The Mooney Flyer

The Official Online Magazine for the Mooney Community

www.TheMooneyFlyer.com

May 2022

Editors

Phil Corman | Jim Price

Contributors

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

Departments

From the Editor – *Nobody Asked; just our Humble Opinion*

Mooney Mail – *Feedback from our Flyer readers.*

Ask the Top Gun –*Tom Rouch answers your questions*

Product Review – FlightRadar24 App

Upcoming Fly-Ins – *Fly somewhere and have fun!*

Have You Heard? – *This month's Relevant GA news & links*

Mooney CFIs – *The most comprehensive listing in the USA*

Features

If you love ***The Mooney Flyer*** and want to keep it healthy, just click on **the "Donate" button**.

Subscribe and we will email you when a new issue is published.

Find all the back issues (starting in 2012) or use our powerful search engine to find a past article.

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

From the Editor

Phil Corman

It's Our Tenth Anniversary at The Mooney Flyer

We started out in May 2012 and have published 121 consecutive issues of The Mooney Flyer!!! It has been an amazing run with AMAZING READERS. We never had thought we would still be around. It started out as a way for us to give back to the Mooniac Community. It is a labor of love, but we get more back from our readers.

To commemorate the occasion, we are having our second "ever" Donation Drive. We hope you will consider donating to The Mooney Flyer to aid us in keeping it afloat.

We are thrilled to start our second decade and hope you will continue to be with us on this journey.

Getting Older

As "Vintage Mooney Pilots" grow older, lots of things happen. Let's look at these "things."

Diminished Reaction Times

Our agility and reaction times degrade. It's just a fact. Our brains get a little slower, our eyes get a little less focused, and the list goes on and on.

The good news is that a lot of this is offset by the amazing years of experience.

We learn a little more slowly

This is exacerbated by the rapid influx of modern technologies that we continue to introduce into the cockpit, namely glass panels, iPads, and the like. My grandkids learn how to deal with technology faster and easier than I do. Getting old sucks.

The good news is that there are a prolific number of books, simulators, and instructors that can safely acclimate us to recent technologies.

I've always felt that a Pilot Certificate was not a license to fly, but a license to continue learning about flying. As you age, exercising your mind becomes even more important. Our brain is just a big muscle. Exercise it by learning more about flying your Mooney every day. Don't give up on learning. It will help to keep your mind sharp, and your body will follow. Eat right and get cardiovascular exercise every day.

Our Bodies and Minds

Older pilots become fatigued more quickly than younger pilots. I laugh when older pilots procure long range fuel tanks because the fuel in my Mooney will already outfly my body. The thought of a 6-7 hour leg sounds excruciating to my tired old pilot's body.

Hydration becomes more important as we age. We should hydrate before and during your flights. Learn how to relieve your bladder enroute as it's safer to be hydrated, especially as we age.

Speaking of needing more ... we need more oxygen as we age. Don't use 12,500' as your guide to the utilization of oxygen. Oxygen is cheap, lifesaving and it reduces fatigue. I utilize oxygen above 9,000' and I feel refreshed at the end of a flight, which means that during the flight, I was more alert, and my skills were suitably enhanced.

Copilots

To reduce the workload in the cockpit, I have found that having a "copilot" in the right seat decreases workload and increases safety. My wife aids in traffic watch, changing tanks, noticing stuff and assisting in different aspects of the flight. It's a great form of redundancy and good for my forgetting mind.

Insurance

It's unclear to me why older pilots are higher insurance risks. I have yet to see actuarial data that supports such a claim. Nonetheless, insurance companies seem to start spiking insurance beginning around age 70.

This year, a dear friend turned 85 and for a while, he could not find insurance at that ripe age. He initiated the selling process of his beloved Mooney, which I think broke my heart as much as his. I returned from a month overseas to find that Dave had found some suitable insurance and was planning to keep his Mooney and fly another year. This made my entire month.

The Big Question

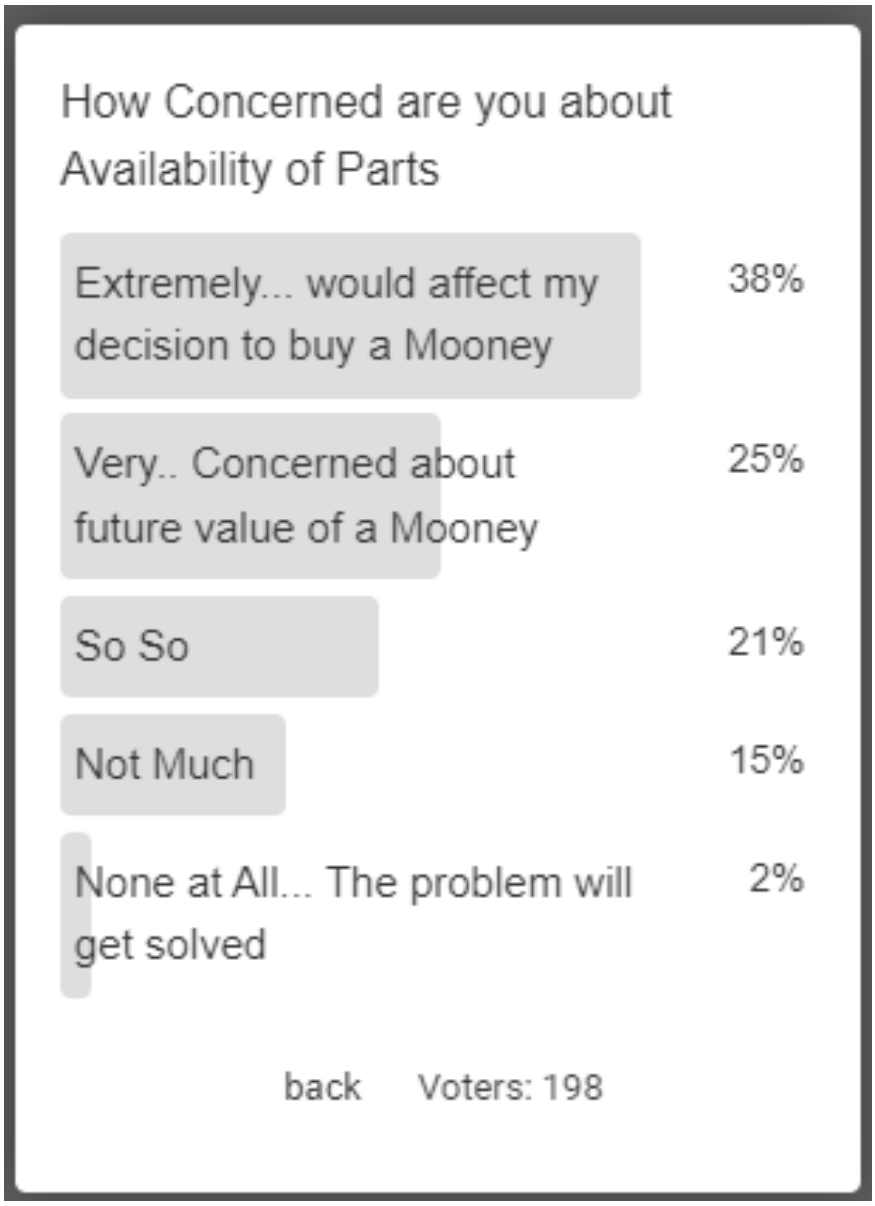
Harry Moyer

I turned 70 years old last month. It caused me to ask myself, "To what age do I hope to be able to continue flying?" There are two answers. The first answer is "forever," but the second answer is "until my skills make me less safe than I insist they remain." I live in Paso Robles, California, near San Luis Obispo (KSBP). That is where, on October 30, 2020, Harry Moyer celebrated his 100th birthday with a solo flight in his Mooney M20E. On that date, Harry set a record as the World's oldest active pilot. I aspire to do that, but don't know.

For now, I will take it day to day, but I will also not be in denial, refusing to acknowledge that I don't have the same body, mind, rapid skills and duration that I had at age 30.

Taking All This Into Account

As I plan each flight and then execute it, I progressively become a responsible and safe pilot.



Next month's poll: "My Significant Other" **CLICK HERE** to vote.

Letters to the EDITOR

TheMooneyFlyer@gmail.com

Great articles this month! All hit close to home for me.
Kevin Knight writes an article in the April edition of The Mooney Flyer, “Glass Class”.
It wasn’t clear to me if he was advocating real glass or plexiglass options.
Bob W

Jim Price's article on insurance really hit home to me. I received a form letter from my insurance carrier, Starr Aviation Insurance, that when my policy comes up for renewal in June it will NOT BE RENEWED! I have been doing most of the things Jim recommends but to no avail. So, Jimmy Garrison of GMax/All American will be brokering my plane starting later this month or in May. I still plan on attending the June 4/5 Fly into Walla Walla, I have not missed one ever since Henry started hosting these great events. However, this year I will be attending via Corvette.
Dave B

Post Flight Gripe Sheet: Controls feel Mushy

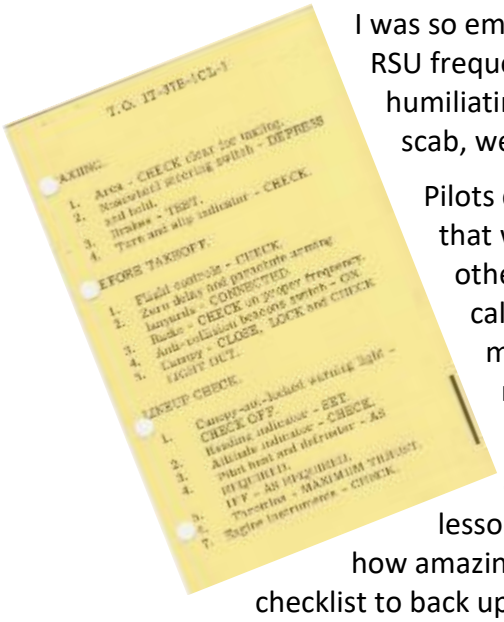
Always Reference the Checklist

I attended (and completed) USAF Pilot Training at Vance AFB in Enid, Oklahoma. In late 1970, toward the end of our T-37 Training, our beloved Flight Commander, Major Harold "Biggie" Mund announced, "Guys, we have just been given some extra time and a few more airplanes. Lieutenants Price and Maybe, I want you to grab your gear, preflight your airplanes and fly to the practice areas. Have a fun time."

The T-37, an unpressurized jet trainer, was built by Cessna. It had two extremely high pitched engines. This attribute earned it the nicknames of "Tweet," "Tweety Bird," and the "6,000 pound dog whistle".

Sensing a great urgency in Major Mund's voice, I quickly performed a preflight and started the engines. I gracefully taxied to the end of 35 right, which we called it the "inside runway". This runway was used solely by the T-37s. Vance Tower did not control it, but instead, control was maintained by T-37 Instructor Pilots who were qualified Runway Supervisory Unit (RSU) controllers.

When all was in order, I announced that I was ready for takeoff. Upon clearance from the RSU controller, I taxied onto the runway, advanced the throttles to Military Power (full thrust) and started my takeoff roll. I was so excited to be able to fulfill this last minute mission to slip the surly bonds. I felt so manly because I would be flying for the next hour in my very own Tweet and helping our flight fill the schedule. After I took off, I decided that I did not need to refer to the after takeoff checklist. After all, I had accumulated almost 100 hours and being a He-man pilot, I knew the checklist by heart. Onward I soared, so proud that I had departed in record time. Then, I heard the RSU controller snidely say my callsign and added, "How about raising your landing gear. It will climb much better."



I was so embarrassed because I knew that some of my classmates were listening to the RSU frequency. To make things worse, I knew that they wouldn't let me forget this humiliating event. No sir, because in the Air Force, there is a saying, "If you've got a scab, we'll pick it."

Pilots don't get their personal military call signs because of something they did that was spectacular. These call signs are generated because of shortcomings, or other odd physical attributes. For instance, one Naval student pilot earned the call sign "Speed Bump" because he was always doing things wrong – a total mess up. Another was assigned "Beak" because he had a really prominent nose.

Gratefully, I didn't earn the nickname of "Fixed Gear" and only had to endure some teasing for a couple of days. However, I learned a valuable lesson and it's a lesson that has been indelibly etched into my brain: No matter how amazing I think I am, or how comfortable and proficient I feel, I will always use the checklist to back up my incredible self.

The First Checklist

Checklists were not a part of flying prior to a crash on October 30, 1935, at Wright Airfield in Dayton, Ohio. A small crowd of Army brass and manufacturing executives watched as Boeing's Model 299 test plane taxied onto the runway. It was sleek and impressive, with a hundred-and-three-foot wingspan and four engines jutting out from the wings, rather than the usual two. The five man crew was led by Major Ployer (Pete) P. Hill. The co-pilot was, a Boeing employee, Les Tower. The plane roared down the runway, lifted off smoothly and climbed sharply to three hundred feet. It then stalled and crashed in a fiery explosion. Three of the five survived, but Les Tower and Major Pete Hill died. At least an air base was named after Pete – Utah's Hill Air Force Base. While managing this complex aircraft, Hill had forgotten to release a new locking mechanism on the elevator and rudder controls and the crash nearly bankrupted Boeing.

A group of test pilots got together and considered what to do. They knew that Major Hill was the U.S. Army Air Corps' Chief of Flight Testing, so requiring more Model 299 training was not the answer. Instead, they ingeniously produced the first checklist for pilots/aircrew, with step-by-step checks for takeoff, flight, landing, and taxiing.

Boeing Model 299

The Army eventually ordered thousands of the Boeing aircraft, which became known as the B-17 Flying Fortress.

"Do List" and "Flow Checklist"

The "do list" is a common checklist method where an item is read from the list, the appropriate action is taken or confirmed in the cockpit, and the pilot moves on to the next item. Because it requires no memorization, or aircraft familiarization, the pilot can safely configure an aircraft. But the "do-list" method has two disadvantages.

- It is an inefficient way to progress through any phase of flight. Moving the eyes and mental focus repeatedly from the checklist to the various switches, knobs, and screens in the cockpit—and then back to the checklist, slows checklist progress.

- Because the eyes are darting all over the cockpit and the checklist, this reduces the overall safety in the cockpit and increases the possibility that the pilot will forget which item is next on the checklist.

The "flow/checklist" is far superior from a safety perspective, especially when it comes to single-pilot operations. How does this work? First, the pilot conducts a specific sequence of memorized actions without reference to a checklist. It helps tremendously when the flow is done from left to right or in a circular pattern. For instance, before starting your Mooney, you might start at the Ignition, Master and Alternate Switch(s) to ensure they are off. Then, move right and check the other switches (pumps, lights, trim, etc.). Then, look down to check the cowl flaps are open and the heat and defrost are off. Eyes back to the panel to check more light switches, circuit breakers, etc.

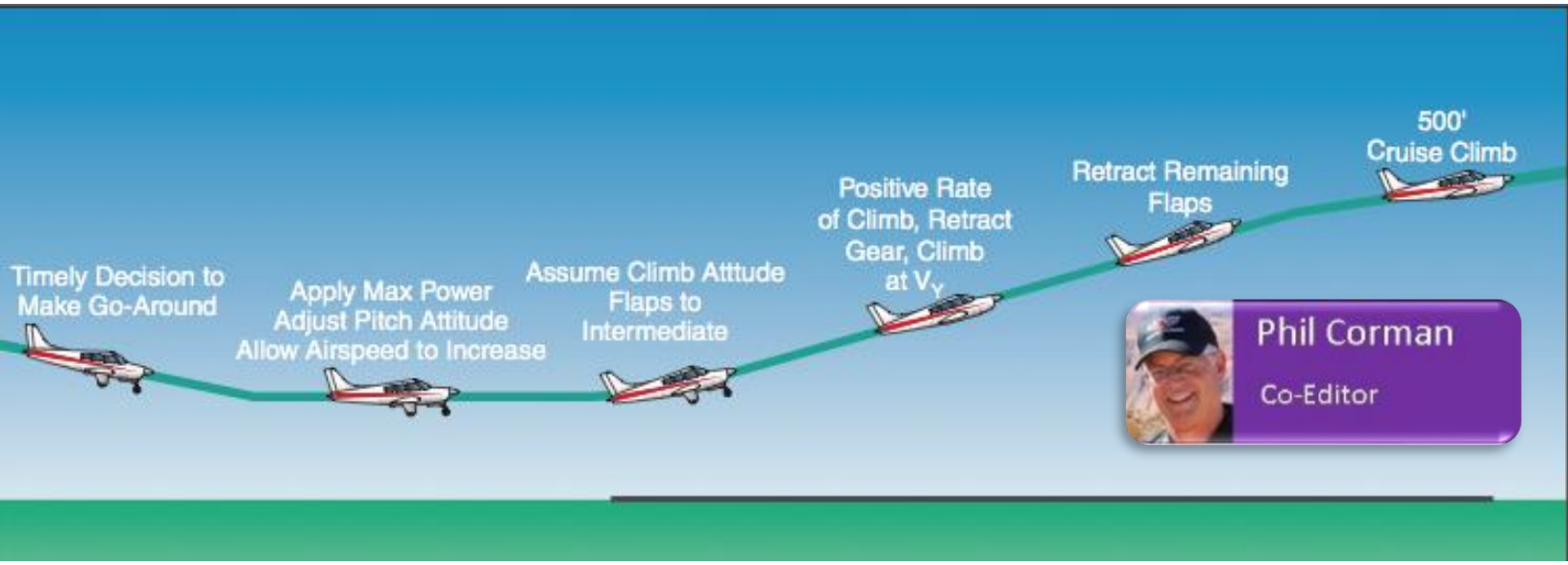
Once this "flow pattern" is completed, the pilot reads the corresponding checklist **aloud**, visually confirming that the actions were taken as the checklist is read. Because there is less back-and-forth movement of eyes and hands, it's less likely the pilot will skip a line. In addition, the flow/checklist has the advantage of redundancy. Should the pilot forget a step in the flow, the checklist will catch it.

With time and repetition, memory jogs won't be required any longer, and the flow can be done strictly from memory. As pilots in single-pilot operations have only themselves in the cockpit to catch mistakes, the redundancy of the flow technique is especially valuable.

The flow/check technique doubles the safety, which is not bad for something that's also quicker and easier to accomplish.

Your Passengers will Adore You

A passenger commented after a flight, "I felt very safe because I could see that you always used your checklist."
Wow! I will always remember how this made me feel.



Round Round Go-Around... I Go-Around, Yeah...

Growing up, I loved that song by The Beach Boys and it is my tune, whenever I initiate a Go-Around in my Mooney. We get emails from readers asking if a Go-Around in a Mooney is different than most other GA single engine pistons. The answer is YES.

Here's how I do a Go-Around and it has worked perfectly in each Mooney I have owned.

Before I get into the technique, if you are asking yourself if you should do a Go-Around, let me first say that initiating a Go-Around is always the right decision.

We go around for a number of reasons, including:

- There is something on the runway. Maybe it's an airplane, a vehicle, an animal, or a person.
- The approach is not stable. Maybe you have too much airspeed or are making too many flight control corrections.
- There is a tough crosswind and you are having difficulty holding the runway centerline.
- You have too much vertical descent.
- You are on final and you feel that you are too close to the airplane ahead.
- Oops, I forgot to lower the gear.
- The approach just doesn't feel right.
- Whatever the reason, going around is always the right decision.

On short final, or before if you prefer, it is wise to set the Prop to HIGH RPM and the Mixture to a Go Around setting. If they are set, you won't need to worry about them in the middle of your Go-Around.

Step 1:

Arrest the descent with some power, but do not rush to FULL power. It doesn't take much power to stop a descent, level out and start a climb. Why? On a stable approach, I will have adjusted my TRIM nose up, which makes my landings simple. If I add too much power, too quickly, I will get an uncomfortable and unsafe nose up attitude at a slow airspeed. This is never good.

Concurrent with the addition of power, begin adjusting the trim to the TAKEOFF setting.

If there is an airplane on the runway, I usually side step to the right so as to be able to keep him in sight during my go around.

Step 2:

Begin retracting the FLAPs to takeoff setting. Don't do this too quickly as you are still low and slow and your Mooney will sink as the flaps retract. Make sure you have some vertical climb and ample airspeed to address the sink.

Another advantage of Going Around is that you get to log another 5 minutes of PIC time

Step 3:

After the flaps are at takeoff position, and you have a positive rate of climb, it's time to retract the gear. There was an accident at Scottsdale (SDL) where the PIC retracted the gear with full flaps and pancaked into the runway. So doing the gear retraction at this point is worthwhile.

Step 4:

Adjust Power to Wide Open Throttle for best climb. Ensure your Mixture is rich enough so that your engine does not quit. My checklist on final is to adjust the Mixture for a Go-Around so I don't have to think about it in the heat of the Go-Around.

Carburetors, Fuel Flow, and CHTs

by Richard Brown

Pilots with an O-360 will be interested in this article. However, those with fuel injection will know someone with a carburetor, so keep reading and you can share your newfound knowledge with them. I hope that my carb replacement experience will help others when they arrive at that point in Mooney ownership.

About a year after I bought our Mooney, I had an EDM 830 installed. That was in November 2017. I also bought a carb temperature sensor, but the shop was not able to install it in because the carb was so ancient that it didn't have a spot in which to put the sensor. The shop said the carb could be sent out, drilled, and tapped, but I decided to leave the sensor out and put it on the shelf.

Replacing the Carburetor

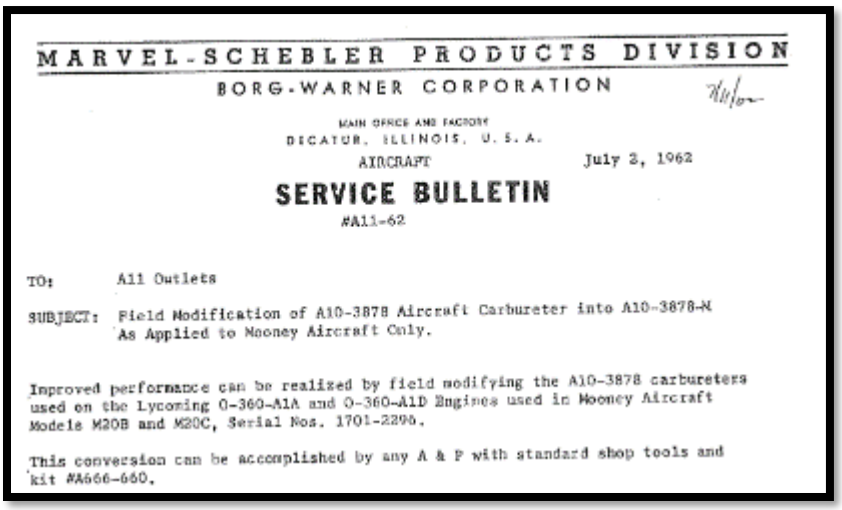
In October 2019 I decided to replace the carb with an overhauled one. There were three reasons for the replacement:

1. According to the logbooks, the last time mine was overhauled was 1997 (22 years ago)
2. This carb would allow me to install the carb temperature sensor
3. Because it was an overhauled unit, the plane would only be down for one day

There are two carburetors listed for the Lycoming O-360A1D:

- 10-3878
- 10-4164-1

In addition, Marvel-Schebler has published a bulletin to modify the 10-3878 (in Mooneys) to increase the fuel flow (FF) at Wide Open Throttle (WOT) for better cooling. Essentially, this modification makes it the same as a 10-4164-1. The bulletin can be accessed and downloaded from my website here. When the procedure is complete, the carb is supposed to have an "M" stamped on the name plate to identify that the modification has been done. Additionally, the listing of eligibility from Marvel-Schebler is available on their site here.



MARVEL-SCHEBLER PRODUCTS DIVISION
BORG-WARNER CORPORATION
MAIN OFFICE AND FACTORY
DECATUR, ILLINOIS, U. S. A.
AIRCRAFT July 2, 1962

SERVICE BULLETIN
#A11-62

TO: All Outlets

SUBJECT: Field Modification of A10-3878 Aircraft Carbureter into A10-3878-M As Applied to Mooney Aircraft Only.

Improved performance can be realized by field modifying the A10-3878 carbureters used on the Lycoming O-360-A1A and O-360-A1D Engines used in Mooney Aircraft Models M20B and M20C, Serial Nos. 1701-2296.

This conversion can be accomplished by any A & P with standard shop tools and kit #A666-660.

The Carb Swap

The carb that was in my plane was a 10-3878 and it did **not** have an "M" stamped on the name plate. I went through the engine logbook and found that it was a 10-3878 that was installed when the engine was overhauled.

Like any smart Mooney owner, I realized that what was in the plane was working, so rather than buy a 10-4164-1 I bought a 10-3878 and had my AP/IA swap it out.

I immediately noticed that I did not have the same FF as I did before the swap. Climbing out, I had to back off the RPM to keep my cylinder's from getting too hot. This was not something I had to do previously, and it is not something I like doing. WOT and full RPM to cruise altitude is Standard Operating Procedure (SOP). Besides, who buys a Mooney to fly slow?

In addition, the doghouse on my plane is in exceptionally good shape. I had replaced the baffling around the cowl opening and the felt around the starter/generator, so I knew that I was not having air flow issues. The only change to the system was the new/overhauled carb. Logic says that is the problem. I kept track of the data from my EDM 830 and contacted Marvel Schebler.

Prior to swapping out the carb

The average high FF at WOT was 16.2 GPH with an average high #3 CHT of 408°. The highest CHT temp I ever saw on #3 was 420° and that was when I was departing Chandler, Arizona in the afternoon, late in June 2019. It was so hot in Chandler that the aircraft skin was too hot to touch, and I had to wear gloves to pre-flight. All these CHT temps were taken when running full RPM and WOT. The only measure taken to reduce CHT's was climbing out at 120 mph. These numbers were taken from seven flights in the hotter months, June-Sept 2019,

After swapping out the carb

The average high FF at WOT was 14.8 GPH with an average high CHT on the #3 of 434°. The highest I saw on #3 was 453° when departing Fullerton, California in November of 2019. This was much cooler than Arizona in June. On these flights, I had to reduce RPM and climb out at 120 mph+ to try and keep the CHT's cooler. Had I left it at WOT and full RPM, the CHT's would likely have climbed much higher. These numbers were taken from fifteen flights over Oct 2019 – Feb 2020, which were much cooler months than the first set of flights with the old carb.

Keep in mind that there are no adjustments that can be made to increase the FF at WOT. I went back and forth on emails with Marvel-Schebler. Each time, they recommended that I check different things. I gave them the serial number of the carb that went in my plane. They confirmed that it bench tested at 16.7 GPH at the factory and they expect 16-17 GPH on that model. After research, I was able to find people discussing a "Mooney Mod" for the carb but could not find anything specific, other than a few people that noted it was supposed to improve FF. Further inquiries to Marvel-Schebler resulted in them providing me with bulletin A11-62, which is linked earlier in this article. It involves conversion kit 666-660, which in 1962 was $12.80, but now is $228 from Aircraft Spruce or $244 from Marvel-Schebler, (if you can get it).

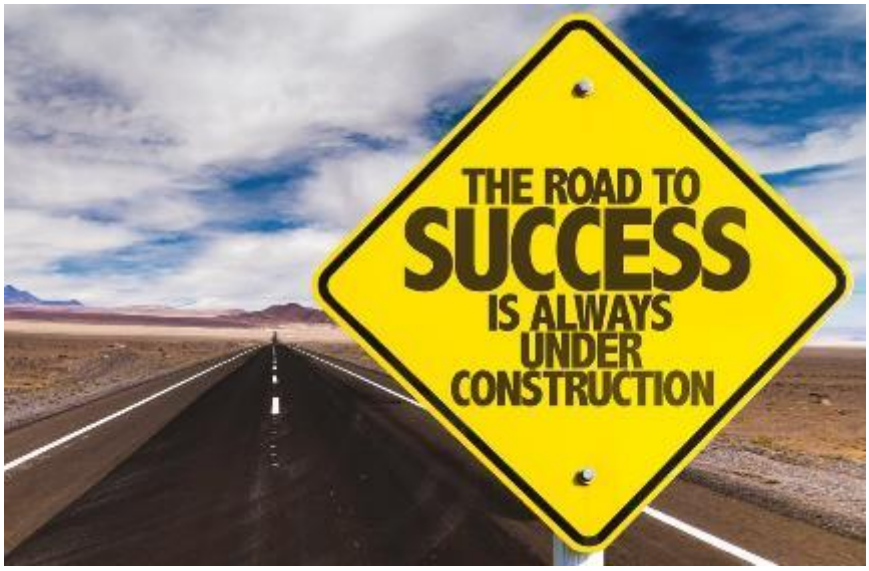
https://www.aircraftspruce.com/catalog/eppages/carbconvkit.php

https://msacarbs.com/product/conversion-kit-666-660-f/

Purchasing a 10-4164-1 Carburetor

I took the Service Bulletin to my AP/IA and asked if he would tackle it. He said no, he would have to send it out to a carb shop. After considering the price of the kit, plus the cost of the carb shop to perform it,

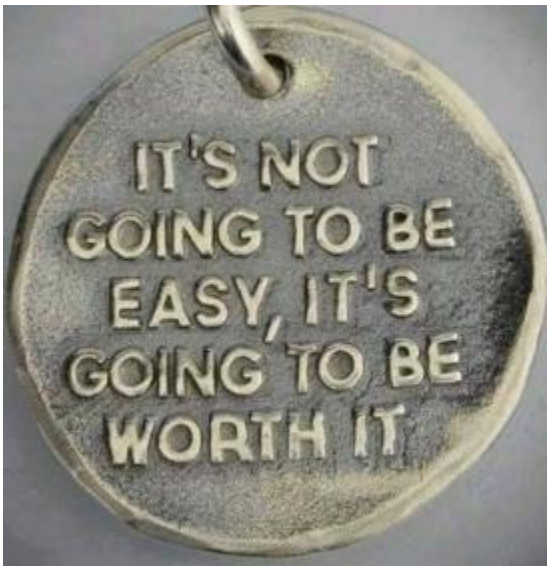
plus the week+ down-time to pull the carb, send it out, and reinstall, I decided to purchase the overhauled 10-4164-1. This way, it would be a one-day swap.

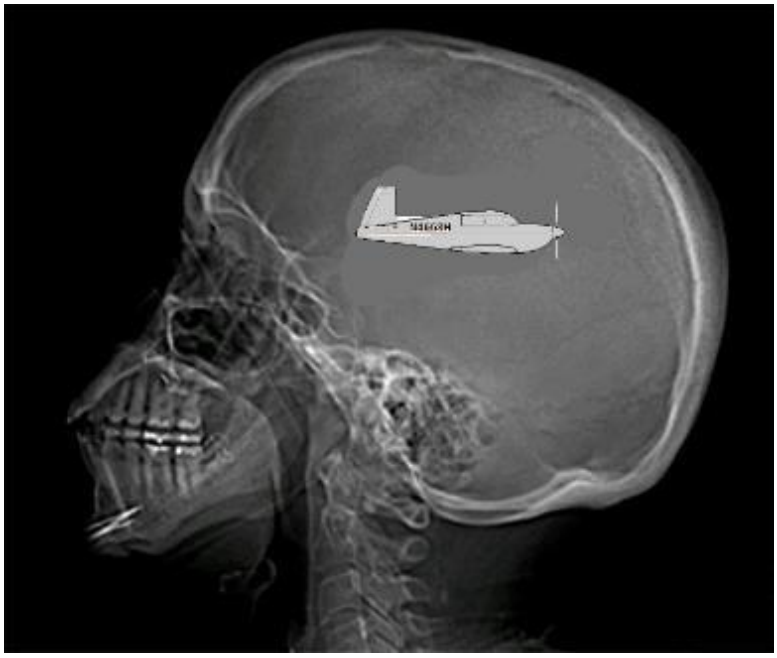


After installing the 10-4164-1, the average high FF at WOT was 16.3 GPH, with an average high #3 CHT of 411. The highest I saw on #3 was 425. This was over six flights in March – April of 2020. Like the flights in the first test group, nothing was done to mitigate the CHT's other than climbing out at 120 mph. These numbers are similar to what I was seeing with my old carb. My only conclusion is that the 10-3878 that was previously in my plane must have had the modification, but it was not noted in the logbook nor was an "M" stamped on the plate.

The increase of 1.5 GPH FF cooled the CHTs, decreasing their temperatures approximately 25**°**F. However, this is a lower number than what it would actually been when I was backing off on RPM to keep the CHTs down. With the higher FF, I was not backing off RPM. It appears that an increase of even 1 GPH of FF at WOT and full RPM is probably worth a CHD temperature decrease of at least 20**°F**.

If you are looking to replace the carb on your O-360 A1A or A1D, I strongly recommend the **10-4164-1**. It is the richer of the two carbs. If you are having issues with high CHT, I think it is worth looking at your FF at WOT and full RPM. If you are not seeing 16+ GPH, you are likely seeing CHTs that are 25+**°** higher than what they should be. As always, thank you for taking the time to read. If there are things you would like me to write about (or not write about), or if you just want to say hello, drop me an email at richard@intothesky.com.





Wisconsin Aviation Expands Aircraft Interiors Service with the Acquisition of Jaeger Aviation & Its Spatial Interior

Wisconsin Aviation, Inc., announces the expansion of its aircraft interiors department with the acquisition of Jaeger Aviation, based in Willmar, Minnesota.

With its roots stemming back to 1945, Jaeger Aviation's sixty-four years of specializing in Mooney Aircraft sales and service made a new interior design for the vintage Mooney a natural. The "Spatial Interior," as this new design was labeled, allows for a simpler and better way to increase cabin space and expedite service while giving the Mooney a look it deserves. The Spatial Interior, now 15 years in the making, is recognized worldwide.

For more details, visit:

www.WisconsinAviation.com or www.JaegerAviation.com

Wisconsin Aviation's aircraft interiors department, located in Watertown, Wisconsin (RYV), accommodates all types of general aviation aircraft. Its services include minor repairs to complete customized interior replacements. The Jaeger Aviation products and experience will help continue to grow this department.

Wisconsin Aviation offers a complete line of general aviation services including air charter, aircraft maintenance, avionics repair and installation, flight training and aircraft rental, aircraft management, aircraft brokerage, and fueling services. The corporation has locations in Madison, Watertown, and Juneau, Wisconsin.

For more information about Wisconsin Aviation, send email to Interiors@WisAv.com or call 920-261-4567.

Taking a Mooney Out for a Spin

Twenty Third in the series by Ron Blum

If you've ever thought about taking your Mooney out for a spin, you're not thinking clearly because intentional spins in Mooney M20-series aircraft are prohibited. There should be a placard on the instrument panel that states such. The placard for the M20M "Bravo" is illustrated in Figure 1 below. In this article we'll talk about stalls, spins and spirals. The differences between them. What makes them better … or worse. And some not so good statistics about their outcomes. Let's get started with a few definitions.

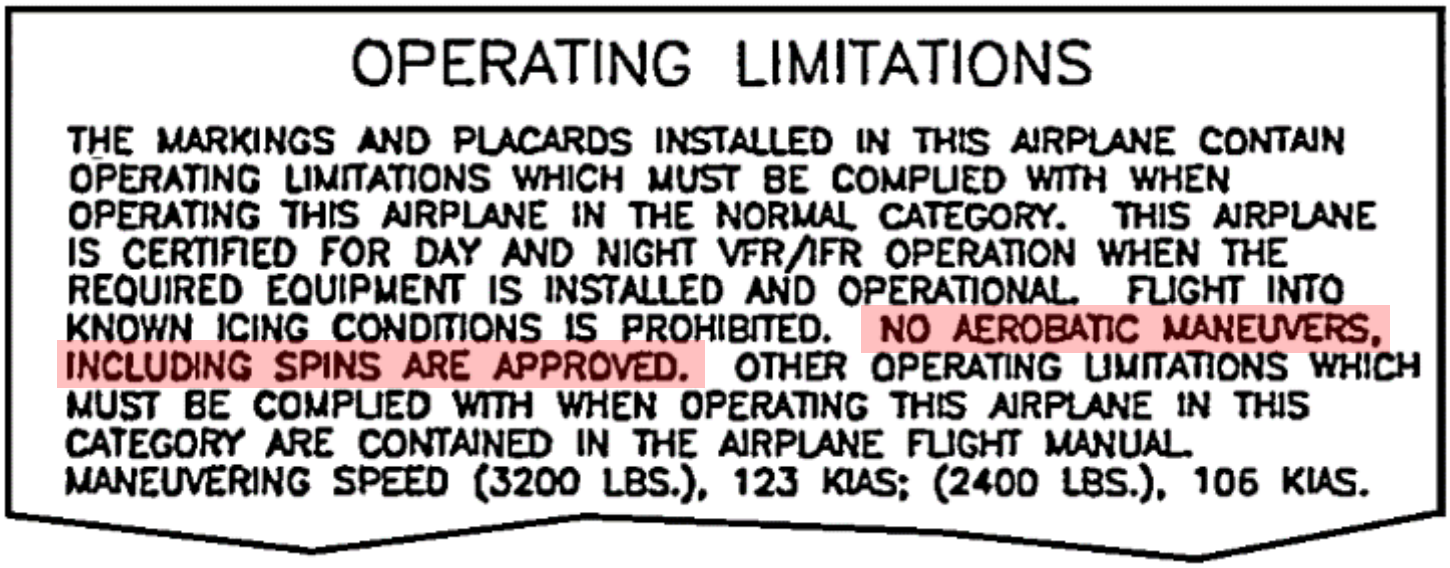


Figure 1 – "Operating Limitations" Placard

A term we all know well is "stall," but there is more than one definition of stall. Two frequently-used definitions of stall are: 1) "aerodynamic" stall, where separated airflow on the upper wing surface can no longer support the load (weight times G-load) of the airplane and 2) "Mushing" stall, where the wing is still flying, but there is not enough tail (elevator) power to have the wing reach the stall angle of attack (AOA $_{stall}$). Because the Mooney tail is very powerful, a Mooney is a great airplane to look at both of these stall definitions. When the airplane is trimmed (via the stabilizer), near or into a stall, the elevator is powerful enough to aerodynamically stall the wing. When the airplane is trimmed to a much higher speed, say 1.5V_S or higher, the elevator is no longer powerful enough to raise the wing to stall angle of attack (AOA $_{stall}$) … especially with the flaps down. The airplane will simply "mush" in descending flight with the elevator on the UP stop the whole way. In the remainder of this article, we will only talk about an aerodynamically stalled wing(s).

When I ask pilots about the differences between a spin and a spiral, most don't know the difference ... this includes the majority of CFIs. Both maneuvers have the pilot looking at a lot of ground spinning around in the windshield. But the two maneuvers are actually very different and require different recovery inputs.

A spin requires a stall first … at least one wing and a yawing moment. Often the drag of the stalled wing versus the lower drag on the wing that is still flying, and uncoordinated flight or high power are a few ways to get the airplane into a spin. In a spin the airspeed will remain around stall speed, and AOA will stay above AOA $_{stall}$.

Airspeed will typically be a little above stall if the airplane is spinning to the right, and a little below stall speed if spinning to the left. That is because most pitot tubes are on the left side of the airplane.

Center of Gravity (CG) and mass (weight) distribution matters. The further aft the CG, the more likely the airplane will spin … and stay spinning. Think of two airplanes with a CG at 25%. Most pilots believe both airplanes will spin the same. Now I'll say, one airplane has a massive engine out front, big weights in the tail to offset the engine weight and lots of wing fuel. The other airplane has a smaller engine, no aft ballast weights and all the weight is basically in the cabin. The two airplanes will spin completely differently with the airplane with the big engine spinning much flatter and faster.

Read your specific Pilot Operating Handbook (POH) for spin recovery methods. However, one should never be in this situation. Ailerons should be neutral because a pro or anti-spin aileron input could be detrimental. It all depends on spin mode. Power should be at idle because power is destabilizing and will flatten and increase the rate of spin. You should stop the yaw and lower the angle of attack. The wing(s) is (are) still stalled.

On the other hand, in a spiral, both wings are still flying. If this happens after a stall, the airplane will be very nose low and rapidly gaining speed … exceeding flap and redline (V_{NE}) airspeeds very quickly. A spiral may be entered from simple control inputs or the natural stability of the airplane. Think a base to final turn. More on that in a bit. Airspeed is a good indicator if the airplane is in a spin or a spiral. Both are typically nose low, and the ground is rotating in the windshield. There is more yawing in the case of a spin and more rolling in the case of a spiral. A spin may automatically change into a spiral, and recovery must happen before the airplane exceeds redline airspeed.

Recovery from a spiral is to stop the rolling and pull. This is the tricky part. Airspeed is high and climbing, probably above maneuvering speed (V_A), and the ground is coming up rapidly. The trick is to not over G the airplane (maximum 3.8 G) and not hit the ground. If you're pulling Gs in the pattern, roll the wings level, unload and think about what you're doing. A go-around is not a bad option.

Our small, GA airplanes, if left to their own accord, will eventually spiral. As the airplane turns/rolls and airspeed builds, if left alone, the airplane will try to return to trim airspeed. But, if the bank angle is > 45°, the UP trim will only tighten the spiral. This is the same as the base to final turn. When at high bank angles, pulling back on the yoke will not cause the airplane to gain altitude, but rather it will tighten the spiral.

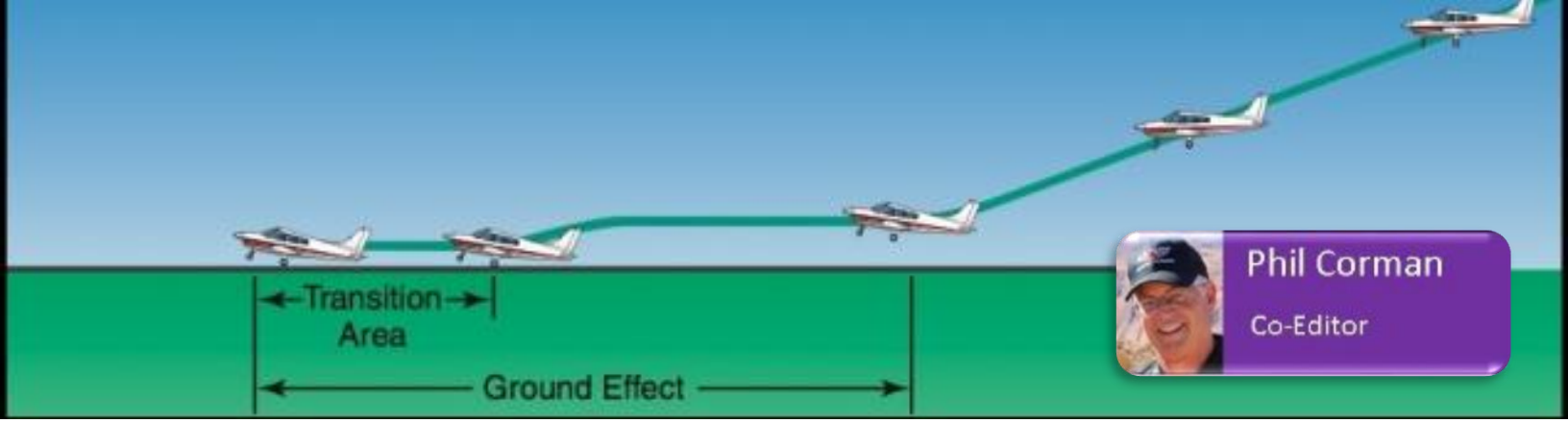
Let's end with a quick look at a few not-so-pretty statistics. 97% of fatal stall accidents … spin/spiral/straight ahead – are initiated at or below 1000'. The low altitude doesn't give the pilot enough time to recover. 89% of fatal stall accidents happen on takeoff/go-around. Why? They are at high power. 11% happen on the approach end. I would estimate most of these are not stalls at all but rather "controlled" spirals. Fly safe!

Got a future topic? Email me at solutions@blueontop.com or (316) 295-7812. Until next time keep the blue on top.

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

Blue on Top

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



Soft Field Landings

I think a “soft field” landing is a misnomer for Mooneys. Why, you ask? Because there are at least two surfaces that warrant a soft field landing. The first is the most obvious - a soft surface, such as grass or a soggy surface. But the second surface is a gravelly or stone-ridden surface. The reason I think that deserves a soft field landing decision is because our Mooneys sit close to the ground and our prop clearance is shorter than most. That makes it easy to kick stones up into the prop or the belly. A soft field landing does not eliminate this concern, but to a point, it mitigates it.

Start with Gear Door Clearance

The first consideration for a Mooney owner when planning a soft field landing happens before you even get into the plane. Start by looking at the clearance between your gear doors and the ground. Many Mooney pilots remove the low lying outer gear door so that it does not catch on tall grass and get damaged. So, take a look at your Mooney and make the appropriate decision.

The Approach

A good soft field landing begins with a stable approach at $1.3V_{so}$. Remember that V_{so} is reduced as your gross weight is reduced. The V_{so} based on your maximum gross weight, so remember to reduce your V_{so} based on your actual weight. This gives you a slightly slower touchdown airspeed.

The Runway Environment

Carry a little power until touchdown but remember that your soft field landing actually comes into play as you enter the runway environment. As you enter ground effect, hold the plane off the surface at about 1’. By doing this, you will dissipate additional airspeed. On a soft surface, this reduces any nose over possibility. On a gravelly surface, it helps you keep all that gravel away from your prop and belly.

The Touchdown

As your gear touches the surface, slowly remove any remaining power while maintaining enough back pressure on the yoke to keep the nose gear off the surface for as long as possible. This will help dissipate airspeed.

Taxiing

As you taxi, keep that yoke pulled all the way back to reduce the load on your nose gear.

Common Mistakes

Soft field landings can take some practice before you feel comfortable. Here are some of the more common problems you'll want to consider before you head out to the airplane to start practicing:

- Too fast of a descent rate, causes a hard touchdown
- Too much airspeed, causes excessive float
- An Unstable approach will make it difficult to touch down smoothly
- Allowing the nose wheel to touch down early, causes excessive stress on the nose wheel

To meet your legal obligation and help your passenger(s) have a positive experience, the passenger briefing is a must.

Before boarding, you should point out:

- We do not step on the flap. Hopefully, your flap is labeled "No Step."
- **If your Mooney has an emergency mechanism to open the Cargo Hatch from inside the cabin**, show them the Cargo Hatch and the emergency mechanism. Explain that in the unlikely event of a crash, if the main door or doors are jammed, the cargo hatch can be used to escape the aircraft.
- The boarding order is unique and explaining this helps them understand your aircraft. (PIC first, rear seat passengers next and last of all, the right forward seat passenger).

Once everyone is seated, you can explain things that will keep them comfortable, emergency items, and sterile cockpit expectations. A helpful acronym for your passenger briefing is . . .

Safety Items

Seat Belts and, Shoulder Harnesses (if installed) – These are to be fastened for taxi, takeoff and landing, (preferably at all times). 14 CFR 91.107 states that "No pilot may take off a U.S.-registered civil aircraft, [meaning other than public aircraft], unless the pilot in command of that aircraft ensures that each person on board is briefed on how to fasten and unfasten that person's safety belt and, if installed, shoulder harness.

The pilot in command also notifies the passengers prior to movement on the ground and landing that they will need to "fasten his or her safety belt and, *if installed*, his or her shoulder harness. (If your aircraft was certified after December 12, 1986, it is required to have shoulder straps).

Sterile Cockpit – The concept of the sterile cockpit has been around for decades and got its start in the airline community. Intuitively, most people know when they're busy and distractions are noticeable. We can improve our safety record significantly by reducing distraction. In single-pilot cockpits there is plenty to keep us occupied. When the workload is light it may be perfectly fine to have a casual conversation, however, takeoff and landing are obviously busy times. Historically, distractions even during taxi have led to major problems. There is much emphasis on ground operations these days. Runway incursions occur when pilots are not paying attention. For General Aviation pilots, failure to follow ATC instructions is the ***number-one cause*** of runway incursions. Why? In most cases, the pilot was distracted. In some cases, non- pertinent conversation caused just enough mental wandering to miss a hold-short line. Of course, the distraction might have been caused when the pilot was setting up the GPS or configuring the aircraft.

Stop Talking – You should explain how you will signal the passengers to "Stop Talking." For instance, if the PIC raises his or her hand, passengers should stop talking so the PIC can hear and understand a radio transmission.

FOD, Avoid it – Over the years, many accidents have been caused because loose items in the cockpit jammed up the flight controls.

Pesky Feet – Front seat passengers may not realize that the rudder pedals and brakes are sacred. Emphasize that they must keep their feet away from the pedals so you can safely control the aircraft and the brakes.

Pesky Torsos and Knees – Show the front seat passenger how far back, left and right, the control yoke travels at full-deflection. The last thing you want is for their knees or body position to interfere with flight controls when you need them.

Air Sickness

Explain how they can operate the air vents and that it will help if they should look outside toward the horizon instead of focusing their sight inside the cabin. Show them where the Sic-Sacs are located just in case the air vents and horizon tricks fail.

Fire Extinguisher + other emergency equipment

Explain how they can locate the equipment and operate if necessary.

Emergency Exits Prior to entering the cabin, explain the emergency exit. In addition, you should brief the places to avoid if you have to make an emergency exit, such as the propeller area.

Traffic It is always beneficial and enjoyable to involve the passengers in spotting other air traffic. So, invite them to search and report.

Your Questions Give your passenger(s) an opportunity to ask questions.

Your passengers will think you are an amazing professional when you start the flight with a briefing. Prepare them, so they can enjoy their experience more fully.

Santa Delivered a REDBIRD

by Jerry Proctor

By Jerry Proctor

I have two chimneys in my house. One has a significant wood fireplace. One of the mysteries of Christmas is, how did Santa get the Redbird TD2 simulator down that shoot?

Well, I have not been a bad boy this last year, but I am sure I wasn't good enough to compel Santa to give me such a wonderful gift. I have been writing letters to the North Pole for several years. Somehow, he read one.

So here it is.

I asked Phil and Jim if I could write about having a simulator, and they replied. We never know what mixed up path you are going to take every month, what is different now? Go ahead, we still aren't sure why we publish your stuff anyway.

With that enthusiastic endorsement, here it goes.

First, Santa ordered the Redbird from Austin, Texas. It took a while to arrive as the elves in Austin were back ordered. Perhaps they were building bigger and more expensive sims. Then they took a post-Christmas break. Also, Santa contracted with UPS for the multiple box delivery, so I got to know Mr. UPS well. One of the instructions from Redbird is to keep the boxes. They didn't say why, and I hate to contemplate why, so here they are. They take up a bit of space in the old garage.

They are packed, large and kind of heavy. So, when they all arrived, I noticed something missing. The table! Phone call to the Austin's substation of the N Pole, and they said, Oh, you wanted a table? Sure, send more $$$. You need a strong and specific table, so best to get the one designed for the sim. However, that will take another 8 days.

NOW it is finally all here. Um, gotta put it together. Way counter to my nature, I reluctantly looked for the directions. Item one, put table together. I will spare you the blow-by-blow details, but half the screws would not start in the machined threads of the metal frame. Now, I have known "righty tighty" since before I can remember, but these bolts were a no go into the threads. No problem! I have a workshop full of stuff and I found bolts I could force in. OK, the table is done. Now, did I accurately measure the space in my study where it was to fit?

With some shifting around, I discovered that the table is about 46" and I planned for a 48" space." Yay! So far so good!

Next, I inserted the yoke, throttle/controls module. It has a U shape to it and slides into the table, where it is screwed down. Now I am cooking! Next is the heavy monitor which sits on the top of the U of the control module. Sounds simple, but now I realize, it would be nice to be able to walk behind the table, or at least to the side. Nope! That's not happening with only one inch from the wall. Humm, I can still do this. One more key item is the computer tower. It has its own slot, and it is dummy protected because it only fits one way.

What comes next is a really cool device. It is what gives you the knobs and buttons that appear on one's G1000 panel; the autopilot buttons, the MFD and PFD control knobs. It is thick Plexiglass, with the G1000 panel attached and then wired to the computer. Cool idea. So, this carefully gets put on the monitor frame. Now this is where it really gets confusing – cable connections. The instructions talk of red, green, blue and black cords and the USB colored sockets. Perfect, 'cept, my USB sockets are not colored and the only colors on the cables are…yup, black. I assumed it didn't matter, but to be sure, I again called the Austin elves. They need to update their instructions or check for color blindness.

Now hook up the rudder pedals. Lucky for me, when Santa ordered my G1000, they were giving away free rudder pedals. I don't think I would have purchased them for $600. I am lucky, as the Redbird TD must have rudder controls to be FAA certified as a BATD (Basic Aviation Training Device) simulator. Thus, I am legally able to log instrument approaches. Phew.

So, let's turn it on. Instructions clearly show how to do that, Yes, once again, my tower has no such buttons. Elves were called again. Ok, now I know where the hidden button is, and I finally am able to turn the dang thing on.

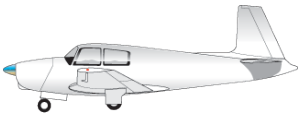
What happens next? Well, stay tuned, boys and girls because next month I will tell you all about it!

Fly safe, even if you are flying in your study!

There is a big inventory of serviceable airframe parts, including wings for M20C, E, F, G, J, K & R models, empennage assemblies, fuselages, rebuilt controls, rudders, elevators, ailerons, flaps, cowls, engine mounts, landing gear and small parts.

Paul Loewen is offering them online, or by phone. The website is www.LoewensMooneySalvage.com, and he can be contacted in Lakeport, California at **707 263-0462** or by cell at **707 272-8638.** Email is PaulLoewen98@gmail.com. The used inventory is also still available through LASAR Parts at 707. 263-0581

Mooney Maintenance



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

Click here

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

Click here

LASAR
Fanatically Mooney. Exceptionally Fast.

Ask the Top Gun

Tom Rouch

Founder of Top Gun Aviation, Stockton, California

Send your questions for Tom to TheMooneyFlyer@gmail.com

Your monthly Q&A is invaluable to me. Every month when the Flyer is published, it is the first thing that I read.

Could give me an overall explanation of what makes the Mooney Landing Gear unique? I also wonder if you could give me an overview of how the gear is adjusted? I don't plan on adjusting the gear, but would like to know the steps involved, etc.
Again, thank you so much, sir.

Tom's Answer

The question about the unique Mooney Landing Gear is I think, very interesting.

The first most notable difference is the fact that Mooney uses rubber shock discs for absorbing the impact on landing versus the OLEO struts used on most other aircraft. Those struts are pistons using air and fluid as the absorber on landing. It is very effective, and the struts can be adjusted by using air pressure to raise or lower the strut as needed. I believe that because Mooney uses one solid wing with a very strong main spar, wing tip to wing tip, it can take more shock. The rubber shock discs work, but they are not as absorbing as an Oleo strut.

We just recently removed the left wing a C-210 for sheet metal repair. The wing is held on by only a few bolts and it is easy to R&R. However, I have changed several Mooney wings and you actually lift the fuselage off the wing. This is quite a job, but very doable. Yes, the one piece Mooney wing is incredibly unique.

Back to the landing gear. Another Mooney peculiarity is that the gear system is one system connected to another, with tubes and bell cranks. From the mid-1960s, it was built with one electric gear actuator. On the early models, it operated mechanically, (powered by your arm). Most other aircraft are operated by hydraulic systems and some work all together or one at a time. By one at a time, I mean that the power source can only operate one gear at a time. (This goes back many years, like when I worked on a C-47).

For maintenance, the shock discs are really maintenance free, except there are inspection measurements that require minimum compression. After many years of use, the discs need to be replaced. When we get into the heavier models like the TLS, the discs need to be replaced more often. That's because they become too compressed. We have found on the older models, that after many years, they become hard as a rock and crack. It is not too hard to change the discs if you have the right tool. Rigging the gear requires some work to get them up in the wheel wells. This is because you have to shut the motor off at the right time. The most wear we found was in the steering system. We had a J model customer and one day, the gears stripped upon extension. This was lucky, but the pilot had to fly gear down to Australia where I was able to find a mechanic to repair the actuator. The gear actuators require the most maintenance. Then there was the emergency extension system which is

checked during every annual inspection. It is hard to believe, but occasionally we need to work on the extension system.

To answer the question about the required steps to adjust the systems, you'll need to go to the maintenance manual. There are lots of steps, depending on what you are adjusting. Caution: Make sure you have jacks under the plane when doing a retraction test. Don't laugh. It's not funny.


N74541
number 1 in sales*
since June 1961
Mooney's position as the top seller in retractables is positive proof of its impressive performance and value. Every day more and more of those who **fly** Mooney **BUY** Mooney! ■ The Mooney Mark 21 for '62 packs a bigger payload . . . has a new "Safe-Lift" flap system, a completely new exhaust system that gives you lower noise level and more cabin heat. New T-formation flight panel means added safety and efficiency. ■ Mooney gives you more real value in every detail . . . in design, in construction, in styling, in high speed performance and efficiency . . . it's unmatched by anything in its class . . . BUT YOU WON'T BELIEVE IT 'TIL **YOU** TRY IT! Ask your nearest dealer for a demonstration flight . . . but remember ownership is contagious!
MOONEY AIRCRAFT, INC. KERRVILLE, TEXAS
MOONEY

uAvionix Receives STC for 1090 tailBeaconX

uAvionix announced it received the Supplemental Type Certificate (STC) and initial Approved Model List (AML) from the Federal Aviation Administration (FAA) for the tailBeaconX 1090 MHz ADS-B transponder.

The initial STC-AML utilizes the uAvionix AV-30-C multi-function display to be installed as the control head. In this configuration, the AV-30-C is able to leverage the tailBeaconX SBAS GPS for its GPS track display. In the future, uAvionix anticipates adding additional means of control through uAvionix and third-party devices.

The Approved Model List (AML) for tailBeaconX contains over 550 aircraft makes and models for which this STC is valid, including most major models from Cessna, Piper, **Mooney**, Beechcraft, and others. Additional models, including light twins, are expected to be approved in the next months.

uAvionix will immediately begin shipping pre-orders in the US, Canada, South Africa, Australia, and New Zealand soon to be followed by STC validation for European, UK markets and Brazil.

Owners of uAvionix UAT tailBeacon, skyBeacon, or echoUAT can save up to $1200 by taking advantage of the uAvionix Trade-Up program for credit against a tailBeaconX purchase by visiting the tailBeaconX Trade-Up page.

AOPA ANNOUNCES 2022 EVENTS

This year AOPA has some new adventures planned. They are excited to bring pilots together for their revamped aviation fly-ins, called “Hangouts” to better capture the spirit of these new events.

Pack your bags, fill your fuel tanks, and join AOPA in the Pacific Northwest and sunny Southeast. The fun begins September 9 and 10 at **Felts Field** in Spokane, Washington, followed by another Hangout November 4 and 5 at **Tampa Executive Airport** in Tampa, Florida.

In addition to AOPA’s to the Hangout events, AOPA will be back with their **Aviator Showcase** in 2022. Join AOPA at **Fort Worth Alliance Airport** in Fort Worth, Texas, on June 16 and 17 for an exclusive gathering with the industry’s leading experts in avionics and cockpit technology, flight planning and weather resources, and aircraft manufacturing and sales.

Prefer the Turf?

For pilots who prefer to takeoff and land on turf, typically adjacent to hard-surfaced runways, a new FAA Advisory Circular, **150/5300-13B**, offers a pathway to these operations. Effective on March 31, 2022, the AC acknowledges turf operations within Runway Safety Areas (RSAs).

Three general aviation advocacy groups — the **Recreational Aviation Foundation** (RAF), **Aircraft Owners and Pilots Association** (AOPA) and **Experimental Aircraft Association** (EAA) — worked together to provide feedback to the FAA regarding the use of turf operating areas.

While these types of operations have been taking place at airports across the country, this is the first time the FAA has officially recognized these areas.

The new Advisory Circular will make turf operations possible at many airports.

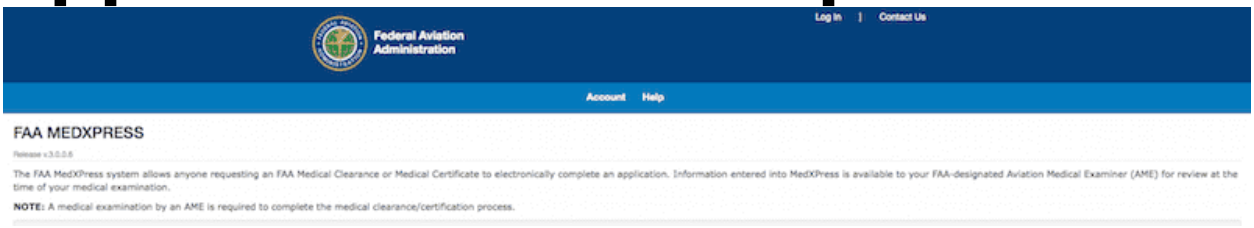
A Process

There is a process to go through before turf operations can be authorized.

1. The airport owner must request that a turf operations area be established.
2. The local FSDO must ensure that operations in the proposed area can take place safely in order to issue an approval.

The relevant language is in the new section on Diverse Aeronautical Activities on Airports (subsection 2.10.6). The FAA now recognizes operations on turf areas adjacent to paved runways:

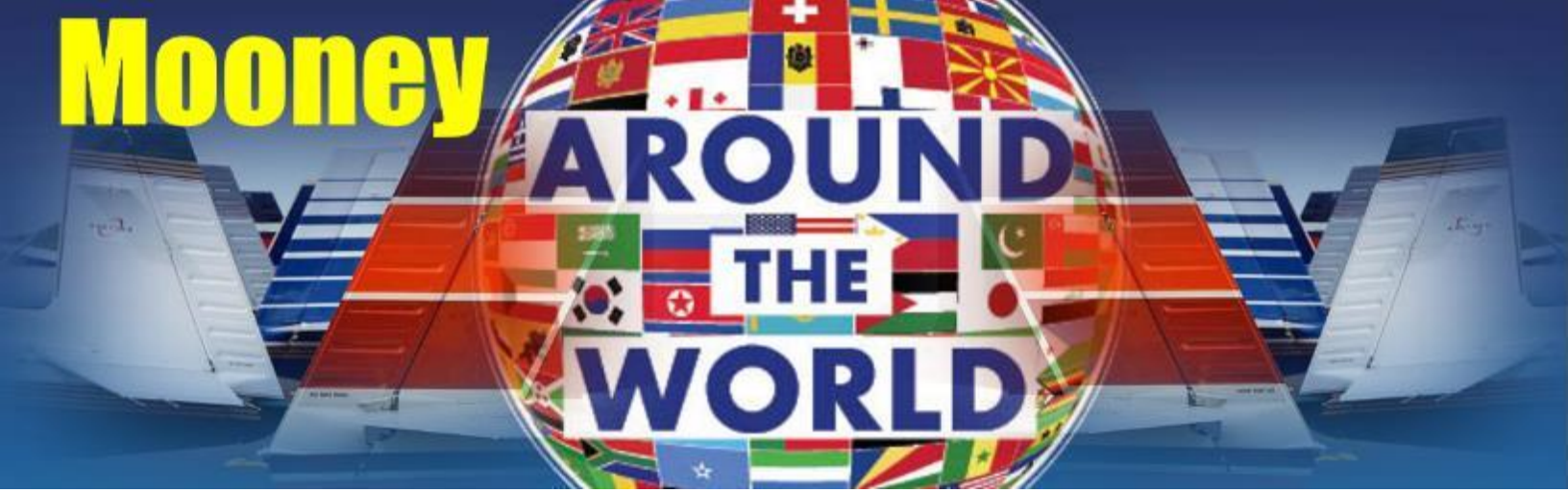
Pilots can now track medical applications at MedXpress



Checking your application status? You no longer need to call the Office of Aerospace Medicine because the FAA has added a new feature to MedXPress. This allows pilots to track the status of their medical certificates online throughout the application and review process.

As soon as an application is submitted, it will appear in the pilot's MedXPress profile. Status updates will change as the application moves through the FAA's review process. If an application is deferred or denied, the applicant will receive detailed information through the mail, according to FAA officials.

The certification process itself does not change. You can learn more about FAA's medical certification process at **FAA.gov.**



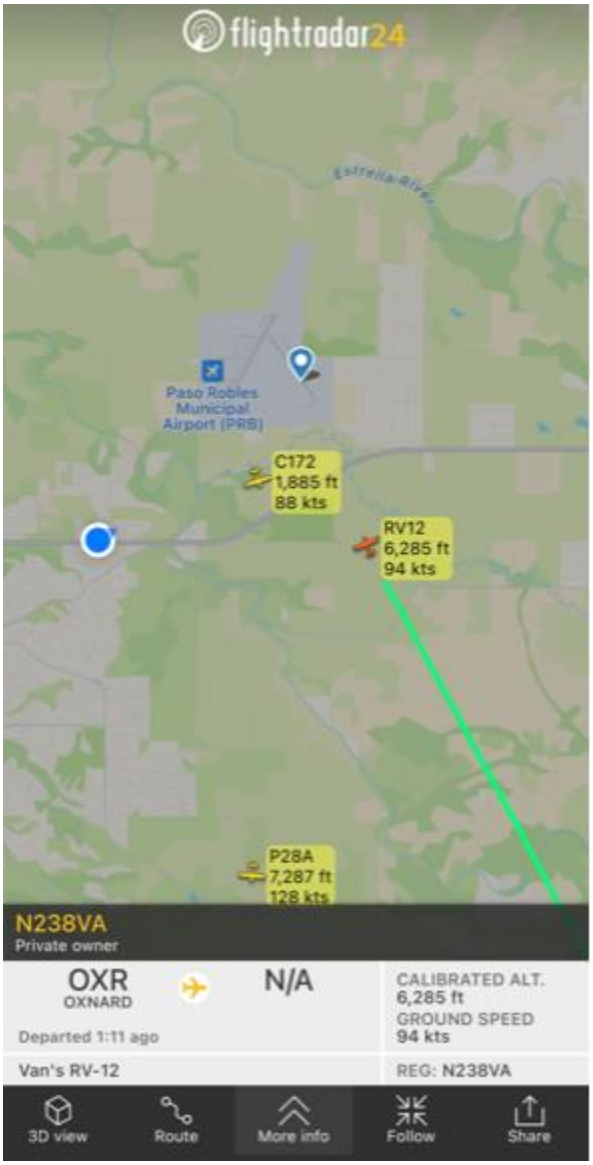
Florida Mooney Lunch Group	*Contact Dave at daveanruth@aol.com or (352) 343-3196, before coming to the restaurant, to have an accurate count. Events begin at 11:30* May 14: Sebring (SEF) Jun 11: Winter Haven (GIF)
MOONEY SAFETY.com	**2022 Events** Jun 3-5: Denver, CO Sep 16-18: Oshkosh, WI (OSH) Oct 21-23: Redding, PA Sign Up at https://www.mooneysafety.com/ppp-registration/
MOONEYSUMMIT	**Learn more at** https://www.mooneysummit.com/
Australian Mooney Pilots Association	September 9-12: Spring Fly-In to Merimbula – More details later **Learn more at** https://www.mooney.org.au/
EMPOA	**Learn more at** https://www.empoa.eu/index.php/en/
Other Mooney Events	June 3-5: Walla Walla Fly-In by Henry Hochberg. Wine, Food and Fun. Hotel room block at Whitman, 866-826-9422. Contact Henry if you need any additional info at aeroncadoc@comcast.net. **CLICK HERE** to register for free. To get FREE food on Friday, please register before May 25th

TMF PRODUCT REVIEW

FlightRadar24

FlightRadar24 is a nifty iPhone/iPad App that is also available on a website.

It shows a all ADS-B equipped aircraft flying in the area that you choose to observe. In the illustration to the left, I'm showing an aircraft flying near my home airport at KPRB. If you click on an aircraft, it will display everything FlightRadar knows about it such as Tail Number, Departure airport, Destination Airport, Altitude Groundspeed, and more.

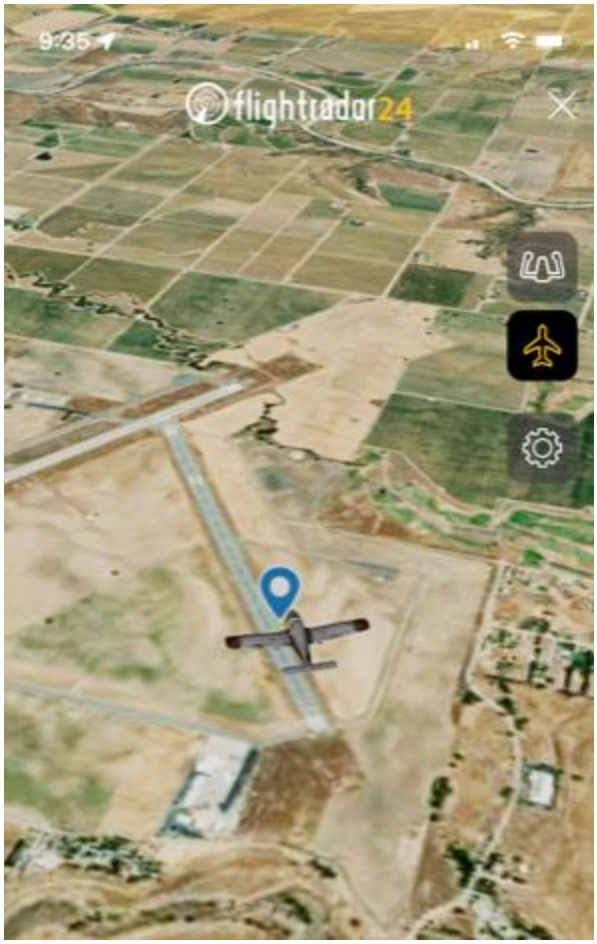


It will also allow you to see a 3D representation of any selected aircraft. This is really fun to observe.

If you want to go back in time, you can ask FlightRadar24 to "playback" all the traffic at some point in the past. You can also playback at different speeds.

Other functions include recent arrivals and recent departures at any followed airport. This is useful if you are expecting another Mooney and are waiting for it.

CLICK HERE for more information.



Parts for Sale

Sun Visor set for 1968-1999 Mooney (my is a 1966) never used, in original packaging asking what I paid Purchased From Chief Aircraft Search results for: 'Mooney sun visor' - Chief Aircraft Inc. $459.00Sunvisor Mooney, 1968-1999 Models, Rosen 13" x 7"

The Rosen "NSA" Sun Visor system is fully FAA PMA'd and STC'd for many single and light twins. Distortion free dark gray lens tint reduces 94% of the glare, filters out most harmful UV light, and reduces 70-80% of the infra-red heat rays. Visors have multimotion capability and follow early morning or late afternoon sun.

Brackets are machined aluminum and are anodized black. Oversized visors also increase safety margin while in close proximity to airports and heavy traffic areas.

Contact: dingramkc@icloud.com



Item for Sale

Call Tom 303-332-9822

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

Price $3,999

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

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

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

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

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

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

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

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

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

1990 M20M Mooney Bravo N756TB 27-0047 for sale

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

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


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