery, I would do a "flooded" start, which is THROTTLE "IN" and MIXTURE "OUT". You might need to crank a long time and when it starts, you have to quickly pull the throttle and gently move the mixture "in". What you are doing is bringing a lot of air to the fuel air mixture; trying to get a better combustion ratio. So , we come back to the question, :"How do you start a hot engine?" Usually, the engine stays hot for at least 30 minutes, but of course it depends on the outside temp as to how fast it cools down.

The first thing I always preach is, refer to the POH. In most cases it will have a hot start procedure. When you shut the engine down, you cut off fuel to the engine. Most of the fuel drains on the ground, but some fuel remains in the intake system and the heat atomizes it. You should simply open the throttle 1/4 to 1/2 inch with the mixture out and the engine will usually start quickly. Be quick about bringing the mixture in, just enough to keep the engine going. This applies to almost all engines, but especially the IO-360.

In my shop, we deal with over two hundred plus planes each year and my guys have to start many different engines. Therefore, we must follow basic procedures. Most are not hot starts, but sometimes when we are making adjustments, it may require many hot starts back to back and we can't afford to run the batteries down or run starters excessively. So, by following the basics, we have experienced very few problems.

AUTHORIZED MOONEY SERVICE CENTER

Jeppesen Offers Bundle Pricing for Data Subscriptions

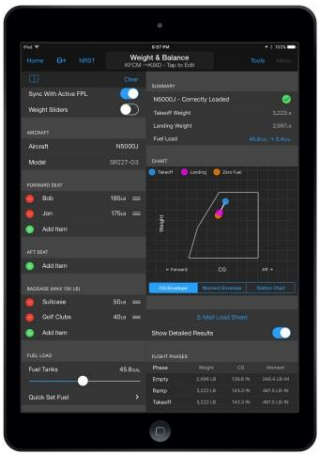


New options cover data for multiple avionics systems with one price tag.

Jeppesen is offering bundle options to lower the cost of data updates for pilots. Three new annual subscription bundles are being offered for a mixed bag of panel-mounted avionics and tablet apps. Bundles will be offered for two or four device installations with coverage areas to suit the pilot's needs.

Three new bundle options are offered. The first includes Garmin's GTN or GNS/W navigators and Garmin Pilot with coverage of the U.S., Canada and Alaska, and full Americas. Pricing ranges from $440 to $745 based on the avionics configuration and coverage area. The second bundle offers the same coverage areas for a variety of Garmin offerings. In this case, pilots can choose coverage for two or four Garmin units with different pricing. Both of these Garmin bundle options are available today.

Beginning in January, a third option called Flex will be available for airplanes with avionics installations from different manufacturers such as Avidyne, Aspen and Garmin. Full Americas coverage with nav data and charts, including charts for two mobile devices, will cost $1,445.



Garmin Pilot Adds New Tools

Garmin has introduced integrated weight and balance calculations, as well as aircraft performance tables and calculations within the Garmin Pilot app on Apple mobile devices.

Also new to Garmin Pilot, Freehand flight planning allows for flight plan editing from the moving map page.

Pilot-configurable checklists are also integrated within Garmin Pilot, providing pilots the option to create custom checklists.

These new features and more are available as a free update for existing customers.

Garmin Pilot 8.5 for Apple mobile devices is available immediately as a free update, providing existing customers access to these latest features. For new customers, Garmin Pilot is available in the Apple App Store as a free download for the first 30 days. After the 30-day trial period, customers may purchase an annual subscription of Garmin Pilot for the U.S. starting at $74.99.

The FAA is Discontinuing the Domestic Flight Plan Filing Form in January 2017

Prepare now for the switch to ICAO

ForeFlight
Intelligent Apps for Pilots™

The FAA plans to discontinue support by the end of January for the FAA Domestic flight plan form. All civil aircraft will be required to use the ICAO format when filing both VFR and IFR flight plans. ForeFlight already supports the ICAO format and they have several resources to help you with the transition.

This video walks you through filing a flight plan in ForeFlight using the ICAO flight plan format, including setting up the necessary fields in your aircraft profiles and using the ICAO flight plan form.

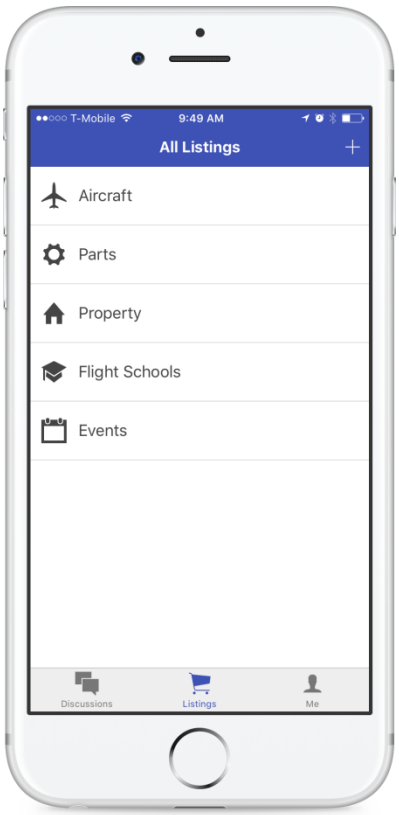
PILOT'S GUIDE TO FILING

The ***Filing with ForeFlight Mobile*** guide is available both on the web and in the ForeFlight app under Documents > Catalog > ForeFlight. Official FAA guidance is available here and here.

SIMPLE TIPS TO FILING ICAO

This thorough blog article will give you a deeper understanding of ICAO codes, Field 18, and other helpful ICAO flight plan fields.

Airfoil app



Airfoil, a new app for pilots and aviation enthusiasts.

Pilots and aviation enthusiasts using Airfoil can now connect to one another through the mobile app to buy, sell and lease everything from aircraft to airport land; create and participate in discussions locally and around the globe; and see event calendars for all kinds of aviation happenings.
Airfoil is available for download in the App Store and Google Play.

"As a pilot, I know first-hand how mobile apps are changing the aviation industry. Airfoil is the missing piece: A mobile app that brings the aviation community together and offers a true marketplace where pilots and aviation enthusiasts can buy, sell, trade, partner and lease anything and everything related to planes and flying! Airfoil is truly a new beginning for our mobile industry," says Jay Taffet, Airfoil co-founder.

For some reason, searching for "Airfoil" in the app store, doesn't find this app. However, Airfoil can be downloaded for iOS and Android by following the link at AirfoilApp.com.

Lightspeed's new Flight Bag

The DeLaurentis is a new kind of flight bag designed for today's pilot. It features clean and compact lines that conceal generous interior space and digital-friendly utility. Named for modern aviation adventurer and author Robert DeLaurentis, the DeLaurentis will inspire you to dream a little bit bigger.
Dimensions: 10"W x 5.5"D x 13.5"H
ORDER HERE from Lightspeed

AOPA Flight Planner is now Garmin Pilot Friendly

Garmin Pilot app users who upgrade to version 8.5 can receive planned routes created on the AOPA Flight Planner.
Currently, AOPA's flight planning software will work with the most popular EFBs out there, including ForeFlight Mobile, Naviator, Seattle Avionics FlyQ EFB and WingX Pro7.

WHY PAY MORE?

. . . get performance AND economy

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

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

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

FRINGE BENEFITS EXCLUSIVE WITH MOONEY!

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

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

COMPARE!

	MOONEY MARK 20 A	BEECH 35	CESSNA 310	PIPER COMANCHE
PERFORMANCE				
Horsepower	4 cyls., 180 h.p.	6 cyls., 225 h.p.	6 cyls., 260 h.p.	6 cyls., 250 h.p.
Top Speed	190 mph	195 mph	195 mph	188 mph
Cruise (75% Power)	180 mph	185 mph	190 mph	181 mph
Rate of Climb	1150 fpm	1050 fpm	1300 fpm	1400 fpm
Service Ceiling	20,000 ft.	19,800 ft.	20,300 ft.	20,000 ft.
Range (Max. w. 30 min. Reserve)	1110 mi.	1170 mi.	1100 mi.	1100 mi.
Take-Off Distance	680 ft.	900 ft.	740 ft.	760 ft.
Landing Distance	550 ft.	570 ft.	520 ft.	650 ft.
ECONOMY				
Initial Cost (Standard Equipment)	$15,450	$19,995	$22,450	$18,995
Factory Exp. Exchange Price	$ 3,532	$ 7,414.84	$ 3,056	$ 2,967
Hourly Gas Consumption (75% Power)	10.8 gph	13.4 gph	15.8 gph	13.6 gph
Total Hourly Operating Cost (300 hrs./yr.)	$17.71	$22.42	$22.31	$25.90
First Year's Operation (300 Hours) a Mooney Saves You	→	$1,413.00	$1,380.00	$2,457.00
Initial Cost—Mooney Saves You	→	$4,545.00	$7,000.00	$3,445.00
First Year Total Savings As Mooney Mark 20 A Operator	→	$5,958.00	$8,380.00	$5,902.00
COMFORT AND SAFETY				
Landing Gear	Manual	Electric	Hydraulic	Electric
Riding Comfort (air cushioned)	Flexible Wing	Rigid Wing	Rigid Wing	Flexible Wing
Control Systems	Steel Push-Pull	Cables—Pulleys	Cables—Pulleys	Cables—Pulleys
Airline-type Ventilation	Yes	No	Yes	Yes
Low-wing Visibility	Yes	Yes	No	Yes
Stalling Speed	57	57	59	64
Tubular Steel Cabin Frame	Yes	No	No	No
Retractable Entrance Step	Yes	No	No	No
Tinted Glass Windows and Windshield	Yes	No	Yes	No
Laminar Flow Wing	Yet	No	No	Yes

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

Call your Mooney dealer now or write:

Mooney AIRCRAFT, INC.

Kerrville, Texas

European Mooney Pilots & Owners Association (EMPOA)

December 10: EMPOA Christmas Fly-In

The Mooney Flyer Fly-Ins

March 18: Spring Training Baseball & BBQ (Seattle v SF Giants): Goodyear, AZ (KGYR)

MAPA Safety Foundation
MooneySafety.com Mooney Pilot Proficiency Program

February 10-12: Fort Meyers, FL (KFMY)
April 7-9: Santa Maria, CA (KSMX)

Florida Mooney Lunch Group

Contact Dave at daveanruth@aol.com or (352) 343-3196, before coming to the restaurant, so the group can have an accurate count.

December 10: Punta Gorda (**KPGD**)

January 14: Leesburg (**KLEE**). Will will be fed by EAA Chapter 534. and then those that would like to see Ruth's Garden RR running will be car pooled to and from our house.

FL

TMF PRODUCT REVIEW

Sight Level

How many times are you flying VFR and you see a cloud bank ahead but you can't figure out if you are above the clouds, or below the clouds?

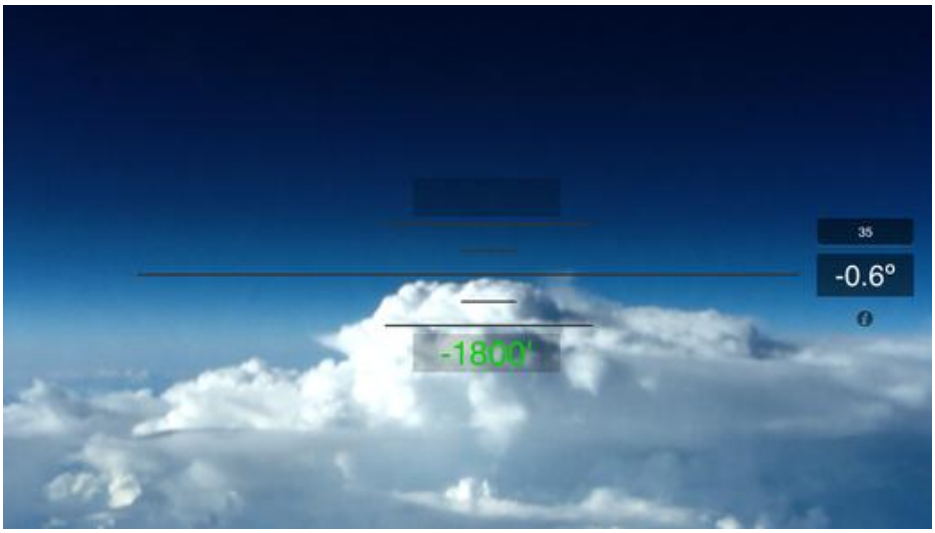
A Pilot Sight Level can help you determine that answer and give you plenty of time to make a desired, or necessary, altitude change.

Sporty's sells the unit illustrated on the left. As of this review, it was retailing for $23.95. In turbulence, it is a little challenging to look through the small hole, but otherwise it works very nicely.

CLICK HERE for more information from Sportys.

A Cheaper and More Convenient Alternative

If you want this capability in your cockpit, but don't want to fork out $23.95 and/or carry another device in your flight bag, here's an alternative that seems to work just as well. Better yet, it runs on your iPhone and only costs $.99. It's called CLOUD TOPPER and it's just an App that utilizes your built-in camera.



Cloud Topper will save some money and you won't need to invest in another device. CLICK HERE for more information.

Mooney Instructors Around the Country

Arizona

Jim Price (CFII, MEI, ATP). Chandler, AZ (KCHD). 480-772-1527. JasPriceAZ@gmail.com Proficiency training and IPCs. Website: www.JDPriceCFI.com.

Ken Reed (CFI, CFII, MEI, ATP), Tucson, AZ. 520-370-3693. Owns M20K and has previously owned an M20C, M20F & M20M. ***kr@klrdmd.com***

Boris Vasilev (CFI, CFII, MEI, AGI), Phoenix Area.
602-791-9637, freedomflightservice@gmail.com.Time in M20C through M20R models. Private commercial and instrument training, BFR's, IPC's, and FAA Wings.

California

Geoff Lee, San Martin, CA. 69050@comcast.net. CFII, 11,000+, Mooney Rocket owner. Teaching since 1969.

Don Kaye (Master CFI) Santa Clara, CA. (408) 249-7626, Website: www.DonKaye.com. Master CFI. PPP Instructor, MAPA, 8 years; Owner: M20M. Total: 10,265; Mooney: 8454; Instruction: 5641

Chuck McGill (Master CFI) San Diego. CA 858-451-2742, Master CFI, MAPA PPP Instructor, M20M, M20R, M20TN, Website: Click Here. Mooney: 6000; Total: 13,000
Instruction: 9800

Rodrigo Von Contra, Oakland. CA. (510) 541-7283, Rodrigo@vonconta.com. Sets record in a Mooney. 7,000 hrs. CFII & Gold Seal; Garmin (including G1000) training; Ferry flights (experience in Central & South Amer) transition training & Aircraft Mgmt; Owner: M20J/Turbo Bullet

George Woods, Woodland, CA (O41). (530) 414-1679, georgemichaelwoods@yahoo.com.
Fixed wing CFII, Multi-Engine, Helicopter, Glider & Gyroplane CFI. Owns Mooney Rocket.

Paul Kortopates, San Diego Area. (619) 560-8980, Kortopates@hotmail.com. PPP Instructor, MAPA; Owner: M20K/252. Total: 2500; Mooney: 2000

Mike Jesch, Fullerton, CA. (714) 588-9346 (e-mail is best), mcjesch@pacbell.net. Total: 20,000
Instruction: 1500, FAASTeam Lead Representative, Specialites: Airspace, Garmin 430/530, Proficiency flying; Wings Program, VP Pilot's Asso. Master CFI for ASME, IA.

Colorado

Chad Grondahl, Colorado Springs (KCOS), chad@sundhagen.com.
CFI, CFII, MEI & ATP, Mooney owner (M20F) and FAA Gold Seal Flight Instructor specializing in transition and proficiency training, mountain flying, flight reviews, IPCs, turbocharged aircraft checkouts,

ferry flights, and air-to-air photography of your Mooney. Experience: 4,500 hrs TT - 1,800 hrs Dual Given - 750 hrs in Mooneys (most models).

Ben Kaufman, Fort Collins, CO. (KFNL). (CFI/CFII) – (801)-319-3218 - bkaufman.mba@gmail.com.

Connecticut

Robert McGuire, Durham. Cell: 203-645-2222, rmcguire007@hotmail.com. MAPA Safety Foundation Instructor; founding partner, Aero Advocates Aviation Consultant. Total: 6500; Mooney: 5000

Winslow Bud Johnson, smgemail@aol.com, 203-348-2356. Bud specializes in teaching in the M20K and has logged more than 1,500 hours in that aircraft.

Florida

Mike Elliott Tarpon Springs. (CFII) Master CFI. 317-371-4161, mike@aviating.com. Quality instrument & commercial instruction, transition training, ownership assistance, plane ferrying. Mooney: 1600; Instruction: 600

Ronald Jarmon, *Panama City. (850) 251-4181. IAELLC@gmail.com. Total: over 7000. WILL TRAVEL! Will accompany customer out of Country, ferry flights, mountain flying, avionics training, Garmin Products. Total: over 7000. Web Site: IslandAirExpress.com.*

Robert McGuire, Hawthorne. (203) 645-2222, (Dec – Feb), rmcguire007@hotmail.com. MAPA Safety Foundation Instructor; founding partner, Aero Advocates Aviation Consultant. Total: 6500; Mooney: 5000

Ted Corsones, Naples. tedc@corsones.com, 239-263-1738. Total: 7500, Mooney: 4500, Instruction: 2000+. ATP & MCFI for MEL, MES, SEL, SES, Instrument Airplane & Glider. **Master Instructor Emeritus. He serves with the MAPA Safety Foundation as an instructor, treasurer, and chief financial officer.**

Georgia

Jim Stevens, Atlanta. USAF, Col, (ret), CFII. 404-277-4123. Instrument, commercial, IPC, BFR, transition training, ferry flights. 20 year owner of 1968 M20F. Total: over 6000; Instruction:1500

Kansas

John R. Schmidt, Fort Leavenworth and the Kansas City area. (COL, USAF, Retired). Instrument and commercial instruction, transition training, BFR. (913) 221-4937. jspropilot@att.net

Maryland

George "Brain" Perry, Maryland area (Frederick). Commander, USN, Retired.
Senior Vice President, AOPA Air Safety Institute. 5000+ hours TT in lots of different aircraft, including F-14 and F-18's. 1000 Hours in Mooneys of all flavors. 1000 hours of dual given. CFII / MEI / ATP / 525S. He currently owns and flies a 1999 Eagle M20S and fly about 200.
George.perry@aopa.org

Massachusetts

Ralph Semb, ralph@bowling4fun.com, 413-221-7535. I own and fly a M20S Eagle.

Minnesota

Joe Allen, Minneapolis. jp.allen926@gmail.com, 612-636-5216. I own and fly a M20J and am able to provide BFRs and Mooney Instruction.

New Jersey

Parvez Dara, daraparvez@gmail.com, 732-240-4004. ATP, MCFI SEL/MEL with an advanced ground Instructor rating. Parvez has owned a Mooney M20J and a Mooney M20M (Bravo).

New York

Jack Napoli, Long Island. TT 6,000 hrs & Mooney time 3,000, jacknapoli12@gmail.com , 631-806-4436. He has been flying since 1965 (before he owned a car) and has over 6,000 hours of total flying time including 3,000+ hours in Mooneys. He currently owns a M20K-231.

North and South Dakota

Doug Bodine, Commercial Pilot/Flight Instructor, Cell 605 393-7112, mei.cfii@gmail.com I am a retired USAF pilot, now working as a commercial contract pilot, so various model experience from WWII Warbirds through heavies. I have been flying Mooneys for 12 yrs and have a 201. I have been instructing since 1994 and am at about 10,000hrs. I actively instruct in tail wheel and turbine as well. I have flown all the common Mooney modifications – missile, rocket, screaming eagle, trophy, etc. Even have time in the M22 Mustang. (See also, Texas). Total: 9800; Mooney, 1300; IP: 5600/21 years

Ohio

Mike Stretanski, Delaware Municipal Airport (KDLZ), Delaware, Ohio, AGI, CFI, Mooney Owner/Flyer, Flight Physicals, Senior AME, Test prep/Written review prep, Transition Training, G1000, HP/complex endorsements. 614-975-1003.MFSTRETANSKI@gmail.com

Tennessee

Shawn Cuff, **Hohenwald, TN** (0M3) ATP/CFI-II-MEI. Flying an M20K with Garmin 530W for local company. Relaxed and pleasant flight instruction, flight reviews and instrument competency checks. Contact: **Shawn.M.Cuff@icloud.com** or 931-230-5400. Thank you for reading and safe flying! :-)

Texas

Austin T. Walden, Lubbock & Abilene. 432-788-0216, AustinWalden@gmail.com. PhD, Specializing in Models C thru J, www.WaldenAviation.com.

Doug Bodine, Commercial Pilot/Flight Instructor, Cell 605 393-7112, mei.cfii@gmail.com Retired USAF pilot, now working as a commercial contract pilot, so various model experience from WWII Warbirds through heavies. I have been flying Mooneys for 12 yrs and have a 201. I have been instructing since 1994 and am at about 10,000hrs. I actively instruct in tail wheel and turbine as well. I have flown all the common Mooney modifications – missile, rocket, screaming eagle, trophy, etc. Even have time in the M22 Mustang. (See also, North and South Dakota). Total: 9800; Mooney, 1300; IP: 5600/21 years

***Bob Cabe**, San Antonio. Cell: (210) 289-5375, Home: (210) 493-7223, bob_cabe@hotmail.com. Total: 5000; Instruction: 2000+. Pilot since 1965. Served as an instructor providing transition training for people purchasing new Ovations & Acclaims. Total: 5000; Instruction: 2000+*

Brian Lloyd, Kestrel Airpark (1T7). 210-802-8FLY, Brian@Lloyd.aero. WILL TRAVEL! Owner: M20K/231; Non-Mooney :-) specialist in spin training, upset recovery training, basic aerobatics formation training, tail wheel transition. Total: 8500; Mooney: 500

Mark Johnson, Houston area. mjohnsonf16@hotmail.com. 832-773-4409. CFII, SEL. Citation 501 and a King Air 350, F-16s and F-117s; currently a T-38 Flight Instructor at Sheppard AFB as a Reservist in the USAFR. Owns an '81 M20J 201. 5800 total hours, 2200 military and 1500 hours of it in Mooney aircraft.

Jerry Johnson, Southwest Texas**.** mooney9281V@hotmail.com. 817-454-2426. Commercial, SEL/MEL CFII, Glider, Typed in C-500's. Member MAPA Safety Foundation. Owned a Mooney for over 30 years. Total: 11,000 +; Mooney: 6000.

Vermont

Ted Corsones, Rutland. 813-435-8464, tedc@corsones.com. Total: 7500, Mooney: 4500, Instruction: 2000+. ATP & MCFI for MEL, MES, SEL, SES, Instrument Airplane & Glider. **Master Instructor Emeritus. He serves with the MAPA Safety Foundation as an instructor, treasurer, and chief financial officer.**

Virginia

William Wobbe, Leesburg. william.wobbe@gmail.com , (713) 249-7351. ATP, SES, SEL, MEL, MES, CFI, CFII, MEI, AGI, IGI, ADX. Time in M20B through M20TN models and very familiar with Garmin G-1000, GTN750/650, and G530/430 avionics. 1600+ dual given in Private through ATP training. MAPA PPP instructor and lots of experience in cross country all weather flying including TKS Known Icing Systems. Flight Service Station Specialist and familiar with iPad weather planning apps such as ForeFlight. I can answer your questions about the Washington, DC SFRA and ICAO Flight Plans.

***Joseph Bailey,** Winchester. (540) 539-7394. b747aviator@yahoo.com. ATP MEL, Commercial, SEL, SES, Glider. CFI, CFII, MEI, CFIG. EXP in Mooneys A-J. Providing initial & transition training. Total: 7800; Mooney: 500; Instruction: 3000*

Lee Fox, Fredericksburg. 540-226-4312, LCFox767@gmail.com. Mooney Staff CFI, Mooney Safety Foundation. Retired American Airlines Check Airman. Owns a M20J 201. Total time: Over 20,000.

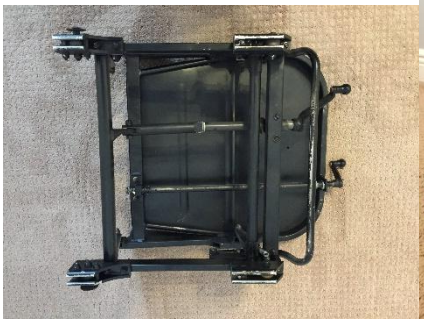
1994 Mooney M20M Bravo with TKS ($150,000 until 2/6/2016)

Always hangared, complete documentation including flight journal with every flight made. No damage history. New mags, turbo, alternators, and avionics. Approximately 1750 TT. August annual, excellent compressions (78-75-76-77-75-78) and oil analysis.

Garmin GTN-750 plus complete new panel plus TKS Anti/De-Ice. Avionics upgrade include GTN-750, GNC-255 #2 Nav-Com, GMA-35 Audio Marker, GLD-88 Data Link, GTX-330ex Transponder, Flightstream-210 (iPad sync to Foreflight or Garmin Connext, MD-200 CDI (full ILS backup with GNC-255), MyGoFlight iPad panel mount plus iPad yoke mount plus custom USB panel mount power supply. WX-1000+ Stormscope. Well planned panel, full redundancy with dual batteries, dual alternators, dual vacuum, and iPad AHRS. Very safe IFR machine!

Yes, at some point will need an overhaul, but all components have been rebuilt or replaced at last annual and engine runs strong. 2000 TBO or beyond (part 91). Airmark overhaul quote $39,400. It's a lot of airplane for the price, easily +$250K to go up to anything better.

Our mission is higher, faster, and more pax, so the beloved Mooney must go. If it fits your mission profile, a great bird at a great price. $165K on Trade-A-Plane, $155K to **Mooney Flyer subscribers** (firm). Call 786-581-7225.



For Sale -- Mooney M20J, IO-360-A3B6D, Exhaust System. Removed recently to install a Power Flow Exhaust System. In good, serviceable, condition, according to the Mooney mechanic who inspected it at pre-buy (7 months ago) and the mechanic who removed it (2 months ago). Asking $450 plus shipping. Shipping calculated upon sale. Located in Perry, Oklahoma (F22). Call 405-338-8992.

Parts for Sale

I have several Mooney parts for sale from a 1969 G model. Brand new voltage regulator (never used). Instrument light rheostat controller, cowling plugs and like new fuselage/cockpit and tail feather covers. G model POH. Contact me at Wilson Brown, located in Georgia, 678-469-6182

Mooney Cover


This cover will fit a newer, long body Mooney. Asking $600 (When new, these covers cost $1,149), Contact Jason Herritz at Chandler Aviation, Inc. 480-732-9118 parts@chandleraviation.com

FOR SALE

1965 Mooney M20E Super 21

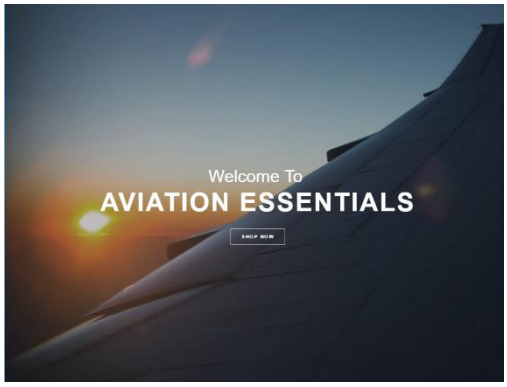
TT 6425, SMOH 780, SPOH 780, 200hp Lycoming IO-360-A1A, Hartzell Prop with "B" hub (no AD), 201-style instrument panel, manual gear and flaps, Century NDS360 HSI, KX-155 w/GS, KI-209, KX170B w/ GS w/ MAC1700 digital upgrade, KR22 MB, KR 86 ADF, Northstar M3Approach GPS w/ Argus 3000 moving map, CP125 audio panel, PS Eng. intercom, WX-8 stormscope, AT-50 transponder, Brittain wing leveler, standby vacuum system, IFR certified to 20,000 ft. UBG-16 engine analyzer, LASAR cowl closure and brake caliper rotation, tanks leak free, leather interior, inertia reel shoulder belts, all factory manuals on USB stick. Owned, hangared (AZ) and maintained by A&P/IA last 18 yrs. $45,000

K. McMullen, 480 460 0639, kellym@aviating.com

LASAR'S Free Site

Check out Lake Aero Styling & Repair's " LASAR" Web Site: www.lasar.com New, under "Mooneys for Sale", you can List your Mooney for FREE!

Also check out Parts, Mods, and Services. LASAR, est. 1975 **(707) 263-0412** e-mail: parts-mods@lasar.com and service@lasar.com



New and used aviation supplies.

In many cases shipping is free.

Thanks for looking,
Mooney N292LG

CLICK HERE to Browse/Shop

1978 Mooney 201VL
$ 85,500 New Price
MODEL 201 J - 200HP
mbmaksymdc10@aol.com
AIRCRAFT SERIAL# 24-0398
Lycoming IO-360-A3B6D

TIMES
AIRFRAME TOTAL: 5256

ENGINE TSMO: 878

Engine overhauled BY LYCOMING FACTORY INSTALLED 01/16/2004

Propeller governor INSTALLED 01/16/2004
OVERHAULED PRO - PROP
HOSE ASSEMBLIES FUEL OIL REWORKED 01/09/2004

GANN AVIATION

New propeller 04/01/91 MC CAULEY

Power flow exhaust system 2015
DYNAMICALLY BALANCER 5/23/95
VACUUM PUMP REPLACE 07/15/2015
NEW SKYTEC HIGH TORQUE STARTER and upgraded start relay
Electrical New zcftronics voltage regulator
INSTALLED M-20 AIR/ OIL SEPARATOR
NEW ENGINE TACK CABLE AND OVERHAULED TACH 2007

AIRFRAME
Alternate air door kit
Complete brake overhaul
PILOTS MASTER BRAKES CYLINDERS REPLACED 03/2008
ALL NEW TIRES AND TUBES
RIGHT and left FUEL TANK completely resealed 2015
12V CONCORDE RECOMBINANT GAS BATTERY

INSTRUMENTS
Altimeter, static, integrated system, transponder IFR

ANNUAL 09/01/2015

CORROSION TREATMENT each annual

RADIO
INSTALLED GARMIN GPS 430
INSTALLED GPS ANTENNA GA-56GPS
INSTALLED GARMIN 340 AUDIO PANEL

FOUR PLACE AUDIO I/C
ASPEN 1000 PRO
AVIDYNE TAS-600 traffic
STAND BY VACUUM GYRO
STORM SCOPE WX1000 PLUS
ENGINE EDM 700 4C A6 WITH FUEL FLOW
KFC 200 AUTOPILOT with altitude hold AND CONNECT TO ASPEN
1 COLLINS VHF 251ACOMM
1 COLLINS VIR351 WITH TO /FROM AIRTEX 345 406 February 2016
COLLINS TRANSPONDER TDR-950 UP DATED 03/2011
DAVTRON MODEL 811BDIGITAL CLOCK
NEW ENGINE TACK CABLE AND OVERHAULED TACH

GENERAL INFORMATION
ELECTRIC LANDING GEAR
ELECTRIC TRIM
ELECTRIC FLAPS
Control wheel steering
Navigation annunciation
System annuncator
ROSEN SUN VISORS
Mooney shoulder harness installed
Wing tip strobes
External power receptacle
Copilots brakes