The Mooney Flyer

The Official Online Magazine for the Mooney Community

www.TheMooneyFlyer.com

October 2019

Departments

Features

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From the Editor

Phil Corman

What Causes Most Mooney Accidents?

The answer is simple and supported by facts… "The Pilot". Of course, Mooneys have mechanical failures in flight, which can lead to an accident, but it does not necessarily have to end in an accident. I know a Mooney pilot friend who lost an engine over the desert about 20+ miles from an airport and landed at that airport without incident.

Fuel Exhaustion is too common and is almost always caused by the pilot, through a lapse in judgement and or a lack of situational awareness. Surely while enroute, one can experience a leak which drains off the fuel, but this is rare. Mooneys run quietly without fuel, but not for long. Fuel Exhaustion can be easily avoided by following a few rules:
1) The gauges are frequently inaccurate, so visually check the tanks before departure.
2) Plan for a generous reserve fuel in case the winds aloft become headwinds and are higher than expected.
3) If the destination is not "landable", ensure that you have enough fuel to comfortably fly to an IFR/VFR alternate.

The Pilot's Get-There-It is. Notice I didn't write Get-Home-Itis. It's the pressure to get where we intended to get to when we planned to do so, even though the weather and Mooney issues might get in the way. Get-There-Itis is compounded when we must get to our destination due to work or pressing personal reasons. Another equally pressing symptom is when we have passengers who we do not want to disappoint by delaying or cancelling. These pressures are real. Often the cause is weather, but at other times, it's functional fixity. Regardless of the reason, it's almost always the correct decision to delay or cancel the flight. I love the expression "Live to Fly Another Day"!

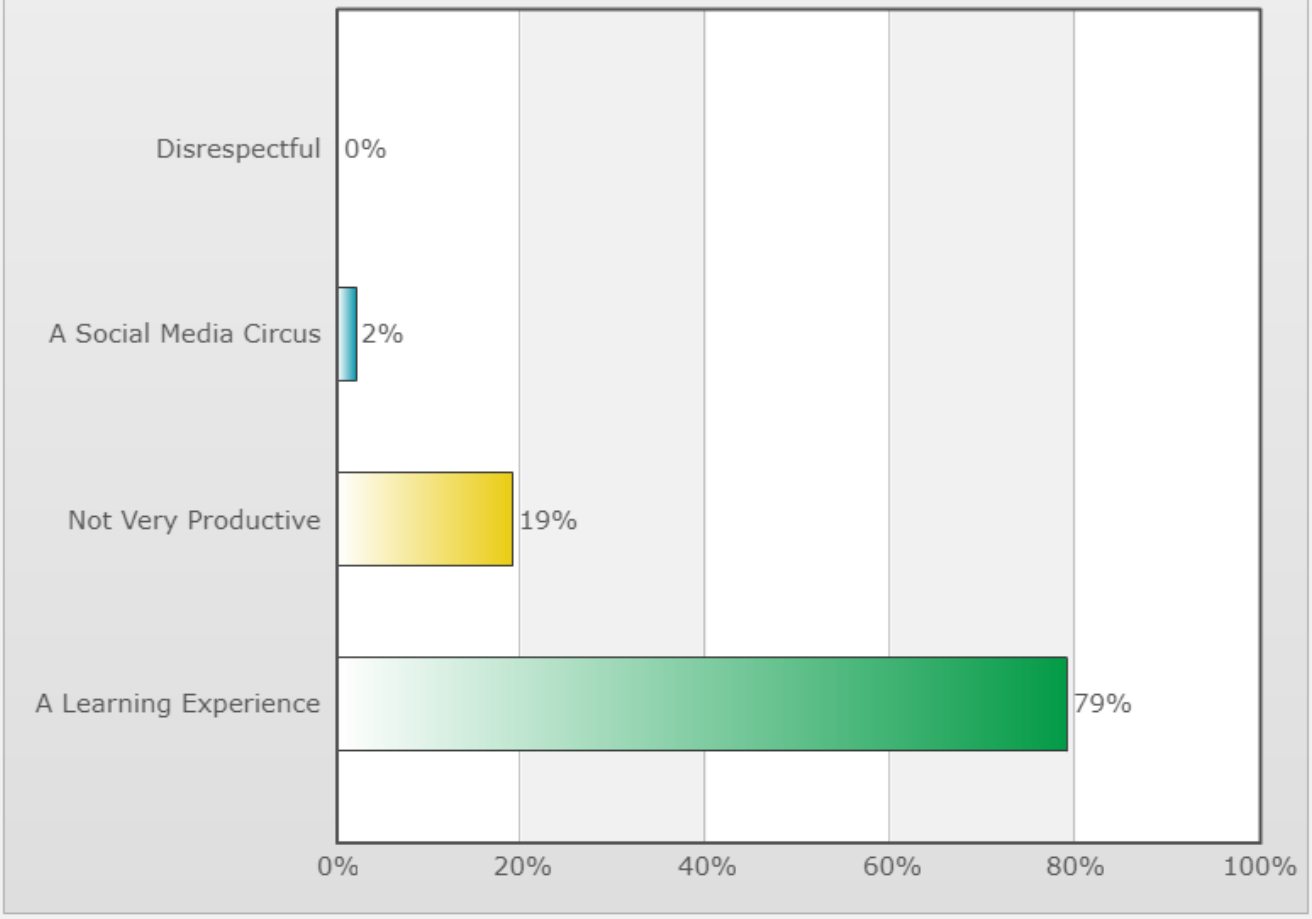
Choosing to Fly into Weather that's Beyond the Pilot's Ability is another cause of accidents. For non-instrument rated pilots, this is flying into IMC. For instrument rated pilots, it can be pushing the IMC beyond a safe level, such as flying in icing or pushing an approach to the limits. These situations do NOT need to end in an accident. Choosing to make a standard rate turn of 180°, cancelling an approach or avoiding icing are easy inflight decisions.

Finally, my last type of accident caused by the pilot is **Failing to See & Avoid**. With all the electronics we now have in our Mooneys, like weather and traffic, it's tempting to rely on TIS-B to avoid hitting other airplanes. But TIS-B is not perfect. Not all aircraft will have a transponder, have it on, or have it operational. The only solution is to look outside the cockpit. Except for being overtaken from behind, you can avoid bumping into most other airplanes.

Commenting on Mooney Accidents is:

Poll created by Phil Corman on 08/04/2019

Poll Results



Next month's poll: "My Fuel Tank Switch Policy is": **CLICK HERE** to vote.

MOONEY M20
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Check Your Mooney's Value
M20C M20E M20F M20G
M20J M20K M20R M20M

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Send your comments to editor@themooneyflyer.com

For more than 6 years now, I am flying my Mooney (call sign OE-KVT) with great passion. Still I am increasing my Mooney knowledge every month, thanks to your excellent TheMooneyFlyer. So ..a donation is on the way again to support your excellent work. Keep on going with that and your passion for our personal airliners.
Bernd

RE: Radio Calls - At my home uncontrolled Fallbrook Airpark, CA, I always radio announce when taxiing from my covered parking area. Our airport is hilly, and the hangars and lower covered parking area are connected to the runway by a blind one-way taxiway. It really helps taxiing Aircraft to know if someone is coming up the taxiway so they can hold while I taxi to the run-up area. So, there is a valid reason to call taxi on an uncontrolled field.

I enjoy reading the Flyer every month.
Thanks, **Dave K**

RE: Radio Calls -- Enjoyed reading your thoughts on radio communications - and agree!

I have one more to add - pilots doing IFR approaches announcing they are doing XYZ approach at the YADA waypoint or IAF, especially on nice VFR days. Who knows where they are...and apparently they don't know either. Probably just following a magenta line.

Thanks for all you do to support us Mooney folks!
Charles S

RE: Thank You -- Fellas, I sure appreciate The Mooney Flyer, thank you. 292LG '75 Mooney M20F. I have over 2,000 hours in this plane.
Daniel L

RE: Thank You -- I'm just not flying a Mooney anymore - you guys are great
Lt Col James R, 138th Space Control Squadron Commander

RE: Thank You – I'm astounded that you can come up with quality content - month after month.
Regards, **John H**

RE: Hot Starts -- Just read Walter Atkinson's article on "hot starts" in the Sept Mooney Flyer. His explanation of the cause of hot start problems and his method of running cool avgas thru the fuel pump, then priming, similar to a cold start, is what I was taught as well. However, I found that with the M20J's (aka 201's), this method does not work. I don't know why. But using this method, I have sat on the ramp and cranked until the battery died. Also hard on the starter. I learned to avoid hot starts like the plague – I absolutely dreaded them!

Then a mechanic at LASAR taught me a hot start method for 201's that works without fail, and with much less stress on the starter and battery:

- Do NOT run the aux pump – not at all
- Leave the mixture at idle cut-off (where you left it at shut down)
- Put the throttle wide open
- Crank the engine
- 5 to 7 blades will swing by, and then the engine will start
- Push the mixture in, and VERY QUICKLY pull the throttle back to idle
    - The above can be done quickly enough to prevent the engine from exceeding RPM

I don't know the "science" behind this or why it works – I just know it works every time, and it's eliminated my dread of the hot start. Now hot starts are just as routine and pain free as a normal cold start.

I've passed this on to other 201 owners who have complained of hot start problems. They tried it, and it's worked for all of them.
Regards,
Tim H

RE: Engine Failure Timing -- there is no statistical support for engine failure following power reduction. None. This is one of those "sacred cow old wives' tales". Pulling the throttle back just reduces cylinder pressures. This is not the reduction in a steady load, but rather reducing the size of the pounding of the pistons 22 times per second. If you don't hit something as hard, it is less likely to break.

That being said, I agree that there is no reason to rush to reduce power after take-off. In a normally aspirated engine, power reduction automatically happens 1" every 1,000' anyway. By the time you are at cruising altitude, all you need to do is reduce RPM to set the desired percent-of-power.

Brian L

Just read the September issue, end to end, like always and I am still amazed by you all and your creativity.

10 years ago, I had my tanks resealed in Troutdale, Oregon and noticed the fuel smell again this year. It was not an easy decision to take it back to Oregon, but I am glad I did. Advanced Aircraft Services had given me a 3-year warranty and I was surprised that they fixed the leaks for a very moderate charge. Also, Greg was most helpful with transportation to and from PDX.

Keep up the good work,
Yours, Rawil I

VFR advisories, ("Flight Following") and Reporting Altitude Changes

Every pilot, including me, has probably encountered a controller that didn't want to know about silly VFR altitude changes. However, let's look at the AIM (Aeronautical Information Manual). Paragraph 4-1-15 b 2 states:

When receiving VFR radar advisory service, pilots should monitor the assigned frequency at all times. This is to preclude controllers' concern for radio failure or emergency assistance to aircraft under the controller's jurisdiction. VFR radar advisory service does not include vectors away from conflicting traffic unless requested by the pilot. When advisory service is no longer desired, advise the controller before changing frequencies and then change your transponder code to 1200, if applicable. **Pilots should also inform the controller when changing VFR cruising altitude.** Except in programs where radar service is automatically terminated, the controller will advise the aircraft when radar is terminated.

When a pilot is receiving VFR advisories, also known as Flight Following, he or she is advised of radar targets that might be a conflict. The controller may issue an assigned heading and or altitude to help the pilot avoid another aircraft.

When the controller issues a heading or altitude change to avoid a conflict, it's based on the altitude and current or projected path of both aircraft. To do this, the controller needs to be aware of any altitude changes that you might make.

In addition, the controller might assign an even altitude when you're flying East, or an odd altitude when you're flying West. He or she might even drop the extra 500 feet that we normally add when we're flying VFR. This could especially happen in Class B or C airspace. When the conflict or special need no longer requires an assigned altitude, ATC is required to advise the aircraft when to resume appropriate VFR altitudes."

If you are receiving VFR advisories, and the controller tells you he or she doesn't need to know about your altitude changes, just say, "I'm following the guidance provided in the Airman's Information Manual, by informing the controller when changing VFR cruising altitude."

What's That in my Oil and How'd it Get There?

Many pilots know surprisingly little about their engines, what causes actual wear and how to detect the wear before it becomes an inflight problem. In this article, we will cover the location/part that is most likely providing metal in your oil analysis, so that you can inspect further, or take action sooner.

Oil Filters & Analysis

Most automotive oil filters are rated from 25 to 40 microns. Aviation filters are typically rated at 10 microns. It's interesting to note that the most harmful size ranges between 15 to 35 microns, with little or no wear and tear from 5 microns or less.

Iron is the main metal that concerns us. Interestingly, Iron is present in a variety of forms in our engines:

1. Metallic iron & steel
2. Iron carbides
3. Oxides such as magnetite and rust
4. Salts such as chlorides, sulfates, sulfides and phosphates

Rust inside your engine is just plain bad. A chief source of it is from the introduction of water into the engine, primarily because your airplane sits in your hangar or on the ramp, where internal condensation occurs. The best remedy for this is frequent flying. But remember, a good rule of thumb is: Fly at cruise for at least 1 hour to burn off the internal condensation. Taxiing won't achieve this.

Inspection Begins with the Filter

Want to detect camshaft or cam follower spalling and failure? Cut the filter. Use a magnet. A visual inspection of the cam followers is warranted if the end of the magnet is covered with metal slivers.

Wear occurs for one of two reasons: 1) Component or lubricant failure that results in metal-to-metal contact, or 2) Dirt. Dirt, or silicon, is by far the most typical cause of

higher wear metals. Here's a scary fact. Silica (quartz) combines with metallic oxides, known as silicates, and is the main basis of rocks. But when silica combines with carbon, it forms Carborundum, which has a hardness akin to Diamonds… Ouch!

But dirt is not the only cause of wear. Additive packages in ashless dispersant oils also tend to cause foam and Silicone is then used in the oil as an anti-foam agent. As much as 6 to 10 ppm silicon readings in your oil analysis can be attributed to this.

Detection of Different Metals

Steel/Iron

This is probably the easiest to detect in the cut filter by using a permanent magnet. But be aware that some non-corrosive and stainless steels are not magnetic. A combination of steel and aluminum may be from a magneto impulse coupling.

Small amounts of hard steel or chrome particles may embed themselves in the bearings where they can score the crankshaft.

Cadmium

To detect Cadmium, place the particles in a water solution of ammonium nitrate. If the particles dissolve, it's Cadmium.

Tin

Tin has a low melting point. Take a soldering iron heated to approximately 500^{o}F and tinned with 50-50 (lead/tin) solder. Tin will melt on contact. Tin is typically not a big concern as it is used in plating engine parts.

Aluminum

Aluminum reacts with hydrochloric acid. If you drop the particles into the acid, if it's aluminum, you'll get a "sizz". The particles will disintegrate and form a black residue (aluminum chloride).

The presence of aluminum in your oil is usually indicative of a failing piston pin plug.

Magnesium

Magnesium burns with a bright white flash. If you must test for this, only choose a particle or two as magnesium powder is explosive.

Silver

Some Continental engines use silver in the front main bearing. To test for Silver, place the particles in nitric acid. If Silver, it will react slowly, producing a whitish silver nitrate.

Bronze

Add nitric acid. A bright green cloud will indicate bronze and/or copper. Large particles indicate disintegration of a busing or valve guide, which should be addressed immediately. Continental engines use a Starter Adapter. Bronze may indicate a broken starter adapter which rubs on the bronze gear in the adapter housing. The 520 uses an aluminum starter gear adapter.

Carbon

Hard carbon deposits often appear to be metal particles. It's like "Fools Gold" to Gold. To determine if it's carbon, place the particles on a bench and hit them with a hammer. Yup, the Armstrong technique is useful here. If the particles shatter, it's carbon.

Source of Metals

Most Common Sources of Wear Metal Elements in Oil

Iron	Cylinders, rotating shafts, valve train and any steel part sharing the oil.
Copper	Brass or bronze parts, bushings, bearings, oil coolers, sacrificial coatings.
Nickel	Valve guides, trace element in steel, some cylinder types.
Chromium	Rings, cylinders, a trace element in steel.
Silver	Sacrificial coatings, a trace element in some types of bearings, bearing cage plating
Magnesium	Engine casings, additives
Aluminum	Pistons, piston pin plugs, bearing overlay, casings.
Lead	Primarily leaded gas blow-by, traces from bearings
Silicon	Abrasive dirt from intake air, silicone sealers and gaskets, sample contamination.
Tin	Bearings, bronze parts (with copper), anti-wear coatings.
Molybdenum	Traces of anti-wear coatings, some cylinder types, and bearings.

Runway Incursions

Phil Corman

Co-Editor

Our local tower claims that Runway Incursions are on the rise and to mitigate them, they are conducting Safety Briefings and soliciting help from local pilots. We are a little baffled by this trend. One of the easiest things to manage in a general aviation airplane is taxiing. That's because our slippery laminar wing is not in play and we can stop within a few feet without much effort. Runway incursions are "Easy to Avoid" and they are as inexcusable as running out of fuel.

First of all, you are on the ground, so if you are in doubt, STOP. Often at a new and large airport, it gets a little busy. At San Jose International (KSJC), there are 3 parallel taxiways for Runways 30L and 30R. The markings are clear and well understood, but can still be daunting. Never enter a place unless you are positive it is not a runway. Duh!

Even if you are cleared for takeoff or cleared to Line Up and Wait, check for landing traffic or departing traffic from both directions. I'm such a defensive "flyer", that when I "line up and wait", I do so at an angle so I can still see behind me, just in case a 737 might be barreling down on me.

Types of Runway Incursions

The FAA categorizes runway incursions into three error types: pilot deviations, operational errors/deviations, and vehicle/pedestrian deviations. Identification of a runway incursion as a pilot deviation, an operational error/deviation, or a vehicle/pedestrian deviation is not an indication of the cause of the runway incursion; it is a classification of an error type. These error types typically refer to the last event in the chain of pilot, air traffic controller, and/or vehicle operator actions that led to the runway incursion.

The types of Incursions as defined by the FAA are shown in the table below.

Pilot Deviations	Operational Errors/Deviations	Vehicle/Pedestrian Deviations
A pilot deviation (PD) is an action of a pilot that violates any Federal Aviation Regulation. For example, a pilot fails to obey air traffic control instructions to not cross an active runway when following the authorized route to an airport gate.	An operational error (OE) is an action of an air traffic controller (ATC) that results in: 1. Less than the required minimum separation between two or more aircraft, or between an aircraft and obstacles (e.g., vehicles, equipment, personnel on runways). 2. An aircraft landing or departing on a runway closed to aircraft. An operational deviation (OD) is an occurrence attributable to an element of the air traffic system in which applicable separation minima were maintained, but an aircraft, vehicle, equipment, or personnel encroached upon a landing area that was delegated to another position of operation without prior coordination and approval.	A vehicle or pedestrian deviation (V/PD) includes pedestrians, vehicles, or other objects interfering with aircraft operations by entering or moving on the movement area without authorization from air traffic control. NOTE: This runway incursion type includes mechanics taxiing aircraft for maintenance or gate re-positioning.

The FAA defines different severity levels of incursion as shown in the table.

Runway Incursion Severity Classification

Category	Description
Accident	Refer to ICAO Annex 13 definition of an accident.
A	A serious incident in which a collision was narrowly avoided.
B	An incident in which separation decreases and there is a significant potential for collision, which may result in a time critical corrective/ evasive response to avoid a collision.
C	An incident characterized by ample time and/or distance to avoid a collision.
D	Incident that meets the definition of runway incursion such as incorrect presence of a single vehicle/person/aircraft on the protected area of a surface designated for the landing and take-off of aircraft but with no immediate safety consequences.

Lest you think only pilots cause runway incursions, checkout this table below.

Number of Incursions for Each Runway Incursion Type

	FY 2005	FY 2006	FY 2007	FY 2008	Total
Pilot Deviations	447	507	575	637	2,166
Operational Errors/Deviations	126	111	124	164	525
Vehicle/Pedestrian Deviations	206	198	193	208	805
Total	**779**	**816**	**892**	**1,009**	**3,496**

It appears that we pilots are mostly to blame, so we need to be most of the solution.

Defensive Flying (When you are on the Receiving End of an Incursion)

What do we mean by this? It means to "Always Expect the Unexpected Runway Incursion". See that Cirrus taxiing up to the hold line while you are on a beautiful stable approach? Until that Cirrus stops short, assume that he or she might roll right onto the runway. Me? I've got my hand on the throttle.

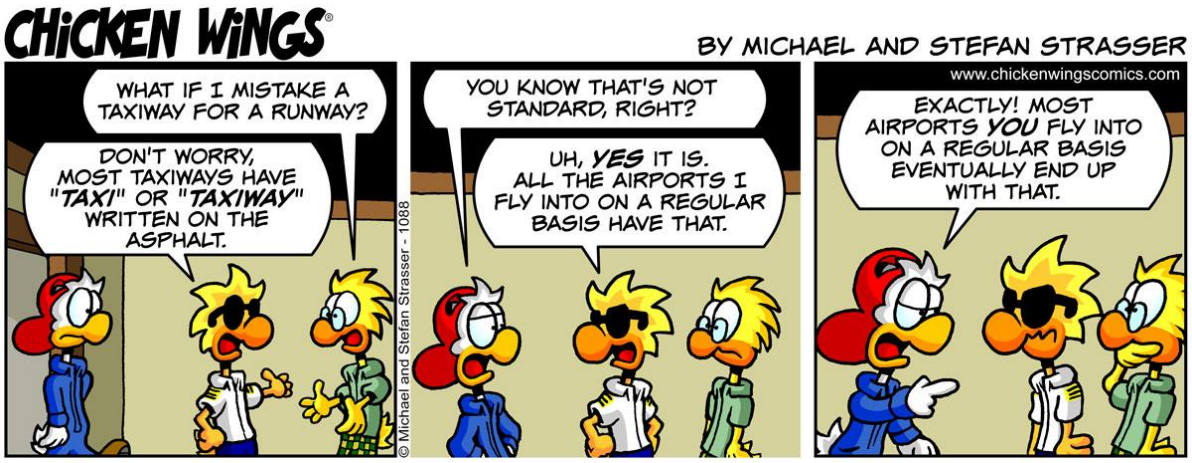
What about that vehicle mowing the grass alongside the runway? He's probably not an aviator. He might be tired, or he could make a wrong turn. So, I'm ready for that mower to mistakenly make a runway incursion. Defensive flying.

It's especially disconcerting when wildlife performs a runway incursion (and they are always NORDO). This happens more than you think. In 2019 alone, we have had deer, coyote and elk on a runway while we were approaching to land, and we don't live in Alaska!

Summary

As with fuel exhaustion, runway incursions are easily avoidable if you maintain the same high level of focus and attention during taxi that you maintain during flight.

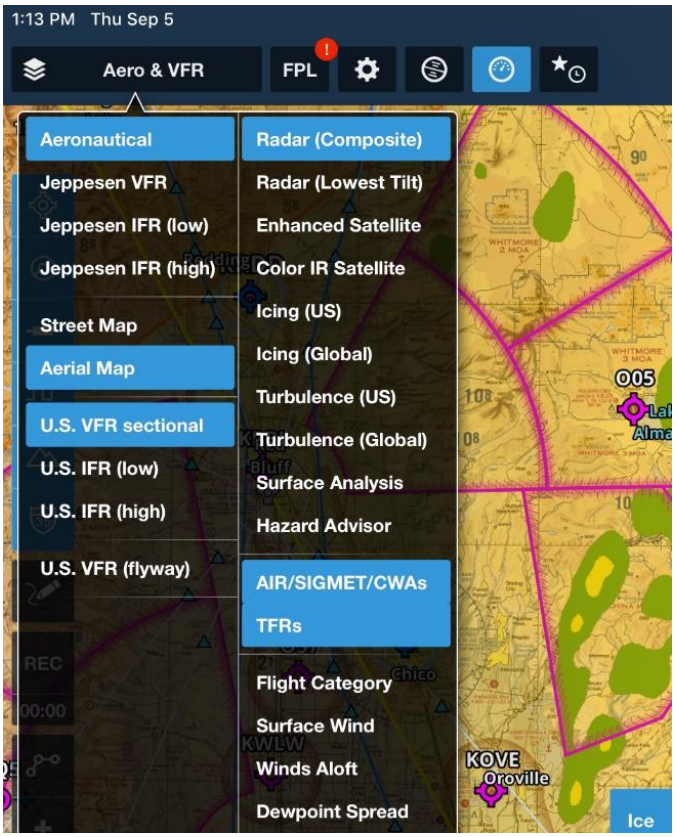
When in doubt, slow down or stop and think about your clearance. Do NOT enter an active runway, with a landing or departing aircraft.



ForeFlight's v11.7 New Features

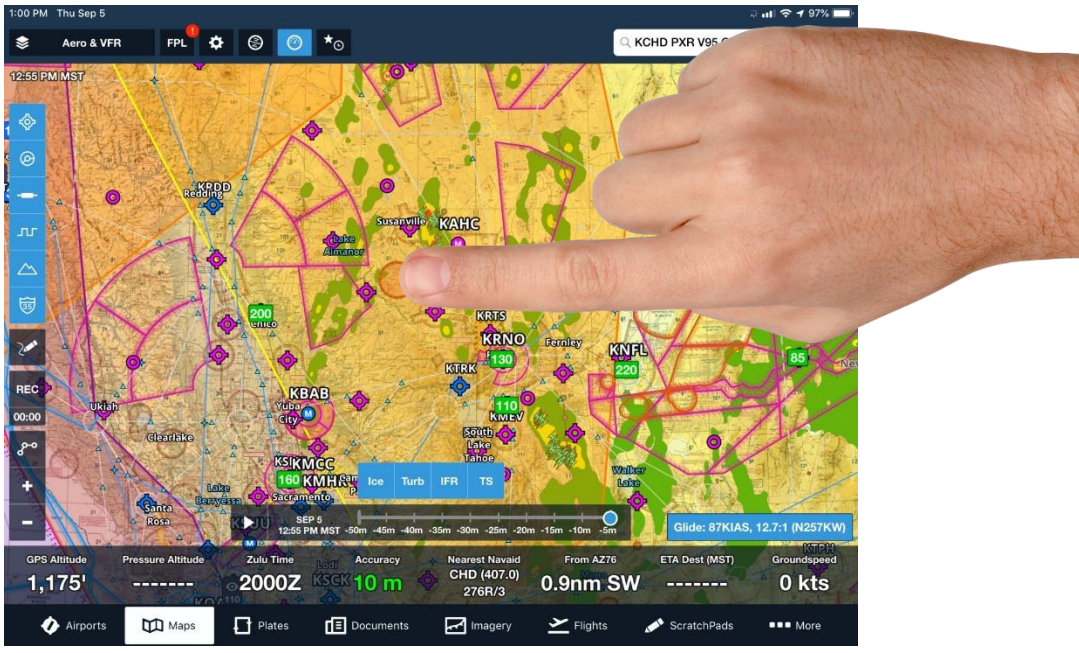
In previous ForeFlight versions, you could select either AIR/SIGMET/CWAs or TFRs, but not both. Version 11.7 of ForeFlight allows you to select both at the same time.

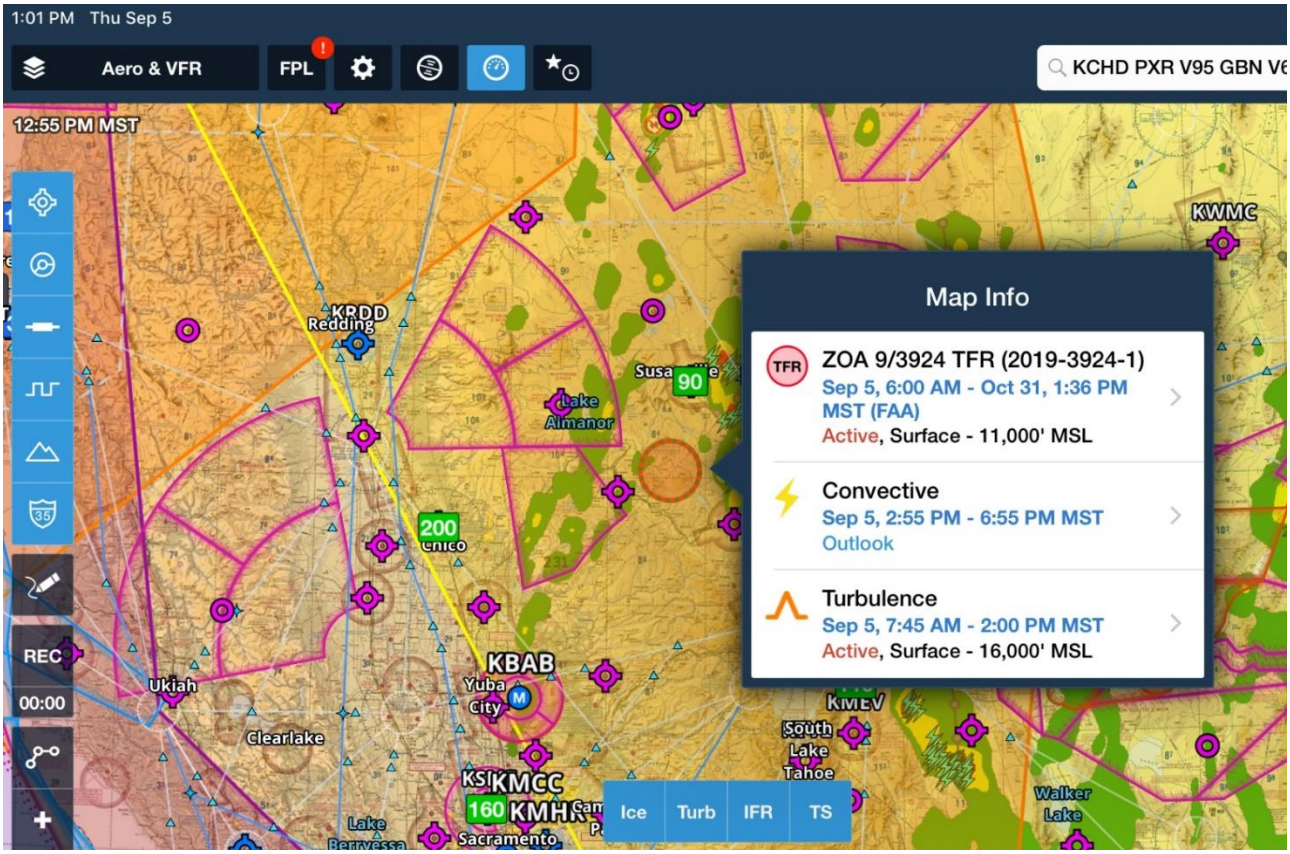
Now you can simultaneously view information about multiple layer types on the moving map.



In the map below, you can see that in the same area, there is a TFR, a Convective Outlook AIRMET (yellow) and a Turbulence AIRMET (orange).

If you tap on the TFR, ForeFlight's improved "Map Info" box appears, showing the TFR, Convective Outlook and the Turbulence AIRMET (next page).





AIRMETs and SIGMETs

In the above ForeFlight Info box, the lightning bolt is yellow, indicating a Convective **Outlook.** If the lightning bolt is red, this would signify a Convective **SIGMET**

Purple areas: **AIRMET Sierra** (Mountain Obscuration).

Blue areas: **AIRMET Zulu** (Icing)

Orange Turbulence: **AIRMET Tango**

Red Turbulence: **SIGMET** Tango

On the next page, I tapped on a PIREP that was reported in the same area that had IFR conditions, and both high and low Turbulence AIRMETs (Tango).

The improved Map Info box shows preview data for multiple weather problems. This greatly simplifies the interaction when attempting to get more info about layers on the map.

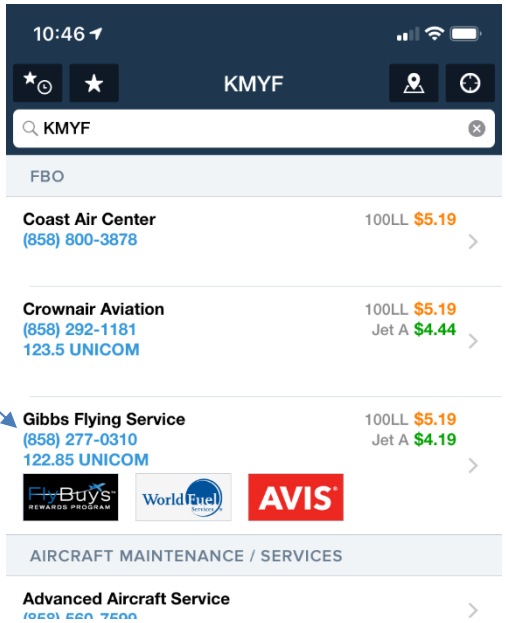
What are CWAs?

In the U.S., Center Weather Advisories, or CWAs, indicate adverse weather such as low IFR conditions, thunderstorms, icing, and turbulence. While they look a lot like AIRMETs and SIGMETs, they are more of an in-flight advisory about current conditions, rather than planning tools or forecasts.

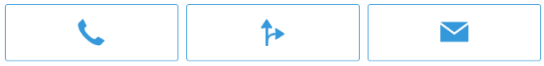
CWAs are not part of the ADS-B broadcast, so you will not receive them while connected to a Stratus.

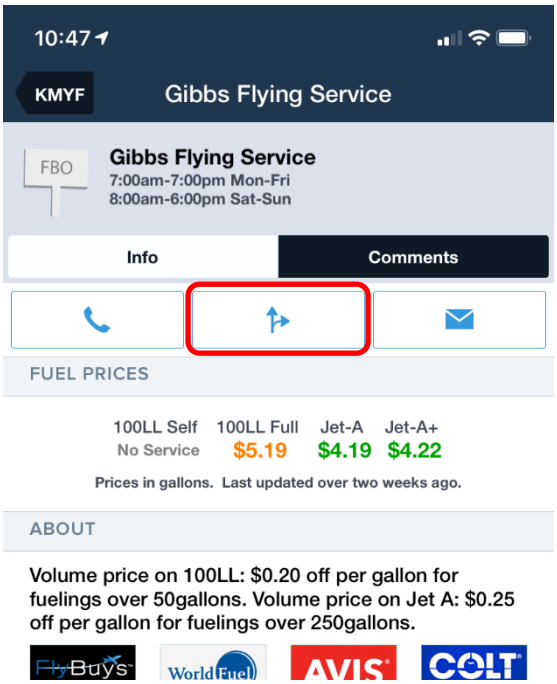
v11.7 Includes Driving Directions to the FBO

You've finished your lunch or meeting and it's time to head back to the airport, but your unfamiliar with the city and you don't know how to get back to your airplane. Simply you're your iPhone and open ForeFlight. From the "Airports" page, tap on "FBOs.
Click on the desired FBO. In this case, we'll use Gibbs Flying Service.

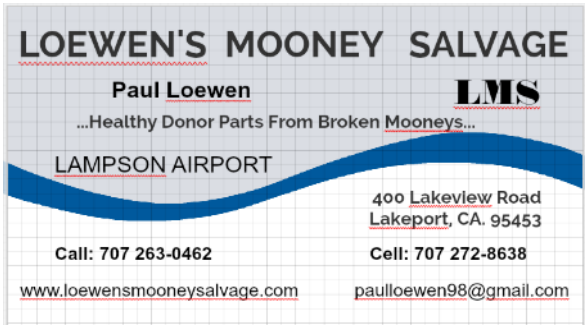


The next window will show options for calling the FBO (phone symbol), directions to the FBO (arrow symbol), or emailing them (letter symbol).





Tap the arrow symbol and this will open your device's Maps app. Tap "Directions" to start navigating. It's a fast and reliable way to get turn-by-turn directions back to your beloved Mooney.



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

The Mooney Maintenance Puzzle

Click here

Download Mooney's 100 Hour Inspection Guide

Search Mooney's Service area for Service Bulletins (SBs) and Service Instructions (SIs) applicable to your model

Click here

Search the FAA database for Air Worthiness Directives (ADs) applicable to your model

Click here

Click here

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

Ask the Top Gun

Tom Rouch

TG

Founder of Top Gun Aviation, Stockton, CA

Send your questions for Tom to TheMooneyFlyer@gmail.com

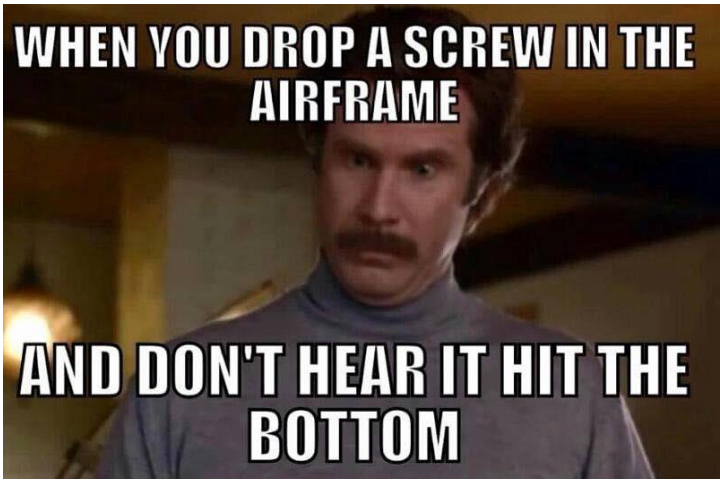
Question: Just read your article on the 3 blade MT prop - thanks! We just ordered this prop for our 70 F model. We also have the LASAR cowl enclosure fairing mod. How will the MT prop work with this setup?

In your September 2019 column, you also wrote, "The three blade is most effective on models that have been modified with the 201 nose cowl mod. Because of the huge inlet on early models, it's a drag. On these models, the three blade changes the airflow over the engine." I am especially concerned about this inlet being a drag and changing airflow over the engine. Will it run hotter? Perform worse?

Thank you for sharing your time & knowledge!

Answer:

The MT will be fine on the 1970 M20F, but it will fly somewhat slower since there is inherently more drag with the different nose cowl. If you see higher engine temps during the climb, then just use cruise climb instead of best rate. We have a 69 M20F, but it's modified to the same flying characteristics as a J model, so it's better aerodynamically. I do believe you will find it smoother and enjoy a better rate of climb.



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A Fanciful Flight in a Moth with a Gipsy Major

by Brian Lloyd

I made it home two nights ago. I am going to back to Okmulgee, Oklahoma, which is where I think I really left everyone four days ago. This trip turned out to be a fairly eventful two days of flying.

Saturday morning, I got up and headed to the airport for what I thought would be the final day of flying. For some reason, I just wasn't sleeping well, so I got up before sunrise, repacked, and headed out to the airport. I figured I would get an early start when it was cooler and smoother.

I got to the airplane and started to take my stuff out of the car and carry it to the plane, when I noticed something small on the ground by the fuselage. It was a female crayfish with her abdomen loaded with larvae. When she saw me, she took up a defensive posture; pincers raised. I set my bag down and thanked her for guarding my airplane. I went back to the car for the rest of my stuff and she scuttled off into the grass.

The destination for my first hop was Ardmore, Oklahoma, just above the Texas border, specifically Ardmore Downtown Executive. (Yes, that is its official name - Ardmore Downtown). I took off and headed that way, but the clouds closed in below me. A quick query of the conditions at Ardmore brought a rude surprise. The airport that was forecast to be clear, now had low clouds and visibility. I turned around and returned to Okmulgee. I didn't want to end up trapped on top of the clouds and running out of gas waiting for it to clear.

Sitting back on the ground at Okmulgee, I watched the weather conditions. While Ardmore wasn't better, Durant, 40 mi to the SE, remained clear. So, I set out for Durant. I ended up on top of the clouds again, but this time, I knew that they would clear soon, and I would be at Durant. About halfway, my iPad said that Ardmore was clearing up and the ceilings were rising. I could now safely fly under the clouds. I got to the edge of the cloud cover, dropped down, and turned back toward Ardmore. By the time I got there, the clouds had cleared and I landed uneventfully.

As I taxied up to the fuel pump, the owner of the FBO came out and moved the vintage Beechcraft Bonanza that had been sitting there. After he moved the Bonanza, he came over to admire the Moth and talk about aviation. I liked his little one-man FBO that was mostly unmanned. Fuel is self-serve. If you need oil, it is neatly stacked inside with a money box on the counter, because oil sales are on the honor system as is the courtesy car. "Please replace the gas you use," says the sign on the dashboard. I put in a couple of gallons for the 4 mi trip I made to the recommended

restaurant, which was a throw-back to the '60s. Clearly this was the meeting place for the local gentry. The special was chicken fried steak with two sides – green beans (cooked in bacon, of course) and watermelon; comfort food. It may be killing me, but I will die happy!

So, hunger satiated, it was back to the Moth. Top up the oil, prime the engine, pull the prop through to distribute the mixture, flip on the mag switches for the front cockpit, strap in, and start. Since the middle of the 5,000 foot runway was in front of me, I taxied there and took off. The Moth gets off in about 400 feet, making the rest of the runway superfluous.

Climbing out in the mid-day sunlight, I noticed that I am now seeing the difference between the densely green Midwest I have been experiencing and the browns and lighter greens I am more familiar with in Texas. Shortly after take-off, the Red River, (the boundary between Oklahoma and Texas), came into view. The river really is red, well reddish-brown. I flew over a freight train carrying shipping containers. I headed to Mineral Wells, a town on the west side of the Dallas-Ft. Worth metroplex. Regardless, Mineral wells is far enough away from Cowtown (Ft. Worth) to preserve its dusty and slightly seedy appearance. Mineral Wells is a Heart of Texas town.

As you can imagine, by now I am completely in tune with the Gipsy Major engine.

The **de Havilland Gipsy Major** or **Gipsy IIIA** is a four-cylinder, air-cooled, inline engine used in a variety of light aircraft produced in the 1930s, including the famous Tiger Moth biplane. Today, many Gipsy Major engines still power vintage aircraft types worldwide.

Engines were produced both by de Havilland in the UK, and by the Australian arm of the company, de Havilland Australia, the latter modifying the design to use imperial measures rather than the original metric measurements.

I know what it feels like. Its pulse has become a part of me. And like my own heart, I can tell when something is not quite right. There is nothing I can put my finger on, but I find myself listening closely, noting a different vibration. I was making small adjustments to the throttle, checking the oil temperature and pressure more closely, watching the fluctuations of the tachometer, all because my heart is saying that the airplane's heart isn't quite right.

I am getting close to Mineral Wells and let the Moth drift down to pattern altitude. I increase the throttle to arrest my descent and the engine begins to miss rather badly. I slow the Moth to approach speed which is all it can maintain while maintaining altitude at the throttle setting that reduces the missing and backfiring. I land normally from a lower-than-normal traffic pattern and taxi to the FBO. I park the Moth, unstrap, climb out, and saunter in.

In spite of this being a Saturday, there is no one there. No pilots, no line people, no desk people. I use the bathroom and then start to poke about. Suddenly a woman, Brenda (I think her name was), pops out from behind the desk. She was stuck with desk duty, but apparently, she wasn't feeling well, so she was napping on the floor behind the desk. She steers me to a bottle of water and informs me that the maintenance facility closed a couple months earlier after the passing of its owner. Looks like it is down to me figuring out what is wrong and dealing with it. Unfortunately, I have no tools. Note to self: make up a Moth tool kit and keep it in the airplane. I ask her if there is a hangar I can use to work on my plane. She says she has one available for me to use, but she can't help me with tools. I make a call to my friends back home to see if someone can get some tools and come up to help me out.

About this time, a somewhat boisterous gentleman, Dave Kessler, comes in. He and I get to chatting. He owns a VariEZ and a Steen Skybolt, AND he has tools. He offers to let me use his hangar, which has a door, and his tools to troubleshoot the problem.

I am amazed at the crickets. Mineral Wells must be the cricket capitol of the world. There must have been 1,000 crickets in Dave's hangar, hopping and chirping. Dave is inured. He tells me that the damned things come in and die there. Apparently, a couple thousand dead crickets really smell. I see what he means.

We move his planes around to make room for the Moth. We get her tucked in and open the cowling. Nothing obvious. It could be fuel flow problems, like something in the carburetor's main jet, or it could be ignition. My gut says ignition, so I start there.

I had noticed that the drop on the left magneto has been getting worse over time, so I decided to check the left mag first. Unlike modern mags that are sealed and nearly impossible to work on in the field without disassembling the engine, the mags on the Gipsy Major are designed for access. I pull the cap off the points. They are good. I undo the thumb screws that attach the plug wires. The terminal on the end of the #2 plug wire falls off. Aha! A possible problem that is easily fixed! Dave gets his crimpers and crimp terminals. I crimp on a new ring terminal. I pull off the distributor cap and discover dried grease in the bottom of the distributor cap. I use solvent to clean that up. By now we have reached dinner time and I am feeling extremely tired. I invite Dave to dinner as it is the least I can do for him for all the time he has spent helping me. Without him I would probably still be sitting in Mineral Wells.

After dinner, we stopped at Auto Zone to check on spark plugs and to try to find an 18 mm deep socket for the plugs. I couldn't get the exact replacement plug, so I passed on those, but I did get the socket. I was so tired at that point I bid Dave goodbye and headed for my motel. He gave me the combination for his hangar so I could start in the morning without him.

It being the Memorial Day weekend, motel rooms were scarce, even in Mineral Wells. I ended up in the Cheap, Dingy, Left-over-from-the-60s-including-the-carpet-with-cigarette-burns, motel. What can I say, the sheets were clean, the A/C worked, it had hot-and-cold running water, and it was quiet. I slept nine hours. Apparently this open-cockpit stuff takes its toll on a body.

The next morning, after an outstanding breakfast at MacDonalds, I headed over to the airport and pulled the spark plugs. Several were fouled. I cleaned, gapped, and replaced them. About that time Dave showed up. We pulled the Moth out and ran up the engine.

Everything is normal again. It feels good to know I haven't lost my touch with engine trouble shooting.

Dave calls Brenda and she drives the fuel truck over. I climb up on the cowl (yes, there are steps on the side of the airplane and a reinforced place to stand on top of the engine cowling to fuel the plane). Brenda hands up the fuel nozzle and I top off the fuel. I follow her back to the office to pay for the 11 gallons of fuel. All that work and hospitality for $50 in gas. I give her an extra $10 to put in the coffee kitty to help defray the cost of the bottled water I drank, and also because I got about 100 gallons of service for 11 gallons of gas. I gave Dave the 18 mm socket for his tool box, because I know I have one at home. Dinner and a socket in exchange for help, tools, and a hangar for a day. Dave seemed to think that was fair.

So now it is late morning on Sunday, and I am headed for Temple. Weather the day before was going to force me west, so I had been headed for Lampassas, but with the thundershowers dissipating overnight, Temple was clear. I call up Jeremy Walters to let him know I am going to stop there to say 'Hi' and let him see the Moth. Jeremy is another CFI and a friend who likes old airplanes. Jeremy learned to fly on his own and then joined the Army to fly helicopters. He now does contract fixed wing flying in places we can't talk about.

I let him know, via text messaging (my phone works great in the plane down low), when I will be landing. He brings his two sons out to the airport to meet me. We chat, the boys poke about the airplane. I put them in the cockpit, put my leather helmet on them, and let them make flying noises in the Moth with the stick in their hands. It is what this airplane is for – igniting the imagination in kids of all ages.

I fuel up, top up the oil, and head out on the last leg of the trip. I am a little bit worried about two things – thunderstorms popping up all over between me and home, and the narrow 40' runway at my destination, Kestrel. A storm forms NW of Austin right along my route of flight. RADAR suggests it is moving SE, so I head west to get around it. Unfortunately, several smaller cells form in its wake. I keep getting pushed farther and farther west. Finally, I take a chance to shoot between the rain columns to get South of the line. I make it over to Highway 281, which runs N/S and passes right by Kestrel. That is my final navigation for the day – IFR – I Follow Roads.

I spy the Twin Sisters, a hill feature we use as a reference point around Kestrel. I know I am almost home. Pretty soon I see the water tower near the airport. Now I see the hangars. I pull up over the airport and put the Moth on a wingtip so I can see the wind socks and the flags that will tell me which way to land. I am happy to see that the wind is favoring runway 30 so I can land uphill and not need the brakes. I can also see all my friends lined up by the taxiway to watch my arrival. This landing had better be good because there will be no way to lie about it afterward.

One more turn to a wave to everyone and I settle into a normal traffic pattern for runway 30. As I round out over the runway into the landing flare, the runway completely disappears under the nose and lower wing. I am completely blind to the runway. I keep it going straight by feel until the wheels touch. Now I can see to the side. I am too far over to the right and I overcorrect a bit. I get the airplane back into the center of the runway. The Moth stops after rolling about 300 feet. The flight is over. Not one of my better landings, but not too bad either.

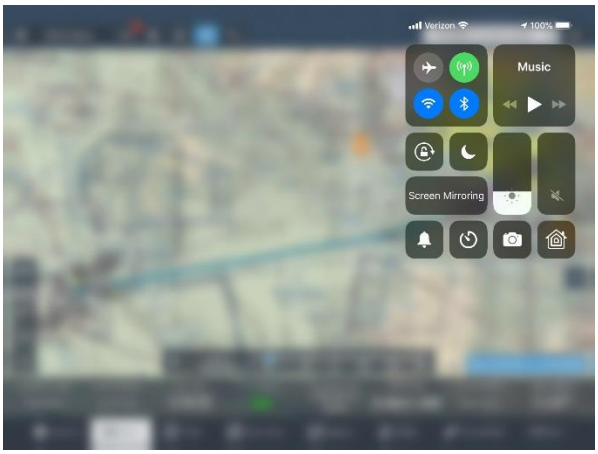
I taxi to the end, turn off on the taxiway, and taxi back to her new home, Mike Buck's hangar. I reach out, flip the mag switches, and the Gipsy Major slows to a stop. The prop waggles back and forth a couple times and is still. It is quiet except for the tick-tick of the cooling exhaust. My friends and neighbors come up and surround the airplane shouting welcomes. I pull off my leather helmet, lay it in front of the wind screen, pop my harness, and lay the shoulder straps along the sides of the airplane. I wait just a moment and then climb out to greeting handshakes and hugs. I go to my house to get the key to Mike's hangar. I open the hangar and everyone helps push the Moth inside. The journey is over.

At the beginning I said this was an epic journey and I meant it. In many ways this was as challenging as my flight around the world. It is a different kind of flying; a kind of flying we seem to have forgotten in our rush to ever more technical, controlled, and safer aviation. Still, there is something to be said for the flying in the beginning when it was just the air, the earth, the airplane, and the pilot. Like how my flight following Amelia Earhart led me to a much greater appreciation of her challenges, this flight has led me to appreciate the challenges faced by the early pilots who took aviation from a novelty to functional reality, and something that really would get you across the United States reliably. No matter how many stories you read and no matter how many tales are told by old pilots, nothing cements the understanding like doing it yourself. Antoine de Saint-Exupéry, now I understand.

TRUE or FALSE

1 – Wow, today's your lucky day and you get to meet an FAA inspector and receive a Ramp Check. You're a Part 91 pilot and you show the inspector that you have an in iPad with current charts and data installed, but you are also required to show that you have backup paper charts on board the airplane to be compliant with EFB regulations.

FASLE. (AC) 91-78 contains the guidance for general aviation operations with electronic flight bags (EFBs) and it does not require part 91 pilots to carry a backup source of charts (paper or electronic). Also, the PIC makes the decision to use the iPad, with no FAA approval required.



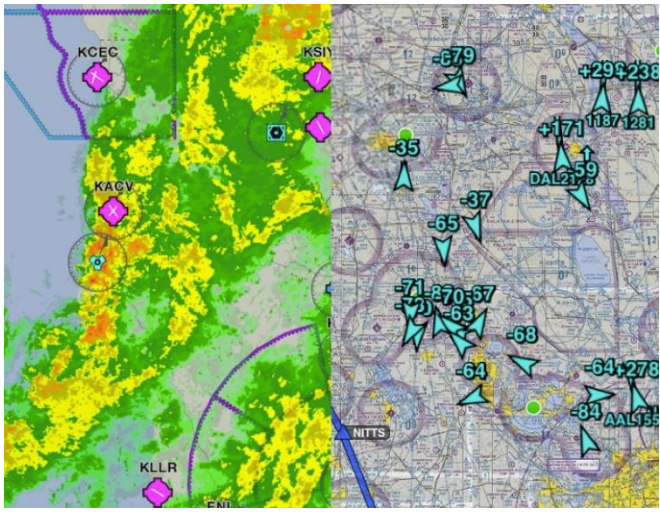
2 - If, while pre-flighting, you swipe down from the top right of the screen to access the Control Center and turn off the Bluetooth setting, this will completely disable the Bluetooth radio and you won't be able to use your nearby Bluetooth devices.

FALSE: The Bluetooth and WiFi settings in the Control Center behave differently from the same toggles in the main iPad **Settings app**. When turning Bluetooth or WiFi off from the Control Center, the iPad only disconnects from the currently connected WiFi or Bluetooth accessory, but it leaves the radios active.

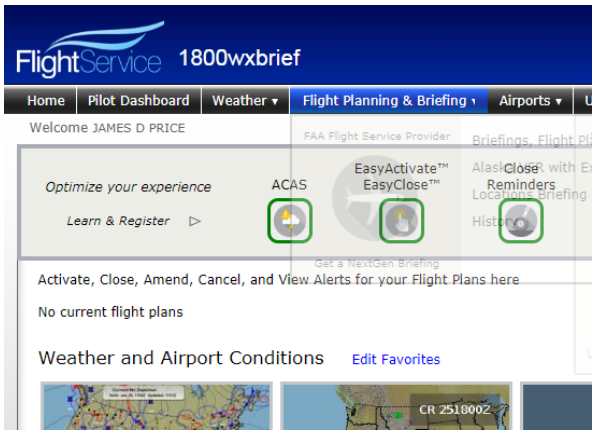
To completely disable them, you need to go to the iPad **Settings app** and turn them off from their primary setting.

3 - ADS-B Datalink weather is only available in the U.S.

TRUE: The weather component of ADS-B is FIS-B, (Flight Information System Broadcast). It's part of the FAA's NextGen infrastructure developed for flights in the U.S. The ADS-B ground stations are located exclusively in the contiguous U.S., Alaska, Hawaii, Guam and Puerto Rico, meaning the Datalink weather services are not available outside these regions when flying with Stratus or other ADS-B receivers.

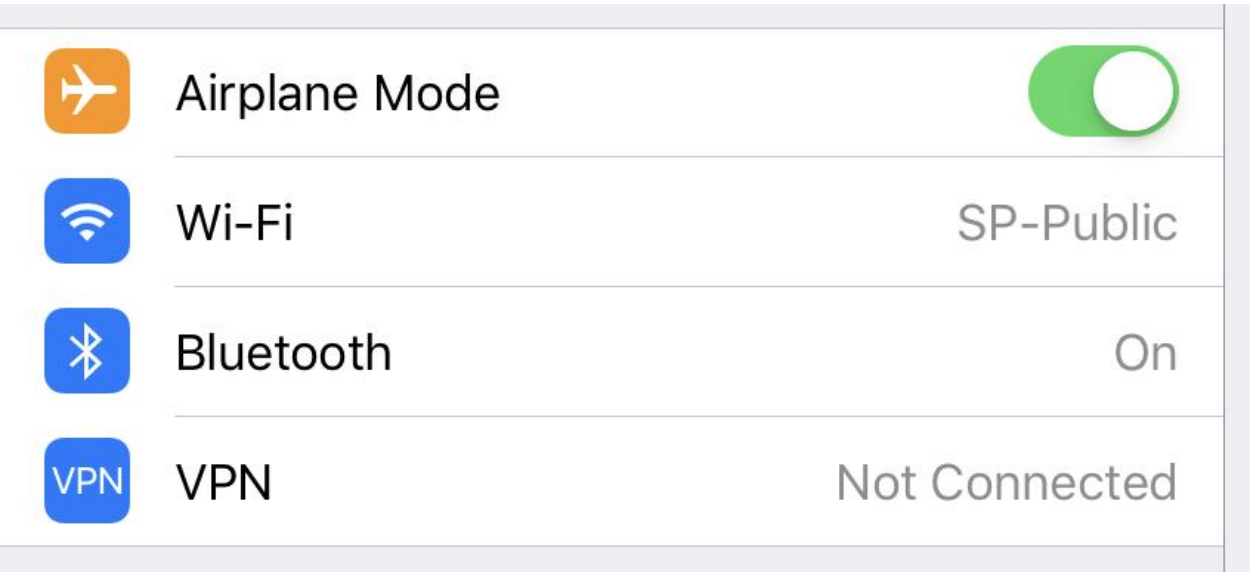


4 - To get a legal weather briefing, you must call 1800-WX-BRIEF or use Flight Service's web page, 1800wxbrief.com.



FALSE: There are lots of sources that utilize Flight Service's weather information. A weather briefing from *ForeFlight*, Garmin Pilot, *FltPlan.com*, and others, is recorded as a weather briefing and these constitute a legal weather briefing.

5 - For iPads with LTE Cellular Data, placing Airplane Mode to "ON" will not affect the functionality of the internal GPS.

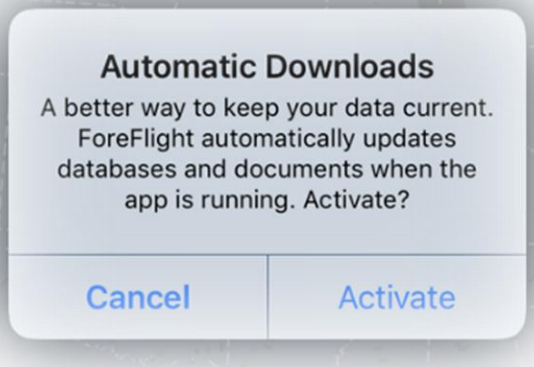


TRUE: When running iOS 10 or newer, the Airplane Mode setting has no effect on the behavior of the internal GPS of iPads with the LTE cellular data option. (Prior to iOS 10, the Airplane Mode setting disabled the internal GPS on iPad).

6 - international flights that cross the U.S. border, must file the mandatory eAPIS passenger manifest using the U.S. Customs and Border Patrol website.

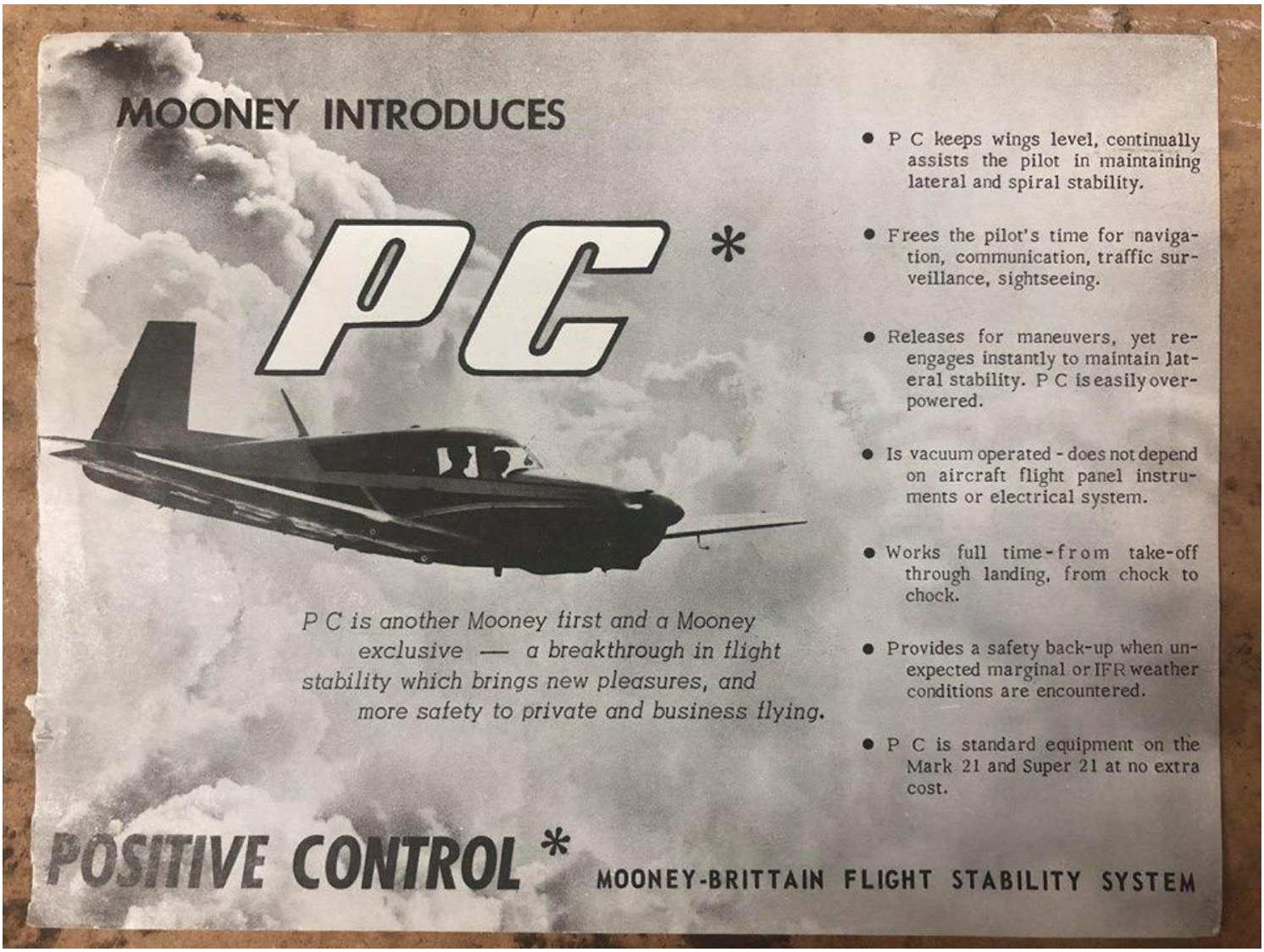
U.S. Customs and Border Protection

FALSE: Pilots can also use third-party mobile apps like FlashPass eAPIS to file and meet the eAPIS requirement. FlashPass eAPIS will also send your manifest directly to U.S. Customs.



7 - ForeFlight will automatically download new chart and airport databases as they become available when you open the app.

True, **BUT ONLY IF** you have enabled the Automatic Downloads in the Settings section of ForeFlight. If so, the app will automatically download new data as needed whenever the app is open and connected to the internet, without the need to go to the Downloads page to initiate the download.


MOONEY INTRODUCES
PC *
P C is another Mooney first and a Mooney exclusive — a breakthrough in flight stability which brings new pleasures, and more safety to private and business flying.
• P C keeps wings level, continually assists the pilot in maintaining lateral and spiral stability.
• Frees the pilot's time for navigation, communication, traffic surveillance, sightseeing.
• Releases for maneuvers, yet reengages instantly to maintain lateral stability. P C is easily overpowered.
• Is vacuum operated - does not depend on aircraft flight panel instruments or electrical system.
• Works full time-from take-off through landing, from chock to chock.
• Provides a safety back-up when unexpected marginal or IFR weather conditions are encountered.
• P C is standard equipment on the Mark 21 and Super 21 at no extra cost.
POSITIVE CONTROL *
MOONEY-BRITTAIN FLIGHT STABILITY SYSTEM

Sporty's new [PJ2 Handheld COM Radio](#) $199

The PJ2 Handheld COM Radio includes built-in headset jacks and it's the only handheld aviation radio that can be connected to standard aviation headset plugs without using a special adapter, (patent-pending).

Just turn it on, type in a frequency, and plug in your headset. The PJ2 has no menus, wires, or adapters. Dedicated volume and squelch knobs are easy to adjust, even in turbulence, and the extra-large screen and backlit keypad make a big difference during an emergency.

In addition to push-button frequency entry, the PJ2 has a last frequency button to quickly switch back and forth between tower and ground, or approach and CTAF.
It can also store 20 memory channels, which are easily recalled using the PJ2's large, backlit screen. Pilots can even access NOAA weather radio stations for updated forecasts.

Most pilots will use the included alkaline battery pack that uses six AA batteries for all-day power without worrying about rechargeable batteries or cords. The PJ2 is made to sit ready in a flight bag for weeks, then be ready to go at a moment's notice, but a USB-C port on the side of the radio is also available as an option to power the radio.

The PJ2 comes with an alkaline battery pack, antenna, 100-240v wall plug, a USB-A to USB-C adapter cable, belt clip, and pilot's guide. Headsets with standard twin plugs (PJ-055 and PJ-068) require no adapter; for Lemo/6-pin plug headsets, an adapter is available for $39.95.

BuzzMuffs – A fun way to personalize your boom mic

Just when you might be thinking there are no more ways to personalize your pilot journey, along comes a cool little design called BuzzMuffs.

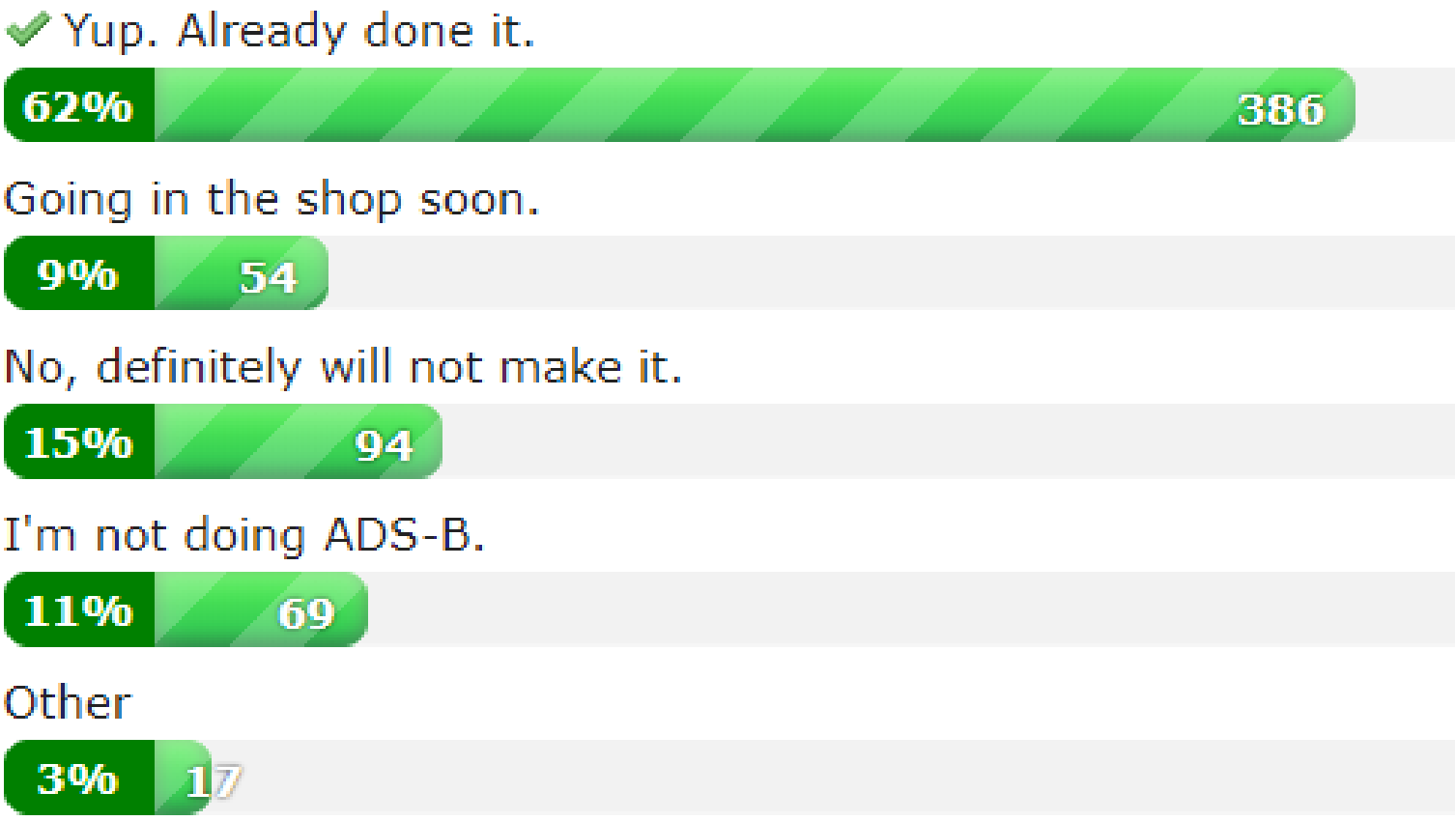
BuzzMuffs fit most LightSpeed, Bose, & David Clark headsets.

Available in many colors printed with your choice of 9 or less characters, for either the LEFT or RIGHT side mic.

Emma Carter, a contract pilot who lives in Sandpoint, Idaho and flies a Cessna Citation 7, sells the muffs via the **Etsy** online site. BuzzMuffs start at $9.99, and that includes shipping in the United States. https://www.etsy.com/shop/BuzzMuffs $14.99 for two color lettering.

A few samples

AVweb conducted a poll on September 27, 2019, asking pilots, "Will you meet the January 2020 ADS-B deadline?" Here are the results:



Spatial Interior for your vintage Mooney

Simple, quick and effective repair methods add new life to cracked and discolored plastics. Optional STC approved lower side panels add space and elegance. Installed without screws will please any mechanic.

For details, visit:

www.jaegeraviation.com

Jaeger Aviation

Email: bruce@jaegeraviation.com

320-444-3042

Florida Mooney Lunch Group	***Contact Dave at daveanruth@aol.com or (352) 343-3196, before coming to the restaurant, so we can have an accurate count. Events begin at 11:30*** October 12: Flagler (FIN) November 9: Sebring (SEF)
Mooney Caravan	Check their latest news at http://www.mooneycaravan.com/
MAPA Safety Foundation Mooney Pilot Proficiency Program	October 4-6: Ogden, UT
MOONEYSUMMIT	Check their latest news at https://www.mooneysummit.com
Australian Mooney Pilots Association	October 2019: Pilot Safety Program in Perth March 2020: Annual General Meeting at Coffs Harbour
EMPOA	
WEST COAST MOONEY CLUB FAST FLYING - FUN TIMES	October 19: Lunch at Harris Ranch (3O8) at noon

TMF PRODUCT REVIEW

Belly Washes

Keeping a clean Belly clean is important to almost all Mooney owners. Some pilots pay for a detailer, but for me, doing it myself is a Zen experience. Remember the movie Karate Kid "Wax on Wax off"? That's me. This month we will cover two effective cleaners and let you choose your favorite.

Co-Editor Phil Corman uses *Belly Soap*.

Wash Wax's Belly Soap

Belly Soap cleans the dirtiest aircraft bellies and engine areas that are mixed with dried or baked on hydraulic fluids and oils. Safely removes grease, oil, hydraulic fluid, and exhaust soot. Simply spray on and wipe dry. Safe on all vehicle surfaces wet or dry. Meets Boeing Aircraft cleaning Spec. Exterior D6-17487P. For tough cleaning jobs, use with the Aero Scrubber.

Plane Perfect's Buddha Belly Oil & Grease Cleaner

Inspired by the exhaust-wheezing, oil-spitting round engine of one of our founders, Buddha Belly was developed to remove the oil, dirt, grime, bugs and exhaust stains that plague all aircraft. The problem he faced was developing a formulation that would remove the oil and grime, but still be safe to use. Buddha Belly uses an all-natural citrus-based formula to clean surfaces free of contaminants. Safe to use on the exterior and interior of any surface. Directions: Safe for composite, fabric and metal aircraft. Use Buddha Belly wherever you need extra cleaning power! Spray Buddha Belly on surface to be cleaned, allow time to penetrate. In areas of heavy grime, agitate with a sponge or towel. Wipe surface free of cleaner, and if necessary, repeat. For maximum protection and shine on painted surfaces, follow with Plane Perfect Wing Wipe.

Co-Editor Jim Price uses *Buddha Belly.*

1979 M20K For Sale ($88,000)

Call Tom at: 925-595-8969

Engine 1262 TSIO360 LB1B McCauley prop 152 hours Airframe 3215 Turboplus intercooler Merlyn automatic wastegate (deck pressure controller) GAMI fuel injectors Insight Graphic engine monitor **TKS inadvertent icing protection** Precise Flight Speed Brakes Precise flight Pulselite KFC200 autopilot slaved with altitude hold Electric standby vacuum King Attitude indicator with flight director	King HSI 3M WX10A Stormscope Hoskins Fuel computer All King radios (KNS80 KY197) Built in SKY-OX oxygen system Mods by Lake Aero Styling and Repair Including fiberglass belly panel and fiberglass gear doors with brake rotation Inflatable Door Seals Rosen Sunvisors Exterior paint is good Interior leather worn but presentable **Annual: 5/31/2019**

Parts for Sale

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)

Parts for Sale

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

Wanted

Time on your Mooney. Hangar available. I only need 20-30 hours yearly. I have an empty hangar in Cartersville, GA for your Mooney or Cirrus @KVPC. 3500 hours, 3000 Mooney INST CML no accidents. Please email to: mooney201@gmail.com


Whether you're a Rusty pilot, dreaming of becoming active again . . .
. . . or you're a proficient, veteran
Master of
The Flight Review
J D PRICE
Prepare online
Free!
Master of
The Instrument Proficiency Check
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