The Mooney Flyer

The Official Online Magazine for the Mooney Community

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November 2015

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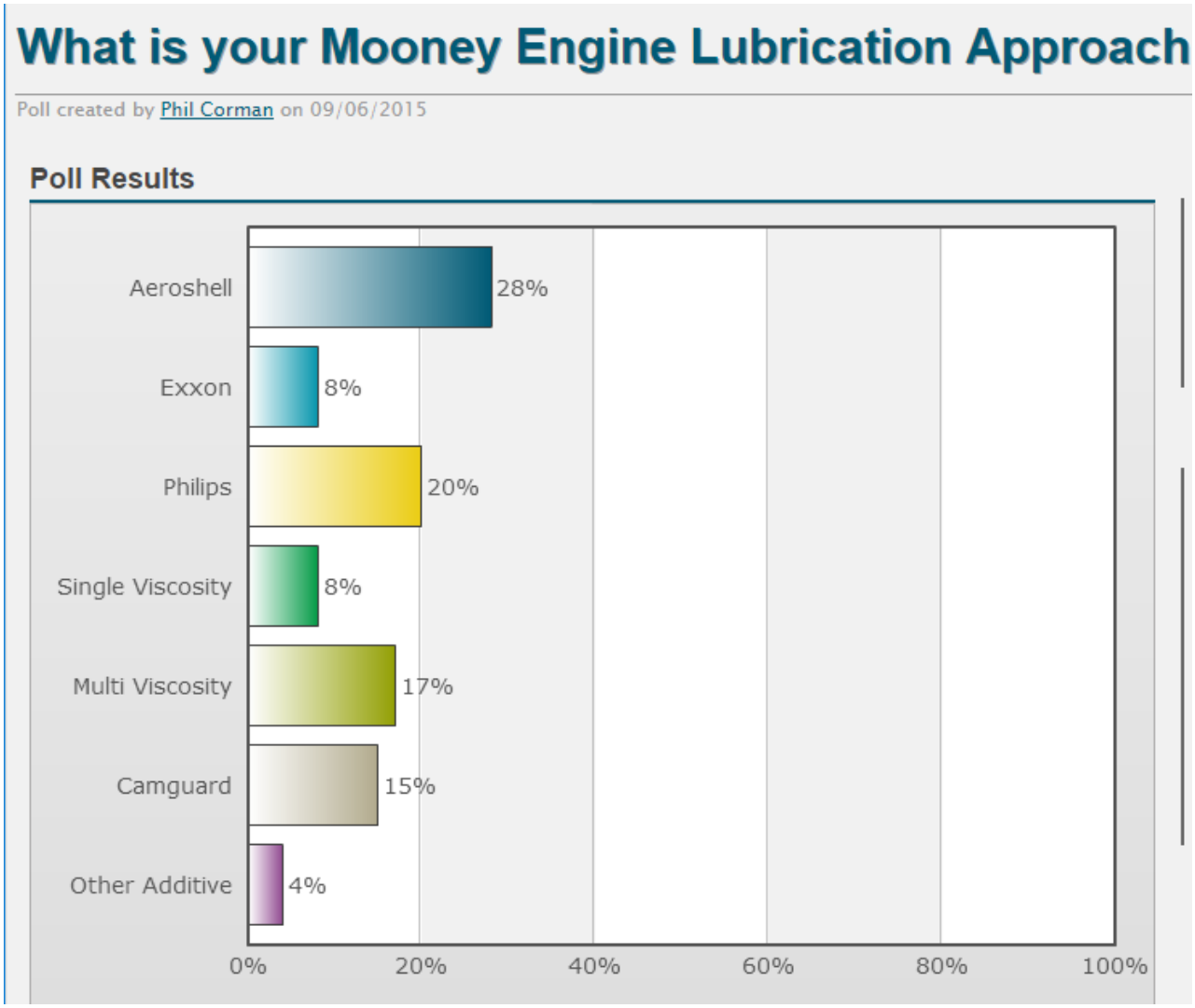
From the Editor

Phil Corman

November is such a great time of year because it leads us into the Holiday Season. We all have great memories of visiting friends and family during this season. Even though we are too young to remember travel by horse drawn sleigh, our childhood memories of singing “Over the River and Through the Woods” certainly touched our hearts and made us feel as though we were actually there.

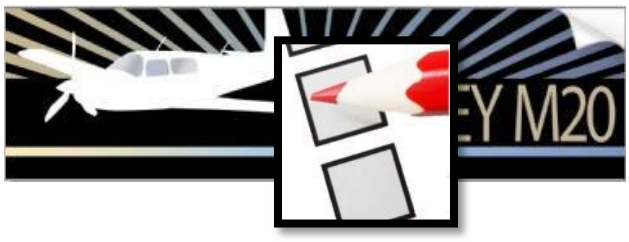
Fortunately, we have our Mooneys to help us visit family and friends and make the most of the season. Make some Mooney Memories this Holiday season and in 2016, as well. I would encourage you to fly your Mooney as much as possible. Visit friends and family and venture out. It’s good for your Mooney and for your soul!



Last month's poll asked, **"What is our Engine Lubrication Approach?"** Half of our respondents use Aeroshell or Philips.

Next month's poll: "What Do You Want Most in Mooney Events?"

CLICK HERE to vote.



Appraise Your Mooney's Value

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

M20C M20E M20G M20F M20J

RE: Oshkosh via Weep No More – I met Paul Beck at The Mooney Flyer Event in Paso Robles last June. That was an amazing weekend and I hope TMF does it again. The **Oshkosh via Weep No More** article reminded me that Paul Beck is the single place to get our fuel tanks re-sealed properly. He is performing a critical service to all Mooney owners. Having got to know him now, I plan to schedule my old vintage Mooney for a reseal with Paul; no bladders for me. Thanks to Paul for all he does for us lowly Mooney pilots!
Bill S

RE: Life Changing Moments – Bruce Jaegar is a significant Sensei to all of us Mooney pilots. He continues to teach via his articles here in The Mooney Flyer. I mostly appreciate his willingness to share his "own errors" with us. It makes his article that more compelling. Pilots, more than any other endeavor, need to learn from other pilots, especially those of the caliber of Mr. Jaegar. His first hand accounts enable me to internalize the lesson since it is a first hand experience, from a pilot that is probably a better pilot than myself. Good stuff…
Tom M

RE: Static in the Headsets – I really liked the article by Mr. Takacs, especially the section on troubleshooting. Who of us, has not had static in our radios at one point or another? I have written down his troubleshooting procedure as I actually have some static in one of my Comms. And although I am not very mechanically inclined, I like that I can bring this problem to my mechanic with some additional, and hopefully some useful troubleshooting information.
Ed M

RE: Avoiding Midair Collisions – I love Jim Price's articles each month. They are incredibly helpful to me, and also entertaining. His sense of humor is very much appreciated by me. Not colliding with other airplanes is a priority for me (ha ha). Seeing and avoiding is the key thing, under VFR of course, but using all tools available as backup is also important. Redundancy right? I was wondering, however, if other pilots have this thing in their eyes, as I do. I call them floaters. They seem like pieces of dust floating on the surface of my eyeball. How many of you have these? Do you ever think they are airplanes, even for a split second? My doctor says that these are normal… just askin'.
Bob S

RE: Mooney Tale to Park City – I finally got to meet Linda at the Mooney Flyer Fly-In to Page. She writes the Mooney Tales each month. I was so happy to meet her and tell her how much my wife and I love her Mooney adventures. I love her style of writing and it encourages my wife and I to fly to some of these destinations. I think that is why she writes these articles. I hope Linda gets a 25% raise in her salary, which nets out to 25% of $0.00. Thanks for all your hard work.
Jim

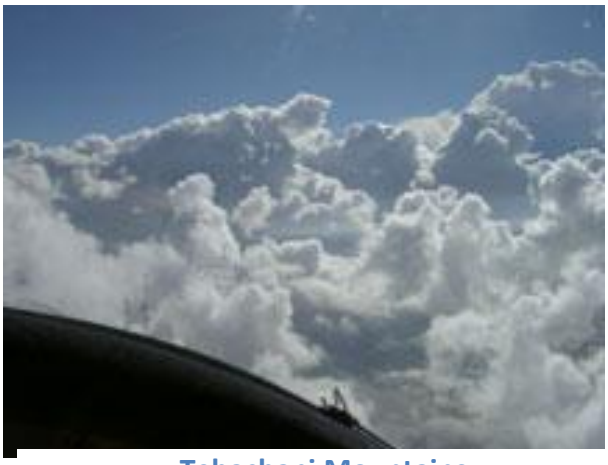
Geoff lee.
CFI

Flying EXPO

Martha Lunken's *Unusual Attitudes*, in the very thin edition of the November FLYING magazine, has prompted me to comment on the FLYING EXPO recently held in Palm Springs. Bless Martha, she pulls no punches, and I won't either.

Due to building Cumulonimbus, we took the pressurized Aerostar to the EXPO in Palm Springs.

6,000 feet over the Tehachapi Mountains



Tehachapi Mountains

Turning final at Big Bear (L35). We bought fuel for less than $4/gal.

Base to final at Palm Springs (PSP). Banning is in the background

Martha's dislike for Air Venture was so great, that when she left Oshkosh, she thought, "last time for that visit". Unfortunately, we had the same feelings as we left Palm Springs and the 2015 Flying EXPO. Indeed, it would have been heartening to see an overcrowded arena displaying all the interesting accoutrements associated with aviation that have been displayed in the past aviation gatherings in Palm Springs. We were dismayed by the scarcity of vendors and the dismal number of attendees.

I spoke with many of the people manning the few displays in the convention center and all had the same level of dismay at the absence of people and the dull atmosphere of the event. Many vendors voiced a level of chagrin. They had gone to a lot of trouble and expense to transport and set up their displays, only to be engaged by a thin handful of visitors. The displays themselves appeared sparse, relative to past times, when

T-shirts, caps, and other memorabilia, were stacked on table tops for the asking. However, old candy and dried out pens were certainly abundant. Absent were the engine manufacturers, aircraft modifiers and flight training organizations.

The line-up of aircraft on the roads that were adjacent to the convention center, was very thin. The number of people viewing these could be counted on two hands and some of the display aircraft did not appear to be attended.

There was one Mooney aircraft on display, and it had a very unattractive angular line paint job, done in an unfortunate choice of color. This display did not appear to be attended.

"Refreshments" at the event were limited to hot dogs and vending machine-type doughnuts and chips, etc. The area reserved for eating took up about 25% of the floor space in the arena. I observed about 10 people using it while we were present.

The admission fees were about $55 to $75. The price depended upon if you wished to attend the seminars or not. We chose not to attend the seminars.

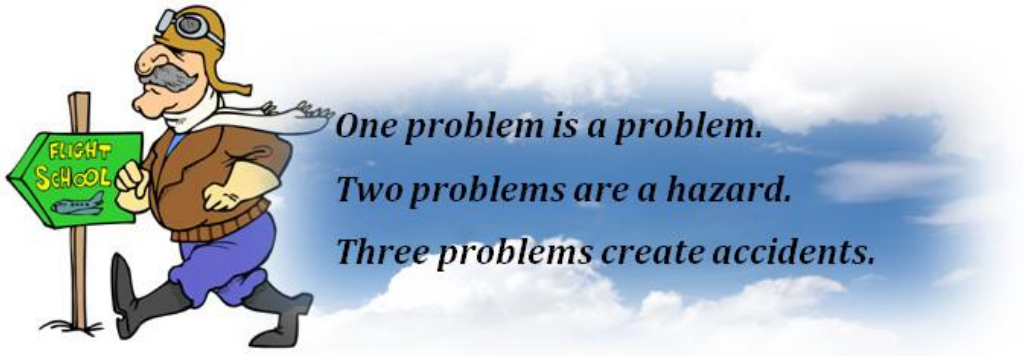
Having expended approximately $600 in fuel for the round trip to Palm Springs, the whole event was almost debilitating. It was, perhaps, a sad indicator of the current health and status of GA in the United States.

This dissertation sounds very negative to be sure, so I must concede that the flying weather on the day of our visit, coming from the bay area, was less than optimum and may have had something to do with the low attendance. However, the access by aircraft from the Los Angeles basin looked doable via Banning and access by road was certainly easy.

The expectations established by AOPA, who has hosted the event in the past, set a much rosier picture of GA in the minds of attendees than the thread bare scene presented in the current show. Is it significant that AOPA was not represented at this venue? I believe it is significant that there was nothing at this "EXPO" that invited young people into aviation or encouraged them to learn to fly. There were $1,000 headsets and $350 suction cup mount rigs for iPads, $5,000 Multi-Functional Displays (MFDs), and $10,000 plus panel mounted GPS units that required one to further expend $3,000 - $4,000 for installation.

Most of the aircraft displayed were owned by foreign entities or had many components manufactured somewhere other than the United States. The exhibition displayed nothing to draw any new, young blood into general aviation. Rather, the "EXPO" seemed to be targeting the diminishing population of older, somewhat affluent pilots. Our EXPO group primarily comprised the existing, but shrinking market for these very expensive toys.

In times well past, when one could fly a light aircraft coast to coast for less than an airline ticket, I would not have referred to any GA aircraft as a "toy". Technical advances are outstanding in all aspects of general aviation, but it is very difficult to see any great future for GA as an industry or an avocation in the USA. As I observe the situation where I live, I see that surviving flight schools are populated with students primarily from the Eastern countries. A decreasing base of US citizen pilot trainees and the increasing costs of flying, make the future of GA in this country look quite bleak.



Cliff's Clinic

It should be obvious to even the casual reader of The Mooney Flyer, that I love Mooneys and I love the Mooney Community more. The best friends I have in my life, I met because of our shared passion. Every once in a while, I am shocked and awed by how much and how strong our camaraderie is. Last month, Dr. Ron Dubin and Mike Elliott did a FREE Mooney Summit III (That's right… the third one) and it was star studded, entertaining, informative and fun. I was unable to attend, but the reviews were pegged at awesome.

I was able to attend a Mooney Flyer Fly-In hosted by Cliff and Carol Biggs. This was also the third time that these amazing Mooniacs hosted a fly-in. During the first one, we had dinner at Antelope Marina, Ramp Time, Lunch, Antelope Slot Canyon Tours by Navajo Guides, a Saturday night dinner party, and Sunday morning rafting down the Colorado River, from Lake Powell through Marble Canyon.

This year Cliff and Carole outdid themselves. In addition to dinner on Friday and Lunch on Saturday, Cliff conducted an extensive, hands-on Mooney Maintenance Clinic. He put his M20D up on jacks, and then he proceeded to teach and let each participant perform multiple tasks. This was a phenomenal experience, and it was FREE. I don't think everyone appreciates how much work goes into hosting a fly-in … and it is very rewarding to see the smiles and energy from those who attend. This Clinic was even more impressive and it was obvious that Cliff had everything thoroughly planned.

Here is the list of items that Cliff covered in his Clinic:

1) Proper Mooney Jacking and leveling
2) Changing Oil Filters … Cutting and Inspecting the Filter… Avoiding an oil mess
3) Safety Wiring
4) Spark Plugs: checking, cleaning and gapping
5) Proper Compression Checks on Lycomings and Continentals (yes, the famous master orifice)
6) Checking the empennage bungees and showing how your mechanic should measure and adjust them
7) Checking the famous jack screw for wear and lubrication
8) Adjusting the nose gear with the gear rigging tool
9) Adjusting the main gear with another gear rigging tool
10) Changing tires … checking the bearings … lubricating the bearings

Before Cliff even started, he provided a detailed handout that included FAR Part 43, Mooney TCDS (Type Certificate Data Sheet), Mooney Service Manual, and a list of items that can be performed by owners, per the FAA. Some of the things he showed the participants cannot be performed by owners, but he demonstrated this to everyone so they would have a better understanding.

Changing oil filters can be a messy enterprise. Cliff recommends placing absorbent rags under the filter to catch oil that drips as you remove the filter. One participant uses *Pampers*, since they are extremely absorbent. Most of us did not know how to cut and inspect the filter. Now we do! Cliff informed everyone that you do not need to get the oil hot before draining it. In fact, this just increases the chances that you will get a second degree burn when you reach into the engine. Mechanics do this because hot oil drains faster than cold oil. Rather, he suggests draining the oil while the engine is cold and letting it drain overnight. You can poke a hole in the top of your oil filter to provide for more thorough drainage. However, he emphasized that it should be tiny and you should be careful not to create a sliver that will run into your crankcase and wreak havoc. Lycoming actually recommends not doing this at all. A tiny pinhole is all that's required. Someone asked which side of the filter to look at. And the answer is "the outside of the filter fabric", as oil is sucked through the outside to the inside. Use a magnet to find pieces of iron. If the piece crumbles under your finger, it's most likely carbon, and if you can read the part number, it's time for an overhaul.

Safety wiring was another section of Cliff's Clinic. He built a small jig that had two nuts that needed to be safetied together. First, he let several of us do the safety wiring without any instruction. He then highlighted what was satisfactory or not. Some used a safety wire tool, while others went old school and safetied by hand. Then Cliff

showed the proper technique for safety wires, emphasizing, of course, which direction to safety things so that they do NOT unwind. This is the whole purpose, duh? The challenge of safety wiring is discovered when you attempt to do so in places in your Mooney where there is no spaces to see or put your hands or tools. I fully appreciate my mechanic more than ever.

Checking, gapping, and cleaning spark plugs came next. Cliff showed everyone how to clean your spark plugs with a simple tool that you can get from Harbor Freight. He then showed the only cleaning compound to use; available at Aircraft Spruce. Never use glass balls as they will melt and do very bad things. Remember this tidbit: If you drop a spark plug on the floor, throw it away because it's now broken. The center electrode is a big resistor that reduces the amperage and subsequent wear of the electrodes. It comes new around 1200 ohms. If it gets above about 5000 ohms, the spark plug should be discarded. Finally, for $20, you can get a great spark plug gap tool. Carry a couple of old serviceable plugs in your Mooney for emergencies while travelling from home.

While we had the plugs out, Cliff went on to his next topic; compression checking. You need 3 hands to do this measurement. One to hold the air hose, another to turn the prop so that the cylinder you are testing has the piston at the top of the cylinder, and another to take the measurement. You can feel the compression stroke pushing out through the spark plug hole. Got a leaking exhaust valve? This is easy to detect because you can hear the hiss in your exhaust. For Lycomings, this process is straightforward, but nothing is straightforward with Continentals. For Continentals, you need a Master Orifice. First, you get a reading with the master orifice which compensates for temperature, barometer, humidity, and the "time of month" (sarcasm). This establishes the worst compression reading that is acceptable for those conditions. Then you take a compression measurement.

The next topic in Cliff's Clinic was adjusting the Nose and Main Landing Gear. This has always been a mystery to me, as most mechanics do not have the desire to take the time to show me. In the illustration to the right, you can see the two gear rigging tools. How the heck do you use them to adjust the gear? You know the old adage "It's $40 per hour to fix your Mooney. It's $60 if you want to watch, and $80 if you want to assist". Well Cliff has 50+ years of experience and is very willing to teach us Mooniacs! Cliff put the main gear rigging tool along with a torque wrench and showed us how a mechanic should check the main gear. (Shown in the illustration to the right). This ensures that the tension is adjusted correctly so that your gear will stay down when you want it down and it won't bust the gear motor or your right arm when you want to retract it. It was also very clear what is meant by "over center". Very cool.

I cannot complete this section of the article without showing the dedication of those participating, who crowded underneath the M20D to listen and watch as Cliff showed how to measure and adjust the main gear. There are so many captions that I could place on this picture, but suffice it to say, everyone was 100% engaged in Cliff's Clinic!

Although we mere pilots cannot do this maintenance, Cliff's next topic centered on the tail. For demonstration purposes, he fashioned his own "travel board". This is used to take measurements.

He showed how the horizontal stabilizer should have an angle of incidence of 3 1/2°, relative to the centerline of the aircraft. He then made a measurement of the angle between the stabilizer and the elevator at the bungee neutral position. For his M20D, this angle was supposed to be 19°. He showed how to take this measurement and how and where to make this adjustment on the bungees. Again, it was not something we, as owners, can do, but it was sure darn interesting to understand the workings of our Mooney's empennage controls. He then talked about that free play you can feel during pre-flight checks regarding the jackscrew. You will feel different amounts of free play depending on where you set the trim. There is more free play where there is more wear on the jackscrew. The key thing with the jackscrew is, to keep tabs on this freeplay and ensure proper lubrication at each annual or 100 hour inspection. Speaking of lubrication, Cliff recommends Tri-Flow on hinge bearings and Silicone on joints that cause the surface to move.

Tires were the final topic of Jedi Master Cliff's Clinic. I thought this section would be amazingly boring, after all, how interesting can tires be. Well, I was wrong. First off, Cliff insisted that the first thing you do before removing any bolts, is to deflate the tire completely. He indicated that he has seen a tire literally explode off the wheel assembly because the bolts were undone before complete tire deflation. In one instance, if the tire had not exploded "downward", the mechanics head would have been blown away by the force. Using a stem valve remover, remove

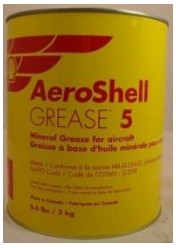
the valve stem and insure that the tire is completely flat before starting the disassembly. Cliff showed everyone how to properly remove the tire from the wheel assembly without damaging the wheel. You should never reuse the inner tube. We were taught how to align the tube with the wheel, check the bearings for unacceptable wear, and to pack the bearing with the proper Aeroshell bearing grease. This is something we can do as owners and it is really a straightforward process.

Cliff then made a few final comments on our mufflers, specifically when it comes to Carbon Monoxide (CO) leaking into the cabin. He strongly suggested that our mechanics perform a pressure check on the muffler, exposing any leakage, which would make it into the cabin when cabin heat is applied. He's concerned that many mechanics may not perform this check. Did you know that CO is absorbed into your bloodstream more readily than oxygen? And here's the kicker: CO in your blood actually "increases" the Oxygen reading on your Oximeter! This is a disaster in the waiting, as you will get elevated O_2 readings even though you are absorbing CO. CO poisoning is insidious, like hypoxia, and will kill you before you realize what is happening.

A huge THANK YOU to Cliff Biggs, 50+ year Aircraft Mechanic and Fantastic Mooniac!

Tools & Supplies Needed for Mooney Maintenance From Cliff's Clinic

If you want to do some of your own maintenance you need to be properly trained. You need to have the same work standards as an A&P. Like an A&P, you should have the correct maintenance information at hand and use the proper tools and materials. All this is actually required by the FARs. You should have AC 43.13 available for reference.



Wheel Bearing Grease

This isn't your boat trailer. You don't buy your a/c wheel bearing grease at Joe's Auto Parts, OK? Get the correct grease!

Aircraft Spark Plug Gauge

This is a must have tool.

Spark Plug Gaskets

Aircraft 18mm spark plug gaskets. You need new ones with every plug removal.

Spark Plug Gapper

Don't try and use water pump pliers to reset the gap.

Oil Filter Torque Wrench

DC4 Compound (for oil filter gaskets)

Spark Plug Cleaner

NEVER use a wire wheel to clean your spark plugs

Spark Plug Cleaning Abrasive

NO glass beads, ever!

Torque Wrench

Buy one and learn to use it correctly

Valve Stem Remover

Don't touch a tire without one of these

Tri-Flo Lubricant

For all the control surface hinge bearings

100% Silicone Lubricant

For all the exposed rod end bearings

Mooney Gear Rigging Tools .

If your A&P doesn't have them, find another A&P

0.32 Stainless Steel Safety Wire

Never use brass, copper or iron wire. Use SS aviation wire only.

Cliff Biggs

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

What Do All These Airplanes Have in Common?

They all have wings? Yes, but as they said in the movie "Airplane", that's not important right now. Come on, anyone have the answer? (The sound of crickets?)

They all crashed because the pilot or pilots were incapacitated by HYPOXIA! Hypoxia knows no limitations on types or class of airplanes.

Recently we have seen a spate of losses because of hypoxic pilots. A recent fatal Mooney accident was most likely caused by hypoxia. This issue has been around since the 1920s when high altitude flight first began, and yet, for almost 90 years, the same mistakes are being made. Many, many times, it ends tragically.

While recently perusing several aviation web forums with threads devoted to these losses, some pilots seemed to have a lack of understanding about how risky this physiological phenomenon is, how easily it can be entered into, how subtly it appears, and how debilitating it can be when it comes to one's thought process.

With the wide availability of turbo-charged, high performance airplanes now available, more and more pilots are becoming subject to, or flirting with, this dangerous event. Yes, it's a debilitating AND dangerous event. Bear in mind that it is NOT confined to turbocharger equipped or turbine aircraft! Even those of us with our lowly, normally aspirated, Cs, Ds, Es and Fs can get high enough to have big problems with hypoxia.

If you just want the "Executive Summery" of this article then read this:

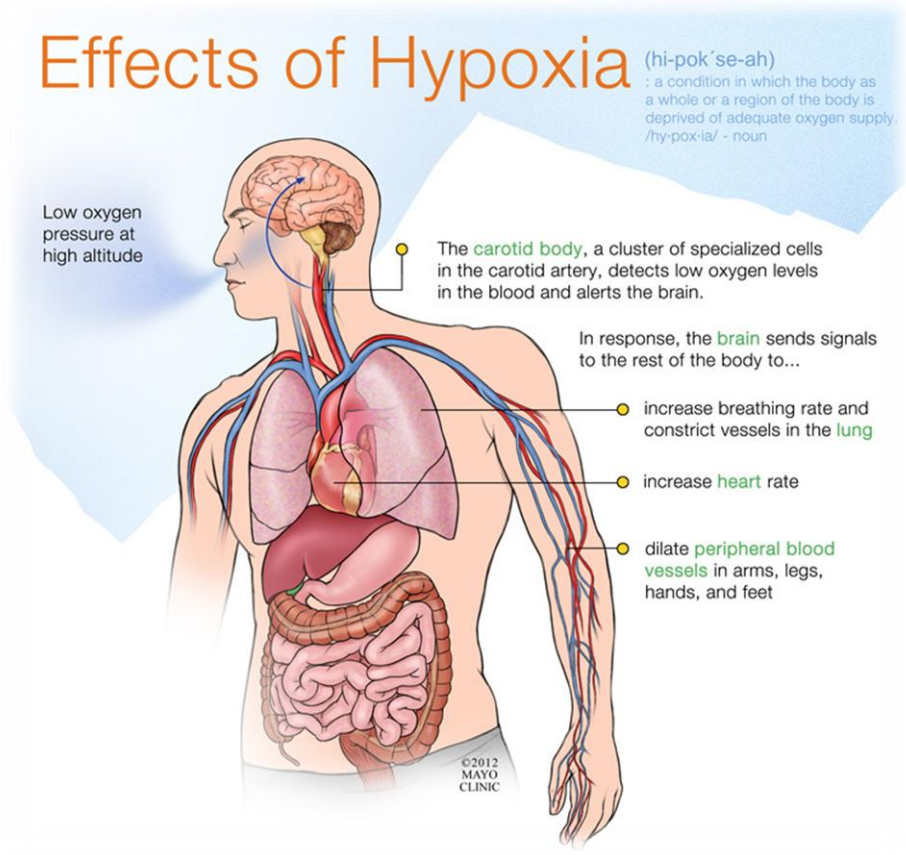
1) Hypoxia can kill you and you will never know it happened!
2) You, and all those with you, will be dead.
3) If you fly above 12,000 feet in an unpressurized airplane and you haven't done an altitude chamber ride, you're not competent to be up there. (My personal opinion!)
4) The higher you go, the more risk you assume.
5) Any, and I mean ANY, issues with your O_2 system up high requires an immediate and rapid decent to 10,000 ft or lower. Do not pass GO, do not troubleshoot the system, do not "ask permission", just dump it over and get down AS FAST AS POSSIBLE! (My personal opinion again! Let the arrows fly.)

Play it safe! Don't mess around with hypoxia. It may seem extreme, but this summary is backed up by decades of NTSB reports of hypoxia accidents. Let's continue.

We all have been told or instructed during our flight lessons, to a certain extent, about hypoxia. Most of us "think" it has to do with going too high, where there is less oxygen in the air and we get hypoxia. Close, but no cigar! Not quite true.

Actually the "air" up high has just as much oxygen as down low at sea level, for all practical purposes. It's made up of 80% nitrogen and other gases and 20% oxygen. So why, if the air has just as much oxygen up high, do we get hypoxic? Because, up high, the air molecules are spread much further apart and the pressure to push them across the lung boundary is less.

Here it comes, Uh, oh, chemistry class again. It all has to do with pressure. It takes a certain amount of pressure to "push" enough oxygen molecules across the lung boundary to mix with the blood for us to survive. That pressure is about 3.0 psi of the "O2 portion" of the total ambient pressure we are breathing. (it's called "the O_2 partial pressure" but more on this in a minute). More molecules get pushed across the boundary at higher pressures with more dense air down low. Less molecules get pushed across the boundary with lower pressures and less dense air up high.



We all know that at sea level, we have around 14 lbs/sq inch of air pressure and the air molecules are packed close together. That is enough pressure, at sea level, to push enough closely packed oxygen molecules across the boundary of the lung to give us what we need to survive, <u>at a normal 20% O2 concentration (.20X14.7=2.94 psi O2 partial pressure)</u>. This is important, remember it.

At 18,000' we now have a problem. The air molecules are spaced further apart and the pressure is lower. A 20% normal concentration of oxygen in the air we breathe won't do it. We won't get enough oxygen molecules across the lung boundary at this lower pressure with its wider spacing of the molecules, making it hard to survive by breathing only "natural" 20% O_2 concentration air. We know that we are above half the earth's atmosphere here and the ambient pressure is about 6.75 psi at 18,000 feet. 20% of 6.75 psi, (the O_2 portion of the total ambient pressure at this altitude), is only 1.35 psi. That's not near our required 3.0 psi for the O_2 portion of the air. At this altitude, we need a concentration of about <u>44% oxygen in what we breathe</u> <u>at ambient pressure</u> to give us

enough oxygen molecules to push across the lung boundary at this lower pressure (.44 X 6.75=2.97 psi). A nasal cannula normally only provides about a 35% to 40% concentration of O_2, hence the 18,000' altitude limitation on cannulas.

At 35,000 feet, where the full atmospheric pressure is near our lung minimum of 3 psi, **we will need 100% oxygen concentration to survive**. NO ambient air inhaled what so ever! Any higher altitudes and even 100% oxygen will not be enough at ambient pressure. That is why jet aircraft include pressure breathing oxygen masks for the pilots. They deliver oxygen to the pilot at higher than ambient pressure, when needed, forcing it into the pilot's lungs and across the lung boundary.

Bet you didn't know that those little Mickey Mouse ambient pressure masks, that drop down in front of you after that fancy Boeing 787 losses pressurization, (just like our Mooney masks!), won't keep you alive if the airplane stays at altitudes above 35,000 ft. What if the airliner is flying at FL390 or FL410? What's the Time of Useful Consciousness (TUC) up there, even if the pilots start down right away?

In reference to the military, who takes hypoxia seriously, there was a hypoxia study done back in 1990-2001 by the Australian Air Defense Force. I'll quote it here: "During the period studied, 27 reports of hypoxia were filed, involving 29 aircrew. In only two cases was consciousness lost, and one of these resulted in a fatality. Most incidents (85.1%) occurred in fighter or training aircraft with aircrew who use oxygen equipment routinely. The majority of symptoms occurred between 10,000 and 19,000 ft. The most common cause of hypoxia (63%) in these aircraft was the failure of the mask or regulator, or a mask leak. Rapid accidental decompression did not feature as a cause of hypoxia. Symptoms were subtle and often involved cognitive impairment or light-headedness. The vast majority (75.8%) of these episodes were recognized by the aircrew themselves, reinforcing the importance and benefit of hypoxia training.

CONCLUSION:
This study confirms the importance and effectiveness of hypoxia training for aircrews. Hypoxia incidents occur more commonly at altitudes less than 19,000 ft. This should be emphasized to aircrews, whose expectation may be that it is only a problem of high altitude. Proper fitting of masks, leak checks, and equipment checks should be taught to all aircrews and reinforced regularly. Current hypobaric chamber training methods should be reviewed for relevance to the most at-risk aircrew population. Methods that can simulate subtle incapacitation while wearing oxygen equipment should be explored. Hypoxia in flight still remains a serious threat to aviators, and can result in fatalities."
Some items to glean from this quote:

1) This was 20+ years ago, but it's still relevant!
2) These incidents happened to professional military pilots who were well trained in the effects of hypoxia!
3) Hypoxia was most often encountered at altitudes BELOW 20,000 feet!
4) 63% of the failures were caused by the mask or O_2 system, and these highly trained military pilots didn't find the failure in time to avoid hypoxia!

5) 24% (1 out of 4) of the events were recognized by someone OTHER than the affected flight crew and again, this is with highly trained and retrained military pilots!

Let's make this relevant to us in our Mooneys:

1) How many of us are well trained and receive periodic hypobaric chamber training?
2) How many of us fly at 10,000' to 20,000' or higher?
3) How many of us rely on just one O_2 system up there?
4) Over half of the problems were caused by the equipment and this is with MIL Spec O_2 systems, not our little *Mickey Mouse* masks.

A very good article on hypoxia by Ross Detwiler, published by BCA this year, can be found here:

http://aviationweek.com/bca/it-s-not-about-breathing. I highly recommend that you read it.

During my tenure in A&P school, I had an instructor named "Mr. Mergalo", who had what he called " Mergalo's Pearls of Wisdom", which he stated periodically throughout our time there. I have purloined his idea into what I call, "Cliff's Pearls of Wisdom". They deal in all aspects of flight and maintenance. They have been developed after watching what others have done over a fifty year span of observation. They have been formulated by personal experience.

Two of "Cliff's Pearls of Wisdom" that deal directly with the subject at hand are:

1) Time of Useful Consciousness (TUC) tables are useless. Forget they even exist.
2) In an emergency, NEVER ASK PERMISSION, do what needs to be done and then get on the radio.

TUC tables are very misleading and over reliance on them can be dangerous and deadly. Why do I say that, you might ask? Everyone reacts differently to the lack of oxygen. Just because one person went 8 minutes at 22,000 feet before he passed out, doesn't mean YOU will. So many things contribute or distract from one's ability to stay conscious, that no basic time line can be assigned.

The TUC tables show a "healthy" subject's reactions and the clock starts ticking at the time of pressurization failure, where the cabin pops to the altitude specified immediately. Again, this is an important thing to remember!

In our case of flying a non-pressurized airplane, the clock starts ticking at take off! We are already partially hypoxic by the time we get to 10,000 feet. Now, we put on the nose bag and climb higher. Our O_2 saturation improves and we fly along until we "feel" something wrong. That is, IF WE EVER DO FEEL ANYTHING WRONG! I WANT TO EMPHISIZE THIS AGAIN, YOU MAY NEVER FEEL HYPOXIA COMING ON! You may be distracted by flying tasks, by conversing with passengers, or just inattention to your O_2 supply. I think it can be said with some certainty, that during ALL of the hypoxia events that resulted in total losses, the pilot was never aware of what was happening.

We have no event marker, like a pressurization failure, to spark our memory to think about hypoxia. Hypoxia is subtle and insidious. YOU MAY NEVER FEEL IT COMING ON! Again, just take note of all the complete aircraft losses due to hypoxia. YOU MAY NEVER FEEL IT COMING ON. Unless you have gone through an altitude chamber ride and noted how your body reacts to high

altitude, you may not realize you are hypoxic. That is the problem with hypoxia, you feel just fine until you go over the edge. Then it's too late.

Because we have no "pressurization failure" event to start the clock ticking, by the time we notice we have a problem, we are probably already out of TUC time! Secondly, because everyone has a different reaction to hypoxia, and TUC times vary so much from one person to another, thinking that you have "X" amount of time to play around is pure folly. That is why I say that the TUC tables have no bearing on us in non-pressurized airplanes!

The altitudes and times shown in the tables are for a variety of healthy, younger pilots. Many, many things contribute to our tolerance of altitude, such as our physical condition, our age, medical issues, and medicine we are taking. Even aspirin has a deleterious effect on our altitude tolerance. Smoking history has a large effect on your tolerance to hypoxia, as well.

There is something called "physiological base altitude" that few pilots know about. The physical conditions that affect one's ability to tolerate altitude, can be evaluated. You might find that due to your own body's condition, that even when you are at sea level, your body feels like it is starting out at 2,500 feet. This would be your "physiological base altitude". To put it another way, when you are flying at 10,000 feet, your body reacts like it is at 12,500 feet. This could be why you need O_2 at 10,000 feet and your buddy can wait until 12,000 feet. It's just another item to consider when you go up high and rely on TUC tables. Again, you really don't know how your body reacts until you go through an altitude chamber ride.

Here's something you might not think about: How well does your A&P check your cabin heat muff? Does he just look at it, or does he actually pressure check it each year? HUH? What's that got to do with my altitude tolerance? Well, it's cold up there and you will have your cabin heat on. Any, and I mean ANY, carbon monoxide leaking into your cabin will mean big problems for you. CO combines with the blood several hundred times easier than oxygen. It will block out oxygen getting to your blood stream! YOUR PULSE OXYMETER WILL SHOW GOOD O_2 NUMBERS AS IT CAN'T TELL THE DIIFERENCE BETWEEN O_2 IN YOUR BLOOD OR CO! Put that in your pipe and smoke it! Now, make sure your A&P does a pressure check of the heat muff every year and have him install a GOOD CO monitor if you regularly go up high! Your life could depend on it.

My second "Pearl of Wisdom" is never ask permission from ATC in an emergency. It just wastes time and it's time that you don't have in any emergency. The TUC clock has already run out, now is the time to do something and not wait for any answers. Get your rear down and do it now! Your chance of a mid-air is minuscule compared to your chance of passing out. This was brought out in a big way in a recent TBM accident. ATC doesn't know your situation near as well as you do. They have no idea of how fast you need to get down. A hypoxic event or an O_2 failure up high, is an emergency, plain and simple. Do what needs to be done, then communicate!

If you are compromised at all by hypoxia, your thought process will suffer. This is where a simple procedure, reviewed regularly, may save your life. A simple procedure like: "If I have any O_2 issues at high altitude, I will immediately start a high rate of decent to 10,000 feet, and then communicate with ATC". Just a simple procedure like this, which is easy to remember, even when compromised, would have prevented the TBM accident. Why complicate things in an emergency? Keep It Simple, Stupid! – and ive to fly another day. Work your problems out, down where you can breathe. Don't

try to troubleshoot your primary O_2 system before you start down. Again, it just wastes time you don't have. What if you can't fix it? You've just wasted time you didn't have!

By the way, think about the health condition of any of your passengers. They are on the same O_2 system. Do they have any pulmonary or heart issues? Are they on any medications? Could they pass an FAA medical, just like you do?

Here's another item to file away: How long will it take you to get down to breathable air? If you're at 25,000 feet and planning on a 2,000 fpm descent, you're looking at almost eight minutes. I'll guarantee, (I'll put $100 on it right now), you will never actually average 2,000 fpm.

You may pass out, because you are already starting out hypoxic. You will also be trying to put on your backup O_2 system, (if you have one), at the same time, diverting your attention from the task at hand – getting down. This is why I recommend that you not try to troubleshoot your primary O_2 system, but go down immediately.

You will never average a constant 2,000 fpm descent all the way down. Have you ever tried it? I've seen it too many times in the simulator, where professional crews can't maintain an MMO/VNE decent on the first try, and when you need to do it, it will also be YOUR first try.

Additionally, let's say we are at FL240 and going over weather that we don't want to fly through and now we notice we have an O_2 problem and we're getting hypoxic. How can we go down through the weather? Ice? Turbulence? Lightning? Heavy rain? High winds below on the ground? Airports below mins? Think about that one for a moment. Did we back ourselves into a corner with no way out?

How many times have we flown with even a slight cold or were plugged up due to hay fever? Now we need to do a high rate decent for over 10,000 feet? Our plan of a slow, easy decent doesn't look to good now, does it? Flying unpressurized in Class A airspace has demands and risks that, for me, far surpass any gain in speed. Additionally, if I were to do it to top weather, I would be a nervous wreck thinking about an O_2 failure while on top, and having to go down through the clag. Just one man's opinion. Your mileage may vary.

As they said on Hill Street Blues, "Y'all be careful out there!"

Flying my Mooney in a Tight Formation with 3 War Birds

by Lloyd Babcock

Several have asked, now how could a Mooney end up flying in a formation with 3 War Birds. Here's the story line: Three favors!!!!

Favor #1: These three war birds travel around the country, selling rides, and come to Chester Co. Airport each year. The restaurant owner at my airport comped some meals for the pilots during their three day stay at Chester Co.

Favor #2: The pilot of the P51 asked Mike, the airport restaurant owner, if he would like to fly in the P51 to their next destination in western Pennsylvania. Who could turn down that offer?!

Favor #3: Mike, a good friend of mine, called me and mentioned the offer he had to fly in the P51 and said that he was going to rent a car to drive back home. I told him, "You're not going to rent a car! I will come out and pick you up in my Mooney."

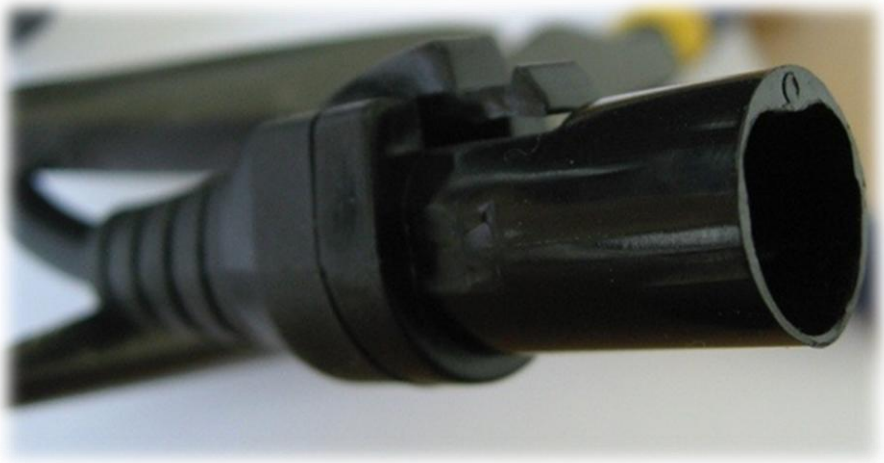
Upon my arrival at the airport prior to their departure, the P51 pilot, also named Mike, asked me if I wanted to fly formation in my Mooney. Now how could I turn down that offer; a once in a lifetime opportunity.

My plane is a little faster than the four engine B17 bomber and about the same speed as the two engine B25 bomber. This is same plane that Doolittle's Raiders flew off a carrier to bomb Tokyo. My Mooney is also a lot slower than the P51, the greatest fighter ever built. All that had to be coordinated. I took off first and the P51 came up beside me a bit to fast. I had to do a go-around, but he came along side of me the second time, slowing down to my speed.

After much picture taking, we all landed and I took Mike back to Chester Co. NOW, HOW COOL WAS THAT!

Using the Aircraft Cigarette Lighter

by Mike Maksym



I have been using my iPad on my trips for some two years. I keep my iPad charged by plugging it into the cigarette lighter in my 1978 M20J. On a recent flight, I thought my GNS430 was starting to have a problem because the sound in my headset would come and go as if I was turning on the squelch .

As a precaution, before my next flight, I did a ground check of all my radios. Everything was good. But wait, maybe the problem only shows up when the engine is running. I took the bird up for a short flight on a beautiful, Georgia sunning day. The flight was great ,smooth and no radio problems. Note: My iPad was not used.

Two weeks later, off I go on a trip. This time, the weather was not the best and there were headwinds all the way, with an estimated ETE of 4 hours. At the departure airport, I normally contact Atlanta Center while still on the ground, for my IFR clearance. But this time, after making a few radio calls to ATL center, an airliner replied that ATL couldn't make out my transmission, due to a humming noise. Ok. I shut down and called flight service to receive my clearance.

Twenty minutes later, off I go. After flying the departure procedure, I contacted ATC and they answered my call loud and clear. About 30 minutes into the flight , the squelch noise started again, and at times, it was difficult to hear ATC. So I used my Collins radio for talking to ATC, but it still made the same background noise.

For the next 2 hours and 30 minutes, the background hissing would come and go. As I got closer to my destination, due to weather and traffic, Jacksonville Center had to vector me. As I reached across to dial in a VOR station in my Collins, I bumped my iPad charging cord and guess what? The noise stopped. I put the charging cord back in and the noise came back. The iPad had plenty of charge left, so I left the iPad unplugged .

Here is what I found out: Although the charger cords for the iPad and iPhone and multi-plug adapters are similar , there are differences between them and the cigarette plug. The aircraft and your modern electric equipment plugs and multi-plugs just don't like the cigarette plug after some time. They can get hot and do some weird electrical things; even stop charging. The good news is, that most electrical things have a fix. Have your mechanic replace the cigarette lighter plug with an approved plug that matches your iPad/iPhone or other multi-plug.

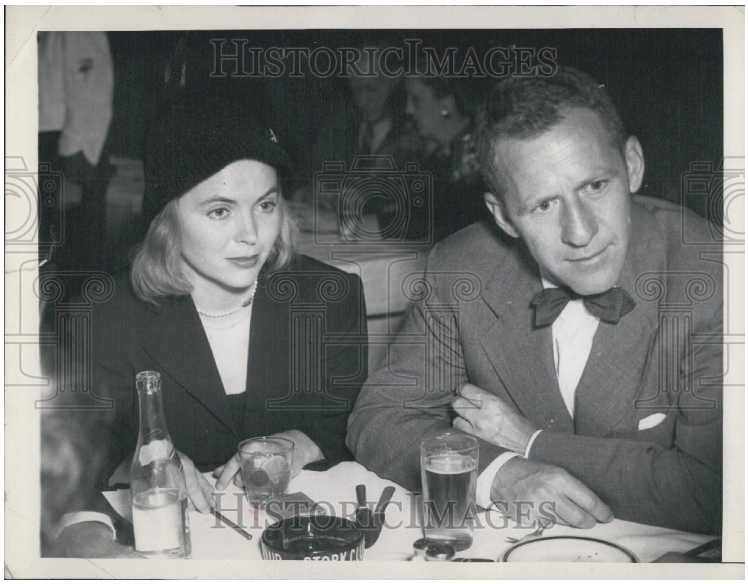
The First Airline Called Southwest

By Jim Price

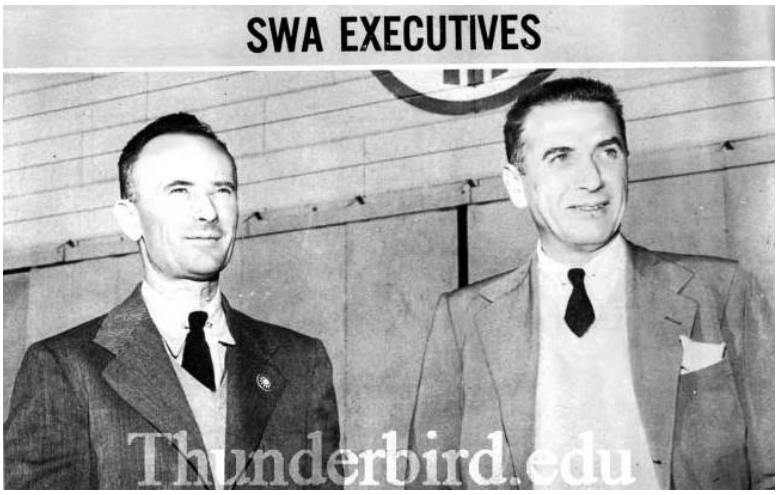
During World War II, the United States Army Air Forces (USAAF) established numerous airfields in Arizona for training pilots and aircrews of USAAF fighters and bombers.

In early 1941, Air Service veteran John Howard "Jack" Connelly and noted Hollywood agent/producer Leland Hayward (The Spirit of St Louis, The Old Man and the Sea, Gypsy, and The Sound of Music), formed a business partnership called Southwest Airways.

Neither man was a stranger to aviation; Connelly was a former test pilot, airplane salesman, Civil Aeronautics Administration instructor pilot, and inspector for the 1930s-era Soviet Union. Hayward was an active private pilot and was on the board of directors of Transcontinental and Western Airlines (TWA). The two men enlisted the support of commercial pilot and photographer John Swope to oversee the training of aviation cadets and serve as Secretary-Treasurer.



Swope a Life Magazine photographer, is shown here with his wife, actress Dorothy McGuire.



Jack Connally & Leland Hayward

Backed by investors that included James Stewart, singer-actor Hoagy Carmichael, Cary Grant, Henry Fonda, Robert Taylor, and Margaret Sullavan, Hayward, Connelly and Swope founded a maintenance depot for overhauling training aircraft, a wartime air cargo line, and a military pilot training complex consisting of Thunderbird Field No. 1, Thunderbird Field No. 2, and Falcon Field in Arizona.

By the end of World War II, Southwest Airways was the largest training contractor in the United States. From its three Arizona airfields, they trained more than 20,000 pilots from over two dozen countries.

Thunderbird Field No. 1, Glendale, AZ

Construction began on January 2, 1941 and the field was ready for operations on March 22, 1941.

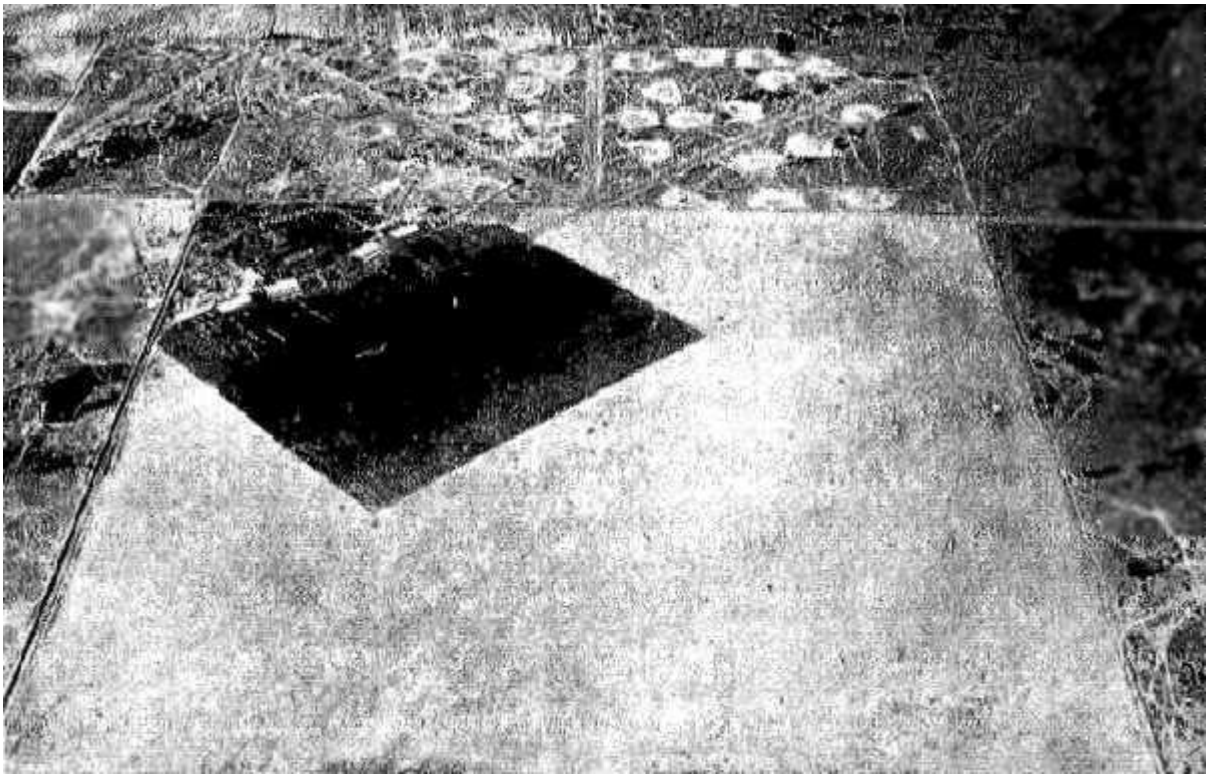
A Chinese Cadet (left) receives instruction at Thunderbird Field No. 1

The US Army Air Forces signed a contract with Southwest Airways to provide instructors and facilities for a primary training school for its aviation cadets in March 1941, beginning with a class of 59 candidates. Thunderbird Field No. 1 also trained pilots from China, Russia and 24 other Allied nations.

Stewart, Carmichael and the other backers paid $25,000 per month for fuel until 1942, when the US Army Air Corps took over control & funding of the pilot training at Thunderbird.

The site, 25 miles (40 km) from central Phoenix, was laid out by artist Millard Sheets to resemble, from the air, an etching of a mythical Anasazi Thunderbird. The control tower formed the head of the bird, the administration buildings and barracks formed the body, the hangars its wings, and the gardens its feathered tail.

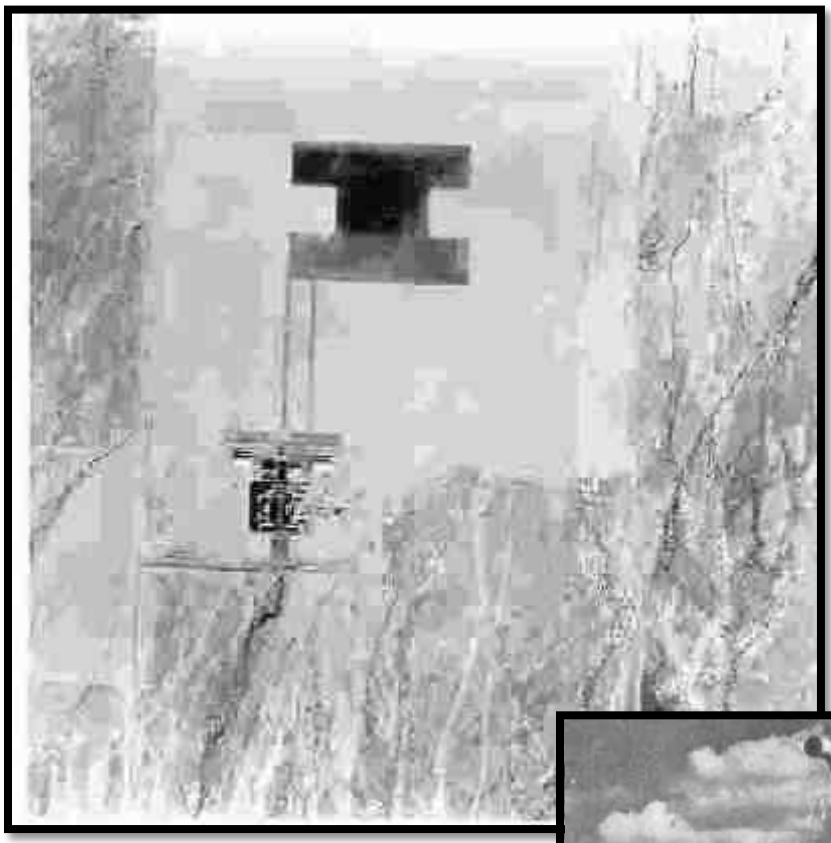
Contractor Del Webb Construction built a hexagonal barracks, administrative building, mess hall and four hangars on the site, plus twin swimming pools.



The airfield included a 2,800' square paved "landing mat", plus three runways, shown here

Eventually 10,000 pilots from 30 nations trained at the field before it was deactivated in June 1945. A 1942 Hollywood movie in Technicolor, *Thunder Birds* (directed by William Wellman), was filmed on location at the field in the spring of 1942. Aerial shots clearly show the original Thunderbird design.
No 1 closed 1 May 1945. It is now Thunderbird School of Global Management.

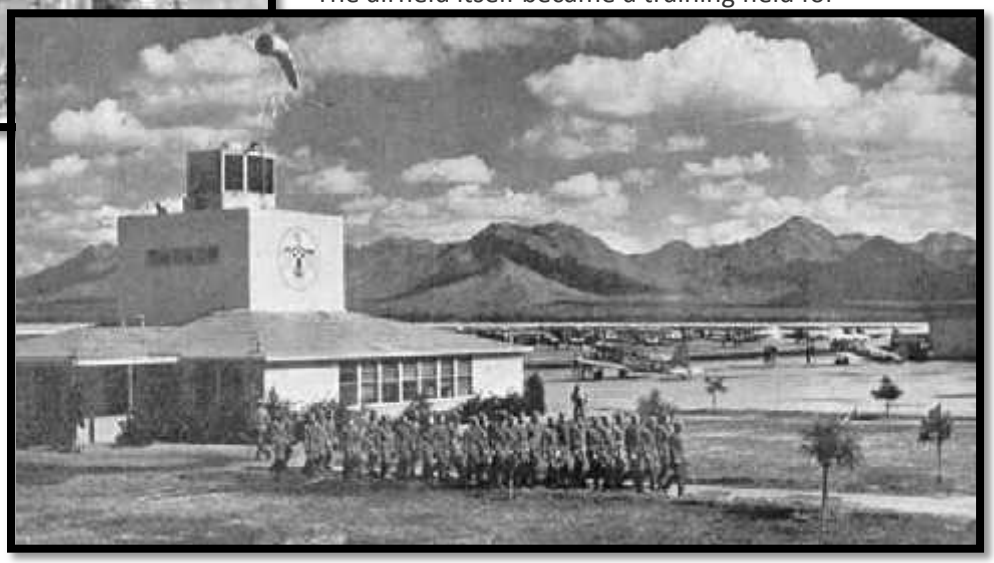
Thunderbird Field No. 2, Scottsdale, AZ



On June 22, 1942, Southwest Airways began operating Thunderbird Field No. 2 as a primary flight training school for aviation cadets. Throughout the war, Thunderbird #2 graduated more than 5,500 students, a total three times greater than the entire total contemplated by the AAF's original expansion program. In addition, The school was deactivated on October 16, 1944.

The Arizona Conference of Seventh Day Adventists purchased the Airport in 1953 and established Thunderbird Academy. Former barracks became dormitories. Hangars were adapted to house a wood products industry and a vocational education center offering training in mechanics, woodworking and welding.

The airfield itself became a training field for missionary pilots.



In 1963, in order to finance renovation of its physical facilities, the academy commissioned the first combined-use design of a clean industrial park surrounding an airport.

The City of Scottsdale acquired the airport from the Seventh-day Adventist Church in 1966.

Thunderbird No. 3, Falcon Field, Mesa, AZ

From 1941, as a result of the Lend Lease Bill, seven British Flying Training Schools (BFTS) were set up in the US.
BFTS No. 7 in Sweetwater, TX closed in 1942.

BFTS	Location	Contract School
No. 1	Terrell, TX	Terrell Aviation School
No. 2	Lancaster, CA	Polaris Flight Academy
No. 3	Miami, OK	Spartan School
No. 4	Mesa, AZ	Southwest Airways
No. 5	Clewiston, FL	Riddle-McKay Aero School
No. 6	Ponca City, OK	Darr School
No. 7	Sweetwater, TX	Aviation Enterprises, Ltd.

Thunderbird Field No. 3 was established as a BTFS. However, the British said they'd like the field to be named after one of their birds, and thus Falcon Field opened as BFTS No. 4.

In September 1941, the first cadets of the Royal Air Force arrived. The Brits trained in Stearman PT-17s and North American Aviation AT-6s. The good weather, wide-open desert terrain, and lack of enemy air power provided safer and more efficient training than was possible in England. Even so, twenty-three British cadets, one American cadet and four instructors were killed and are now buried in the Mesa City Cemetery, along with several colleagues who have since died of natural causes.

Several thousand pilots were trained there until the RAF installation was closed at the end of the war. The City of Mesa purchased the field from the U.S. government for $1.

From 1945-65 the field was leased out to industrial interests, including Talley Defense Systems, Astro Rocket Inc., Rocket Power Inc., the Gabriel Company and others. Eventually, it became a civil airfield, and is now owned and operated by the city of Mesa. Falcon Field is the home of CAE Oxford Aviation Academy, the largest flight school in the world, training student pilots from Belgium, The Netherlands, the UK, Italy, Turkey and Vietnam.
Since 1976 Falcon Field has been the home of Airbase Arizona, one of the largest units in the Commemorative Air Force (CAF) which operates a flying B-17G "Sentimental Journey" and a B-25J "Maid in the Shade" among other aircraft.

Building an Airline called Southwest

After the war Connelly and Hayward raised $2,000,000 from investors including James Stewart and Darryl Zanuck to expand Southwest into the airline business, pending government approval.

They were awarded a three-year experimental charter from the Civil Aeronautics Board on May 22, 1946 for their feeder service.

Southwest Airways scheduled flights began on December 2, 1946 with war surplus C-47s, the military version of the Douglas DC-3, which had been converted for civil use. The initial route was Los Angeles to San Francisco with stops in Oxnard, Santa Barbara, Santa Maria, San Luis Obispo, Paso Robles, Coalinga, Monterey, Santa Cruz/Watsonville and San Jose. The north coastal route.
included Oakland, Vallejo/Napa, Santa Rosa, Ukiah, Fort

Bragg, Eureka/Arcata and Crescent City while the inland route included Oakland, Sacramento, Marysville/Yuba City, Oroville, Chico, Red Bluff, Redding and Yreka with Medford, Oregon added later. By the late 1950s, Pacific Air Lines was serving Catalina Airport on Santa Catalina Island off the coast of southern California with flights from Los Angeles (LAX), Long Beach (LGB) and Burbank (BUR, now Bob Hope Airport). In 1960, a Crescent City to Portland, OR flight was added.
Southwest had a fleet of ten planes in 1948, all Douglas DC-3s, and was flying between 24 airports in California and Oregon, thus becoming the second largest feeder airline in the United States.
In August 1953 Southwest scheduled flights to 23 airports, all in California except for Medford. In May 1968 Pacific flew to 29 airports.
The airline speeded ground operations to the point where a DC-3 could load and discharge passengers and begin taxiing for takeoff 90 seconds after coming to a stop (adding six minutes if fuel is needed). To save money the airline had their own pilots do the refueling instead of paying airport personnel. Ground time was reduced by keeping one engine running while a male purser quickly escorted passengers to and from the plane. Pacific's DC-3s were modified with an 'airstair', a door that doubled as a staircase for passengers. The airstair eliminated waiting for a ground crew to roll a wheeled staircase up to the plane.
In August 1953 a daily Southwest DC-3 was scheduled SFO to LAX in 3 hr 45 minutes with eight stops.

In a 1948 Time Magazine interview with Southwest Airways CEO, Jack Connally, the reporter wrote: Connelly serves no food, ("let them bring their own"), provides no chewing gum ("we never fly high enough to need it and besides it sticks to the floor"), or magazines, ("takes too long to unwrap them"). *TIME, October 18, 1948*

In December 1947 a Southwest Airways DC-3 flying into the coastal town of Arcata, California made the world's first blind landing by a scheduled commercial airliner using Ground-Controlled Approach (GCA) radar, Instrument Landing System (ILS) devices and Fog Investigation and Dispersal Operation (FIDO).

By 1948, the airline had made 1,200 routine instrument landings at the often fog-shrouded Arcata airport.

FIDO (Fog Investigation Dispersal Operations) petrol burners are ignited on either side of the main runway at Graveley, Huntingdonshire, as an Avro Lancaster of No. 35 Squadron RAF takes off in deteriorating weather, 28 May 1945. Source – IWM - CH 15271

In late 1952, the airline's fleet included eight secondhand piston-engine Martin 2-0-2s; faster and larger than the DC-3. In the 1950s the airline's literature said it reached 33 California locales. They could do that by serving only 24 airports, and timetables in the mid-1950s boasted that Southwest Airways "serves more California cities than any other scheduled airline."
The airline became Pacific Air Lines on March 6, 1958.

In 1967 the airline embarked on a controversial advertisement campaign, including a full-page ad in the *New York Times* on April 28, 1967, that highlighted the fear of flying. Pacific hired award-winning advertising executive and comedian Stan Freberg for the ad campaign, knowing that unconventional ideas were his forté. Under his direction, print advertisements said:

Hey there! You with the sweat in your palms. It's about time an airline faced up to something: Most people are scared witless of flying. Deep down inside, every time that big plane lifts off that runway, they wonder if this is it, right? You want to know something, fella? So does the pilot, deep down inside.

To complement the ad campaign flight attendants handed out "survival kits" featuring hot-pink lunch pails containing a small security blanket, a "lucky" rabbit's foot, the best-selling book *The Power of Positive Thinking*, and a fortune cookie containing the slogan "It could be worse. The pilot could be whistling *"The High and the Mighty."* The attendants were also encouraged to exclaim upon landing, "We made it! How about that!"

Southwest's Legacy

1968 Stiff competition from rival air carriers such as Pacific Southwest Airlines (PSA) and United Air Lines were factors in Pacific Air Lines joining forces with Bonanza Air Lines and West Coast Airlines in a three-way merger which resulted in the creation of Air West.

1970 Air West became **Hughes Airwest** when Howard Hughes, hungry for another airline adventure, purchased it.

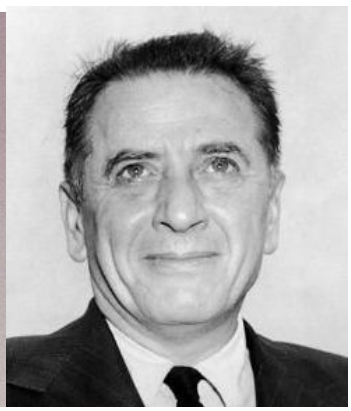
Hughes Airwest merged into Republic airlines in 1980.

Republic merged into Northwest Orient, (later Northwest) in 1986.

Northwest merged into Delta Airlines in 2010.

The two co-founders of Southwest Airways died within nine months of each other in 1971. John Connelly was and Leland Hayward was 68.

John Connelly



Leland Hayward

71,

"Our passengers enjoy the ability to fly over bad weather and turbulence" —Ottawa Silica Company*

Carrying three to six passengers on each flight, Ottawa Silica chief pilot James H. McGrath operates out of a 2,350 foot runway. In the winter, the airport has cross wind conditions of 20 to 30 knots with snow and ice on the runway.

Ottawa Silica's MU-2 has landed in six inches of snow and ice using less than 1,200 feet of runway. Utilizing the reversing capabilities of the twin turboprop engines affords short ground roll without wheel braking.

Chief pilot McGrath, after more than 80 hours of single pilot operation in 25 days said: "Our experience with the MU-2 has been good. We are pleased with its performance and pleased with the excellent service we get on any problems that come up."

That's a pretty strong recommendation from a pilot who has just logged 45 hours on instruments and 15 hours of night flying in those 80 hours.

When your company plane must go . . . when your executives need to get someplace in a hurry, comfortably, the Mooney MU-2 is the plane that will get them there . . . in all-weather safety.

*Ottawa Silica Company's plant at Ottawa, Illinois, is the nation's largest single silica sand production facility. With other plants located in Rockwood, Mich., Oceanside, Calif., and Mystic, Conn., Ottawa Silica Company serves the glass, ceramic and foundry industries.

MOONEY MU-2

P.O. Box 968 • San Angelo, Texas

DISTRIBUTORS:

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Henry Weber Aircraft Distributor, Inc.
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Burbank, California

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Midland, Texas 79705

Airport Industries, Inc.
L.I. McArthur Airport
Bohemia, New York

Illinois Aircraft Corp.
Midway Airport
Chicago, Illinois 60638

For more information write #175 on reply card opposite last page

Send your questions for Tom to TheMooneyFlyer@gmail.com

Question 1: I am looking at a 1965 M20C. In your experience, what things should I especially look for in a PRE-BUY?

A 1965 M20C is about as basic as an airplane can be. That being said, my view on pre-sales applies to any aircraft we work on. We use the basic Annual checklist for that plane, but do not do the servicing required. This saves a little $. Anything less and we won't do the job. We do that on any aircraft built. We then provide a detailed discrepancy report with our best estimate of the cost of repairs. We also indicate what is unairworthy or recommended. That provides the buyer with a list to work with if he decides to buy the plane. About the 1965 M20C. Corrosion would be the number one concern, closely followed by fuel leaks. Corrosion could total the aircraft and fuel leaks could be very costly. See next question.

Question 2: In your experience, why do Mooney fuel tanks develop leaks? What is the cause? And after all these years, why isn't there a fix?

Mooney fuel leaks are probably the number one "problem" with a Mooney. The wet wing design is desired as it usually allows for a lower gross weight of an aircraft. Why do the leaks develop? I could write a lot on this subject and it will be totally my opinion.

1. Age: As the plane ages, so does the sealant and we notice that the sealant tends to dry and crack with age.
2. Airplanes sitting without full tanks, especially in the heat, promotes sealant drying on the top skins.
3. Not replacing shock discs when needed can transmit shocks to the wing structure and promote sealant cracking.
4. In the past, the composition of the fuel itself was different than it is today. The sealant itself has been changed through the years to compensate. Therefore, older Mooney models, with the older sealant, may be more susceptible to the newer fuels.

Why isn't there a fix? Well, actually there is. The newer Mooney models, M20R, M20TN, are much less prone to leaks, so the newer sealant and factory procedures seem to be an improvement. Airplanes that have been stripped and resealed by the few shops that chemically strip and reseal, also have had good results. The biggest complaint I hear is the cost. I understand that. But, when you consider many of the planes we deal with are 25 to 50 years old, you just have to adjust your mind to the reality. For example, we used to do a lot of business repairing airplanes with gear up landings. Now the insurance companies total most planes because the cost of repair almost exceeds the plane's value.

Passive Passengers

by Linda Corman

This last weekend, a group of 30 Mooneys flew to Page, Arizona for a fly-in. Our host was Cliff Biggs, a local resident and long time mechanic and Mooney pilot. One of the cool things Cliff decided to do was put on a seminar for pilots, and anyone interested in studying the inner workings of a Mooney airplane. This of course, did not really excite a good number of the right seat attendees.

Valuable Right Seaters

Several of us decided to return to our hotel and enjoy the wonderful sunshine and pool area. As we soaked up the beauty of Page, we talked about our individual

experiences as right seat persons. The other ladies, besides me, were Wilma Petrzelka and Vikki Belardi. I have known these ladies for a number of years and we had never taken the time to talk about our participation as passengers. I had somehow gotten the idea that both of these ladies were what I call “passive passengers”. What I mean by passive passengers is, that they fly because it gets them to a destination quickly and their pilot loves his aircraft. I had always assumed they just hopped into the plane when it was ready to leave and basically settled back for a ride. I was so wrong.

Greg Has A Problem.. Quiet Time

We all started sharing what we do to help prepare for the flight. Wilma really surprised me in a cute and wonderful way. She walks around their airplane, with a screwdriver in hand, looking for loose screws that need to be tightened. This also includes the belly of the plane! She also told me that after flying with Ivan for so many years, she has gotten to know his routine in flight. She pays attention when, without saying a word, he starts touching dials and switches that are out of the ordinary. She gets quiet and lets him work out whatever problem might be occurring. She says she understands he needs to take care of the airplane first and explain the problem later. Vikki said almost the same thing. She also knows when Greg is working out a problem, she doesn’t need to

ask questions; allowing him to utilize all his pilot skills. Vikki has not been flying that long, but, with the help of Greg and her willingness to learn some of the functions of the aircraft, she is beginning to enjoy the flight and help with some of the flight preparations. Greg tells her the coordinates and Vikki dials them into the GPS.

These may seem like little things to a lot of pilots, but to us right seat passengers, they make us feel like we are more involved with the flight process, and it also makes us feel more secure. I have written in other articles about my preparation for flights. I like to walk around the plane, doing my own inspection of the aircraft, looking for low tires, unusual oil streaks, new dings or dents, or perhaps birds have decided to nest in our cowling. I also put in our Squawk code, (see illustration), when air traffic control gives it to Phil. All of us ladies also talked about looking out for traffic en route and helping to find the airplanes that are sharing the sky with us. I am not saying that every right seat passenger needs to be involved in flight preparation, but the sense we are helping our pilots in some small way helps us feel we are not just baggage. Our perception that we are not helpless and we somehow contribute to a successful flight is important to us. I was so happy to have that time with these two great ladies and to have had a discussion of shared interests.

November 14 Vero Beach (VRB)
December 12 Punta Gorda (PGD)
January 9 Leesburg (LEE) Lunch will be at the EAA hanger, after lunch we will go to our house and run the garden railroad, transportation provided by locals both ways.

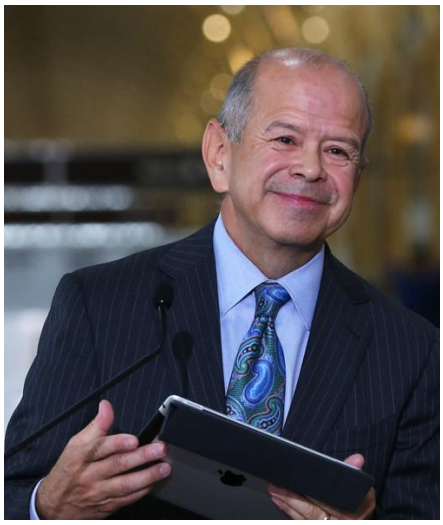
TBD

Area Forecasts will be discontinued in 2016

The National Weather Service said the weather product, long familiar to pilots as a major component of preflight weather briefings, will be discontinued for the continental United States and Hawaii in the second half of 2016. Area forecasts will continue to be issued for Alaska, the Caribbean, and the Gulf of Mexico. Patrick Murphy, a senior aviation meteorologist with the FAA's NextGen program, said that the National Weather Service "currently produces forecasts with the same information contained within the Area Forecast in other products which are much more accurate, have more detailed information, and higher resolution. These products, taken with other weather information such as TAFs (terminal aerodrome forecasts), METARs (surface observations), and radar and satellite data, will provide pilots and briefers with better situational awareness and lead to improved decision making."

Several of the replacement weather products were expected to be available this year, but have been delayed. Area forecasts will be available for at least three months after the new weather products come online. READ MORE

FAA: More Education and Training; Less Enforcement Action



The FAA is adopting a new "compliance philosophy" designed to cut pilots and aircraft operators a break for honest mistakes as part of what is being described as an agency-wide push to identify and correct safety issues before they lead to aircraft incidents or accidents.

The FAA in June adopted a national policy notice instructing agency personnel to correct simple mistakes arising from a lack of understanding or diminished piloting skills through training and education rather than enforcement action. It is unclear if those changes are being broadly implemented in the field.

The FAA will continue to have zero tolerance for intentional, reckless behavior, inappropriate risk-taking, repeat offenders, falsification of records or deviation from regulatory standards.

Mooney launches Certified Pre-Owned Program

Mooney's production for 2015 is nearly sold out, and Mooney dealers are beginning to take orders for 2016 aircraft. In October, 2015, Mooney International Corp. launched its first Certified Pre-Owned Aircraft program.

It includes a "Fly-Away Guarantee" providing free repair or replacement of inoperative equipment for the first 30 days or 10 hours after taking delivery of the aircraft, as well as a factory-signed certificate of authenticity verifying all work was done.

Eligible aircraft are required to have the work performed at a Mooney Factory-Authorized Service Center.

"A used Mooney has always represented an industry leading top value, so we developed this program in partnership with Premier Aircraft Sales to address a significant demand in the marketplace," said Jerry Chen, CEO of Mooney.

As of mid-October, 2015, there were currently four Mooney Certified Pre-Owned aircraft for sale through Premier. READ MORE

TMF PRODUCT REVIEW

Garmin's Flight Stream 210 & Foreflight

Earlier this year, while loading a long, complicated flight plan into my Garmin GNS 430W, my wife, Gerry asked, “Instead of twisting and turning, Isn’t there a better way to do that?”

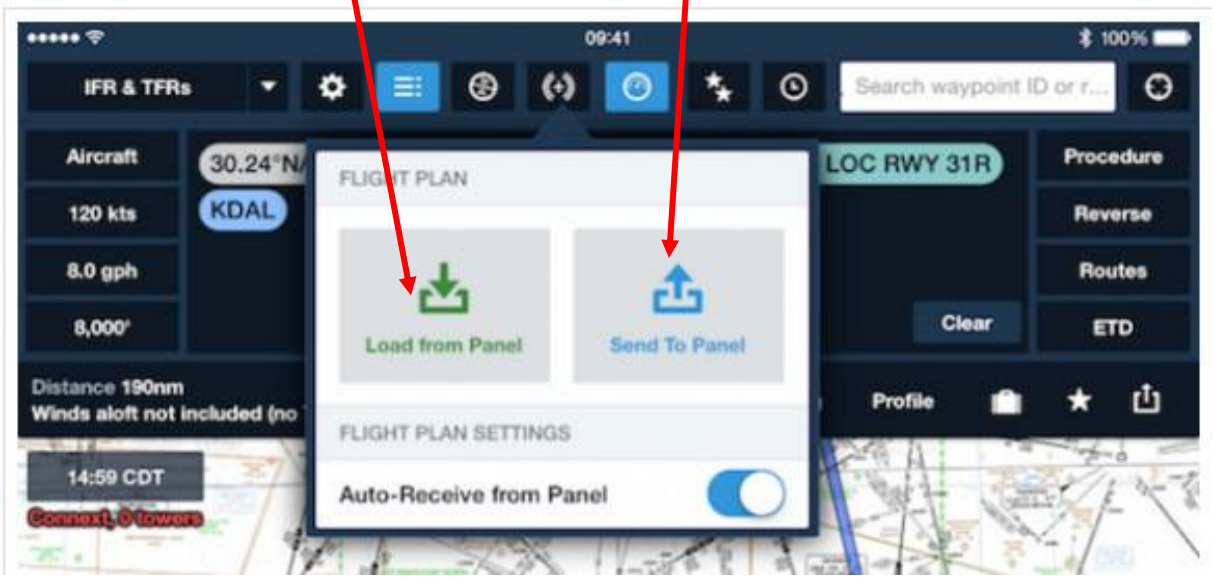
“Sure, but only if I get a Garmin Pilot app, pay for that subscription and try to learn it.”

Then, in mid-September, my favorite app ForeFlight announced that they could now work with Garmin’s Flight Stream. My friend Larry Palmer had been using the Flight Stream 210 in his M20J to connect with the Garmin Pilot app, so I asked him for an opinion. After a long conversation with Larry (I’ve had very few short talks with him), I was convinced that I needed to part with a few bucks and do it. The 210 costs $1,000 and the labor and extra wiring cost me another $590.

After the installation, Mitch at Arizona Air-Craftsman, in Prescott, AZ, helped me “pair” my iPad with my GNS430W via Bluetooth. It was very easy to do.

Once they were “paired”, I noticed a new icon on ForeFlight. I touched it and a box popped up, giving me two choices. I could send one of my GNS430W flight plans to ForeFlight

Or, I could send my current ForeFlight flight plan to the GNS430W.



I chose the latter, (Send to Panel) and when I pushed the GNS430’s FPL button, another new feature appeared; a third page called “Pending Flight Plans”.

I selected the flight plan in the “Pending” library and activated it.

I had touched my iPad twice, pressed the FPL button, turned a knob or two, and basically, I was done! Yes, Gerry, there is a better way to do that!

As you progress on your flight, the ‘Auto-Receive from Panel’ setting automatically sends a notification when changes are made in the navigator, allowing you to keep your panel avionics and mobile app on the same page.

The Flight Stream 210’s built-in AHRS also provides pitch and bank information for ForeFlight’s Synthetic Vision and backup attitude displays, and a connected GDL 84/88 rounds out the experience by delivering ADS-B traffic and weather information to your iPad display.

Do I recommend it? Yes, yes, yes!!!

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. 9,000+. 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) 368-5768, 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

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

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. Member MAPA Safety Founda- tion. Owned Mooneys for over 30 years. Total: 11,000 +; Mooney: 6000.

Vermont

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

Virginia

William Wobbe, Leesburg. william.wobbe@gmail.com , (713) 249-7351. ATP, SES, SEL, MEL, MES, CFI, CFII, MEI, AGI, IGI, ADX. Time in M20B through M20TN models and very familiar with Garmin G-1000, GTN750/650, and G530/430 avionics. 1600+ dual given in Private through ATP training. MAPA PPP instructor and lots of experience in cross country all weather flying including TKS Known Icing Systems. Flight Service Station Specialist and familiar with iPad weather planning apps such as ForeFlight. I can answer questions on 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. Total time: Over 20,000. Mooney Staff CFI, Mooney Safety Foundation. Retired American Airlines Check Airman. Owns a M20J 201. Total time: Over 20,000.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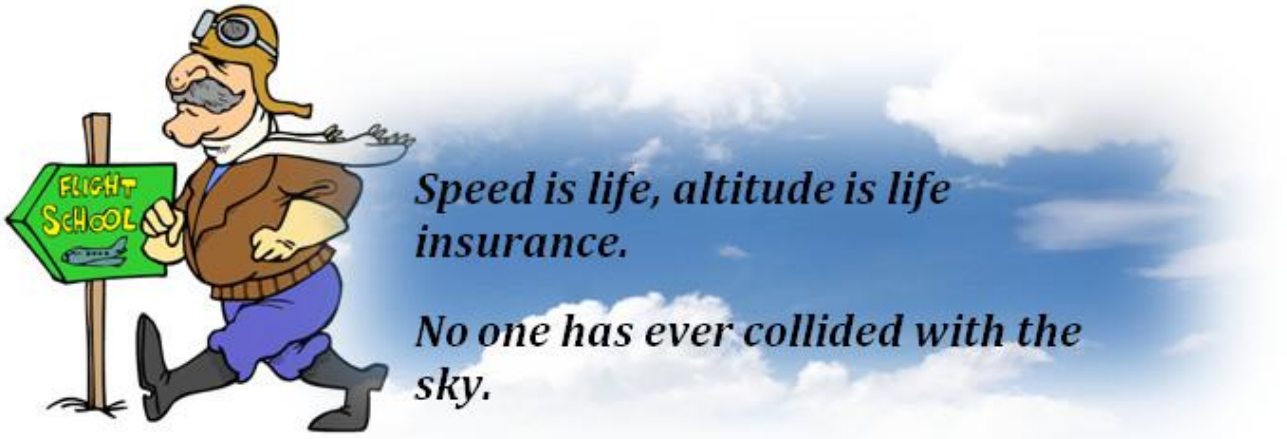
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Mooney N6825U Serial No. 184 Made in 1963, sold in 1964

Airframe total time: 5620 hours. 3,000 of that is mine put on over 30 years. Mainly long trips, over an hour to 50 hour round robins. Coast to coast and border to border.

Engine total time: 500 hours. Since Lycoming zero time remanufacture.
Prop total time: 140 hours. Since new Hartzell following the prop AD. A new one is free of the AD.

Paint: Condition estimate "9." Interior: Condition estimate "9." Based on when new. It is an Airtex cloth total kit. Headliner, floor, seats, side panels. New type Mooney insulation installed when the interior was redone. All interior plastic was repainted at last annual.

Damage History: None. This is for last about 35+ years.

Avionics:

2 Terra Nav Coms, both with glide slope. One one piece, one 2 piece. I have a spare com radio to give with the plane. I know a source for Terra repair & parts.

King ADF (forgot number)

Narco AT 50A transponder with altitude encoder, Narco DME, 690 (?)

King KMA 12B Audio panel with marker beacon

Instruments: Tachometer, Mooney original. Has been serviced by good shop. Cluster Gauge, 6 instruments, R & L fuel, Amps, oil temp oil pres, cyl temp, all recently rebuilt including face. EGT original Mooney Manif Pres/Fuel Pres combo, original Mooney DG, replaced old vertical axis, new type, vertical card, Turn coordinator, replaced old T & B, Attitude Indicator new, replaced old Horizon, Suction gauge new, replaced one built into old horizon, Clock, electrical, replaced old one, Airspeed, original Mooney, Altimeter new, Vertical speed, new Alternate static source valve added, to interior as source, behind altimeter, placarded Headsets, 2, Audio-Com, passive noise cancelling. "Soft Seal" ear muffs, PTT switch on yoke, Hand mike included, speaker in overhead. Yokes resurfaced, rubber Yoke clip for Apollo Precedus and note pad, clips on. Precidus available if an antique is desired. Tank changer tube in side pocket, per Norm Smith, the Mooney Miser. Made from 12 inches of 1/2 inch sch 40 PVC, works well. Heads up use! ncidentals tray on nose gear housing, held by Velcro

Other Additions, etc.

Logs from two owners available, 3,000 hours+, 30 years+.

All AD's complied with. No recurring ones remain.

Engine mount replaced well before engine change, Lake Aero modified one used, ends recurring AD.

An M-20 Air-oil separator is installed.

All hoses were replaced at engine change and covered with fire sleeve

All SCAT replaced

Muffler rebuilt by Knisely some time ago, Is good.

Aileron link replaced, Lake Aero part.

Flap master cylinder rebuilt

Has had one change of shock biscuits

Has a replaced nose gear link by Lake Aero

Has Areo Seal tank sealing by Top Gun, still dry under wing.

No aluminum corrosion ever found, dry climate most of life.

Light rust on door steel tube, less one inch long below door handle hole repaired. No other found.

Ground wire to landing light installed, radio help

New engine came with alternator to replace generator and with light weight starter.

Air box, carb heat flap, alt. intake air, etc rebuilt at engine change.

Oxygen bottle accompanies plane.

Plane is out of annual. Currently hangared at Nervino Field, Beckwourth, CA. FBO Nervino estimates $1,500 to $2,000 for annual. That is negotiable with price. Strongly suggest Nervino do work as they have done all annuals, and major repair for over 30 years, so are familiar with plane and it is a second generation shop, highly respected, low overhead. No ferry permit needed for that. Beckwourth is dusty, hangar not sealed, plane needs a bath and wax again, I'll do that.

Note original engine was overhauled by previous owner at about 2,300 hours. He built Merlins at Packard. Supervised by Nervino. It lasted 2950 hours, still running well, but I was suspicious, one less hour per quart,

7, so replaced it. Operating from 5,000 foot airport in desert air likely helped component life for that engine and new one and airframe.

I have likely left out things, so will discuss anything with an interested party and send anything more you would like to have when I find it. For the big stuff, I estimate I have put in around $80,000 since purchase at today's money value. Engine price has doubled since I replaced mine and prop was bought on special low price because of AD. Mark at Top Gun gave me some current prices. I'm only selling because of two things, mainly the medical where the FAA medication seems more risky than the small ailment, but age 82 as well which means much reduced

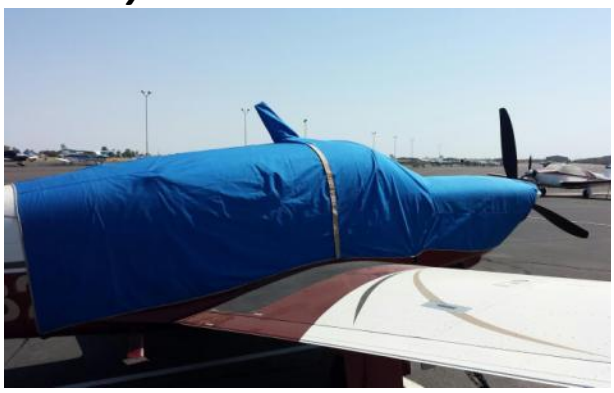
For Sale

King KX155 Navcom and KI 209 Glideslope Receiver. Removed from my Mooney 201 due to an upgrade to my panel. Guaranteed to work perfectly. Asking $2,995 for both units.
Contact Henry Punt at henrypunt@gmail.com, 562-881 9018

For Sale -- Complete M20C O-360 A1D 180 HP Mooney exhaust system. Removed several years ago to install a new Power Flow system. Was working fine at the time. Always stored indoors. May need to be inspected to obtain a yellow tag. Make offer. Shipping extra. Located at Cobb County McCollum Field (KRYY). Call Ron at 678-848-9899

For Sale – 1978 Mooney M20J 201. Aspen with extended warranty, Avidyne traffic, storm scope, very good paint (8), interior (7). King 200 autopilot coupled to the Garmin GNS 430 and Aspen. Factory engine with 850 hours. $ 88,000 - mbmaksymdc10@aol.com

Mooney Cover



This cover will fit a newer, longer 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