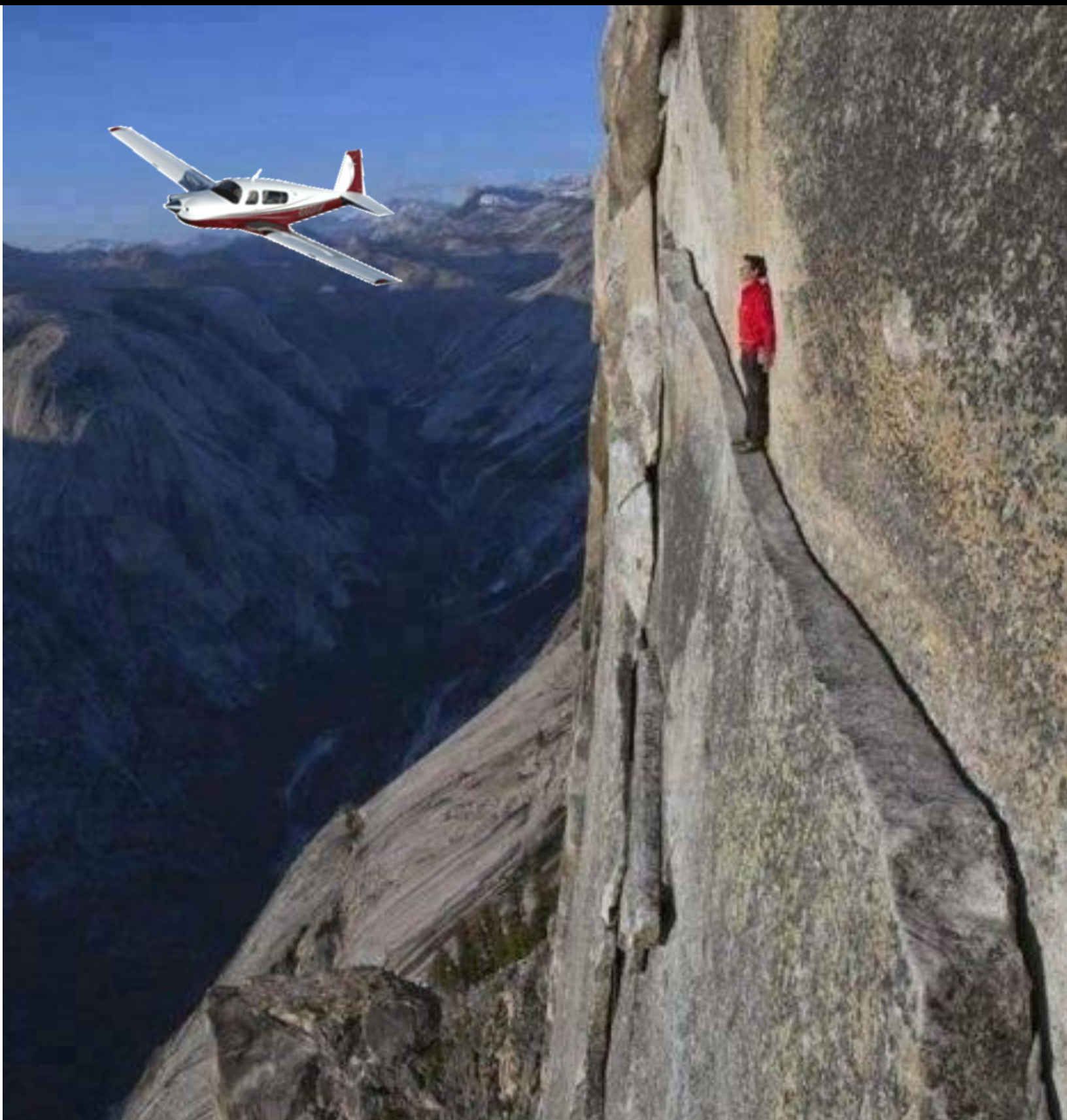
The Mooney Flyer

The Official Online Magazine for the Mooney Community
www.TheMooneyFlyer.com

July 2016



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Features

In Every Issue

From the Editor

Phil Corman

Reluctantly, Jim and I have decided to CANCEL The Mooney Flyer RoundUp scheduled for September. We will return any/all donations made to the donors and we THANK YOU ALL for your amazing support. At this time, we feel like producing The Mooney Flyer is enough of an effort.

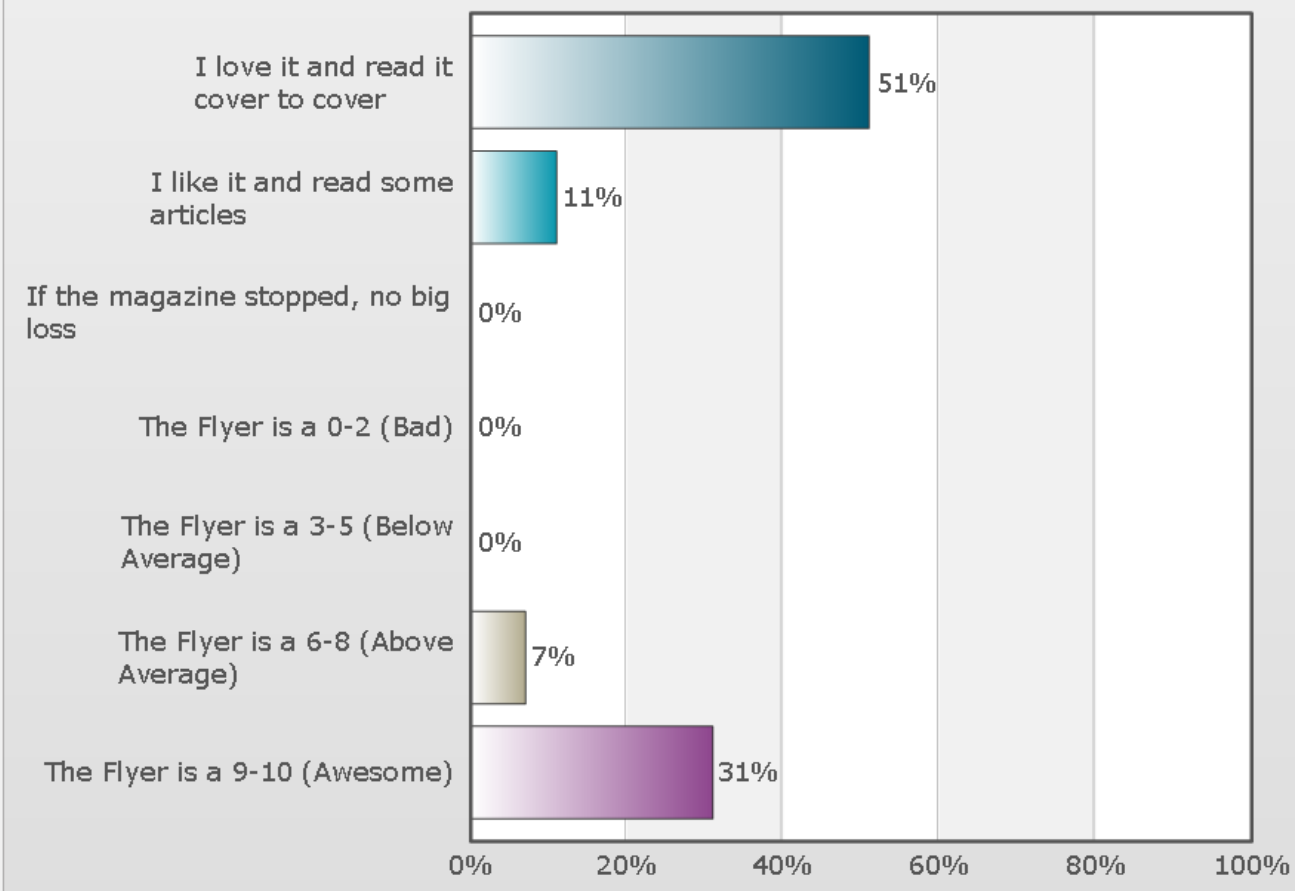
If you are going to AirVenture 2016, and we hope you are, here is a link by GlobalAir to FBOs across the country providing attendees Fuel Discounts along the way. **CLICK HERE** to see the participants.

If we had a massive office at The Mooney Flyer, this would be the décor!!!

The Mooney Flyer is:

Poll created by Phil Corman on 05/03/2016

Poll Results



Next month's poll: "What Aviation Oil do you Use?"

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

I always enjoy The Mooney Flyer and read it completely. As an active CFI in Mooneys I would like to add a couple of things with regard to aborted takeoffs and aircraft configuration on landing.

Good point on the 50%/70% rule. (The aircraft must have 70% of take-off speed by 50% of the runway.) This is the "V1 cut" used by airliners. It is a clear "abort point". I would add that this should be a call-out at a specified speed, something like, "60 knots, continue take-off," or, "60 knots not reached -- aborting." Since most runways are long enough to do a full accelerate/stop, I also set an abort point on the runway. If the aircraft is not off the ground an climbing by the abort point, close the throttle and brake to a stop. Again, this is a call-out. It is also a checklist item, i.e. "abort point determined".

On landing I simplify my life and the life of my students by requiring the aircraft to be completely configured for landing on downwind at the point abeam the touchdown point ("abeam point" or "the perch" for those of you USAF pilots). That means gear down, flaps extended, and trim set for approach speed. After that, you don't change the aircraft's configuration until after touchdown or go-around. This means all you have to do from that point forward, is to fly the airplane all the way to touchdown. This reduces the pilot's workload at the highest workload point in the flight.

And thinking a bit more about abort points, they exist all through your flight. Obviously the first abort point is V1 or the abort point on the runway. But there is a second one that comes up pretty quickly. That’s the point at which you may safely turn back to the runway. (And in some airplanes, that point might not exist until the aircraft is on down-wind.) These abort points occur several times during a flight: fuel/time, weather conditions, even the point at which you decide whether you can safely land or must go around. The latter is a point on the runway by which the aircraft must be on the ground and slowed to the point where it may be stopped safely. That means that if you screwed up and flew your approach to fast and then forced the airplane onto the runway at too high a speed, (which usually produces the classical "Moony Bounce"), you would make the go-around decision while the airplane is on the ground. BTW, the Mooney Bounce is a mandatory go-around. Period. Touch down on the nose wheel? Go around! Slow down to proper approach speed next time. You do know what proper approach speed is, right? Hint: it is NOT 90 KIAS unless you are doing a no-flaps landing.

The key point with all of these abort points is that they are decisions you make AHEAD OF TIME. They make life very simple because you have already made the decision and when abort conditions occur, you simply "abort". And remember, you VERBALLY CALL OUT the abort point. That makes it clear to you and everyone else in the plane what is going to happen.

Thanks again for a great publication.
Brian L

Hi Phil & Jim: I own an old M20A "Woodie" which I rebuilt 20 years ago. The experience led me to working at a small aircraft museum in Montreal, Canada. Because no one else at the museum had worked with wood, they asked me to complete a build of a Bleriot. Maybe you would like to publish the pic of the Bleriot, which flew last year.
Mike A

I tend to agree with J Mac McClellan on the subject of stall prevention: Basically, commercial and military pilots have the fear of God put in them from day one, about getting even close to a stall. If they bust Vref, then they fail. Here's the whole mag; you can surf to page 20 and read his whole dissertation. http://sportaviation.epubxp.com/t/144253-eaa-sport-aviation
Randy S

Just read your recent Mooney Flyer and I am absolutely amazed how diversified and relevant information you supply us Mooney pilots with on every edition. The read is excellent and helpful. To support your work which is given altruistically, I want to donate some money to you. Please email me an address or PayPal account most convenient for you. You do tremendous work and we all appreciate your efforts in producing a #1 rated monthly magazine.
Ron D

I like that more articles seem to be about practical flying tips. It occurred to me reading your article about overshooting final: Do you think more people would consider a "go-around" sooner and more often, if it was called a "fly-by"? (or something similar). It seems a matter of misdirected pride or ego to some people.
Don C

RE: Why Airplanes Fly -- Thank you so much for your monthly publication. It is by far the best aviation publication I have come across, and I am proud to be part of such an enthusiastic community.

I must say that I was quite alarmed by your "Why Airplanes Fly" article in the June 2016 article of TMF. The article correctly states that the Bernoulli Effect is only a small part of what generates lift, and furthermore calls out the "equal transit times" phenomenon as hogwash. Both of these statements are true (for an excellent video that debunks the equal transit times myth, see this Youtube video).

However, the article takes this a step farther and states that the wing generates lift "not by magically manipulating air pressure, but by basic Newtonian physics". This is not true: wings DO generate lift by manipulating air pressure. In fact, the very definition of airfoil design is to manipulate an airfoil shape to achieve a desired pressure distribution. Engineers have measured the lift of airfoils in wind tunnels by sampling the pressure on the airfoil's surface for decades.

The missing piece of the puzzle here is that the pressure difference is due to many different physical phenomenon, *not just the Bernoulli effect*. The equal transit times theory is false, but regardless there really is lower pressure above the wing and higher pressure below it. This is a perfectly valid explanation of lift and is the backbone of many legitimate aerospace engineering computer tools used today.

But, the Newtonian explanation is also correct. In exactly the same way that helicopters produce lift by pushing air downwards with their rotors, aircraft generate lift by pushing air down with their wings.

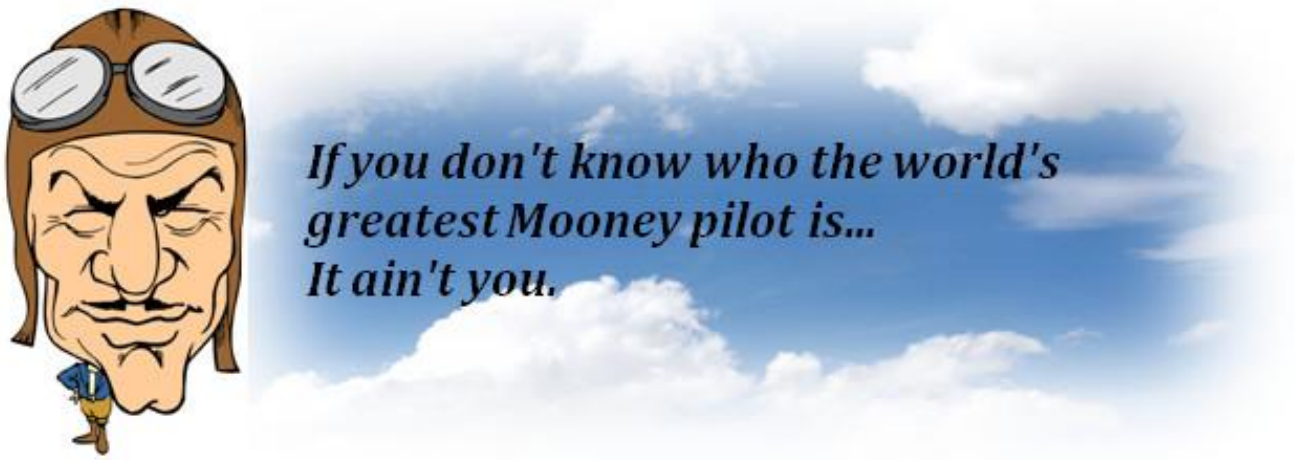
At the end of the day, both the Newtonian theory and the pressure distribution theory are different explanations of the same thing. They explain the phenomenon of lift by analyzing two different separate observable effects, and both are legitimate explanations. However, it is both incorrect and highly misleading to say that pressure has nothing to do with it.
Ryan G

RE: Why Airplanes Fly -- Your article concerning the "myth" of Bernoulli's theorem as an explanation of lift is itself the big myth; one which has been propagated by people practicing physics without a license.

The pressure change along a streamline (Bernoulli's theorem) is itself derived from Newton's 2nd and 3rd laws. Hence there can be no possible contradiction. This is easily shown experimentally by placing pressure transducers along the chord line of a lifting wing in a wind tunnel, something done in pretty much every aerospace engineering undergraduate laboratory course. The pressure distribution is exactly what Bernoulli's theorem predicts.

The apparent "error" leading to the "myth" is simply due to an incorrect calculation of the air velocities over the top and bottom surfaces of the airfoil. Just looking at the distances traveled on account of the camber gives a grossly incorrect result, as can be seen by making experimental velocimetry measurements. When the experiments are done PROPERLY it is apparent that Bernoulli's theorem and Newton's laws give the exact same results

John K

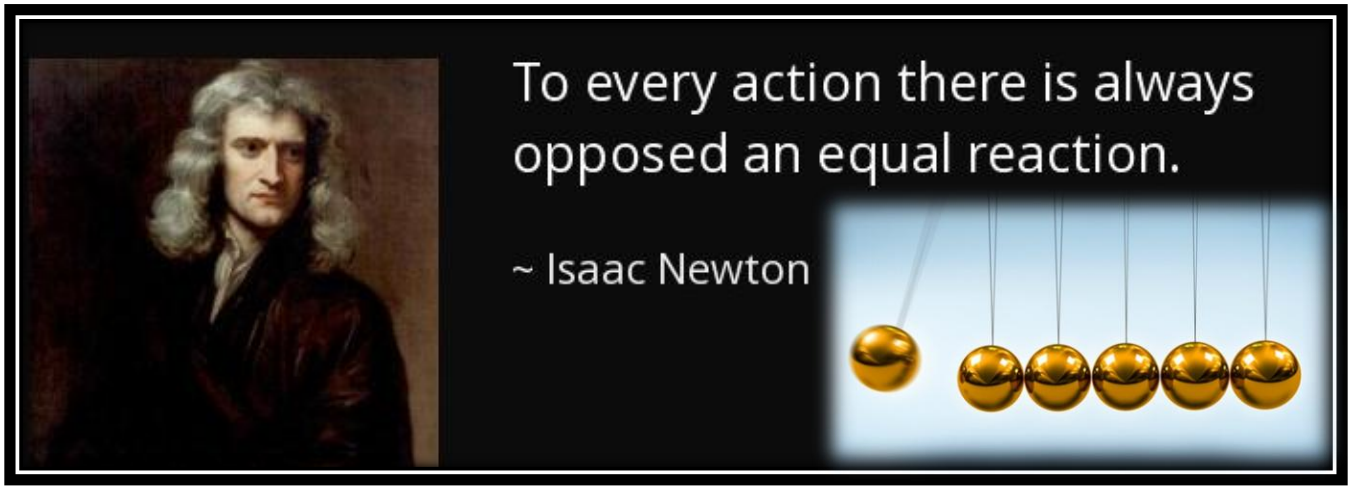


MORE RIGHT RUDDER

by Jim Price

Can you remember all the reasons that we need right rudder for takeoff, climb and go-arounds? Let's refresh your memory, so that when you are asked to explain it to a passenger, you won't feel like an idiot. This might also help you remember, the next time you need to go-around, that right rudder is required to keep control of the aircraft. There's actually three reasons a Mooney wants to see what's to the left. Tail Draggers have four reasons.

1) Torque



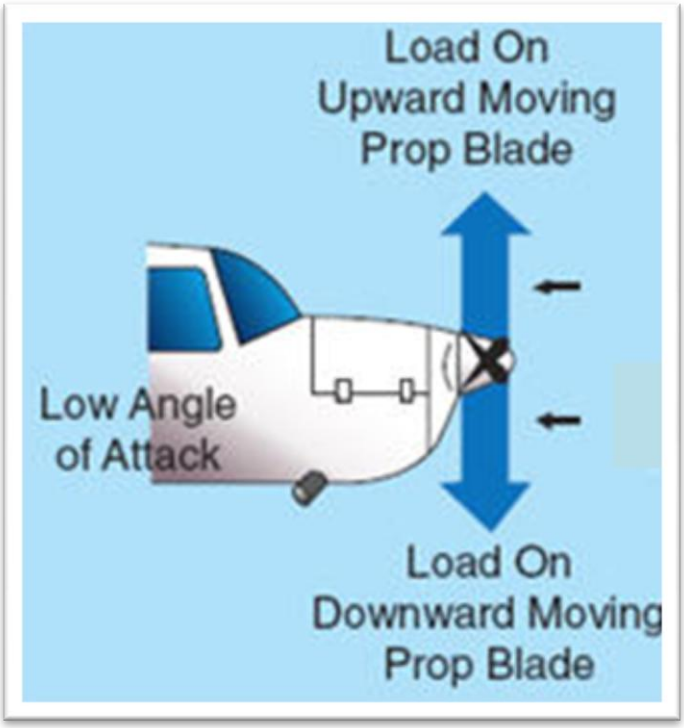
If Sir Isaac said it, it's got to be right! But how does his third law apply to an airplane? Basically, it comes down to the forces that eventually cause more left tire friction.

Mooneys and most western aircraft, have when viewed from the cockpit, engines that rotate clockwise. This is where **torque** starts coming into play. As you throttle up for takeoff, the right-turning direction of the engine and propeller forces the left side of the airplane down toward the runway. When the left side of the airplane is forced down onto the runway, the **left tire has more friction with the ground than the right tire**, making the aircraft want to veer to the left.

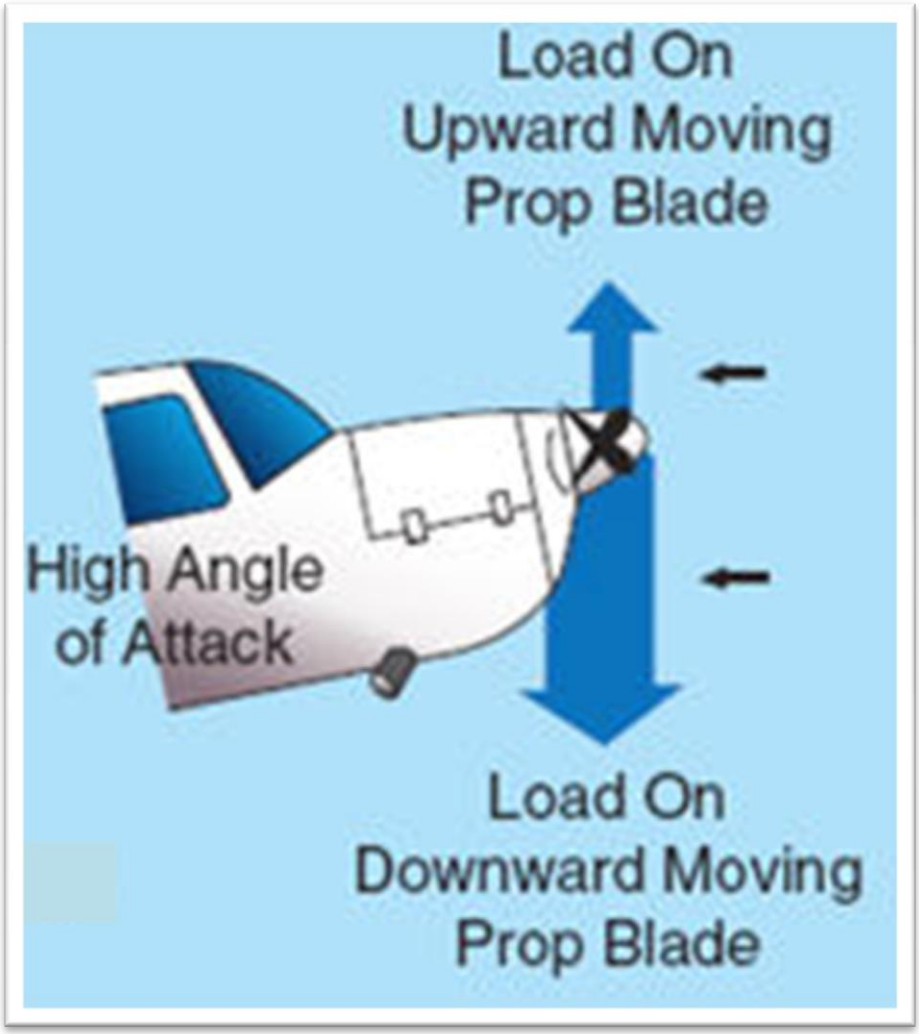
2) P-Factor or Asymmetric Propeller Loading

P-Factor happens when the downward moving prop blade is taking a bigger 'bite' of air than the upward moving blade.

When an aircraft is perfectly level and moving forward through the air, the angle of attack of both blades of the propeller are the same.



But, when the plane pitches up a bit, one blade's angle of attack will **increase** while the other blade's angle of attack will **decrease**.



With a higher AOA, the downward sweeping blade creates much more lift (or thrust), making the airplane want to yaw to the left.

The higher you raise your nose, the more right rudder you'll need to keep the ball centered.

3) Gyroscopic Precession (Applies to Tail Draggers Only)

A spinning propeller is essentially a gyroscope (a spinning disc). That means, it has the two properties of a gyroscope:

- Rigidity in space and
- **Precession**.

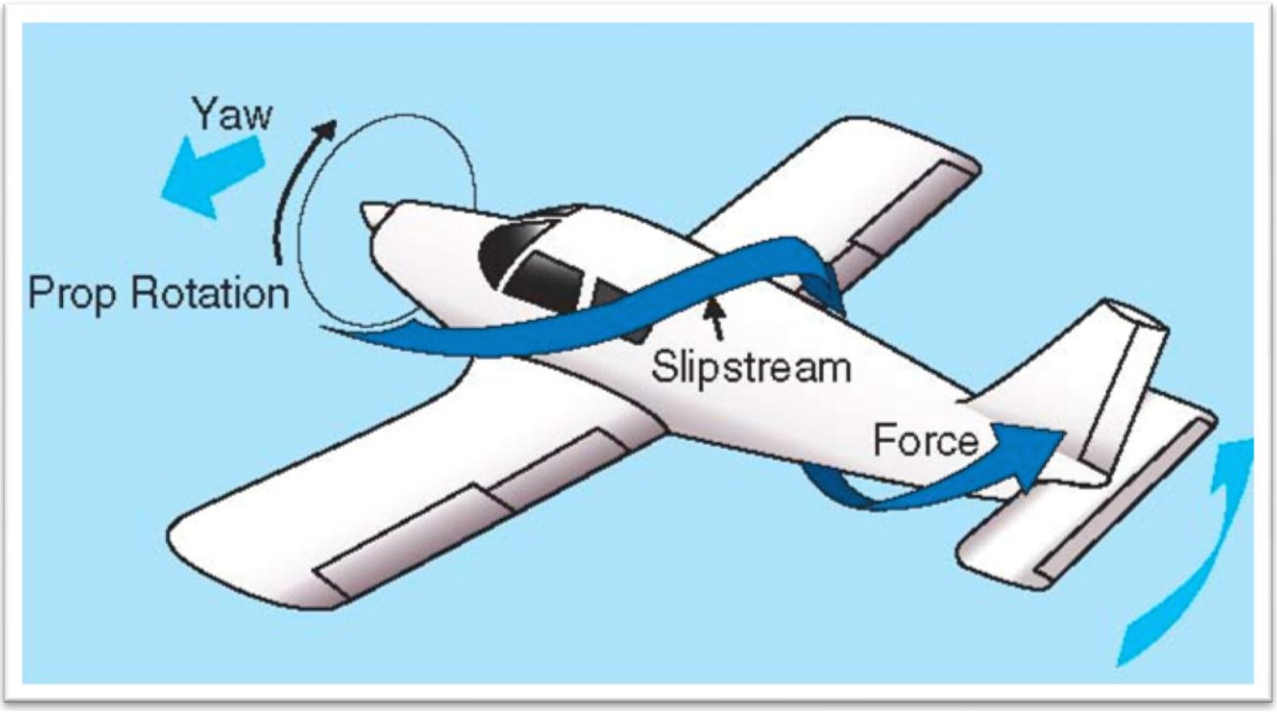
Precession happens when you apply force to a spinning disc. If you apply a force to part of the disc, the effect of that force (the resultant force) is felt 90 degrees in the direction of rotation of the disc.

When the tail comes up, a force is applied to the top of the propeller. And since the propeller is spinning clockwise, that force is felt 90 degrees to the right. That forward moving force, on the right side of the propeller, creates a yawing motion to the left.

4) Spiraling Slipstream

This happens when your prop is moving fast and your plane is moving slow. A great example is when you are taking off.

During takeoff, the air accelerated behind the prop, known as the 'slipstream', follows a corkscrew pattern. As it wraps itself around the fuselage, it hits the left side of your aircraft's tail, creating a yawing motion, and making the aircraft turn left.



The more compact the spiral, the more prominent this force is. As the forward speed increases, however, the spiral elongates and becomes less effective.

Here's a picture that will help visualize the Spiraling Slipstream

Putting It All Together

Did it all come back to you? The next time someone asks you why the aircraft seems to want to yaw to the left and needs a lot of right rudder, you can tell them that it's all because of Sir Isaac Newton.

Seriously, now that your memory has been refreshed, you know a little more about why we need increasingly more right rudder during takeoff and climb (higher angles of attack).

But more importantly, I hope that you'll remember to step on the right rudder, the next time you need to go-around.

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Gear Up… Gear Down

Mooneys, unlike many other aircraft, are complex, meaning they have retractable gear, and/or a constant speed propeller. Because of that gear, Mooneys are able to go fast… really fast! Have you ever wondered how much difference it makes? Years ago, my Eagle (M20S) had gear problems and I had to fly it with the gear down, from Camarillo, CA (KCMA) to my home drome, Paso Robles (KPRB). Normally, the flight lasts 42 minutes in no wind or light wind at 6,500 feet MSL. But ,with the gear down, I averaged about 120kts, as opposed to almost 180kts, and it took forever; at least it seemed that way. Hence, lowering your gear is a great way to slow down your Mooney when you have to slow down quickly, maybe due to a restriction, ATC direction, or during a rapid descent to land. Just remember your IAS for lowering your gear. For my Eagle, that's 140kts.

Gear Up

When everything is going perfectly, everyone still has their own beliefs on when to raise your gear on takeoff. A common idea is to raise your gear when you do not have enough runway to land. Another idea is to raise your gear as soon as you have established a "positive rate of climb". On short runways or those with obstructions at the departure end, I tend to raise my gear the instant I have a positive rate of climb. My thinking is simple. There is not enough runway to get back down, flare, and stop without running off the end of the runway. At that point, my nose gear may dig into the turf (grass, sand, rough field or even water) and cause me to flip over, or do some other unintended acrobatic maneuver. I can avoid that by having my gear up when I touch down. Remember, in such an emergency, our thinking should change from saving the airplane to saving the passengers.

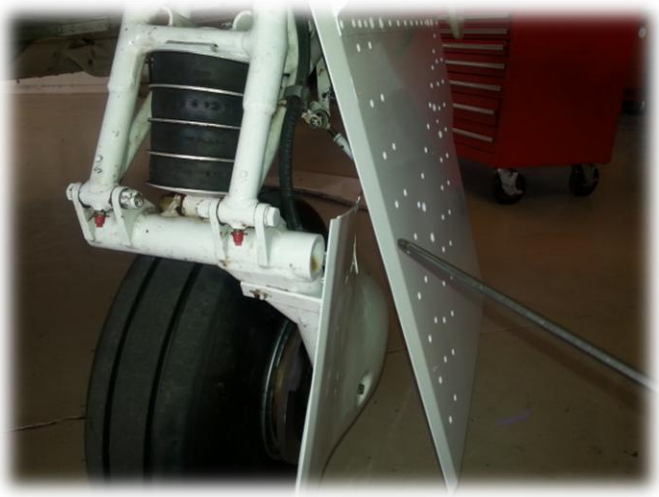
Lowering your Mooney's Gear is a great way to slow down or increase your descent rate.

By raising the gear as soon as it's safe, your Mooney can accelerate and climb to a safer altitude sooner, giving you a better chance of finding a suitable hard surface. You'll have plenty of time to lower the gear, as appropriate.

If you believe that you should not raise the gear if you still have enough runway to land straight ahead, that is a fine alternative. However, how much runway is enough to reduce power and attitude, flare and land? That is a difficult computation, except in extremes of really long runways. After taking off and climbing a bit, have you ever practiced trying to land your Mooney after a simulated loss of power? It's a handful. At the very least, you should have a good idea of how much runway you

After a fly-in one afternoon, a good friend of mine was departing a high density altitude mountain field and we watched as he mushed into the air. At about 50' AGL, he seemed to sink a little and lowered the nose a bit, as would be expected. The sinking feeling in the cockpit encouraged him to lower the gear, which increased the slight sink rate. As he approached the end of the runway, he remained at about 50' AGL. With trees about 400' past the departure end of the runway, he retracted his gear, increased the climb rate enough to clear the trees. My point is, that the timing for raising the gear is not a black and white one.

will need to descend and land, and also have the skill set to do it without hesitation.



Gear Down

There are many different scenarios for when to extend your landing gear. One is when you need to slow down or increase your descent rate, (as stated earlier in this article).

Generally speaking, I like to extend my gear as I am entering the traffic pattern. This lets me do what all Mooney pilots like to do, which is to keep my airspeed up and get to my destination for drinks, before all my Cessna/Piper/Cirrus friends arrive. So usually, I milk my descent from cruise right into the pattern with impressive airspeeds and low fuel flows. And yes, I am vigilant of my CHTs!!!

As I enter the pattern, my Mooney's gear is down and I have trimmed her for my approach to landing; 80kts in my Eagle. (Don Kaye is a huge advocate of stabilized approaches and precision flying). By getting the gear down and the Eagle trimmed, I just ease off power to deal with the local runway and wind conditions, once in the pattern.

If your gear is down, it will help to absorb some of the impact when hitting terra firma. This could increase your chances of surviving and reducing serious injury to you or your passengers. No hard and fast rule here. Just another consideration.

In an emergency off-field landing, my choice of putting the Gear down or leaving it up is based on the terrain. If it's water, sand, or soft turf, then the gear remains UP. In this scenario, I leave the gear up to minimize the chances of flipping over. If it's mountain or forest, then down goes the gear. I put the gear down in these circumstances because it further reduces my stall speed and therefore the force of impact is reduced. Imagine how difficult it is to exit an inverted Mooney in the water. Most deaths in water ditching are actually due to drowning. Clearly, you should put the gear down when landing on a clean hard surface… duh.

In Summary

The sooner you raise your gear, the sooner your Mooney becomes clean. It accelerates forward and climbs faster. Waiting for a positive rate of climb should work if you are managing your airspeed properly.

When landing, before your workload increases, put your gear down. This will enable you to more easily set up a stabilized approach. This is akin to configuring your Mooney and airspeed before hitting the Initial Approach Fix (IAF) on an IMC instrument approach.

Have fun with your gear, and don't forget to check your overcenter load regularly. Remember, you can check this yourself, but per the FAA, you'll need a mechanic to adjust it.

You can actually land your Mooney on grass and dirt, but you should consider removing your low hanging gear doors first. Nothing would ruin your day more than to grease it into a grass strip and then find that your gear doors have been damaged.

Over its 46 year life span, my 1970 M20C has had its share of upgrades including avionics, engine, propeller, and paint. Now, I felt that the plastic instrument panel overlay was looking very tired and worn. With the addition of various avionics upgrades, new circuit breakers had been added in haphazard locations while the original circuit breakers were located behind two small spring loaded doors on the right side of the panel.

53V's Original Panel (Photo 1)

Unfortunately, the above photo does not show the chipping paint, plastic inserts which hid the holes from previous avionics installations, and the less than acceptable tolerances. These occurred when the instrument holes were manually cut. Note, that most of the circuit breakers are housed behind two doors on the right side, while the avionics add-on CBs are located on the left, below the pilot's control yoke.

I had to do something about the panel arrangement. I considered replacing the existing black plastic overlay, but if I used a knife to manually trim the parts, this would result in an overlay that was not much of an improvement and the cost for new plastic was hard to justify. I had a second option, which was a custom panel refurbishment. While the end result would be striking, so would the cost.

Recently, I visited the Northwest Aviation Conference and Trade Show, which is held every February in Puyallup, Washington. This visit gave me a third inexpensive and more viable option, offering the benefits of a custom panel refurbishment with a simple panel overlay replacement.

At the Puyallup show, Front Panel Express, was handing out free CDs that included their CAD software, Front Panel Designer. This software allows you to integrate with their manufacturing process. Front Panel Express claimed that I could lay out a panel using my PC and, when satisfied with the layout, I would send the CAD file to them via email. After a week, Front Panel Express would send me a new panel via UPS.

This sounded too good to be true, but the software was free and I had nothing to lose. After experimenting with the CAD software at home, I determined that I could easily design a thin aluminum overlay to replace the existing, worn out plastic overlay. I would mount the new overlay, with the existing holes in the aluminum plate to which the instruments were mounted. With Front Design, making a provision for all of the circuit breakers seemed to be a simple task.

My Mooney has two panels that do not reside in the same geometrical plane. So, the new overlay, which I elected to make out of aluminum, has a left panel and a right panel, with the vertical separation line just to the left of the avionics stack. (This separation is best seen in Photo 1).

I began the design by starting with the left panel. First, I carefully measured the layout of the various instruments, annunciator lights, switches, and mounting holes, as well as the panel outer contour. The data was then input to the CAD software.

One of the issues I had to deal with was generating the contours. The CAD software expects the contours to be in a .dxf format. An internet search resulted in identification of a free CAD software product (LibreCAD) that made generation of the .dxf files easy.
Once the layout was complete, I used Front Panel Designer to print the full size panel on four sheets of 8 ½ by 11 inch paper. Each sheet printed with cropping lines (trim marks), so that I could align them properly and tape them together.

Using an Exacto knife, I painstakingly cut out all the holes. Once this was complete, I headed to the hangar for a fit check. After only 11 small changes, I was ready to send the file to Front Panel Express for fabrication! Based upon the size of the panel, the number and size of the cutouts on the new aluminum overlay, Front Panel Express automatically selects the panel minimum thickness . One can also choose to powder coat the panel in a myriad of colors.

Four days after placing the order, I drove a mere 30 minutes to their facility in Seattle and picked up the panel and then excitedly headed to the hangar.

I could not have been more pleased. By slightly over-sizing the mounting holes, I was able to make minor positioning adjustments. These slight modifications made the installation easy and it looked fabulous!

I then moved onto the right side panel, where I planned to have all of the circuit breakers. Several circuit breakers on the left side were moved to the right side. I had learned a lot from the left panel, so the right panel was much easier. Like the left side panel, the right side fit like a glove. Outstanding!!

To provide for easy panel removal, I needed to replace the parking brake knob. The knob was bonded to the shaft, so I needed a new knob that installed with a set screw. Flying buddy Dan Tracy, builder and owner/operator of an RV-7 and a mechanical wizard, machined a beautiful matched set of aluminum knobs.

The final step was to add the required placards. I could have machined the placards using the Front Designer software, but because there were so many placards, the machining cost became prohibitive. I decided to find a transparent product with an adhesive backing, to which I could print using my ink jet printer. I could then simply cut out the placards and manually place them on the panel. After much trial and error, I found that very few of the transparent products available were indeed transparent. Finally, I found OnLineLabels.com. With this inexpensive product, the printer ink, once dry, is very difficult to rub off and the adhesive is tenacious and moisture resistant.

With the installation of the placards, the project was complete, except for my local IA's buy-off. For less than $400, I had new panels weighing less than 3 lbs. In addition, almost 5 lbs of hardware were removed from the original installation, so I gained a little useful load! The completed installation is shown below in Photo 2. I think you will agree that it represents a significant improvement in the panel, both in appearance and utility.

53V's New Instrument Panel (Photo 2)

Ask the Top Gun

Tom Rouch

Founder of Top Gun Aviation, Stockton, CA

Send your questions to TheMooneyFlyer@gmail.com

Question 1: I'm facing an engine overhaul. What do you recommend?

Speaking as a mechanic, the product is more important than the cost. Lycoming does both overhauls and "remans" (remanufactured), while Continental only does "rebuilts", which is Continental's word for a "reman". Only a **Lycoming "reman" or a Continental "rebuilt"** gives you a zero time engine, and that feature adds some value.

The cost and content of a **field overhaul** can vary. You may be quoted a price, but after they receive your engine, they may find that you need a new crankshaft, crankcase repair, etc., adding to the overhaul bill. **With a factory "reman" or "rebuild",** you know your costs from the very start.

When we install a **factory engine**, we don't ask for the plane until we have the engine, and that minimizes the down time. With **field overhauls**, we remove and ship the engine, then store the plane for weeks. This can cost you in down time because they take at least six weeks and probably longer.

With **field overhauls**, there are many variations. We might need to bore and re-ring the cylinders, overhaul the cylinders, or use aftermarket or even new factory cylinders. Therefore, you need to know what you are getting into. Most IO-360s have cracks in the **crankcase,** and that means we'll need to overhaul the crankcase.

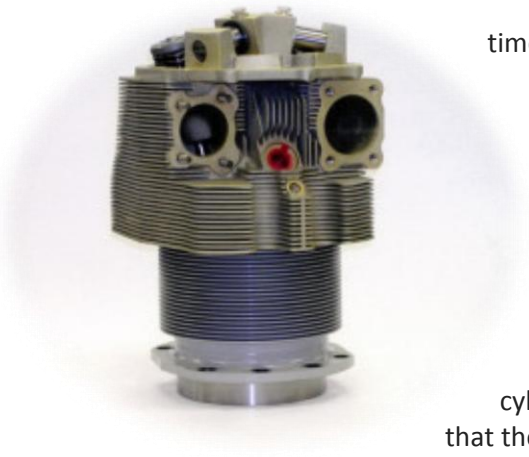
Lycoming factory overhauls always include new cylinders and if you have an IO-360, you'll get new roller tappets, (a good upgrade). Depending on the age of the Lycoming engine, there can be core costs. If you are changing from a dual mag on the A3B6D to individual mags on the A3B6 engine, there may be additional core costs.

TAXES: Depending on who does the overhaul, you should consider sales tax; a big factor.

WARRANTIES: In my many years, we have seen more warranty work on field overhauls than on factory engines, even engines that were overhauled by very well known shops. Some of these problems have involved crankcase cracks, loose cylinders, mag problems, fuel control problems (injected engines), etc. The other problem with warranties is how well each shop pays or honors the warranty. In many cases, warranties do not pay all the costs. Again, you're losing time because your aircraft is "on the ground" and no one but you pays for that cost. Usually, the **overhaul company** only pays for ground freight, which eats up more time.

All engine shops and factories have set optimistic times for certain jobs and it usually takes longer than predicted. For example, we spent hours trying to adjust the fuel flow on a 421 engine, and then, when the shop sent another fuel servo,we were only paid for the remove & replace (R & R) time. For us, we prefer to never do warranty work. We want engines without problems and those are the **Continental and Lycoming factory "remans" and "rebuilts".**

Question 2: I need a top overhaul. Do you recommend overhauled or new cylinders?



I have no problem with overhauled cylinders, other than the added down time, because you must wait for your cylinders to be overhauled.

It is possible to find overhauled cylinders for exchange, but it has become more difficult in recent years. Usually, a cylinder overhaul involves grinding the valves, honing, new rings and new exhaust valves. In addition, you'll most likely need a rocker arm overhaul. The labor cost for R & R is the same. One possible added expense is the push rods. These may have to be changed due to valve seat grinding, which will change the clearance on an overhaul, especially on Lycomings. Continentals will probably need new rocker arm shafts.

My guess is, you might save about 25% with overhauled cylinders. If you decide to shop for overhauled cylinders, you should know that they do not include pistons and rings. Cylinder kits include the piston and rings, but not piston pins. O rings and gaskets, needed for the valve covers, exhaust headers, etc., are an additional cost.

Whether you are planning an overhaul, "reman"/"rebuild" or a "top", it really pays to do your homework. As you can see, there are many things to consider.

Question 3: Hello. I have a question for Tom. If you would be so kind as to forward this to him I would be most appreciative. I have owned N5201Y, a 1978 M20J, for 10 years now. It is the aircraft that Tom maintained that he referenced below as having been involved in a midair that tore off the rudder and laid the vertical down flat. It was used to the tune of 8,000 hours or so during the period that Tom maintained it in the late 70s through the mid 80s as a radio station traffic spotter in the San Francisco Bay Area. Sincerely, Jim Roberson

History of N5201Y, As I remember…

As a note, I retired from the Air Force in 1978 after 26 years, and went to work in 1979 as Director of Maintenance at Performance Aircraft in Hayward, CA. I had no Mooney experience before retiring, but was really qualified on B-52s and believed if it had wings I could fix it. At Performance Aircraft, which was a leading Mooney dealer, I had about 35 rental planes, up to and including several twin turbo props, about 15 Mooneys, a dozen Grummans and assorted odd planes plus all the outside customers, so had a busy operation.

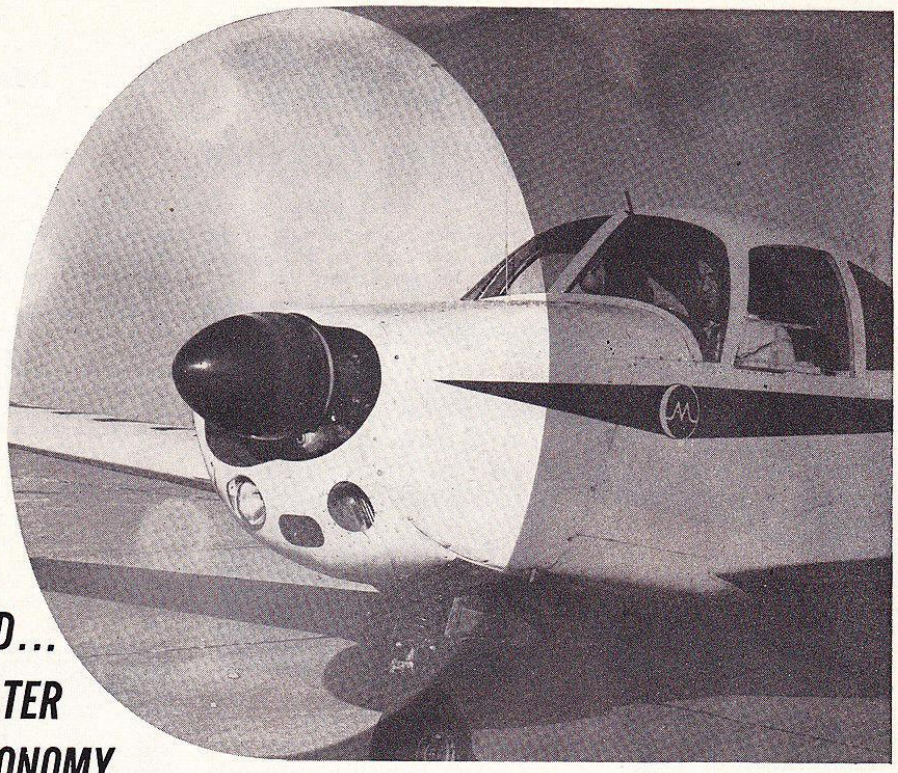
We started maintaining 5201Y in late 1979. It was owned by a pilot who flew traffic watch for a San Francisco radio station twice a day, averaging about 5 1/2hours a day. Since it was a for hire plane, we had to do 100 hr inspections and had to comply with time changes. We changed engines several times during the 7,000 hrs I maintained the plane. It was difficult to fly five days a week and do the inspections, so I developed an inspection program that was done between the morning and evening flights. This would meet FAA requirements and work around the reporter's schedule. It was difficult to say the least, but we had a backup C172 if needed. It is a tribute to Mooney and the J model in particular, that we were able to meet the mission for years with just the one M20J. The owner would fly the morning traffic watch and sometimes would be sitting in my hanger when I got there in the morning.

That leads to some interesting problems that I remember. One morning he was waiting for me since he had flown all morning with no airspeed indication. Easy to solve; his pitot tube was bent 90 degrees. Had no idea what he had hit, but it was a quick repair job. Another day he had hit a duck, which went in at the right wing root and went right in the cabin under the instrument panel. It was a real mess to clean and some sheet metal repair. The most interesting repair was when the owner had a midair with a Cessna over San Carlos. The Mooney was going south along the South Bay and the Cessna was climbing out of the San Carlos airport. The nose wheel of the Cessna hit the Mooney on the upper right side of the vertical empennage. The Cessna bounced up and was able to land safely. The impact tore off the upper two thirds of the rudder and collapsed the vertical down onto the left horizontal. The owner knew something had happened, but until he had the San Carlos tower take a look, he had no idea. They advised him to land and he did. He had two passengers along for their first small plane flight. He said the plane flew just fine. A short piece of rudder remained, which was good since he was at a slower airspeed. Anyway, we went over with a pickup and brought the tail back to the shop, repair it, put it back on the plane and kept it flying traffic watch for another year.

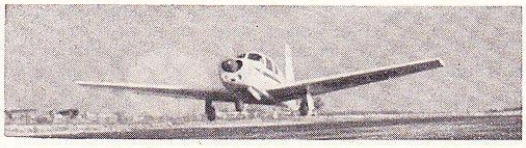
A footnote: The owner was so "shocked" by the experience that for a long time, we provided a pilot and then he sold the Mooney and went to ground reporting. Glad to see how good looking the plane is now. Shows that if you take care of your plane, the total hours don't mean much. The B-52s flying combat today are 16 years older than 5201Y, so 30 years more is reasonable.

more m.p.h. per h.p. in the Mooney Mark 20.

GREATER SPEED... GREATER ECONOMY



The amazing Mooney Mark 20 cruises at 165 m.p.h. and is powered by the famous 150 h.p. Lycoming engine. This extra-speed means a quick trip for you, regardless of destination — across the state or across the nation.



You get this extra-speed in the Mark 20 because its laminar flow wing, the first ever used on a private airplane in this country, means a lower drag coefficient.

The Mark 20 not only gives you greater speed but greater economy in cost of operation. Based on 500 hours of flying time per year, the Mark 20's average cost is only 6.1 cents per mile, including fuel, maintenance, depreciation, hangar rental and full insurance coverage.

Add up all the distinct advantages of the Mark 20 and you will know why it is your *best* buy in the four-place field. It is priced at $12,500. Get more for your money, get Mooney. See your distributor now!

Mooney AIRCRAFT INC • KERRVILLE, TEXAS

Mooney distributors

Aircraft Sales & Rentals, Phoenix, Ariz.
Airway Flight Service, Inc., Kansas City, Mo.
Amityville Flying Service, Inc., Zahns Airport, L.I., N.Y.
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D-C Aircraft, Inc., Ponca City, Okla.
Delair Aviation, Prospectville, Pa.
Erie Aviation, Inc., Toledo, Ohio
Falls Church Airpark Co., Inc., Falls Church, Va.
Fleet Planes, Inc., Panama City, Fla.
Clay Greening, Laurel, Montana
T. F. Heath, Pompano Beach, Fla.
Hedges, Inc., San Antonio, Texas
Hill's Flying Service, Sacramento, Calif.
J. A. Hudson, Dallas, Texas
Jimair, Inc., Cleveland, Ohio
Kerrville Flying Service, Kerrville, Texas
Kreitzberg Aviation, Inc., Salem, Ore.
Kunau Aviation Co., Lansing, Ill.
Mosser Flying Service, Inc., Statesville, N.C.
Frank Ogden, Toronto, Canada
Vest Aircraft, Denver, Colo.
West Texas Flying Service, Midland, Texas

FLYING—May 1956 7

Future Mooney Events

MAPA Safety Foundation
Mooney Pilot Proficiency Program

September 9 – 11, Manchester, NH
October 7 – 9, Mansfield, OH
CLICK HERE to register

July 9: Sebring, (**KSEF**)
August 13: Lake Wales (**X07**) - We will be driven by airport personal 4 or 5 minutes away to Woodies BBQ
September 10: Lakeland (**KLAL**)
Contact Dave at daveanruth@aol.com or (352) 343-3196, before coming to the restaurant, so the group can have an accurate count.

August 20, 2016. Fly-In Movie Night, Oceano Airport (**L52**), Oceano, CA. Featuring *The Princess Bride;* costumes are optional. Free admission and camping available.

Mooney Summit IV

An educational event and social gathering, will once again be held at Panama City Beach, FL, **September 29th thru October 2nd, 2016. CLICK HERE for more details.**

MAPA Homecoming Convention

The Inn of the Hills, Kerrville, TX. **Oct 19 – 23, 2016. Click Here to Register.**

Sporty's "Takeoff" App

Don't wait for your next Flight Review to get current. Keep your flying skills sharp and stay up to date on the latest aviation trends with Sporty's all-new Takeoff app. This fun and easy-to-use app delivers fresh aviation content to your iPad or iPhone every day, and allows you to customize topics to match your preferences. FREE DOWNLOAD >> You may wish to upgrade to Takeoff Pro ($59.99/year).

Mandatory ICAO Flight Plan Filing Pushed to Jan 1, 2017 (We Think)

According to CSRA DUATS, on January 1, 2017, the FAA plans to do away with the domestic flight plan form (military use excepted). This includes IFR as well as VFR. All flight plans being filed will have to use the ICAO form. (This comes from a June 6, 2016 CSRA DUATS newsletter).

Previously, in the FAA's Jan/Feb Safety Briefing, page 2, the mandatory ICAO filing date was announced as *on or after* 1 October 2016. Also see AOPA's web page, indicating that the **firm deadline** is Oct 1, 2016. The bottom line is, the FAA is still thinking about it.

Mooney International names new Vice President of Sales & Marketing

Industry veteran Dirk Vander Zee returns to lead the company's renewed and growing market presence. Mooney International Corporation has named Dirk Vander Zee as vice president, sales and marketing – a position he previously held for three years at the company prior to joining Textron Aviation in 1997 as a member of the Citation sales team.

Mr. Vander Zee is well known in the aviation industry for his sales acumen and relationship building, and he will be a key part of the Mooney brand's increasingly successful reemergence in the marketplace. He is a graduate of Baylor University and holds a Master's degree. In addition, he is a commercial pilot and has accumulated more than 7,000 flight hours to date.

"Dirk is an industry veteran with a twenty-eight year proven track record in sales and sales management – and brings back to Mooney an expanded set of skills and industry relationships at this important juncture in our company's history" said Tom Bowen, Chief Operating Officer for Mooney International. READ MORE

The FAA's ADS-B Rebate Program

In an effort to spur adoption of ADS-B avionics ahead of the 2020 equipment mandate, the FAA announced on June 6th, a rebate program for owners of U.S.-registered piston airplanes — but as you might guess, there's a catch. Once the incentive program goes into effect in September, the first 20,000 aircraft owners to equip with ADS-B Out avionics will receive the cash incentive worth $500. It must be for new ADS-B avionics and not software updates or ADS-B gear in new airplanes. The program will run for one year or until the FAA distributes the 20,000 rebates. For more information concerning the rebate, see the FAA's ADS-B website at http://www.faa.gov/nextgen/equipadsb/rebate/ , where you can subscribe and get updates to the plan as this evolves.

Once this program eventually goes active, it will require aircraft owners to apply for a rebate reservation, and wait for an incentive code. Then, once installed, you must fly and pass a specified number of compliance flights before receiving full approval.

FreeFlight & Avidyne ADS-B $500 Rebate Now!

FreeFlight Systems and Avidyne are offering $500 rebates for qualifying Automatic Dependent Surveillance-Broadcast (ADS-B) hardware now, bridging the gap until the FAA's rebate becomes effective in September. These rebates cannot be combined with the FAA rebate.

FREEFLIGHT's PROGRAM

FreeFlight's Bridge Rebate Program applies to the company's Rangr Blue product line—the FDL-978-XVR and FDL-978-XVR/G 978 MHz-based ADS-B systems—and its 1203C WAAS/GPS sensor. It does not apply to the company's lowest-priced Rangr Lite systems. Purchasers will receive a $500 rebate after the system has been installed and a rebate form submitted. The company also is offering a $100 "thank you" rebate for customers who took delivery of eligible systems after Jan. 1, 2016.

Customers interested in receiving bridge rebates must take delivery of their FreeFlight product by Sept. 30, 2016, or when the FAA's ADS-B Rebate Program goes live later this fall—whichever comes first. Systems must be installed before the end of the year.

The FreeFlight program is not limited to one rebate per owner, and opens the door to multi-aircraft operators, such as flight schools and fleets.

More information on FreeFlight's Bridge Rebate Program is available online.

AVIDYNE's PROGRAM

Avidyne said, purchasers of an IFD540 (or IFD440 with integrated Bluetooth and Wi-Fi) plus an AXP340 ADS-B Out transponder will receive a free SkyTrax100 ADS-B In receiver, valued at $2,499.

Full details of the Avidyne ADS-B rebate are available online.

NavWorx ADS-B $200 Rebate effective Now & Beyond the $500 FAA Rebate Program

NavWorx, Inc. announced June 22, a temporary price reduction on its ADS600-B, a certified UAT providing ADS-B Out and In that meets the requirements of the FAA's mandate for ADS-B equipage. The ADS600-B is available for $1,799.00 with the $200 price reduction effective immediately.

The ADS600-B is regularly priced at $1,999.00. With the NavWorx rebate of $200 plus the recently announced FAA rebate of $500, the resultant equipment cost is just $1,299.00, the lowest price ever for a certified ADS-B Out/In solution.

To take advantage of the NavWorx $200 Price Reduction, order today. Offer ends July 31st. Buyers can also lock in the $200 Price Reduction with a 10% deposit today for installation in Fall 2016 under the FAA Rebate Program, saving an extra $500. For more information on the FAA ADS-B Rebate, visit http://www.faa.gov/nextgen/equipadsb/rebate/.

For further information, contact NavWorx, Inc. at 3706 Big A Road, Rowlett, TX 75089; call 1-888-628-9679 or visit www.navworx.com.

FAA's New Policy on the Use of Airport Hangars

The FAA's policy appears in the June 15th edition of the Federal Register and will take effect on **July 1, 2017.**

The new policy, like the old one, is applicable only to airports that accept federal funds for airport improvements. The new policy purges terms like "incidental use" and "insignificant amount of space". The FAA now recognizes the construction of amateur-built or kit-built aircraft as an "aeronautical activity". The change also allows the storage of non-aeronautical items in hangars as long as they do not interfere with the "intended aeronautical use" of the hangar and airport management allows this storage.

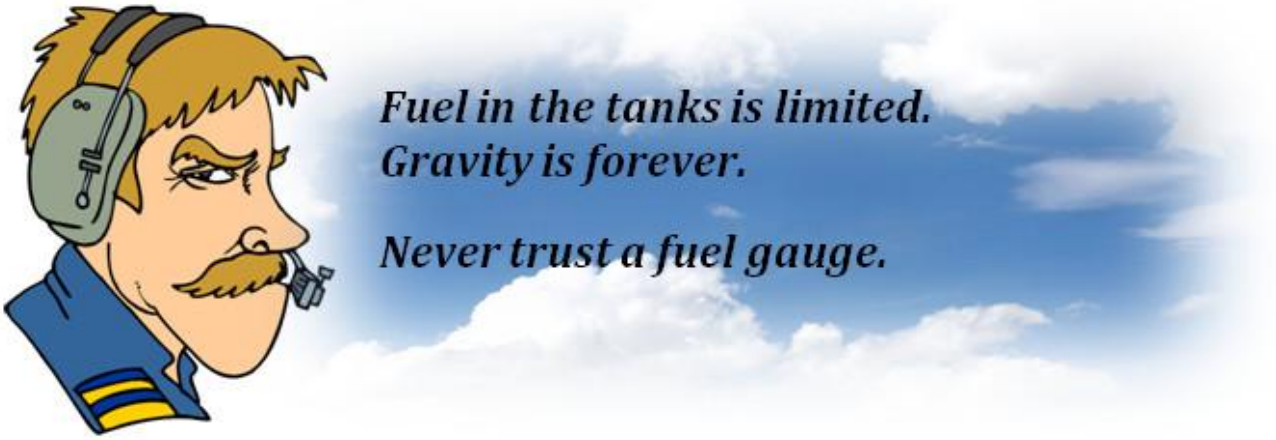
For airports with hangar capacity that exceeds demand, the FAA feels that it is better to make use of the hangars and generate airport revenue, as long as hangar capacity can be recovered on relatively short notice, when aeronautical demand increases.

New Airman Certification Standards

Applicants for the Private Pilot Airplane and Instrument Rating Airplane knowledge and practical tests are now, (as of June 15, 2016), evaluated based on the new **Private Pilot Airplane and Instrument Rating** Airman Certification Standards (ACS). These replaced the decades-old Practical Test Standards (PTS).

"The new standards are designed to adapt as in-cockpit technology changes and to do a better job of integrating the knowledge and practical tests," said David Oord, AOPA senior director of government affairs and chair of the working group that developed the changes. "The overall result will be a more meaningful experience for pilots and a test that better reflects all the things pilots need to know, do, and consider in order to fly safely."

The FAA modernized the testing standards to include equipment , used in modern cockpits, such as GPS, while eliminating some testing requirements that pertain to equipment from the past, such as NDB. The new testing standards also put a greater emphasis on scenarios and evaluation of a pilot candidate's ability to make decisions and manage risks in the cockpit rather than to memorize a list of items in order to pass the test.



GARMIN SERVICE ADVISORY NO. 1372 REV B

June 16, 2016

AFFECTED PRODUCTS

G1000, Cirrus Perspective, Embraer Prodigy, G950, and G900X systems with GDU version 14.99 or earlier, G2000, G3000, and G5000 with GDU version 4.99 or earlier, GNS 400W/500W Series with main version 5.0x or earlier, and GTN 6xx/7xx Series with main version 5.12 or earlier are affected.

ISSUE

A limited number of RNAV (GPS) approaches, including all service levels, are unavailable for selection when the approach includes LP minima and also has no published vertical descent angle (VDA). See the example in Figure 1.

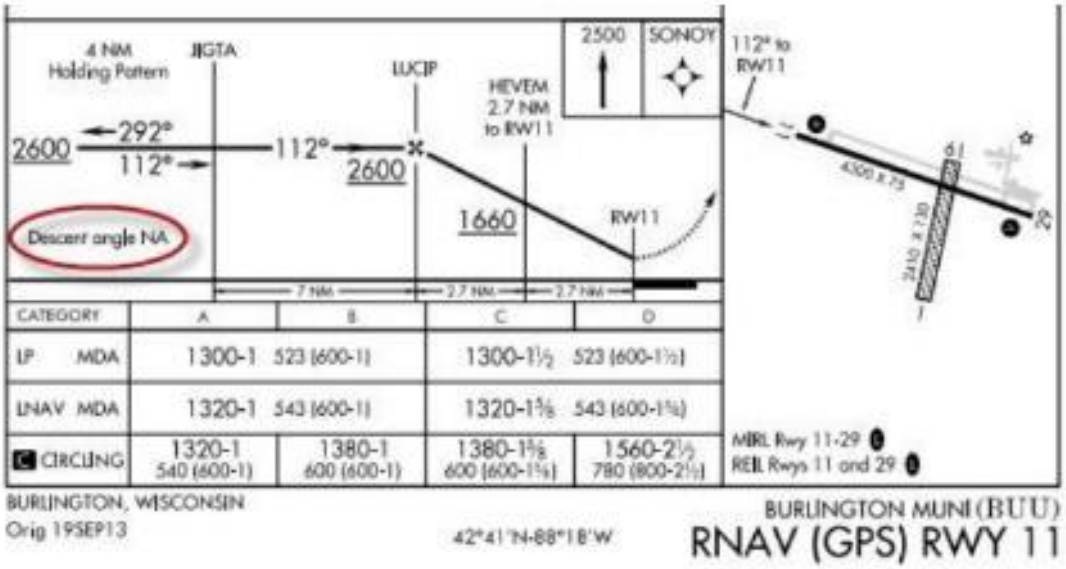


Figure 1: No Published Vertical Descent Angle (VDA) Example

PILOT ACTION

Pilots must be aware that affected RNAV (GPS) approaches are not available in the list of selectable approaches on the affected navigation systems. The pilot should always accomplish the following actions as part of flight planning activities prior to any IFR flight:

- Use the procedures page/pane on the navigation system to verify availability of procedures for destination airports in your flight plan and/or along your intended route of flight
- Check the Excluded Database Items list on http://fly.garmin.com for excluded procedures that may affect your flight

RESOLUTION

This issue is resolved in the following software versions:

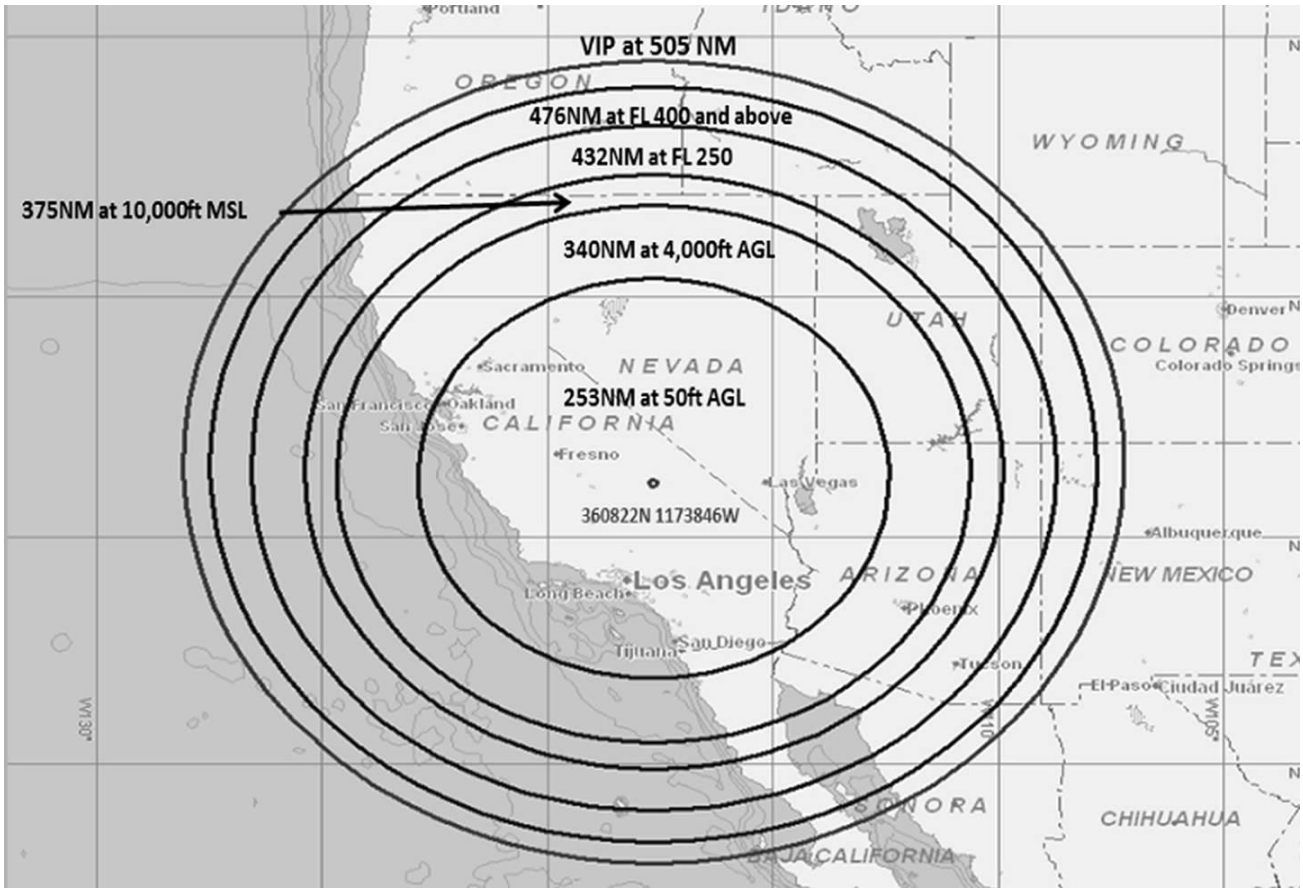
- G1000, Cirrus Perspective, Embraer Prodigy, G950, and G900X GDU software versions 15.00 and later
- G2000, G3000, and G5000 GDU software versions 5.00 and later
- GNS 400W/500W Series main software versions 5.10 and later
- GTN 6xx/7xx Series main software versions 5.13 and later

Are your Garmin devices up to date? You can check at
http://www.epilotlogs.com/members/members.php

Why does the Military Conduct GPS Jamming Exercises?

Jim Price, Co-Editor, The Mooney Flyer

Picture a giant, invisible, upside-down cone rising up from the desert floor near Naval Air Weapons Station China Lake. It ranges over 500 miles in every direction, covers more than 500,000 square miles in total, and reaches up higher than any civilian aircraft can fly. Inside the cone, GPS-related systems fail to function.



Such a planned outage was scheduled to be centered on the BTY VOR 214 degree radial at 059 NM on six different days in June, (from June 7 to June 30), running from 4:30 pm to 10:30 p.m. each day.
The outage could have affected GPS and Automatic Dependent Surveillance-Broadcast signals and "unplanned pitch and roll events" in Embraer's Phenom 300. Therefore, the 300 was cautioned to stay away from the specified area.

In early June, citing reasons that were "internal", the Navy canceled the GPS Interference Testing that was to emanate from the vicinity of the China Lake, California, Naval Air Weapons Station.

The Department of Defense conducts an estimated 50 GPS jamming events each year to train personnel to operate in an environment where the GPS signal is degraded or unavailable.

Navigation on sea, in the air, and on the ground all largely rely on GPS. Many weapon systems, like cruise missiles and GPS-guided bombs, also rely on the technology, at least partially, to hit their intended targets reliably and accurately. If the GPS signals are unavailable or unreliable, our fighting forces would be severely crippled. The enemy knows this, and our GPS satellites can be attacked in multiple ways, both kinetic (anti-satellite weaponry, orbital tampering, etc.) and non-kinetic (jamming, hacking, etc.).

C4ISRNet.com published an interview with the head of the Navy's Communications and GPS Navigation Program Office, Captain Mark Glover.

Captain Glover explained, "The GPS satellite signal at a user's antenna is very low power. To put that in perspective, a 100-watt bulb is [10 to the 18th power] more powerful than a GPS satellite signal at the receiver's antenna. Using a low-power jammer, the enemy can disrupt GPS operations.

To that end, denial and degradation of GPS can have myriad effects on our systems. Without protection, our ships, submarines and aircraft won't be able to properly navigate. Some of our sensors might not function properly, and provide erroneous information to our war fighters. Plus, time and frequency is a critical part of our communications infrastructure. Disruption of time can prevent those networks and communications systems from functioning properly, as well."

THE GROUND RULES

Before a GPS outage can be scheduled, the military proponent must submit its plans to the FAA, whose spectrum office analyzes the potential impact. That impact is then depicted graphically and sent to air route traffic control centers (ARTCCs) that would be affected. The ARTCCs and military then work together to minimize the impact on civilian aircraft, including setting limits on the duration of the jamming and the time of day it takes place. When agreement is reached between the military and the FAA, the FAA issues NOTAMS and flight advisories.

To protect civilian traffic, the FAA can call a halt to the jamming if it believes the jamming is creating an unsafe situation for aircraft, for example if navigation is impaired in the vicinity of convective activity.

The graphics depicting the impact show the worst-case scenario in order to provide a margin of safety for aircraft, and most outages have a minimal impact on civilian aviation.

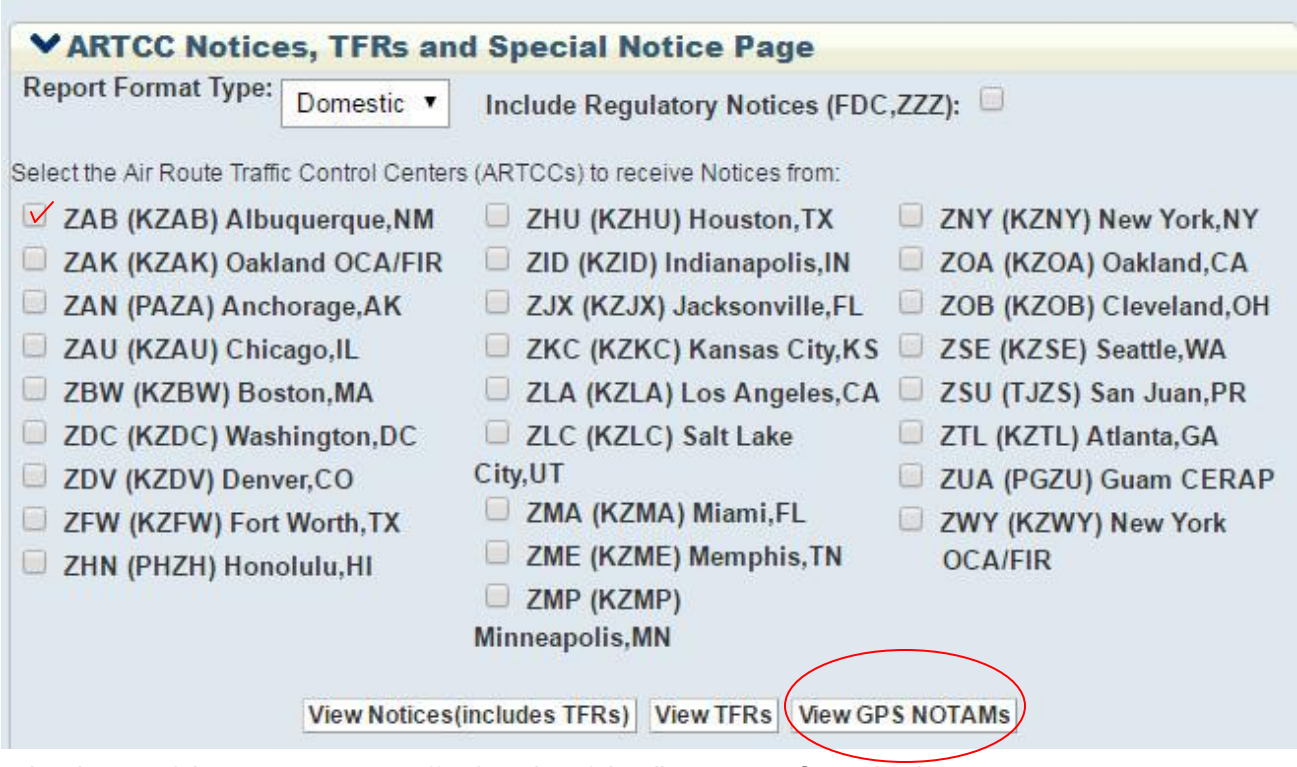
CHECKING GPS NOTAMS

GPS NOTAMS are included in the ARTCC NOTAMS,found in ForeFlight and in a ForeFlight briefing.

All the GPS NOTAMS can be found online at https://pilotweb.nas.faa.gov/PilotWeb/

Click on 

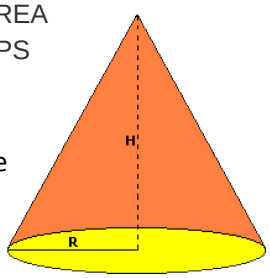
This displays all the Centers in the United States. Select the Center(s) that you want to search, and click on the "View GPS NOTAMS" button.



Below is one of the GPS NOTAMs affecting aircraft in Albuquerque Center's airspace.

ZAB ALBUQUERQUE (ARTCC), NM.

!GPS **06/134** (KZAB A0205/16) ZAB NAV (YPG GPS 16-01) GPS (INCLUDING WASS, GBAS, AND ADS-B) MAY NOT BE AVBL WI A 219NM RADIUS CENTERED AT 332343N1142152W (BLH 108023) FL400-UNL DECREASING IN AREA WITH A DECREASE IN ALT DEFINED AS: 171NM RADIUS AT FL 250, 122NM RADIUS AT 10000FT, 126NM RADIUS AT 4000FT AGL, 087NM RADIUS AT 50FT AGL. THIS NOTAM APPLIES TO ALL AIRCRAFT RELYING ON GPS. ADDITIONALLY, DUE TO GPS INTERFERENCE IMPACTS POTENTIALLY AFFECTING EMBRAER PHENOM 300 AIRCRAFT FLIGHT STABILTY CONTROLS, FAA RECOMMENDS EMB PHENOM PILOTS AVOID THE ABOVE TESTING AREA AND CLOSELY MONITOR FLIGHT CONTROL SYSTEMS DUE TO POTENTIAL LOSS OF GPS SIGNAL. DLY 1830-2230 1606251830-1606262230



If you're a "visual" pilot, you like things graphically displayed on a sectional, like the TFR graphics we've grown accustomed to. However, the GPS NOTAMs make you work for it. We do know that it's a giant inverted cone, centered on the BLH (Blythe, CA VORTAC) 108° Radial at 23nm. Directly over that point, it affects traffic at FL400 to infinity and beyond. The affects decrease in altitude, as you travel further away from the center (BLH 108023).

Rune Duke, AOPA director of airspace and air traffic said, "Anytime pilots are affected by a GPS outage event, we encourage them to report their experience. Without reporting by pilots, it's difficult to know the extent and severity of impacts."

You can report your experience via email at **gps@aopa.org** .

Clarity Aloft Headsets

OK, even the most comfortable headsets are heavy and bulky, compared to Clarity Aloft Headsets. Look at the picture to the right… They seem to float on air.

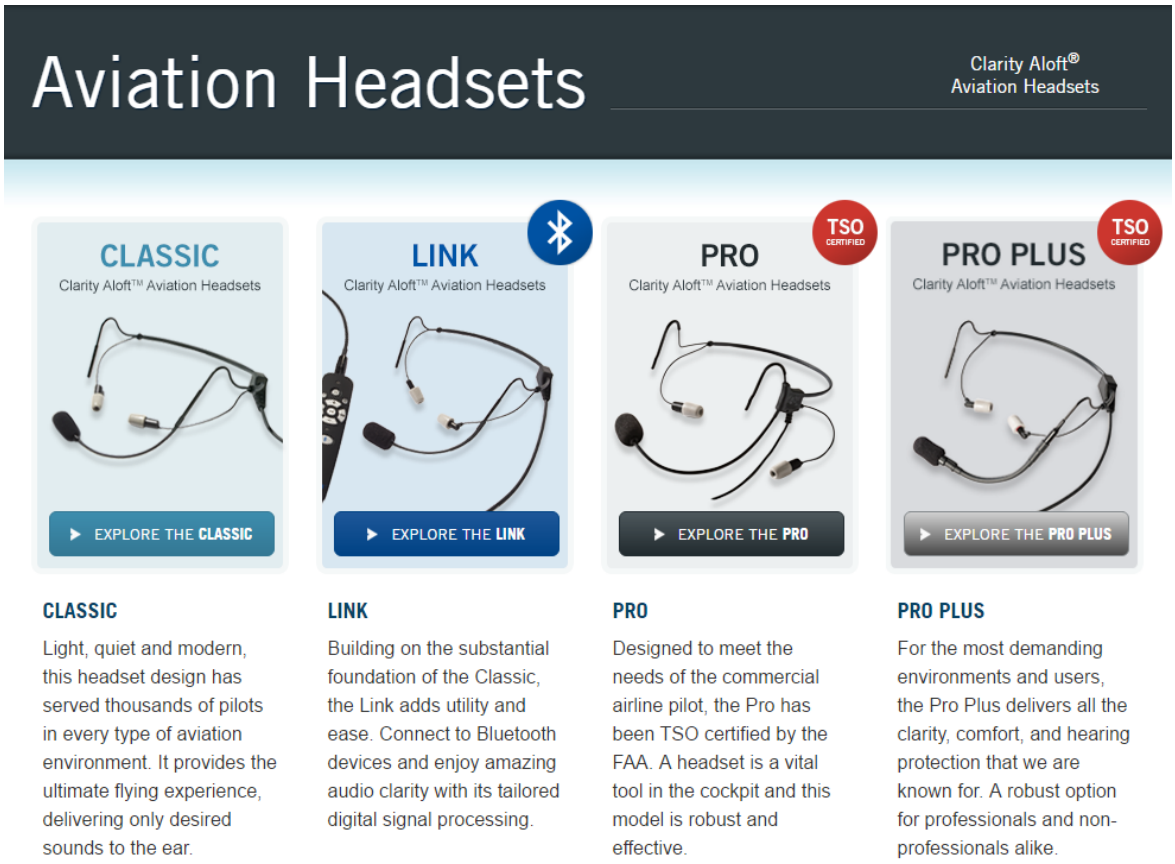
In actuality, when you are wearing them, at just 1.5 oz., you hardly notice them. Because they do NOT have to be worn over the top of your head, you can easily wear your hat, sunglasses or don an oxygen cannula without any conflicts or pressure points.

The band itself, is adjustable to fit all head sizes, including the very large heads/egos of a Mooney Pilot. Another feature we like, is the flexible boom that enables the user to position the microphone to your mouth or completely out of the way while eating or drinking.

All the headset models will function as aviation headsets with their full noise attenuation without any batteries. The Link only needs batteries to use the wireless (Bluetooth) music and cell phone functions.

The Clarity Aloft Classic, the Clarity Aloft Pro and the Clarity Aloft Pro Plus, do not have an auto mute. However, the headset is designed with a lower music volume (by 4-5 decibels) in favor of louder speech communication. As a result, pilots will never miss a communication from ATC and other pilots. Music will be produced at a background intensity, never interfering. On the LINK model, the Bluetooth unit provides automatic fade out of music. But with all four models, there is an emphasis on the sound quality and accuracy, focusing on speech sound communications for safety in flight.

Link model



CLICK HERE to go to the Clarity Aloft website.

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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.

Boris Vasilev (CFI, CFII, MEI, AGI), Phoenix Area. 602-791-9637, boris@atjeuhosting.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

Ben Kaufman, Fort Collins. (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.

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

Carl Sharon, Houston Texas. Tankman@HTSLLC.Net. 281-799-8487. CFI/CFII/AGI/A&P. Own M20E and M201J. for over 20 years. Provides initial, recurrent, flight review, Mooney transition training and maintenance assistance

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

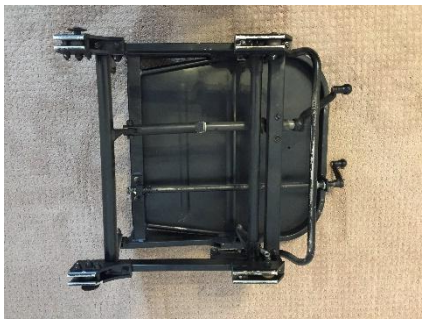
William Wobbe, Leesburg. william.wobbe@gmail.com , (713) 249-7351. ATP, SES, SEL, MEL, MES, CFI, CFII, MEI, AGI, IGI, ADX. Time in M20B through M20TN models and very familiar with Garmin G-1000, GTN750/650, and G530/430 avionics. 1600+ dual given in Private through ATP training. MAPA PPP instructor and 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.

For Sale

For sale is a single, adjustable seat frame taken from an M20K which was parted out. The item is in great shape and includes the seat back as well. This will fit the M20 series from 1980 onward. Imagine you or your front seat passenger not having to sit on uncomfortable cushions for hours on end, only to have them slip and cover your access to the trim wheel. Your passenger will thank you for allowing them to sit high enough to see easily over the panel. Asking price is $2,000 and will be shipped free of charge. Contact me at flyboy0681@GMAIL.COM or call 954-755-8594



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

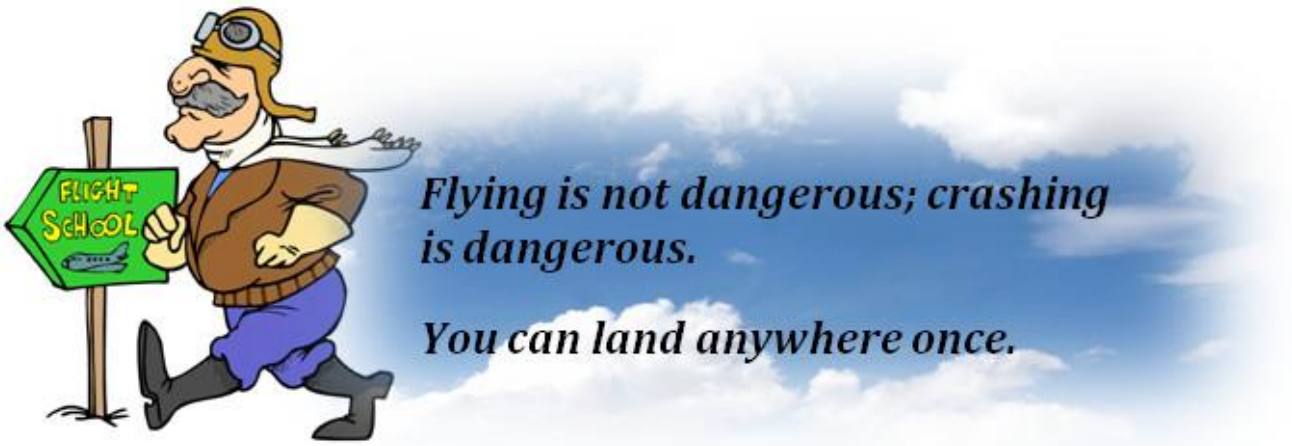
Mooney Cover

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

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



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1978 Mooney 201VL
$ 92,500

mbmaksymdc10@aol.com
AIRCRAFT SERIAL# 24-0398
Lycoming IO-360-A3B6D
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