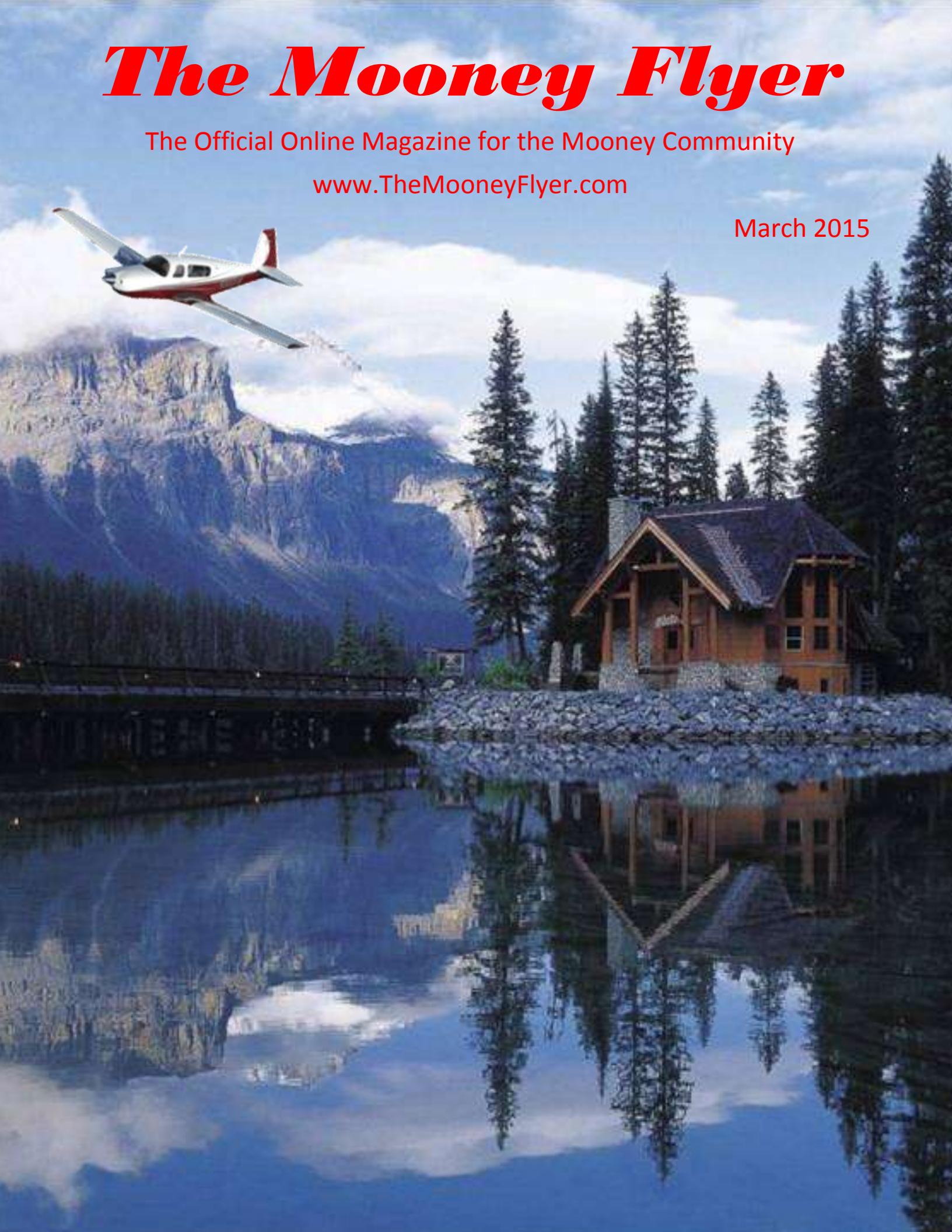
The Mooney Flyer

The Official Online Magazine for the Mooney Community

www.TheMooneyFlyer.com

March 2015



June 12-14, 2015 at Paso Robles, CA

What could be better than Paso Robles in mid June! The weather is clear and cool and there are no crowds. It's a great time to attend the first annual Mooney Summit, June 12 through 14, sponsored by ***The Mooney Flyer***.

Mooney International will be participating with key people, products, and the keynote speaker

Plan to arrive on Friday for a **Mooney Flyer Wine Tour** on Friday afternoon. Your host will take you on a special wine tasting at 2-3 wineries. Even if you are not interested in wine tasking, you'll find the wineries and the scenery to be breathtaking. This will be a lovely afternoon. Friday evening, there will be a **Reception at the Estrella Warbird Museum**, with finger food and drinks as well as a chance to mingle with our keynote speaker, seminar speakers, and sponsors from Mooney, LASAR, Top Gun and Mountain West Aviation.

Mooney will kickoff the morning with a Keynote Address. This will be followed with two **Seminar Tracks**. **The Mooney Owners and Pilots track** will include topics such as maintenance, modifications, flying/takeoff/landing/stalling Mooney techniques, as well as a personalized session at your airplane. **The Non-Pilot track** will include topics such as Quick Companion Flying and Mooney Destinations. **There will be a huge lunch with a lunchtime presentation from the Commander of the USN Pacific Strike Force and former Blue Angel**. After lunch, we plan to have 2 choices for attendees. First, there will be additional seminars for Owners & Pilots, and another entertaining group event. **Saturday night will be capped off with a dinner at a local winery!**

Sunday will have 2 ways to have fun. There will be a **Brunch at Hunter Ranch** and the **Birds of a Feather Sessions**. These roundtable sessions will be led by the attendees and driven by the attendees' interests.

The Mooney Summit will conclude Sunday, June 14th at 11:00 am.

Fun Fun Fun!

Wine Tour
Reception Food
Mooney Bonfire
Hearst Castle
Warbird Museum
Brunch
"Birds of a Feather"

Register Online before May 12th

$100 for Pilot

$50 per Passenger

CLICK HERE to Register for The Mooney Flyer Summit
You will not be billed at this time

MOONEY

TOP GUN AVIATION, INC

LASAR

Don Maxwell Aviation Services, Inc.

Contents

Features

Editors
Phil Corman
Jim Price

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

To Subscribe
Click Here

To Advertise
Click Here

To Submit an Article
Click Here

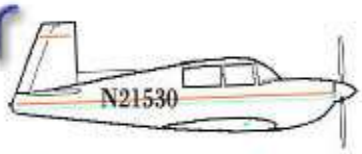
In Every Issue

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

From the Editor

Phil Corman



The Mooney Flyer Summit UPDATE

The initial registrations are very impressive. Don't miss out. Register Early by **Clicking Here**. You will guarantee your slot and save some money by registering before May 12.

Since last month, we have added two exciting new events. First, we will have a dinner at **EOS Winery**, near the airport on Saturday evening from 5-8pm. The winery is about 1 ½ miles from the airport. We have the entire winery reserved for our party, including an indoor banquet room and an outside covered patio amongst the vineyards. Secondly, we are excited to announce that the Commander of the USN Pacific Strike Wing (F18 Super Hornet) and Former Blue Angel will be our lunchtime speaker on Saturday at noon. And finally, three of the top Mooney Service Centers in the USA will be present and involved in the educational seminars, namely LASAR (Lake Aero Styling & Repair), Top Gun Aviation, and Don Maxwell Aviation Services.

If all of that is not enough, *The Mooney Flyer* has negotiated deals at local hotels and with Enterprise Car Rental. CLICK HERE to view the Hotel Deals and how to rent a car from Enterprise at our FBO, the Paso Robles Jet Center. You can contact the Jet Center to arrange your deals. Hotel Deals include the historic downtown Paso Robles Inn, Best Western Black Oak, Holiday Inn Express, and La Quinta. Book early to lock in your early rates. Call 805-596-0212 to book your hotel and/or your rental car. **CLICK HERE** for the Hotel & Rental Car Deals.

Some of the Initial Seminars planned include:

Pilot and Owner Track

- **Stuff You Need to Know about ADS-B**
  Speaker: **Jim Price** , Mooney CFII & PPP Instructor
  Description: ADS-B "In" and "Out" and the FAA's Next Generation Air Traffic System (NextGen), ADS-B Equipment Required in 2020, such as a 1090ES (Extended Squitter) Transponder and or a Universal Access Transceiver (UAT), Portable Aviation Applications – ForeFlight, Wings X Pro 7, Garmin Pilot, etc., and Equipment Costs

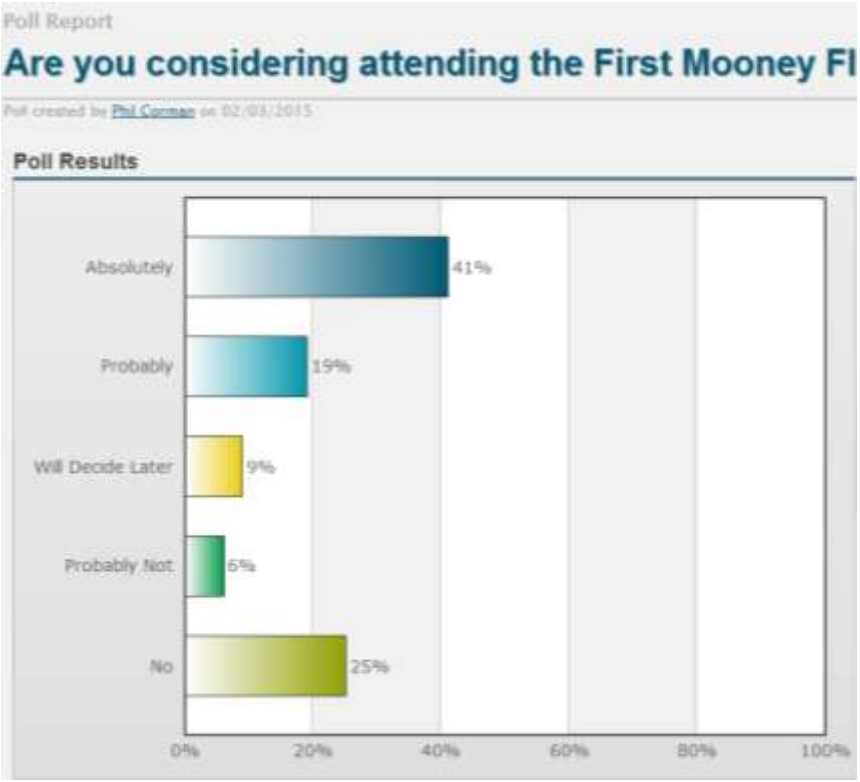
- **Flying Your Mooney Roundtable**
  Speaker: **Don Kaye**, Master Mooney CFII
  Description: A Roundtable discussion on topics ranging from Landings, Angle of Attack Indicators, Panel Upgrades, and more
- **Maintenance Issues for Vintage Mooneys**
  Speaker: **Kelly McMullen**, Guru on Most Things Mooney
  Description: A focus on issues that are specific to our vintage Mooneys (M20B-K)
- **Maintenance Roundtable**
  Speakers: **Paul Loewen (LASAR), Tom Rouch (Top Gun), Don Maxwell (Maxwell Aviation Services)**
  Description: A Roundtable hosted by Mooney Service Experts on maintenance, modifications, etc.

Passenger Track

- **Flying Companion Course**
  Speaker: **Jan Maxwell**, Maxwell Aviation Services
  Description: Your pilot becomes incapacitated, or you're just curious, and you want to be able to safely fly and land your Mooney.
- **Mooney Destinations**
  Speaker: **Phil Corman**, **The Mooney Flyer** Co-Editor

We hope to see you here. We are working hard to make this Summit a very memorable event.

Time to Upgrade Our PC



Last month's poll asked, "**Are you considering attending the first Mooney Flyer Summit?**

xxx

Next month's poll: How Involved are you in the Maintenance side of your Mooney?

CLICK HERE to vote.

Appraise Your Mooney's Value

Don't forget about our cool new **Appraise your Mooney's Value** using Jimmy Garrision's valuation. Jimmy is from All American Aircraft, the country's largest Mooney reseller. We have implemented the models for M20C, M20E, M20G, M20F & M20J. Click on your model to simply complete the valuation. You no longer need paper and pencil. Just another benefit to our subscribers.

M20C M20E M20G M20F M20J

Want a quick overview of ADS-B, **CLICK HERE**

RE: Mr. Hopkins – A Flight Instructor – I did not know what to expect when I began reading Mr. Biggs' article on Mr. Hopkins. It beckons back to an earlier generation where the love of flight is installed by someone, such as Mr. Hopkins. But I was also struck by how he influenced Cliff throughout his flying life. Mr. Hopkins truly "Paid it Forward", not only to Cliff, but to many others I'm sure. Thank you for bringing a bit of sentimentality and inspiration to the New Year!
Bob G

RE: iPads in the Cockpit – Once again, Jim Price hit a homerun with his article on the 10 ways an iPad can bite you in the cockpit. I love my iPad and ForeFlight, but I refuse to rely solely on it. After all, it is a consumer grade software and hardware product that was never really designed to be relied upon by a pilot in the cockpit. Having said that, it is the most significant technological innovation and price breakthrough in my life. Neither Garmin nor Jeppesen nor King nor Avidyne would ever have brought so much power to the pilot at such a low price. It is truly a technological disruption.
Tom C

Hey, where was Mr. Lee's article this month? I truly appreciate his articles as they are first-hand experiences, and therefore not hypothetical. I find this type of article incredibly valuable. I hope Mr. Lee writes again next month.
George D

RE: What's That Red Knob by Bruce Jaeger – Who knew that there was enough very useful information on setting your mixture correctly for your engine's well-being? I was taught to lean about a 100 years ago by setting power for cruise and then leaning until your engine runs roughly, then twist it rich until it runs smoothly. I had no idea of Internal Cylinder Pressures. I did know about CHTs from earlier Mooney Flyer articles. Curious why most POHs still recommend 50° ROP which seems to be a bad setting.
Tom M

RE: A Passion for Mooney Fuel Tanks by Paul Beck – Where the heck would we Mooney owners be without Paul Beck at Weep No More? Our tanks develop leaks… All of our tanks… Great article, Great company… Thanks Paul!
Eric S

The Birds

On February 27, 1998, about 2015 Eastern Standard Time, a Mooney M20J pilot was being vectored for the ILS approach at the Wilkes-Barre/Scranton International Airport, in Avoca, Pennsylvania. While flying at 4,000 feet, he "... heard a thud and the airplane suddenly dropped in a hurry". He noticed a very large deflection on the VSI, "probably 1,500 FPM, maybe more, maybe less". He pulled hard on the yoke and eventually was able to level the plane. Trim adjustment relieved the down pressure, but steering seemed "a little funny". He could bank, "but not turn very sharply". The pilot requested to proceed directly to the airport and landed without incident.
After engine shutdown, the pilot found a goose imbedded in the vertical stabilizer. The goose impact had rotated the tail around the bolt so that the horizontal stabilizer was in a strong nose down attitude.

WHAT IS SNARGE?

Scientists at the Smithsonian Institution's National Museum of Natural History in Washington, D.C., on a particularly boring day, combined the words "snot" and "garbage" and thus coined the word "Snarge". This describes the feathers and other residue that remains after a bird strike or other animal collision.

THE PHYSICS OF IT

In 2013, there were 11,300 wildlife strikes in the U.S. Whacking a bird or multiple birds can be dangerous. How dangerous? If you are flying at 130 knots and strike a 12 pound Canada goose, that honker packs the kinetic energy of a 1,000 pound weight dropped 10 feet! Ouch!

CHECK THE RUNWAY AREA BEFORE TAKEOFF

If you see wildlife on or near the runway – delay your landing or takeoff until the birds or animals are gone.

Under Part 91, pilots are responsible to "see what can be seen and separate [their] aircraft from obstructions and hazards, including birds."
If you're operating at a controlled field and see wildlife hazards either at the airport or in flight, notify the controllers. Use the word "PIREP", to ensure that the controllers are aware that they should alert other pilots.

BIRD BRAIN PSYCHOLOGY 101

Do not expect birds to respond to your attempts to make them go away. When they are on the ground and it's windy, birds face into the wind. Therefore, there's a good chance that they will not see your aircraft or its lights when you enter the runway. They can't hear the RADAR's X-band frequency, so don't think your RADAR will scare them. Although birds have great hearing, they don't associate aircraft engine and propeller noise with a threat. So, don't expect your engine or propeller noise to disperse the birds.
If you're taking off in a string of departures, the first aircraft might frighten feeding or loafing birds, causing them to take flight over the runway or departure area. However, for the next aircraft taking off, these scattered birds will be a collision risk. That's because birds may try to return to the same spot on the airport from which they were frightened, or they might go into a "holding pattern" over the airport to wait. So, if the first aircraft scatters the flock, wait until the birds have cleared the area before taking off.

PULL UP, MAN! (MORE BIRD BRAIN PSYCHOLOGY)

More than 90% of all bird strikes happen below 2,800 feet AGL. If you are taking off in an area of bird

Back to Table of Contents

activity, climb as quickly as possible. Birds, when facing a collision risk, tend to tuck their wings and dive away from the aircraft. Therefore, if you are en route and birds suddenly appear, pull up rapidly, (without stalling the aircraft, of course). However, if birds are close to the ground, they won't tuck and dive. Rather, they will turn in random directions.

SLOW DOWN

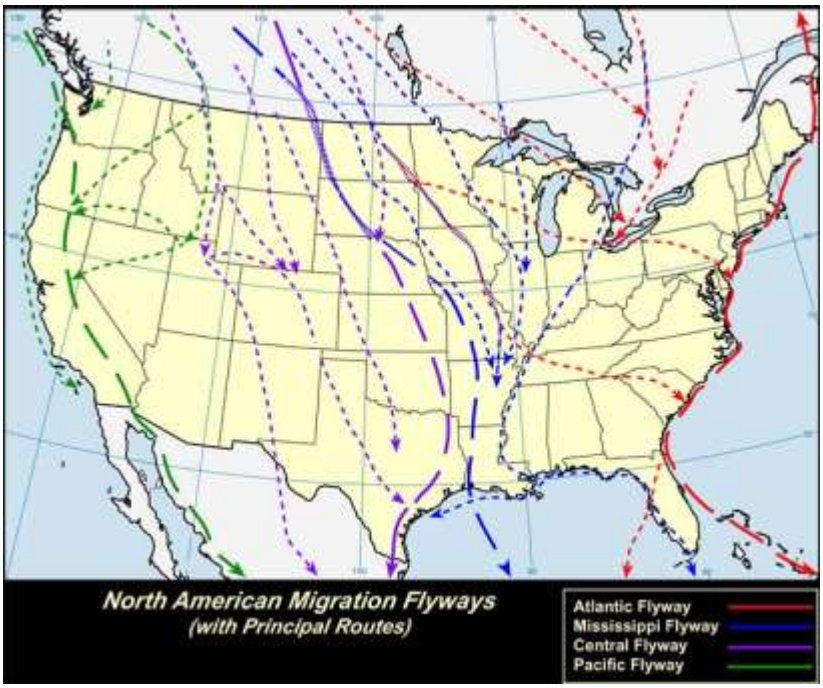
Slow down if you see bird activity. The slower speed might give the birds more time to react and you might be able to avoid a collision.

SMALL, BUT STILL PACKING A PUNCH

Encountering large birds, such as geese, swans, eagles and vultures is a serious matter. Geese and swans are social creatures and move in flocks. Smaller flocking birds, such as Starlings, flock by the hundreds and even thousands. A large flock of small birds may have the same smash effect as a large bird.

BIRD MIGRATION

In North America, more than 300 million birds migrate every spring and fall. They follow the Atlantic and Pacific coastlines, the Mississippi River and the Central Plains east of the Rockies. Migrating birds often stay on the ground for days, waiting for favorable winds aloft. During migration, waterfowl will fly both day and night, depending on the weather and winds. They typically fly as high as 10,000 feet. During the migration season, the migrating birds join residential airport birds and increase the likelihood of a bird strike.



Late summer brings another period of increased hazard because inexperienced "low flight time" birds, begin learning to fly and the adult birds molt (shed their flight feathers), reducing their maneuverability.

WHAT SHOULD YOU DO IF YOU HIT A BIRD?

In the United States, you can submit a "Strike" report at http://wildlife.faa.gov/strikenew.aspx
Transport Canada's http://tc.gc.ca/eng/programs/airports-wildlife-control-2948.html has a link to an online bird/wildlife report that you fill out. You should submit a report, even if your airplane is not damaged. That's because NASA, the FAA, Transport Canada, and other interested parties, use the reports to document problems so that airport authorities can employ measures to reduce wildlife hazards.

WE SHARE THE SKIES

Understanding our "sky mates" can help us avoid an uncomfortable or perhaps fatal confrontation.

1963

According to the Nall Report, only 4% of general aviation accidents are weather related, but they account for over 25% of all fatalities.

Geoff lee.

CFI

***A bad landing** Is usually preceded by a poor approach. The bounced landing, which can result in propeller and or nose gear damage, is often the closing act of a too fast or too steep approach. This is usually accompanied by "yoke pumping" or a "fishing" technique, in a silly attempt to get in touch with the runway while floating and floating down the runway.*

Pumping the yoke in and out while suspended a few feet above the runway is not only poor pilot technique, it's a perfect way to achieve initial contact with the runway… nose wheel first! An aircraft rotates nose up and nose down about the lateral axis with pitch input from the yoke. It does not simply move up and down vertically in a fixed pitch attitude. At altitude, it is how we achieve a climb or descent. However, when in close proximity to the ground, the runway gets in the way when the nose is lowered during the pumping action. That first contact with the nose wheel can induce a longitudinal oscillating effect on the aircraft which causes an increasing bounce between nose wheel and main gear. The bouncing effect is "divergent" which means that it is ever increasing in magnitude unless the pilot is skillful enough to immediately apply full throttle on the first rebound and fly out of the condition. A hard, flat 3 point landing is also a precursor to a vigorous bounce. When the aircraft contacts the runway at a very high rate of descent, the hard rubber "biscuits" do not absorb impact as efficiently as the common oleo strut. The "biscuits" are, however, somewhat more robust than the oleo arrangement.

When the aircraft and the pilot are projected vertically back into the air, subsequent to a bounced landing, the natural and reflexive pilot reaction is to push forward on the yoke in order to return to earth. Unfortunately, at the summit of the bounce, the aircraft has lost a considerable amount of airspeed, so its return to earth is akin to a solid aluminum ingot being pointed downward by the hapless pilot. The second upward trajectory will be higher than the first and so on, until the nose gear removes itself from the aircraft. In a lesser oscillation, the propeller tips contact and damage the tarmac. Application of full power at the apogee of the upward trajectory is the only possible solution to the

predicament. This action may allow the pilot to fly out of the situation or at least diminish the descent rate in order to minimize the force of the next impact with the runway.

Once the tip touches or other propeller events that are defined in service bulletin or AD as a "sudden stoppage" have occurred, aircraft owners are faced with daunting financial and logistical decisions regarding what path must be taken to get the plane airworthy again. Aircraft with Lycoming engines must comply with an AD (2004-10-14) that requires them to dismantle the engine and have it inspected for component damage, including the crankshaft, accessory drive, gear retaining bolt located on the end of the crankshaft, connecting rods, and bearing bolts. This IRAN (*Inspect and Repair as Necessary)* process has some possible pitfalls that the insurance company will not pay for; stuff like finding corrosion inside the dismantled engine, and other "sudden stoppage" related financial "gotchas", like the Continental service bulletin CSB 96-8, which refers to the particular serial numbered crankshaft that is installed in the engine. Major engine shops will totally replace the crank if it does not have a certain "V" (*Varimelt*) serial number as defined in CSB 96-8. This is a $4,000 gotcha in a TSIO-360 or similar engine and the insurance company will not cover it. The current average cost of an IRAN runs $8,000 - $9,000 for the engine, assuming no "gotchas". Additional costs would include approximately $3,000 to remove / replace the engine and $5,000 to repair the propeller. In the event of a complete prop replacement, that can cost between $12,000 and $15,000. If the event occurred at a geographically inconvenient airport, there are expenses associated with relocating the aircraft or its engine. For Lycoming owners, a useful document to be aware of in the foregoing case is Federal bulletin, SAIB NE-06-32-RI, (*Special Airworthiness Information Bulletin*). This modifies some "before further flight" wording in the Lycoming AD and allows the craft to be flown into the arms of your favorite mechanic, under certain conditions, with a ferry permit.

Continental engines do not come with an AD comparable to the Lycoming directive. However, they do have a Factory Service Bulletin CSB96-8, delineating a similar process, but it is not mandatory. However, each insurance company is different, and some may require that the IRAN process be followed before they will compensate the owner. The Continental engines could be returned to service with a repaired or new propeller and, at a minimum, an inspection of the crankshaft "run out" with a dial indicator, an oil filter inspection, and perhaps a landing gear retraction. A gear linkage inspection would be appropriate. A prudent mechanic, your insurance company, and some owners would wish to do the IRAN. The absence of a grounding AD allows the plane to be flown home with a "borrowed" propeller and without a ferry permit to a place where more inspections can be made.

The trick to avoiding this whole nightmare is not to make poor approaches punctuated by bounced landings. Ha! That's easy to say, but practice makes perfect and we have, in the past, been taught the correct way to set up a pattern approach. If you find that you are varying the basic tenants of a normal approach in your aircraft, you should go back to the basics, *i.e.*, pick the touch down **target** and keep it in sight throughout the approach. Nail the correct airspeed and flap configuration on the downwind, **reduce power,** and **start a descent (***300 fpm***)** opposite the intended touchdown point. This is the first **"key" point** in the approach. On the base turn, when the touchdown point is 45 degrees over your shoulder, adjust power, airspeed and descent rate to **keep the target in the same relative position** in your windshield. Under average wind conditions, (10-12 kts), the descent rate should not need to exceed 500 fpm. Make a final flap configuration and relative to the wind on base, continue descending at the appropriate rate. Be absolutely on the correct airspeed. With the **ball centered, turn final at (1.3 VSO)** and **descend at 400-500 fpm,** with the target touch down point fixed in the same location in the windshield**.**

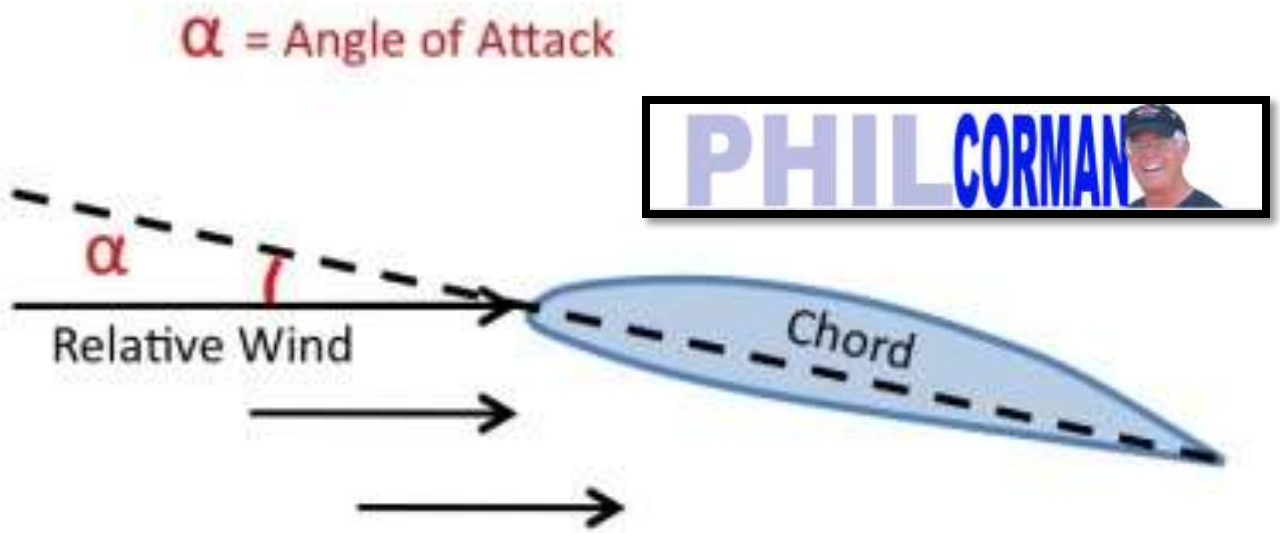
From the key downwind point, the aircraft should be in a continuing descent. Close the throttle not later than crossing the threshold. Keep the aircraft parallel to the runway surface and apply smooth back pressure and pitch to clear the nose wheel. **Never reduce** this initial **back pressure**, particularly by "pumping" the yoke. Increase back pressure gradually, but very firmly, as airspeed decreases until ground contact is made. If any power is retained in ground effect, the Mooney will fly you off the end of the runway. Retracting the flaps immediately upon ground contact is a technique that I teach, but not all CFIs agree with this. In ground effect, there is a great deal of compressed air trapped between the Mooney flap and the ground. It is a natural spring. Pressure on the flap which is aft of the center of gravity, tends to lift the tail and thus produces a very strong pitch down, which forces the nose gear toward the ground. Should you release yoke back pressure, the nose gear will go for the ground with vigor and the main gear will trend skyward. Landing with excess airspeed and full flaps can readily produce the "wheel barrow" condition of rolling along with the nose wheel in ground contact, and the mains airborne due to the air flow being trapped between the flaps and the ground. An 80 mph wheel barrow is hard to handle. Another benefit to releasing flaps upon touchdown is that it contributes to maximum braking efficiency by placing the most aircraft weight on the main gear. If your tires tend to exhibit flat spots, you may wish to consider the foregoing technique.

The approach will begin to degrade at the key point if you do not reduce power and commence a descent. The approach will also degrade if you carry too much power and stop the descent on base. This will allow the aircraft to attain a "flat" attitude. Once the aircraft is close to 1.3 VSo, the descent rate is controlled primarily with power, not pitch. Try to maintain a pitch down attitude throughout the approach, with the target in sight. If you cannot see over the Mooney's nose, other than in the flare, you are usually doing something wrong, or you have a poor seating position. Changing your approach style (*adding "granny speed")* because of unfamiliar surrounding terrain is a formula for error. Be consistent. Most airport designers choose the location and configure an airport in terrain that allows for a normal pattern. Experience tells us that high or gusty winds can require some approach modifications, such as the use of flaps, etc. But generally, <u>just be consistent</u>, no matter what the terrain looks like. The

windshield picture of what the runway approach end environment looks like when you are at the optimum altitude to make a normal landing must become imprinted on your memory. Most ILS glide paths are devised with a 3 to 3.5 degree descent angle. A normal VFR approach should be about the same angle. The picture of the touch down area presented through the windshield, should appear the same to the pilot, regardless of the surrounding terrain. If a choice must be made between approaching at a lower angle and a slightly higher one, take the higher one. If you're too high, a slip is a faster, safer way to correct altitude. It's much safer than adding power to correct an approach that is too low and flat.

Take some pride in seeing how little power and throttle jockeying you really need to use to make a normal approach.

The chances that a weather related accident will be fatal is nearly 63%.



Angle of Attack Indicators

Angle of attack (AOA) is the angle between the oncoming air or relative wind and a reference line on the airplane or the wing. Sometimes, the reference line is a line connecting the leading edge and trailing edge at some average point on the wing.

All of our critical airspeeds, such as V_x, V_y, Best Glide, etc., are really better managed because each has a specific AOA. What do I mean? Suppose you wish to achieve the best rate of climb:

A) You could try to control the airplane by reference to the "rate of climb" number shown on the vertical speed indicator. This is not recommended!

B) It would be better to maintain V_Y, the nominal best-rate-of-climb speed, as shown on the airspeed indicator, and accept whatever rate of climb results. This is almost always the right idea.

C) It would be even better to realize that the best rate of climb is achieved at a particular angle of attack. In particular, if the airplane is lightly loaded, compared to what is anticipated in the handbook, the best rate of climb will be achieved at a lower speed than handbook's V_Y value.

This is not an isolated example. Many of the airplane's critical performance numbers are really angle of attack numbers:

- The stall occurs at a particular angle of attack.
- The smallest power-off descent rate occurs at a particular angle of attack.
- The best power-off glide ratio occurs at a particular angle of attack.

A Rule of Thumb is to reduce your stall speed by 5 knots for every 300 lbs under Gross Weight.

- The recommended "approach speed" is really an angle of attack recommendation.
- The best rate of climb occurs at a particular angle of attack.
- The best angle of climb occurs at a particular angle of attack

It would surprise some that the pitch trim wheel is just a simple method of selecting an angle of attack! There is usually no reference to AOA in the Mooney POH because the best approximation is Airspeed and the Stall Charts, which are based on configuration and weight.

AOA indicators have been used by the military since 1959. However, recently, AOA indicators have been available for General Aviation. Many pilots will pooh pooh the idea of AOA indicators because they have "flown safely their entire aviation life without them". I felt that way about them until I did the research for this article. Here is what I've learned:

All planes stall at a given AOA. That angle is usually between 15^{o} - 20^{o}, and that's a fact. Many use their Airspeed Indicator to "know" how close they are to stalling. The reality is, that Airspeed is a secondary measure of stall warning. Your Mooney stall speed is different, based on weight, configuration of flaps, gear up or down, and angle of bank. The lighter your Mooney, with level wings, and full flaps and gear down usually – the slower the stall speed. As the bank and weight increases, the stall speed increases.

A PIREP from Mooney Master CFII Don Kaye

I've now been using the Alpha Systems AOA for several months. The recent feedback on my post of November, where I lost the ASI as a result of what turned out to be a pitot blockage, reminded me that I wanted to write more about the AOA, since an AOA would have been very useful in that circumstance. In a couple of words: **I am thrilled with it**. Many of you have seen my landing video that I made several years ago. In it, I demonstrated the quick calculation I always made to calculate landing weight, to determe the appropriate approach speed. After an extensive number of approaches using the AOA, I find that that calculation is no longer necessary. In fact I have comfortably dialed back my approach speeds between 5 and 7 knots, under all weight conditions. The pitch attitude is a little higher and slightly more power is necessary to control the descent rate on a 3° slope, since we are behind the power curve, but every landing I have made so far has worked out perfectly. In calm or constant wind conditions, I now use 1.3 Vso until about 50 feet, then smoothly transition to 1.2 Vso. The landings are noticeably shorter and less braking is necessary. This is especially good for the M20Ms with serial numbers below 107, because they only have the two puck brakes.

The AOA calibration was simple and only took about 15 minutes. The time to Chart the whole airplane's speed characteristics took another hour and really requires another pilot. (Thank you Phil Verghese). We didn't chart maximum range or maximum endurance, but that will be done at a later date.

Many will say that they have had a nice flying career without an AOA and they are just an unnecessary expense. Right! You don't have to have one, but I have to say that I am glad I put one in> I continue to find it very useful.

Remember, that your plane can stall at any speed. For instance, think of your V_a. It's usually pretty high and in the green arc. That is the highest speed you can fly in turbulent air because the plane will stall at the maximum G level - without causing damage to your Mooney. AOA indicators will give you an

All of your critical airspeeds are better managed with AOA than with Airspeed. These include V_x, V_y, Best Glide, etc.

accurate measurement of your angle of attack regardless of weight, configuration, bank angle, etc. It directly measures your angle of attack at all times.

As you can see from Don Kaye's report, (previous page), he is a strong supporter of AOA indicators in Mooney cockpits. The Mooney laminar wings are slippery and flying precisely based on AOA is, without fail, more accurate than an Airspeed Indicator.

As with any instrument, while you are on your Base Leg, or on Final Approach, your eyes should be focused outside of the cockpit, looking for other planes in the pattern, the wind, obstructions on the runway, etc. An AOA indicator would be best utilized in your scan.

But, if you are ever in a scenario where Best Glide or Best Endurance may be the difference between an eventful or uneventful landing, an AOA Indicator could make the difference.

Additional Information:

Angle of Attack Indicators from Sportys:
http://www.aircraftspruce.com/menus/in/angleofattackindicators.html

Alpha Systems AoA: http://www.alphasystemsaoa.com/

Wikipedia: http://en.wikipedia.org/wiki/Angle_of_attack

In half of the weather related accidents, the report involved pilots attempting fly under Visual Flight Rules (VFR) into Instrument Meteorological Conditions (IMC).

Cliff Biggs

ATP, 767,757,737,727, A320, LRJet, CE500, MU-2, Wright Bros Award, A&P 46 Yrs, B707, B727, B720, B747, DC-10, DC9, DC-8, CE500

Do You Have a Plan When it Hits the Fan?

Because when it hits the fan - it can really hit the fan!

There you are, fat, dumb and happy, cruising along on autopilot with your headset on and jumpin' and jiving to the music from your XM radio on your Garmin 696. You don't have a care in the world, but then, you are not really completely connected to your airplane and to what it is saying to you. Distracted by the music? Lulled into a sense of well being? Is this your normal mode of flying? To many of us, it is the "norm".

The story is true. The names have been changed to protect the innocent!

Let me bring you back to a time of yesteryear. A time when we didn't have all the "toys" we have now. Back to a time of radial engines and "coffee grinder" VOR radios with whistle stop tuning, NDBs and Low Frequency Range Approaches. The time of DC3s, DC6s, and Connies.

The story is true. The names have been changed to protect the innocent.

The engines crank, the smoke belches and the guttural roar of Pratt & Whitney 1830, 14 cylinder radial engines settle into a low rumble idle as you taxi out in the early evening. You are the Captain of a "Gambler's Special" from Burbank, CA (KBUR) to Hawthorne, NV (KHTH), on the south shore of Walker Lake in the distant Nevada desert. All 32 of your charges in the back are looking forward to a night of gambling at the casino and then dragging their bodies back out to the airplane in the early morning hours to return home. The weather is good. A small moon is showing and the skies are relatively clear.

The takeoff, climb and cruise are uneventful. But, alas, we don't have the Garmin 696, an autopilot, and we don't have rap music blaring away in our headsets. We only have the night as it envelopes our plane. The sky turns from blue to black and the stars illuminate one by one to form a canopy of light. The low rumble of the two big radial engines, turning on either side of the fuselage, is somehow comforting in its tone. It's sweet music to those who have experienced it; reminiscent of two John Wayne films, "*Island in the Sky*" and "*The High and the Mighty*".

Suddenly, the peacefulness of the flight is broken by a shudder and screech. The copilot looks out at the right engine and sees sparks being thrown forward out of the cowl! You've just blown a cylinder head off of one of the 14 cylinders of the right engine! The Captain calls "FEATHER THE RIGHT ENGINE" and the copilot hits the button on the overhead panel to hydraulically push the blades to feather the Hamilton Standard Hydromatic propeller. It takes oil pressure to feather and control it and the "feather button" turns on a high pressure electric pump to drive the prop to the feather position.

As Captain you have been flying this route for months and have planned ahead so you know exactly where the Tonopah, Nevada airport is, slightly to the right, just past the next hills. You know that on one engine, even at METO (Maximum Except for Takeoff) power, you can't maintain the 11,500 MSL, but you can drift down to the mid 9,000s; good enough for now. The emergency is declared and you're on your way to KTPH. Planning is everything.

After a few minutes, you begin to see the lights of the town and the airport beacon; an airport that is several miles east of the town proper. It's an old WWII Army Air Corps training field; more than adequate for our needs.

The airport beacon beckons you with its rotating green and white light. Like a siren calling to you, but, one you will never greet.

Just about the time you figure that you have it made, you see another flickering red light. Incredulously, you look down. It's the Low Oil Pressure Warning Light on the "good" left engine. HUH? This can't be happening? You look at the Oil Pressure Gauge and see it is descending to "0" and now the Oil Temp is climbing above the red line. OH, CRAP!

Remember back in this story about the propeller and how it took oil pressure to feather it to full high pitch? Well, what do you think happens when oil pressure is lost? Ah yes, it goes to low pitch. And what happens if it goes to full low pitch? It windmills and increases, uncontrollably, the engine to high RPMs.

Radial engines don't like high RPMs, so at about 3,000 RPM you make the hardest decision of your life. You make the call to feather your only remaining engine. Why you ask? Because, on a radial engine with no oil pressure to lubricate it, it stands a good chance of seizing. If the engine seizes with the prop spinning out there, there is enough mass and energy for the prop to shear off the nose case of the engine. Then, the prop reduction gears and nose case will depart the airplane along with the propeller! Who knows what it will hit?

So, all your planning ahead involved knowing that you had one engine running, with one generator for electrical power. But now, you have no engines, but at least you still have the battery to light the instruments and a landing light to help in the end. Au contraire!

Knowing the route, you turn right and drop down toward a dry lake, Mud Lake. You can barely see it in the weak moonlight, a few miles south of Tonopah, Airport. It was used as a gunnery range during WWII and the lake bed is strewn with 50 caliber machine gun bullets. It's a dry lake, as flat as any runway.

It's miles long and suitable for a crash landing. As you turn toward it, the left engine slows and feathers to a stop and all the lights go out in the cockpit!

Now you've got no engines, no hydraulics (for the gear), no electrical, can't see the instruments and you will have no landing light to help you with the dry lake bed! Why no battery? We'll get to that later, but back to the important stuff, like landing.

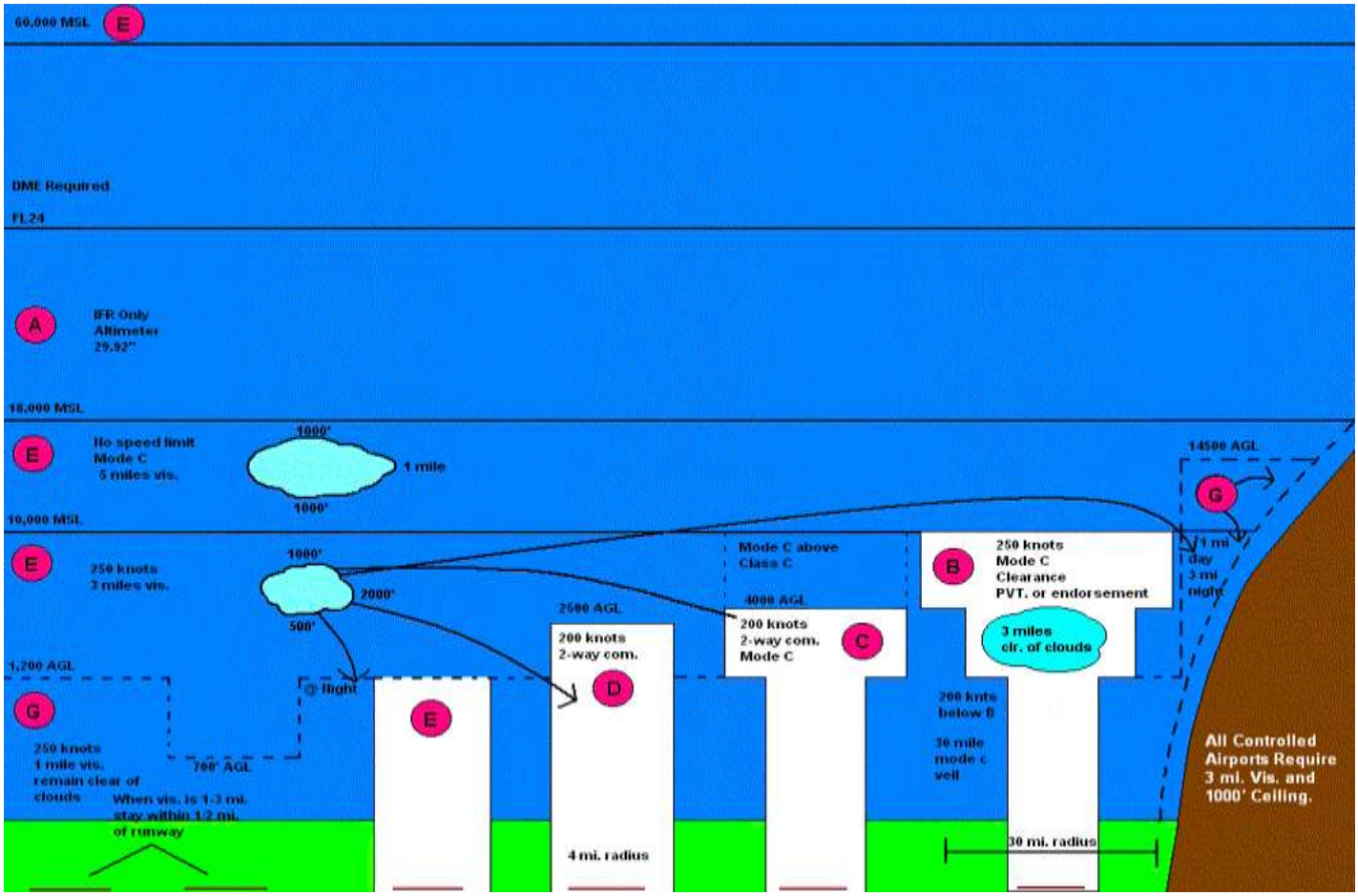
Your copilot breaks out his flashlight. (You always fly with one close at hand at night, don't you?) He leans over the throttle quadrant to illuminate the airspeed indicator for the Captain. All of a sudden, the lights start to come back on as the left engine starts to spin up (it's wind-milling), and the generator comes on line again! HUH? It never got to full feather! As it speeds up, you call to feather it again and the copilot pushes the button. The lights go out again, but the engine never makes it to full feather. (It's the battery again-but we'll get to that in due time). With one engine feathered and one wind-milling, the descent rate increases to maintain speed.

As the dry lake bed rushes up and with only the weak moon to light the way, you see your shadow coming up at you and pull back on the wheel.

To be continued…

Mike Elliott
MCFI, CFII, Birmingham FSDO FAASTeam Rep
Founder of The Mooney Summit

Airspaces Beware & Be Aware



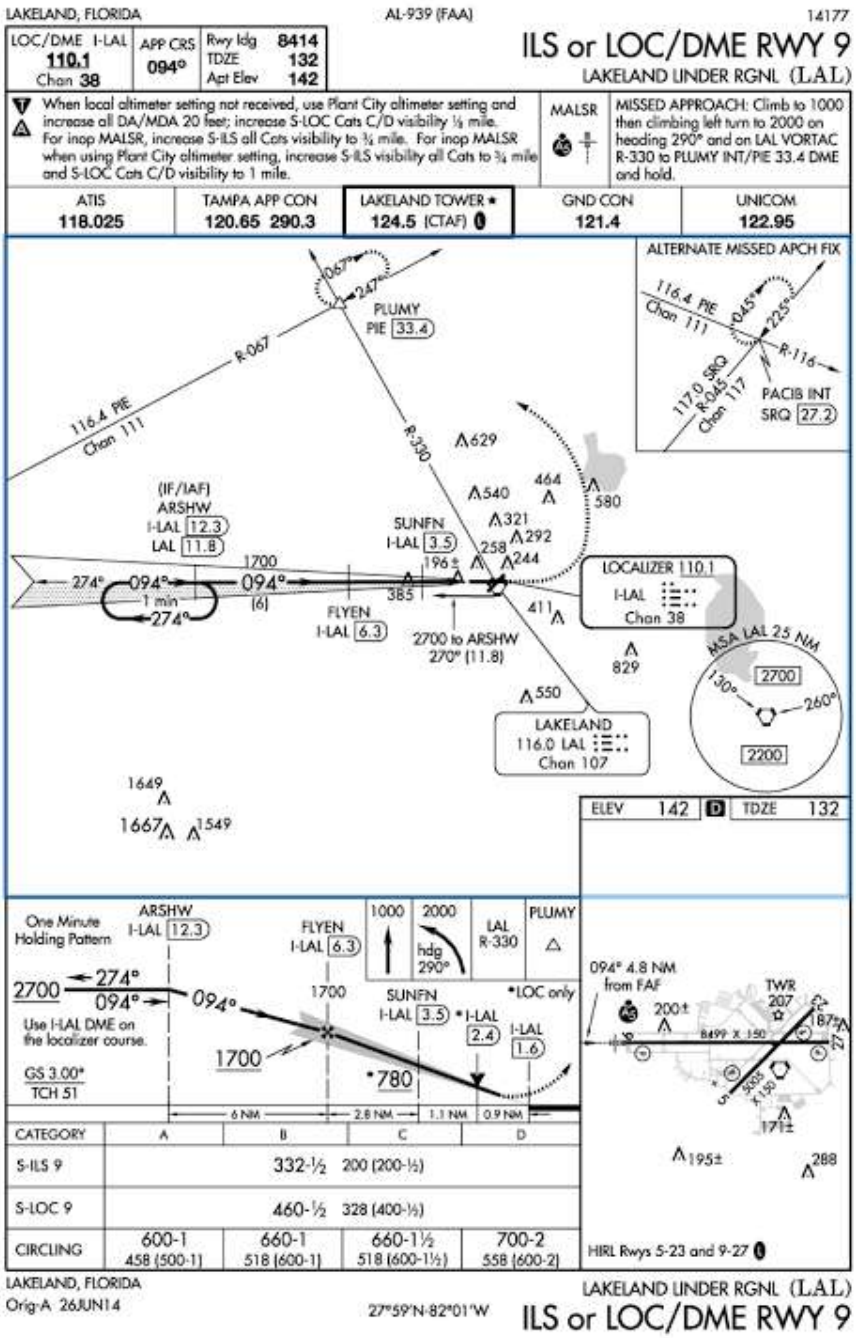
From time to time, I take a look at the above chart to refresh myself on our national airspace system. I find myself "forgetting" some of the details and I just know, that would not be an acceptable defense when I call up Tampa Approach and instead of getting a four digit squawk code, I receive a 10 digit number. Take off to the east from Albert Witted KSPG or to the south at Clearwater KCLW and if you are not on your toes and ready to enter the Class B/or D, you'll have a prime opportunity to make new friends at the FAA's enforcement division. In the last year, I have received calls from 2 Mooney pilots that received the dreaded "we have a phone number for you, advise when ready to copy" transmission. My first piece of advice was to fill out a NASA form immediately, the second piece of advices is to not be defensive with them, but try to maintain a helpful attitude. It also helps if one has established a history of Safety Consciiousness, such as being active and involved with the FAA's Wings Program, attending AOPA safety seminars and participating in "***Better the Breed***" events like the Mooney Summit. This info is available electronically to the FAA and can make their job of resolving this infraction a tad easier if

they know they don't have a "Maverick" who might be a future contributor to the scrap aluminum trade in their FSDO region. Will this positive safety history and attitude keep you from being violated? One can't say for sure, but it cannot hurt. In fact, I understand that less than 2 percent of the infractions and incidents in the Tampa FSDO region were by pilots who participated in the Wings Program in the Tampa district. I leave you to draw your own conclusions.

Another thing I like about the airspace chart is the identification of airspeed restrictions. Since I typically don't fly planes that are capable of exceeding these limits, I tend to forget them easily. This simple picture helps me when I climb into the Bravo and feel the need for speed. Our airspace is shared with a lot of banner towing aircraft, a number of sightseeing Delta wings and a host of LSAs and slow moving tail draggers. Anyone who has a Flight Review with me will find themselves in slow flight on downwind, base and final at some point, with the scenario based training of an imaginary Cub that extended his downwind. When I administer an IPC, the pilot can count on an approach into TPA where he or she will hear me say, "Keep your speed up". Recently, there was an interesting thread on Mooneyspace about etiquette in the pattern when a Mooney was cut off by a student in a C-172. This is a situation most of us have or will face at some point, and the only correct course of action is safety. Think about this possibility before entering a pattern and resign yourself to not show anyone whose boss before it happens. This makes for a non-ego damaging event and will quite possibly save you a few AMU's on scratched paint.

As we all know, airspace awareness isn't just about floors, ceilings, speeds and cloud rules. Airspace is also about proximity. Here in Florida, we have the highest pilot population density and perhaps the highest student activity density in the US. There are over 8,000 registered pilots in a 25 NM range from Tampa, and over 1,600 flight instructors. Over 16,000 pilot certificates were issued by the North Florida FSDO in 2012. Our skies are buzzing with bug smashers every day, and a lot of us are training. This density requires us all to be extra vigilant in all phases of our flight, from planning to shut down. Let's look at an airspace planning idea. The is the training scenario: We are en route to Lakeland for practice approaches and then lunch at the restaurant, where we will meet with the Florida Mooney lunch group.

(They meet the 2nd Saturday of every month). ATIS tells us traffic is landing and departing runway 9, so we elect to shoot the ILS 9 approach first, then the published hold at PLUMY. A study of the VFR and approach charts shows that we will be passing right by the Plant City airport (KPCM) at 2,000 feet. This is the strawberry capital of the world, and in the springtime, this sleepy, (for this part of Florida), airport has all kinds of planes loading up with some fresh berries to take home. The KPCM traffic will be on a different frequency and probably won't be talking to Tampa Approach as they leave. They probably won't be looking for us as we descend on the glide slope into Lakeland. This is just one of the potential issues with practicing this approach on a busy Saturday. Another issue is PLUMY, the ILS or LOC/DME RWY 9 missed approach. It's holding fix is located just south of the Zepher Hills airport (KZPH), which is the busiest parachute and glider area in the State, especially on Saturday. It might not be in our best interest to be boring ovals at 2,000 feet when we hear "attention all traffic in the vicinity of Zepher Hills, Jumpers away in 5 minutes". PLUMY is also the intersection of 2 victor airways, albeit conflicting traffic should be above and talking to ATC. Sometimes, you just have to wonder who thought PLUMY would be a great spot to hold.



Lakeland is blessed with more than its share of interesting approach airspace. In addition, it has a number of issues that might create cause for review before using the space for practice. The controllers at KLAL are some of the most helpful and friendly I have ever encountered, and love to work with students and pilots wanting proficiency. However, pilots are tasked with making sure their practice doesn't create a potential disaster because they didn't spend a few moments to check out the "what if" possibilities; of what we are going to do and where we are going to do it? Next time, take a few minutes, fire up the iPad and review your practice area airspace to make sure you won't have a skydiver become your copilot on the second turn of the hold.

For fun and proficiency, I'll give students holding instructions similar to this: "On the missed, climbing left turn to 2,000, hold NW on the 8.5 DME of the 310 Radial, left hand turns, 5 mile legs". This gives them a good workout getting this set up; thinking about the entry, and its execution.

SAVINGEST—
SELLINGEST. . .
MOONEY FOR '66

Clean, aerodynamic design, outstanding performance, jet-age features, and luxury you'd expect only in aircraft costing much more . . . all this plus exclusive Positive Control flight stability . . . this is Mooney for '66.

The goingest . . . in the Mark 21 and Super 21 you get the highest speeds per horsepower of any 4 place retractable. Enjoy speeds to 185 mph — speeds comparable to planes costing 5 to 10 thousand dollars more.

The savingest . . . Mooney owners just naturally like to brag about 18 mile per gallon economy and the lowest maintenance of any retractable. Let us show you how you can realize substantial savings every mile you fly — savings in first cost, savings in fuel cost, and savings in maintenance.

The sellingest . . . for three straight years the Mooney Mark 21 and Super 21 outsold the Comanche 180, 250, 260, and 400 . . . outsold the Debonair, the Bonanza, and Cessna 210. Ever wonder why? It is simply because more and more pilots discover that they get far more airplane for their dollar in Mooney. Isn't it time you discovered why Mooney is the most popular 4 place retractable you can fly?

MOONEY

Mooney Aircraft, Inc. Kerrville, Texas

Where experienced engineers find new challenge and wholesome living.

FLYING—December 1965

3

Carson Valley

by Linda Corman

One day we had a desire to see what was on the eastern slopes of the Sierra Nevadas and Lake Tahoe. The day we arrived at Minden-Tahoe, there were big fluffy clouds everywhere with giant holes. We shot through one of those holes and landed in an amazing valley. Who knew that such a beautiful spot was located just beyond the mountains of Tahoe. Carson Valley is a large flat area surrounded by high mountains. It has a Shangri-La feel to it. The airport is great as it sits in the middle of this valley and has a wonderful approach.

After we buttoned down our plane and got our rental car, we were off to Carson City. We drove to the historic downtown area and toured the state capitol and did a walking tour of the old buildings and quaint homes. There are more than 60 landmarks in Carson City, which has a 2.5 mile walking path that follows a painted blue line along the sidewalks. I won't say there is great shopping there, but the history was fascinating.

We visited the historic State Capital Building, (pictured to the left), which was filled with historic artifacts and images. It was definitely worth a visit. There are some good restaurants and local pubs with interesting beers and ales. We ate the first night at the **Carson Valley Inn Steakhouse** and we were not disappointed.

The next day we traveled 150 years back in time to Virginia City, which is only 15 miles northeast of Carson City. At one point, between 1860 and 1880, because of its gold and silver mines, **Virginia City** was known as the richest place on earth. Today, it's the largest National Historic Monument in the U.S. Walking down the streets of Virginia City, you get a feel for the old west, complete with the saloons and bawdy houses. Some of these saloons have interesting names, like *Red Dog*, *Silver Queen*, and *Bucket of Blood*. Virginia City could also be considered the birthplace of Mark Twain, as it was here in 1863, that writer Samuel Clemens first used his famous pen name. Like many cities and towns in Nevada, Virginia City was a mining Boomtown and developed virtually overnight. Between 1862 and 1863, the population grew from 4,000 to 15,000. The population now is around 855; the mines now depleted of their ore. We had a fun time walking around the main street and hopping in and out of old stores and saloons.

After driving back to Carson Valley, we saw signs directing us to the site of Nevada's first trading post in a small berg called Genoa. This place consisted of only three buildings, but was worth the stop. The largest building was, of course, a saloon – *Nevada's Oldest Thirst Parlor*. We stopped and enjoyed a little libation while sitting outside. Genoa looks out toward the Pine Nut Mountains and the communities of Minden-Gardnerville.

These towns are well known for their Basque heritage. Speaking of Basque, we found a Basque restaurant called **J.T. Basque** located in downtown Minden. This was a really fun place. They seat you family-style and start bringing out the food. Basque seems to be a cross between Spanish and French food which is wonderful.

After you have done all the things there are to do in Carson Valley, it is an easy drive over the Kingsbury Grade to South Lake Tahoe. Also, Reno is just 30 miles north. Both these locations have casinos, shops, and nightlife. So, it seems that Carson Valley is centrally located for all these fun things to do and the best way to get there is in a Mooney.

March 14, Fort Pierce (FPR)
April 11, New Smyrna Beach (EVB)
May 9, Winter Haven (GIF)
June 13, Williston (X60)
July 11, Sebring (SEF)
August 8, St. Augustine (SGJ)
September 12, Lakeland (LAL)

Santa Maria, CA **April 24 -26, 2015**
Chattanooga, TN **June 5-7, 2015**
Atlantic City, NJ **September 11-13, 2015**
Fort Worth, TX **October 23-25, 2015**

Over 72% of VFR into IMC accidents are fatal

Send your questions for Tom to TheMooneyFlyer@gmail.com

Q1: Do you have advice for Mooney owners concerning unsealed vs sealed batteries and their useful life?
Do you recommend one type or brand, based on your experience?
After a certain number of years, should owners replace their battery to avoid a surprise dead battery?

We prefer the Concorde sealed battery for ease of service and long life. If you have electrical service available, then use a battery minder which will extend the life even more.
The sealed batteries cost about 30% more, but they are well worth it. We even have a rig so that on the newer planes, two batteries can be connected to the charger. How long to keep a battery is really hard to say, but I would go with four years as an average. We see a shorter life span on the 24 volt batteries, or at least we sell more of those. That may be because we work on more 24 volt planes. I have never done any kind of a study. I recommend on the two battery planes, to stagger the change. This spreads the cost and also varies the age of each battery. When you read about a seven year battery, it's the exception, and usually installed in a C model, which is very easy to start.

First Picture of Harrison Ford's Off Field Landing near Santa Monica. Harrison continues to heal. There is no word on whether Chewbacca was injured.

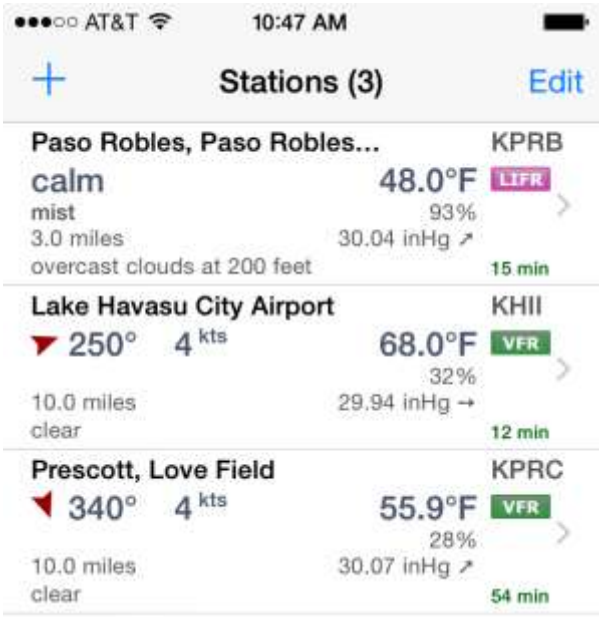
Private pilots account for 38% of pilots, but they are involved in 49% of accidents.

Pilot Develops App to find Airports with Courtesy Cars

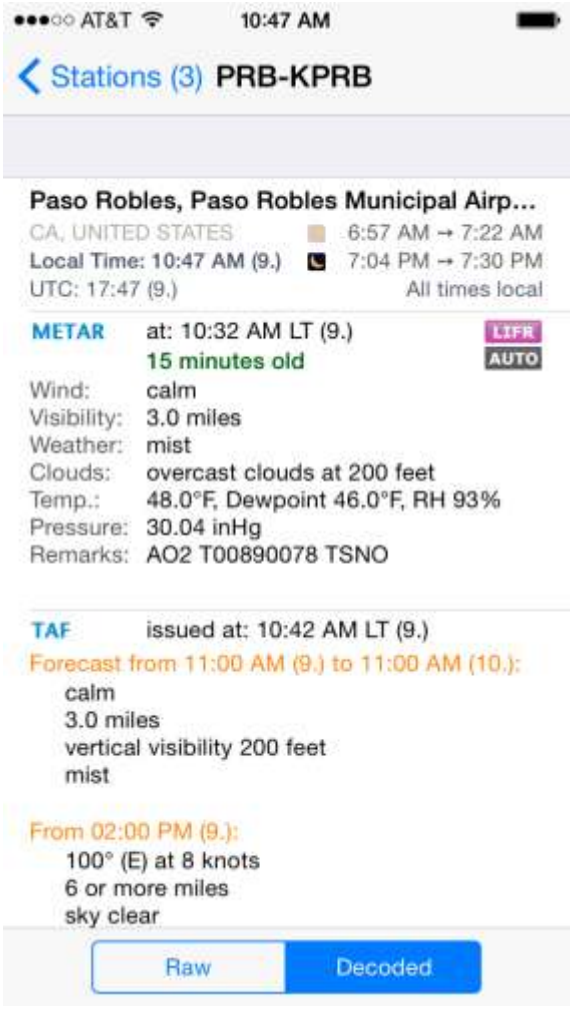
Glenn Brasch, frustrated with not enough information about airport courtesy cars, developed “Airport Courtesy Cars”, a free app. It was officially launched Nov. 30 in both the Google Play/Android store and Apple’s App Store.
“Many of those listings have comments from people who submitted the data, and some of them are funny too,” he notes. “As the app becomes more popular, people continue to send in more listings and comments.”
Pilots using the app can search by state for airports that have courtesy cars available. It also has a Google map that can be zoomed in or out. Phone numbers listed on the app are clickable, so the airport, FBO or other business can be called directly from the app.
“The app is totally free to pilots, who I envision either using it locally in searching for a car for a burger flight, or along their route on a cross country.” READ MORE

AeroWeather App

We are always looking for inexpensive or free apps for Mooney Owners, and pilots in general. This month's app comes in a free version called AeroWeather Lite and a low cost version called AeroWeather Pro. In the Lite version, pictured below and to the left, you can add airports and then quickly see a snapshot of their AWOS/ASOS/METAR. This is great for a last minute check of the weather for your planned flight. By clicking on any airport, you can get a detailed breakout of METAR and TAF for each airport. As you can see, the App also highlights the meteorological conditions from LIFR, IFR, MVFR to VFR. This is a nice feature. Remember, this is all free.



The PRO version has all of the Lite features plus a few additional. The first is the ability to group airports. You can group airports together with a Group Name so that you can easily tap on that group and see all of the airports in it. I use this feature to quickly review my favorite routes.



You can also see up to the last 4 METARS, so that you can determine the trend in those surface reports. Trends are very helpful, as you know, to guesstimate future conditions. The PRO version is currently selling at the Apple App Store for $3.99.

Mooney Instructors Around The Country

Arizona

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

Boris Vasilev (CFI, CFII, MEI, AGI), Phoenix Are, Tel: 602-791-9637, email: boris@atjeuhosting.com, Time in M20C through M20R models. Private commercial and instrument training, BFR's IPC's FAAWings

Connecticut

Robert McGuire , Durham, 203-645-2222 cell, rmcguire007@hotmail.com

Winslow Bud Johnson, smgemail@aol.com, 203-348-2356

California

Geoff Lee, San Martin, CA, 69050@comcast.net

Don Kaye (Maser CFI) located in Palo Alto, CA, (408)-249-7626, Website: www.DonKaye.com

Chuck McGill (Master CFI) located in San Diego, CA 858-451-2742, Master CFI, MAPA PPP Instructor, M20M, M20R, M20TN, Website: Click Here

Rodrigo Von Contra, Oakland, (510) 541-7283, Rodrigo@vonconta.com

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

Colorado

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

Florida

Mike Elliott (CFII) Master CFI located in Tarpon Springs, FL, Contact 317-371-4161, Email mike@aviating.com, Quality instrument & commercial instruction, transition training, ownership assistance, plane ferrying

Robert McGuire , Hawthorne, (203) 645-2222, (Dec – Feb), rmcguire007@hotmail.com

Georgia

Jim Stevens, USAF, Col, (ret), CFII. Atlanta, GA area. 404-277-4123. Instrument, commercial, IPC, BFR, transition training. 20 year owner of 1968 M20F.

Kansas

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

Massachusetts

Ralph Semb, ralph@bowling4fun.com, 413-221-7535

New Jersey

Parvez Dara, daraparvez@gmail.com, 732 240 4004

New York

Jack Napoli, Long Island, TT 6,000 hrs & Mooney time 3,000, kj4kqvh1@yahoo.com, 631-806-4436

Texas

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

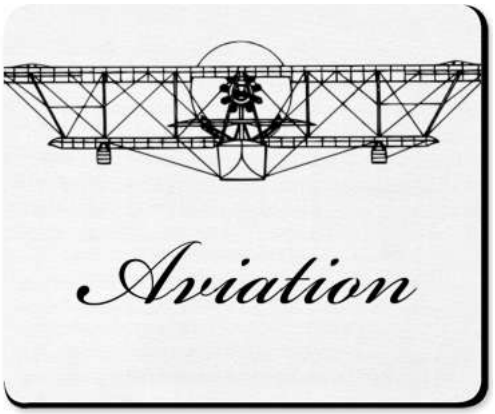
Brian Lloyd, Kestrel Airpark (1T7), 210-802-8FLY, Brian@Lloyd.aero

Mark Johnson, mjohnsonf16@hotmail.com, 832-773-4409

Jerry Johnson, mooney9281V@hotmail.com, 817-454-2426

Vermont

Ted Corsones, tedc@corsones.com, 813 435 8464



In the majority of VFR into IMC accidents, the pilot received a weather briefing. And, a majority of the weather briefings included "VFR not recommended" from the weather briefer.

FOR IMMEDIATE RELEASE

NEWS RELEASE

Editorial Contact:
Dan Parks
PO Box 250
Standard, CA 95373
Phone 209-536-0491
Fax 209-536-0463
Email dan@cruztools.com
Web Site www.cruztools.com

PILOT'S TOOL KIT ALLOWS REMEDIES ON THE RAMP

Applicable to General Aviation Aircraft

Sonora, California — February 27, 2015 — CruzTOOLS®, a manufacturer of tools and tool kits for motorcyclists and musicians, today announced entry into the general aviation market with a tool kit aimed at pilots and aircraft owners.

It's well understood that the fleet of general aviation aircraft is aging. Fortunately, mandated maintenance helps ensure reliability, but decades-old aircraft need ongoing and often unanticipated care – sometimes far from an open FBO. Experienced pilots know to carry tools, although their selection may be unwieldy or incomplete.

To address this shortcoming, CruzTOOLS developed the Pilot's Tool Kit. It provides the most commonly needed tools and components, including a set of combination wrenches, an adjustable wrench, tire pressure gauge, locking pliers, 6-in-1 screwdriver, hex wrenches, and diagonal cutters.

A special aviation spark plug socket – also available separately – handles major spark plug makes, and a precision mini-ratchet with socket set provides additional utility. The kit also includes a telescopic mirror, cable ties, and thirty feet of aviation-grade safety wire. Tools carry a lifetime warranty and made to precision tolerances using pro-grade alloys, but more importantly are absolutely dependable when called upon.

All contents are organized into a durable roll-up pouch that weighs 3.5 lbs. (1.6 kg.) and measures 9" long with a 3" diameter (25 x 8cm).

"We focus on tools for enthusiasts with whom we share their passions," stated Dan Parks, President of CruzTOOLS. "So it was only a matter of time before we got around to pilots. I'm really excited about the Pilot's Tool Kit, and want to point out that other CruzTOOLS products such as tire gauges are also worth a look by the aviation community."

The Pilot's Tool Kit retails for $99.95; part number PTK1. The spark plug socket can also be purchased separately using part number ASPS78, and retails for $19.95.

For more information, please contact CruzTOOLS at PO Box 250, Standard, CA 95373 U.S.A.; toll-free 888-909-8665; fax 209-536-0463; or visit their web site at www.cruztools.com.

For Sale - Mooney 201 j 1978 aspens with extended warranty, avidyne traffic ,storm scope ,very good paint 8 interior a7 King 200 autopilot coupled to 430 garmin and aspen Factor engine with 850 hours $ 88,000 - mbmaksymdc10@aol.com

LASAR'S Free Site

Check out Lake Aero Styling & Repair's " LASAR" Web Site: www.lasar.com : New under Mooneys for Sale, "List your Mooney for free" and "Mooney Instructors." Also check out Parts, Mods, and Services! LASAR, est. 1975 **(707) 263-0412** e-mail: parts-mods@lasar.com and service@lasar.com

As pilot certification level increased, the accident rate decreased. However, high-time private pilots were involved in more accidents than low-time private pilots