

The Mooney Flyer

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

September 2018





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Editors

Phil Corman & Jim Price

Contributors

Bruce Jaeger | Bob Kromer | Tom Rouch | Paul Loewen | Geoff Lee | Linda Corman

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News from Down Under

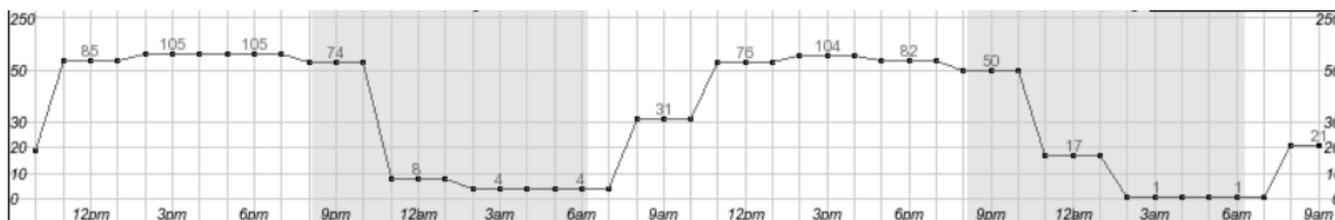
The guys from Australia share their Newsletter, and I find each publication quite interesting. This issue includes a discussion of the Mooney population in Australian and the types of flying that is done there. There’s also an article on Aviation Regulations. It’s interesting to compare their regulations with ours in the US. It’s a good read. A third article illustrates the commonality of Mooney owners across the world who leave their cabin lights on and drain the battery. [CLICK HERE](#) to read a PDF version of the current AMPOA Newsletter.



How Aussies Party at Mooney Fly-Ins

Navigating Smoke Tops

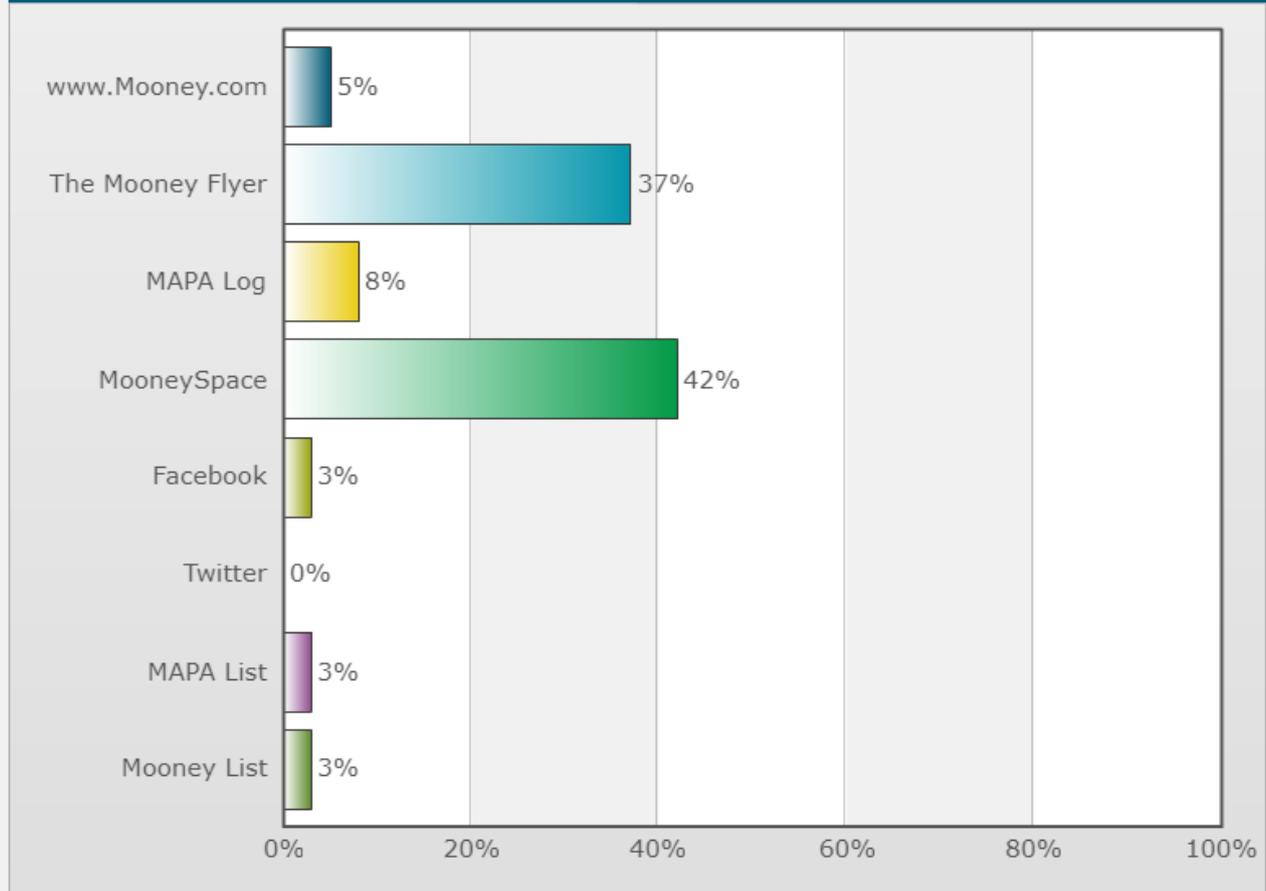
We discovered this valuable site to help you navigate the tops of the smoke coming from all the wildfires this year. It will help you deal with the reduced visibility and avoid breathing smoke in the cockpit, which is never a good thing! To begin with, go to <https://www.weather.gov/>. In the little box near the upper right corner, type in a location that you want to find the Smoke Top. Scroll down the next page until you see the “Hourly Weather Forecast” illustration and CLICK on it. Then, CLICK on the “Mixing Height” and Submit. Voila! You have the hourly smoke top forecast in hundreds of feet AGL.



I get "most" of my Mooney information from:

Poll created by [Phil Corman](#) on 06/28/2018

Poll Results



Next month's poll: "How Many Hours did you fly before you were 100% comfortable with your Mooney in all phases of flight?" [CLICK HERE](#) to vote.



APPRAISE IT
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[M20C](#) [M20E](#) [M20F](#) [M20G](#)
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Mooney Props



Airplane Eligibility

Airplane Eligibility	Prop Style	STC #
M20A-J	2 bladed Scimitar	SA0241CH-D
M20C, D, E, F, G	3 bladed	SA4529NM
M20J	3 bladed	SA4529NM
M20K	3 bladed	SA1505GL
M20R	3 bladed Scimitar	SA02004CH
M20R, S, TN	3 bladed Scimitar	SA03024CH
M20R, S, TN	3 bladed Composite	SA02482CH



McCAULEY



Airplane Eligibility

Airplane Eligibility	Prop Style	Part #
M20A-G	3 bladed Scimitar	PL60152
M20C, D, G	3 bladed Scimitar	PL60154
M20E, F	3 bladed Scimitar	PL60149
M20J	3 bladed Scimitar	PL60136
M20K	3 bladed Scimitar	PL60199
M20R	2 bladed	M20R241-01
M20R	3 bladed	M20R418-01
M20S	2 bladed	M20S239-01

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Thanks for the welcome to the group.

I'm enjoying going through the website's archives when I'm not working on my airplane. I'm currently overhauling the engine and cleaning up years of neglect from so called "Mooney shops". I'm an A&P/IA with experience (35 plus years ago) on C, D, E, and F Mooneys. N201QS has had a lot of mods done to it over the years. It just needs a little TLC to get back where it should be.

Looking forward to meeting you and the other Moonaics at some of the upcoming Mooney events.

Best regards, Mark L

Hope you are well. I enjoy the magazine and appreciate your work. I like that you added the long body planes to the aircraft valuation section, however, I notice that the links do not work. Can you tell me if they are under construction?

Thanks, Russ Y

Editor Note: Thank you for discovering this, Russ. We fixed the link and we are sorry for the inconvenience.

"Let's do a 360 and get out of here"

"The trouble with learning from experience is that you never graduate". Doug Larson, Journalist.

"The trouble with experience is that we are really talking about experiences. Experience comes from many other ways than actually experiencing. Reading, watching, hearing, and considering other's experiences is gaining experience". Author

"Until a person sits down and analyzes what he has contributed to his own failures, and continues pointing fingers at people, and reasons something didn't work out, they are stuck right where they are. The system has yet to find a way to convince those with the most experience to look beyond what they have been using all their careers". Unknown

You don't know what you don't know. Personally, I did not realize I didn't know how to fly until after forty years of flight when I again became involved in flight training. There I quickly found there is much needed to fix the training system. That is when I began looking for solutions...starting with basic flight control.

If all else fails, turn it loose. Seldom does a pilot concern himself with aerodynamics when in flight. The machine was aerodynamically designed to fly all by itself a pilot just directs the motion! Some early model Cessna 150 and 172's have an emergency procedure in their POH that says, upon encountering inadvertent



IMC, turn loose the control wheel, focus on the turn and bank, and with rudder establish a standard rate turn for one minute, then level the wings and fly out of the conditions.

After questioning over 150 instructors and 5 examiners flying these specific aircraft I never found anyone that knew this procedure! I guess all little aircraft are the same, so the POH is not necessary?

There are just too many mistaken ideas that have proliferated the training system since its beginning. It's time to take a closer look and define these things rather than just repeating the mantra "it needs fixing".

Robert R



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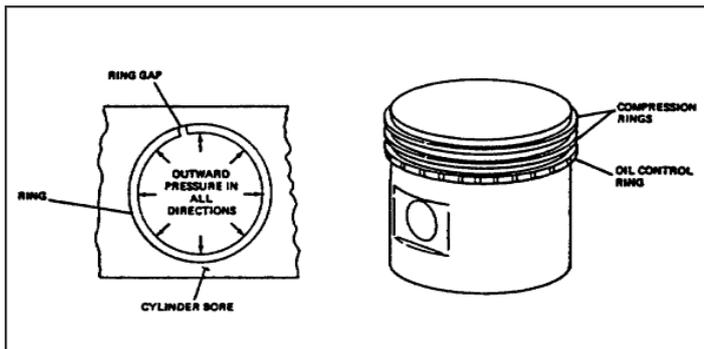
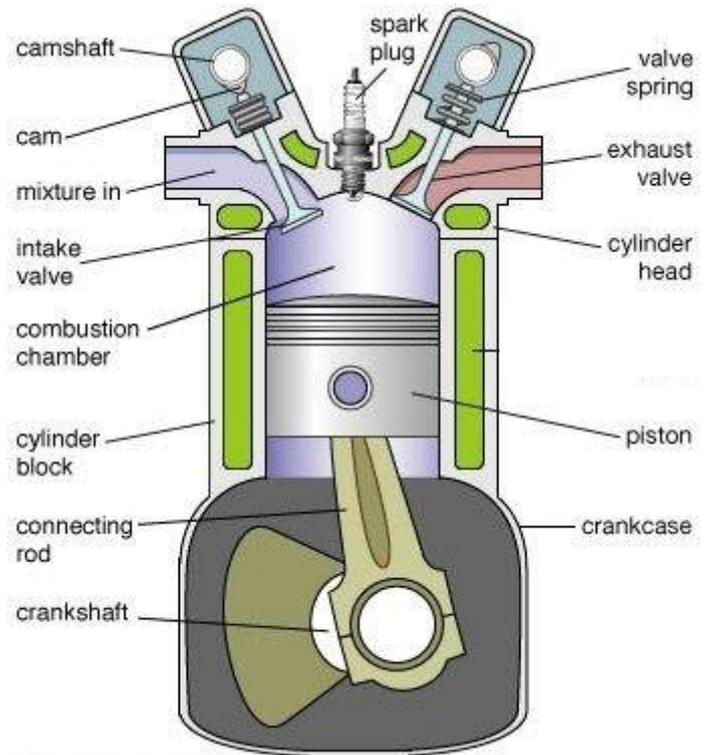
WHAT EVERY PILOT SHOULD UNDERSTAND ABOUT THEIR CYLINDERS

Some Mooney Pilots are also A&Ps and understand much more about our engines and the cylinders than the average Mooniac needs to know. In this article, we try to help non-mechanical pilots understand more about their cylinders, and how to detect issues before they detect you while enroute to your destination!

Cylinders

In the illustration to the right is a generic cylinder that we will use to explain various components. The illustration does not show a second spark plug, which all our Mooney cylinders have. Redundancy is a good thing. Cylinders essentially have two components: 1) The Head, and 2) The Barrel. The head is typically made of Aluminum and the Barrel is made of Steel. These two are joined by an "Interference Fit". One is cooled while the other is heated. They are then screwed together, and after they cool, the fit is intended to be permanent.

The valves are operated by the Camshaft and the piston is run off the Crankshaft. There are two valves; one for Intake and the other for Exhaust. The Exhaust Valve is always smaller than the Intake valve. The exhaust valve is subject to much higher temperatures and because of this, it will usually fail before an intake valve. The exhaust valve closes against a valve seat. A proper seat is the chief mechanism for keeping the



valves cool as heat transfers from the valve to the seat upon contact. Lycoming also provides sodium filled valves for additional cooling, but the seat provides the main cooling component. If the valve does not seat properly because of a poor installation or abnormal wear, it will eventually burn where there is not a proper seat. This can cause a number of problems, including a fractured valve or a valve, or valve part

entering the combustion chamber and causing an almost immediate failure, accompanied by violent vibrations in the cockpit.

The piston barrel is where all of the compression takes place. In the illustration above, you can see the cylinder rings. The first two are called **compression rings**. These fit in grooves on the piston, have a small slot on them, and expand past the piston to butt up against the cylinder wall. The top compression ring provides the bulk of the compression. When the engine is cool, the rings are generally the only part of the piston touching the wall. As the engine warms up, the rings compress and maintain compression in the combustion chamber. We need oil on the cylinder walls for friction minimization and wear reduction. The slot in the compression rings allows a small amount of oil to

lubricate the piston and cylinder wall. The Oil Control Ring is there to regulate engine oil consumption by scraping oil from the cylinder walls back to the sump. Remember, it is doing this typically at 2500 RPM.

Cylinder Compression Tests (Bah Humbug!)

Compression testing dates back to the early 20th century. During our annual inspection we usually look at our compression readings. The readings consist of a number/80. The 80 is PSI and is an arbitrary setting. You set the cylinder to top dead center, then pump air into the cylinder until you reach 80 PSI. A second valve measures the actual pressure, or compression in the cylinder. It will very rarely read 80, as

there will almost surely be some leakage. Lycoming is more strict about actual compression readings than Continental. Note: Continental did a test on their cylinders and kept filing the rings down. They lowered the compression all the way down to about 40/80 and the engine still developed full power.

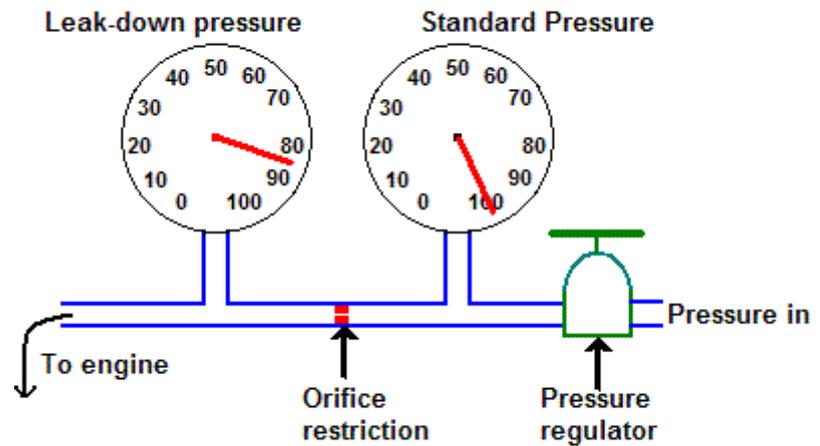
Compression readings are mostly useless. They are a litmus paper test and are very imperfect. The first reason is that although you ran your engine to get it hot for the test, it is not operating at usual cruise temperature and therefore the test isn't measuring the real environment. Remember that the distance between the piston and cylinder wall varies with temperature. So, the compression readings are interesting, but don't tell you enough, except when it's a really low reading, (like a litmus paper test).

Remember that the compression rings have a slot. Well, those rings also rotate slowly during operation, perhaps one revolution every minute. If they line up, your compression reading may read lower, and this may unnecessarily concern you. Also, you just plain don't know the actual compression at cruise.

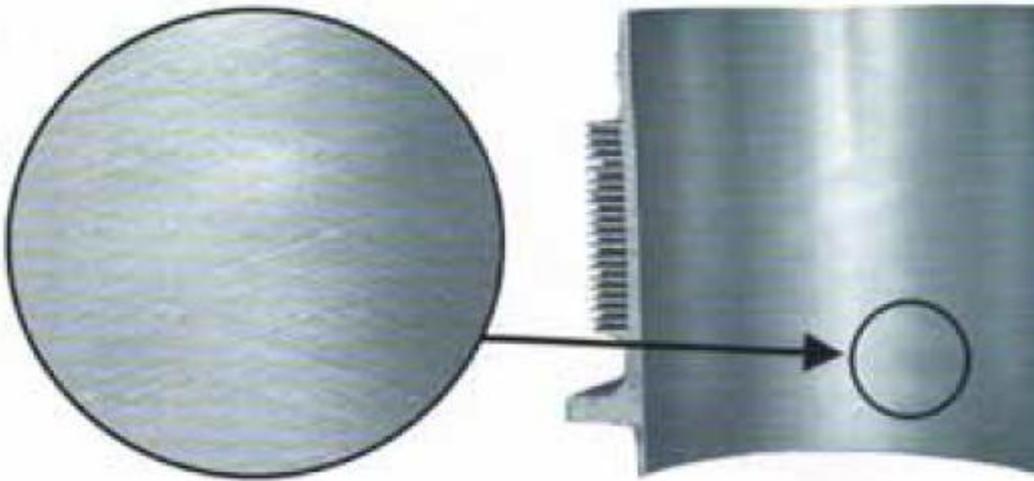
Some useful troubleshooting: If you have a concern over a cylinder compression reading, you can troubleshoot the source relatively easily. Move the cylinder by rotating the prop and listen. If you hear a hiss in the exhaust manifold, it's most likely the exhaust valve. If you hear it in the intake manifold, it's probably your intake valve . . . duh. Hopefully it's a bad valve seat and not a cracked valve. If you hear it in your oil filler, then you have a compression ring issue. The next step is to Borescope your engine

Cylinder Bore Scope

A Borescope is essentially an LCD screen with a cable and a camera at the end. The camera/cable fit through your spark plug hole and allow you to inspect the inside of your cylinder above the piston. It enables you to observe the condition of your cylinder wall, your piston head, and your



Intake and Exhaust valves. This will give you an immense amount of information concerning the health of your cylinders. On the wall should be cross hatch marks, placed there when your cylinder was born.



was born.

If they are gone, that might be a sign that you need new rings or a new cylinder.

Next, take a look at the burn pattern on the Exhaust and Intake valves. The pattern on the left is symmetrical, indicating that the hottest place is in the center and there is a

good seat. The pattern on the right indicates a bad seat, and the green area means it is hot and leaking through the valve seat. That valve could crack or actually break and fall into the combustion chamber and that is NOT A GOOD THING.



Engine Analyzers and Your Cylinders

Between compression tests and Borescopes, you can diagnose cylinder issues like a failing exhaust valve seat, with your nifty Engine Analyzer. Your valves rotate 360° approximately once per minute at cruise. If you have a bad seat, your EGT will vary on a regular pattern within a cycle of one minute or so. Your EGT may only change by 30-50 degrees, but the pattern speaks volumes. To detect this, once you are at cruise, set your Engine Analyzer to Normalize mode. This will show flat settings for all your EGTs which makes any deviation easier to detect. A failed valve could be imminent, so you might want to land. If a cylinder has a higher EGT, you most probably have a leak around the exhaust valve.

Oil Analysis and Your Cylinders

Oil analysis should be done by every owner. It tells you a lot more than cutting an oil filter, which again is a litmus paper test. Chunks in the filter... BAD. Smaller stuff... maybe not bad. Oil analysis can tell you a lot, but it's not very useful after one test. Oil analysis is best with trends. Increasing iron means problems with cylinders, valve trains, and rotating shafts. Aluminum usually indicates piston wear. Worried about your rings? Watch your Chromium. Got Nickel? Look at those valve guides. I use Blackstone Labs because their reports are extensive and they seem to care about what's going on in my engine, including what I should pay attention to and what I should simply keep an eye on.

Summary

It's amazing to us that cylinders stay in one piece up to TBO and beyond with proper care and operation. Proper operation is simple:

1. Rust is your enemy. Run your engine regularly, and when you do, fly for at least one hour to burn off any condensation.
2. Do your best to keep your CHTs below 380° and maybe let them drift up to 400° during climb. If they start to creep up, take action: 1) Open cowl flaps if you have them, 2) Enrichen the mixture, and 3) Flatten your climb. You could also dial the prop back a bit.
3. Change your oil and filter every 25-30 hours. Consider adding CamGuard to your oil. It protects against rust, especially if you don't fly regularly and often.
4. At each oil change, have the oil analyzed and cut open and check the filter.
5. Don't fly in the RED BOX. Flying in the RED BOX operates your engine at maximum Internal Cylinder Pressures which is not good for your cylinder's health.



BLACKSTONE
LABORATORIES

AIRCRAFT
REPORT

LAB NUMBER: D70629 UNIT ID: NSS57
 REPORT DATE: 5/25/2009 CLIENT ID: 26751
 CODE: 22/16 PAYMENT: CC: Visa

UNIT	EQUIP. MAKE/MODEL: Lycoming IO-360-A1A FUEL TYPE: Gasoline (leaded) ADDITIONAL INFO: Cessna 172 Eng. S/N 000001	OIL TYPE & GRADE: Aeroshell 15W/50 OIL USE INTERVAL: 25 hours
CLIENT	OSCAR HUFF OSCAR'S WORKSHOP 132 PERIWINKLE RD STE. 102 SWANNANOA, NC 18752	PHONE: (828) 123-5897 FAX: (828) 123-1547 ALT PHONE: (828) 123-1564 EMAIL: oscar@bellsouth.com
COMMENTS	OSCAR: Note aluminum. This level is reading higher than it was back in October and it's higher than universal averages for this type of engine. We are concerned this may be the beginning of a piston or piston pin-plug problem. Iron shows increasingly poor cylinder wear. Insolubles are okay, so the oil filtration system is working well. Air filtration looks good too (see silicon). The engine has been flown frequently, so corrosion is not the problem. We suggest a compression check and borescope. If those turn out okay and the filter is free of metal, we suggest resampling for another look. This is a cautionary report.	

	MI/HR on Oil	40	UNIT / LOCATION AVERAGES	35	25	30	29	UNIVERSAL AVERAGES
	MI/HR on Unit	416		376	341	311	282	
	Sample Date	12/02/07		10/08/06	07/12/06	05/21/06	04/18/06	
	Make Up Oil	4 qts		3 qts	2 qts	2 qts	5 qts	
ELEMENTS IN PARTS PER MILLION	ALUMINIUM	31	17	18	3	3	3	9
	CHROMIUM	4	3	2	2	2	2	4
	IRON	151	31	69	40	31	33	23
	COPPER	2	2	2	2	2	3	3
	LEAD	3591	3599	3621	3012	2989	3014	3058
	TIN	0	1	0	1	2	2	1
	MOLYBDENUM	0	0	0	0	0	0	0
	NICKEL	1	1	1	1	0	1	1
	MANGANESE	0	0	0	0	0	1	0
	SILVER	0	0	0	0	0	0	0
	TITANIUM	0	0	0	0	0	0	0
	POTASSIUM	0	0	0	1	0	0	1
	BORON	0	0	0	1	0	1	32
	SILICON	9	14	10	8	9	13	11
	SODIUM	4	3	3	3	3	4	3
	CALCIUM	2	3	2	1	2	2	1
	MAGNESIUM	0	0	0	0	0	0	0
	PHOSPHORUS	697	765	746	823	678	766	877
ZINC	3	3	3	4	3	2	2	
BARIIUM	0	0	0	0	0	0	2	

Values Should Be*

	91.9	82-105	100.9	103.7	102.4	102.8
	SUS Viscosity @ 210°F	91.9	82-105	100.9	103.7	102.4
cSt Viscosity @ 100°C	17.74	16.0-21.8	18.85	20.79	19.16	19.29
Flashpoint in °F	455	>440	445	455	465	460
Fuel %	<0.5	<1.0	<0.5	<0.5	<0.5	1.0
Antifreeze %	-	0.0	-	-	-	-
Water %	0.0	0.0	0.0	0.0	0.0	0.0
Insolubles %	0.5	<0.6	0.5	0.5	0.5	0.5
TBN						
TAN						
ISO Code						

* THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE

THE 2018 AUSTRALIAN GENERAL MEETING

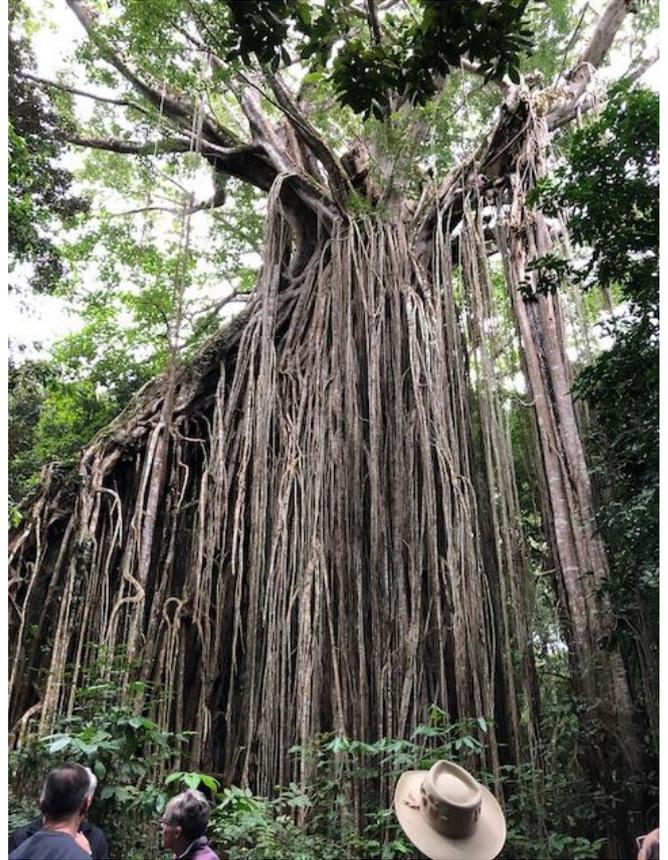
AN AUSTRALIAN MOONEY FLY-ABOUT

Rae McEwen (of the Australian Mooney Pilots & Owners Association) recounts his AGM trip

As the weather was fine and beautiful, VH-VVV flew from Ballina to the Atherton Tablelands a day earlier than most of the others. There was just a bit of light cloud about as we approached the Atherton Aerodrome and landed on the grass strip, runway 15.



The weather really started to close in, so on Thursday, five more Mooneys arrived, but others had to head to nearby airports, eventually making it to Mareeba. There, Simon and Jane picked them up in buses and brought them all back to the quaint little village of Yungaburra, just outside of Atherton. After their exciting flights into the area, some of the pilots were well deserving of a cleansing ale at the old Federation style hotel, the Yungaburra Pub.



Once everyone had checked into their comfortable digs for the weekend, they were greeted by the buses and chauffeured back to the Atherton Aero Club where the members put on a great Aussie BBQ. The food, drinks and wonderful hospitality flowed freely all night.

The following morning, the weather was quite cold and misty. Most of the group wandered down to the local cafe for a coffee and a hearty breakfast.

We had two small commuter buses to get us around. Jane drove the larger one which had absolutely no suspension, especially noticeable to those lucky enough to sit over the wheel arch or on the back seat.

The first stop was just down the road at Curtain Fig National Park, which featured an amazing old fig tree with hundreds of draping curtain-like roots – hence the name.

The buses headed off a little further along to the Bromfield Crater. It's a large crater that now contains a swamp with cattle grazing around the sides of the grassed walls.

Eventually, we arrived at the Mount Hypipamee National Park. Everyone ventured down the track through the rainforest to the viewing platform which had an uninterrupted view of a 70 metre wide granite crater. Fifty-eight metres below the rim of the crater was a 70 metre deep green lake. A few of us ventured further down to the bottom of the track to the beautiful cascading waterfalls known as Dinner Falls.



The young lady was one of the granddaughters of the family that ran the boat tours, so she drove the boat, admitting that she'd only driven it a few times. Supposedly she had a license! Her grandfather was our guide, and kept telling her what to do and what not to do. However, they did a great job. It was a peaceful and educational experience, just trickling around the edges of the lake, looking at the huge trees, some of them being over 500 years old. We were followed along by a flock of ducks that flew above, around and on the boat, waiting for little treats from the passengers.

In the evening, we wandered just down the road from the cottages to the local Italian restaurant for pizza and pasta. We had a really fun night being entertained by the owner, Nick. He dragged a lot of the Mooney guys up from their seats, dressed them up with funny hats and gave them all different musical instruments so they could perform for the audience. John Hillard was celebrating his birthday, and did a fine job entertaining us, as did the other birthday boy, John Smith, with his wobble board.

The following morning, eleven enthusiastic people got up early for a fabulous adventure from Mareeba over the tablelands in a large hot air balloon. The not so

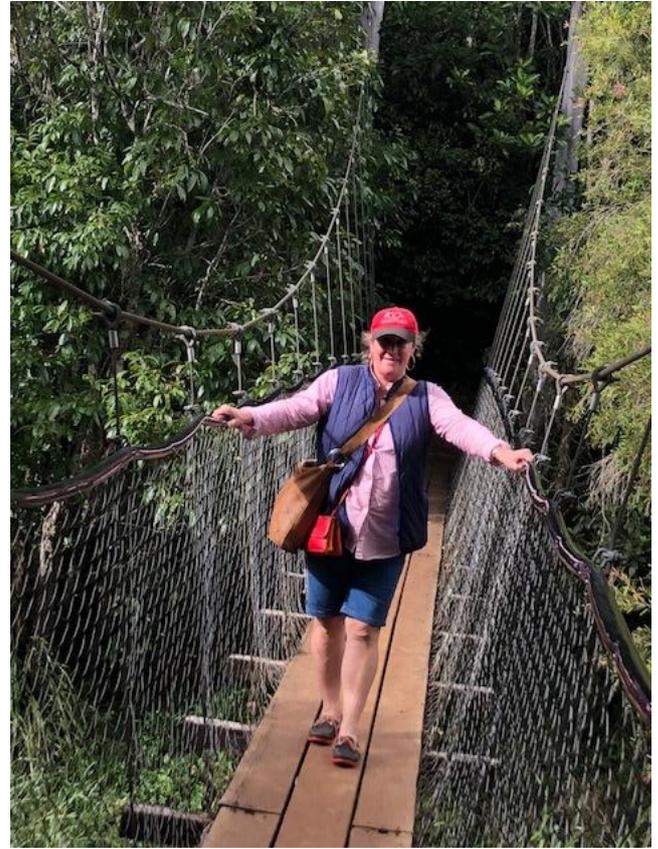
After a few stragglers finally returned, we drove through Atherton for a quick look on our way to the Nerada Teahouse where we saw how tea was processed from the beautifully trimmed and hedged tea plantations. We enjoyed a cuppa with lunch and even found a tree kangaroo just outside the tea house.

From there we travelled down to Lake Barrine, another freshwater crater. We all arrived ready to catch a boat for a cruise around the lake, but alas, no driver. The rostered boat driver had decided to go hiking on Hinchinbrook Island. We patiently waited over Devonshire Tea and, lucky for us, another boat driver turned up.



adventurous had a sleep in, then wandered at their leisure through the local Yungaburra markets, directly across the road from the cottages. A few took the short stroll to a nearby creek to see some Platypus.

Just before lunch, some of the group went out for a double dose of indulgence at the Gallo Dairyland, where they produce their own local cheese and chocolate in a factory on a large dairy farm.



Later in the afternoon, everyone enjoyed pre-dinner drinks and nibbles, generously provided by the guys from BMG insurance, in the beautiful gardens at the Allumbah Pocket Cottages. The sky was initially clear and blue, but just five minutes later it was absolutely pouring down with rain, which sent everyone running for cover.

A few hundred metres up the street was Obi's restaurant, a lovely old home now converted into a small function centre. We enjoyed a delightful three course dinner as we watched a short slide show put on by a couple of young pilots, Jack and Miranda. They gave us an interesting insight into how and why they became aviators, and their visions for their futures and careers in flying.

It was a cold and wet Sunday morning. Everybody was up reasonably early, back on the buses and out to the Aero Club for breakfast, generously put on again by the Atherton Aero Club.



The Mooney Association had the AGM and talked about what had been accomplished over the last 12 months and the plans for the next year. All the current board members were re-elected unopposed. Owen Crees was awarded lifetime membership of AMPA for his commitment to the club, in the past and currently.

With the business side of things over, it was time for some more fun, so back on the buses and off to the Mount Uncle Distillery for lunch. Some of us endured 10 different spirits and liqueurs including vodka, gin and whiskey; enough to really clear the sinuses. Another lovely meal was enjoyed, consisting of a range of delicious shared tasting platters. The distillery had 40

plus Peacocks and Peahens wandering about freely and a variety of other wildlife, in the park as well as on the buses!

From there we went down to Tolga, north of Atherton to the Tolga Woodworks. The gallery featured some stunning artwork and quality pieces from local artisans; a lot of it beautifully crafted from local North Queensland timbers.

From Tolga, the buses carried us to Atherton Chinatown to explore and appreciate the significance of the culture and heritage in this region. We were guided by two passionate volunteers who were full of facts and information on the history of the museum and the timber and iron Chinese Temple, which had almost fallen into disrepair until it was donated and conserved by the National Trust of Australia.



With just a few sore tail bones, we were safely back at the accommodation, and then a quick stroll up the road to the beautiful old Yungaburra Hotel for our final happy hour and dinner together.

The following morning, a few Mooneys had technical issues getting away, so Yungaburra had some of the pilots and crew for another night or two.

Meanwhile, VH-VVV departed through the cloud and headed west to Karumba for the sun, heat and mud crabs for lunch.

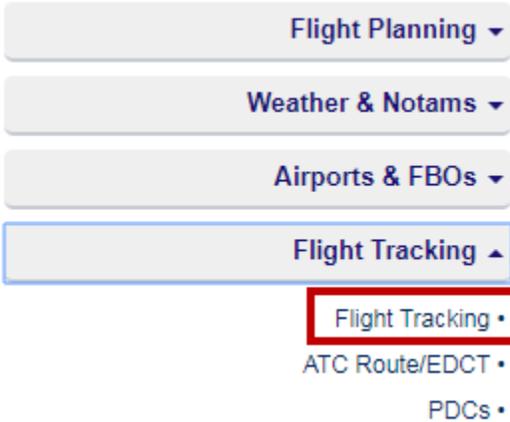




Automatic Text Notification

Let them know when you take off, your ETA and your landing time

If you file IFR, your friends and loved ones can get the details of your flight. Here's how:



1) Log into FltPlan.com

2) Click on "Flight Tracking" and on the resulting drop down menu, click on "Flight Tracking".

KCHD-KSOW
N257KW (Piston-M20T)
has departed KCHD
(CHANDLER, AZ) for
KSOW (SHOW LOW, AZ)
Departed: 06:08 (MST)
Planned Arrival: 06:55
(MST)

N257KW -Scheduled to
Land- KCHD-KSOW
N257KW (Piston-M20T)
is scheduled to land in 30
minutes. KSOW (SHOW
LOW, AZ) at 06:53 (MST)

N257KW -Landed-
KCHD-KSOW
N257KW (Piston-M20T)
has landed at KSOW
(SHOW LOW, AZ) at
06:54 (MST)

3) Fill in the Tail #, and the information that you want to be sent via email or text to as many as four email addresses or mobile numbers.

(Click on "Help" to learn about how to enter phone numbers for text messaging. Shown here is the email/cell provider protocol for Verizon, @VZWPIX.COM).

Notifications							Planned ATC Route Info	EDCT Info	Help
#	Tail# CallSign	ATC Route & EDCT	Proposed	T.O.	Landing	E-mail address			
1	N257KW	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	4807721: '@VZWPIX.COM			

4) File your IFR flight plan using either FtPlan.com, ForeFlight, 1800wxbrief.com or via phone. Notifications will work, regardless of how you filed.



WHICH ADS-B RECEIVER SHOULD I BUY?



Stratus 3, regularly \$900, but on sale at Sporty's, \$700

Specifications

ADS-B WEATHER	Yes
ADS-B TRAFFIC	Dual Band
AHRS (ATTITUDE)	Yes
ANTENNA	Internal
BATTERY LIFE	8 hours
BUILT-IN BATTERY	Yes
COMPATIBLE APPS	ForeFlight, Fltplan Go, FlyQ, WingX, iFly GPS
CONNECTION	Wifi
WAAS GPS	Yes

PLUS

- Stratus 3 automatically turns off after your flight
- Smart WiFi - use your iPad's LTE connection while connected to Stratus 3
- Open ADS-B - works with other electronic flight bag apps using GDL 90 protocol
- Two year warranty



Sentry, available at Sporty's, \$500

Specifications

ADS-B WEATHER	Yes
ADS-B TRAFFIC	Dual Band
AHRS (ATTITUDE)	Yes
ANTENNA	Internal
BATTERY LIFE	12 hours
BUILT-IN BATTERY	Yes
COMPATIBLE APPS	ForeFlight Mobile
CONNECTION	Wifi
WAAS GPS	Yes

- PLUS**
- Carbon Monoxide Alarm audio and in-app alert (ForeFlight) when CO concentration reaches hazardous levels. The LED indicator also provides a visual indication of CO levels.
 - Pressure Altitude Sensor

Scout, available at Sporty's,
\$200



Specifications

ADS-B WEATHER	Yes
ADS-B TRAFFIC	Dual Band
AHRS (ATTITUDE)	No
ANTENNA	Internal
BUILT-IN BATTERY	No
COMPATIBLE APPS	ForeFlight Mobile
CONNECTION	Wifi
WAAS GPS	No



Merlin from
Seattle Avionics
(FlyQ). \$250

ADS-B WEATHER	Yes
ADS-B TRAFFIC	Dual Band
AHRS (ATTITUDE)	Yes, when used with FlyQ EFB's 3D Synthetic Vision
ANTENNA	Attached
BATTERY LIFE	4 Hours
BUILT-IN-BATTERY	Yes – also can Connect to USB
COMPATIBLE APPS	FlyQ and ForeFlight Mobile
CONNECTION	WiFi
WAAS GPS	Yes



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



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





The The declaration of "MINIMUM FUEL" informs ATC that the aircraft has sufficient fuel remaining to follow the cleared routing, execute an arrival and approach procedure and land with the required fuel reserves. However, there is little or no extra fuel on board and any change to the existing clearance could result in landing with less than planned final reserve fuel. It is not an emergency situation.

Controllers shall respond to pilots, who indicate or suggest that they are becoming short of fuel or who have declared “MINIMUM FUEL”, by asking the pilot to confirm whether or not he wishes to declare an emergency after confirming to the pilot, the estimated delay (expressed in minutes) he/she can expect, if the pilot is en-route to, is joining, or is established in an airborne hold, or by expressing the remaining track mileage from touchdown, if the aircraft is being vectored to an approach.

Of course, ATC could give you speed adjustments and vectors that would take you off course from your desired airport. But, the controller is aware that too much vectoring could put you in an emergency fuel situation and he or she doesn't want that to happen.



Declaration of a fuel emergency or “Emergency Fuel”, means that priority handling is both required and expected. Once you declare an emergency, you become ATC's number one priority.

Top Gun Aviation



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Federal Aviation Administration

Part 61

Tells you how to get your pilot certificates

Part 91

Tells you how to lose your pilot certificates



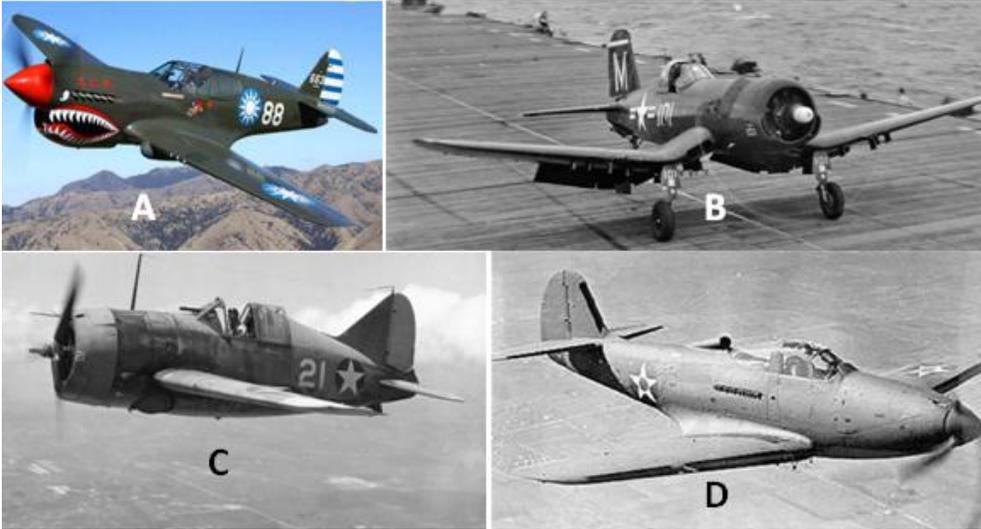
The P-38 was initially used for:



- A. Reconnaissance**
- B. Bombing**
- C. Bomber Escort**
- D. Air superiority**

Answer: A. The first active service P-38s were used as reconnaissance aircraft in April 1942, by the Australia 8th Photographic Squadron.

2) Which airplane is the F4U Corsair?



Answer: B.

A - Curtiss P-40. C. - Brewster F2A Buffalo. D. - P-37 Aircobra

3) Which of these aircraft was the most produced bomber of WW II?



B-17



B-24



B-25

Answer: The B-24 was the most produced bomber, with nearly 19,000 built.

12,731 B-17 Flying Fortresses and 9,816 B-25 Mitchells were built.

4). Which of these 3 aircraft was the most produced fighter of WW II?



Grumman F4F Wildcat



P-51 Mustang



Vought F-4U Corsair

Answer: With over 15,000 produced, the P-51 tops the list. The P-38 had over 10,000 produced. 12,571 F-4Us and 13,370 P-40s were built.

5). Which was the only bomber that was exclusively used in the Pacific theater of WWII?



B-17



B-24



B-29

Answer: Although considered for other theaters, and briefly evaluated in England, the B-29 was exclusively used in World War II in the Pacific Theatre.

6). Which US single-engine fighter was the first to fly faster than 400mph?



Answer: The F4U Corsair was the first US single engine fighter to fly faster than 400 mph.

7). Which of these fighter aircraft could carry the heaviest bomb load?



Answer: The P-47 could carry a 2,500 pound bomb load, which was over half of what the B-17 could carry on a long range mission.



Send your questions for Tom to TheMooneyFlyer@gmail.com

Question: I love your column each month. My question is about corrosion in Mooneys. Where are the locations most likely to have corrosion? What steps can I take to reduce its occurrence?

Answer: Asking about corrosion in the Mooney is really timely since we are currently dealing with it at Top Gun Aviation. As aircraft age, corrosion becomes an increasing problem. It's amazing to think that some Mooneys are approaching their 60th anniversary! I will discuss the most common and costly corrosion issues.

There are three main types of corrosion to consider.

1. **Intergranular.** It's the most destructive type and it's mainly found in spars, stringers, ribs, etc. Very destructive
2. **Rust.** Most don't think of rust in an airplane, but most bolts, the landing gear structure, tubular frame, and in the mid-wing, there is a steel splice plate. One time, we had to replace a splice plate and it took over 100 hours. When mice get inside the wing, they urinate on the splice plate and it rusts.
3. **Filiform.** It's the most common type of corrosion. It's easily seen since it usually forms between the paint and skin. It looks like spider webs in the paint. The fix is to strip and clean the bare skin, then repaint.

Intergranular is very destructive. Actually, I have seen an aircraft sent to salvage because of corrosion in the main spar. If caught early it can be treated. However, it will cut into a solid spar and it is almost impossible to replace the main spar. In most cases, it's not cost effective. We once changed the rear spar in a 90 model due to corrosion and it was a \$30 K plus job. We recently had corrosion in a very late model and had to get a DER to design a repair, since it was technically out of limits. We were able to do the repair since the corrosion had not penetrated deeply.

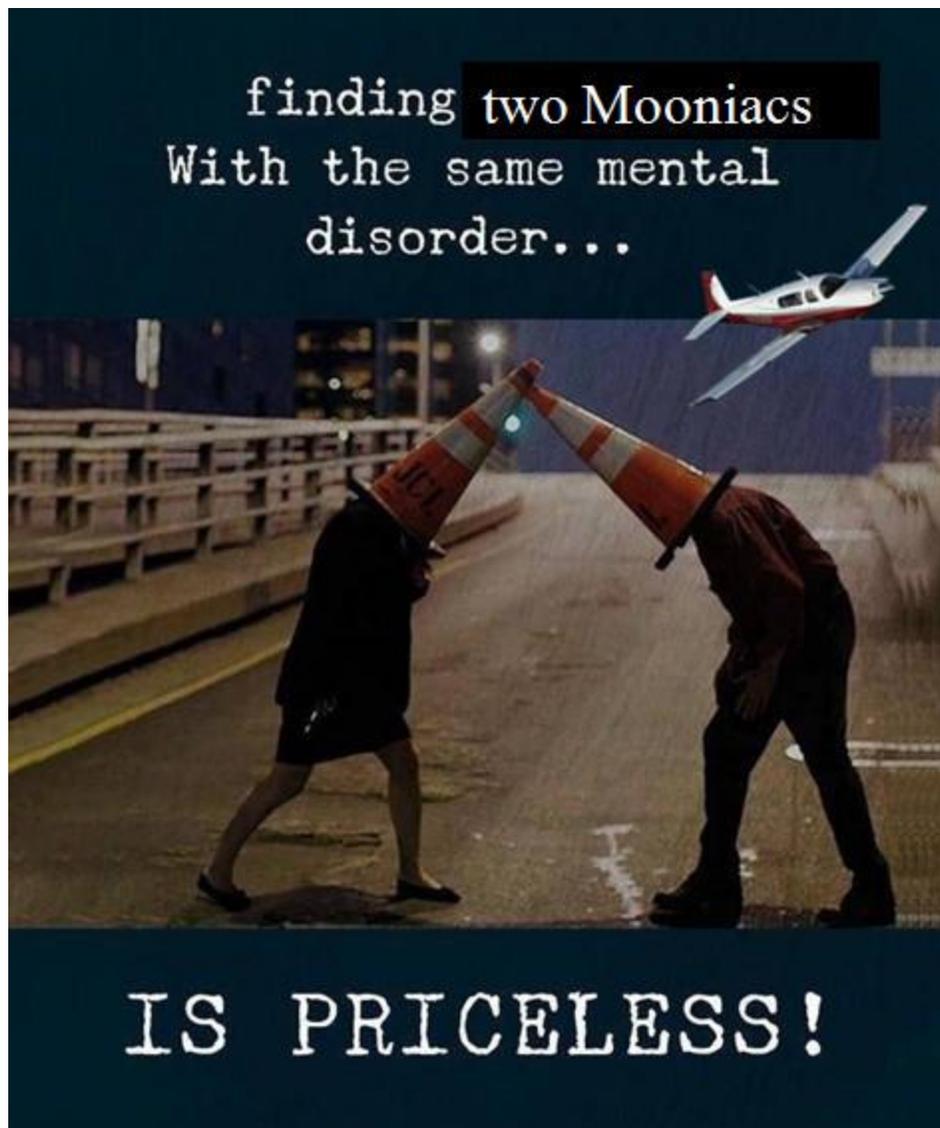
Rust is very visible and not too common. It is usually found in older models that have spent a lot of their life sitting outside. If it's just rusty bolts, we can replace them easily. But, if the rust is in the frame, we are limited to how much we can grind out. If it's deep, we would cut out a section and weld in new tubing.

Filiform is surface corrosion that looks like a white dust on wide areas of the skin. It's found in the interior of wings and fuselage.

The earlier Mooney's did not have the zinc chromate protection that is used on later models. For

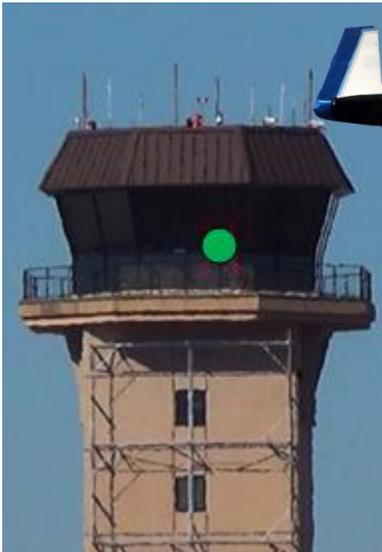
many years, we recommended a fogging system which would spray an anti-corrosion spray in the interior; everywhere we can reach. We currently prefer Boeshield, but there are other products. I recommend this be done every three years or so, depending on where the aircraft lives. If it lives on the Southeast coastal area, where there is high humidity, you should do it more often.

I want to add that some of the most destructive corrosion we have found is in airplanes that have been repainted, especially those that were chemically stripped and not properly treated before painting. Obviously, the best an owner can do to prevent corrosion is to keep the plane clean and properly lubricated. If you are in a coastal area with a lot of fog, be aware that most air is contaminated with "smog". If it settles and stays on the wings, it will run down the trailing edges and suddenly, you have corrosion. KEEP THE PLANE CLEAN.





LIGHT GUN SIGNALS



1) You're in flight and see a **steady green light**. You are:

- A. Cleared to land
- B. Cleared to line up on final
- C. Cleared for a touch and go.

Answer: A.

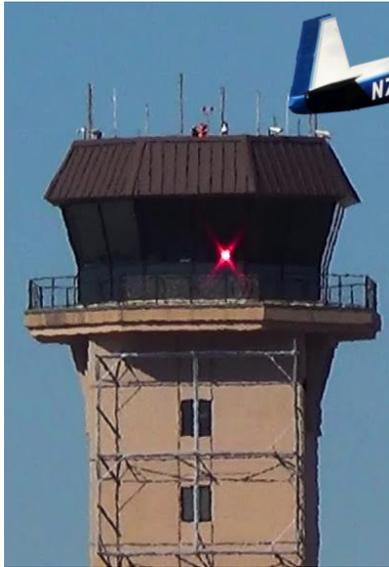


2) You see a **flashing green light** while on the ground. You've been cleared for

- A. Takeoff
- B. Taxi

Answer: B





3) You see a **steady red light** while in flight. You should:

- A. Give way to other aircraft and continue circling
- B. Land right now!
- C. Go find an alternate.

Answer: A



You see a **flashing red light** while in flight. You should:

- A. Enter the pattern
- B. The FBO has burritos ready
- C. Airport unsafe; do not land

Answer: C



4) You see a **flashing white light** while on the ground:

- A. Begin your taxi
- B. Return to starting point
- C. Stop where you are



Answer: B



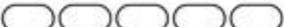
5) You see **alternating red** and **green light signals**.

- A. Land immediately
- B. Exit the pattern immediately
- C. Land immediately
- D. Exercise extreme caution

Answer: D

lusoaviation.com Ref: 14 CFR 91.125; AIM 4-3-13

ATC LIGHT GUN SIGNALS FOR AIRCRAFT

COLOR & TYPE	GROUND	AIR
STEADY GREEN 	Cleared for takeoff	Cleared to land
FLASHING GREEN 	Cleared for taxi	Return for landing (to be followed by steady green)
STEADY RED 	STOP!	Give way to other aircraft and continue circling
FLASHING RED 	Taxi clear of runway in use	Airport unsafe, do not land
FLASHING WHITE 	Return to starting point on airport	N/A
ALTERNATING RED/GREEN 	Exercise extreme caution	



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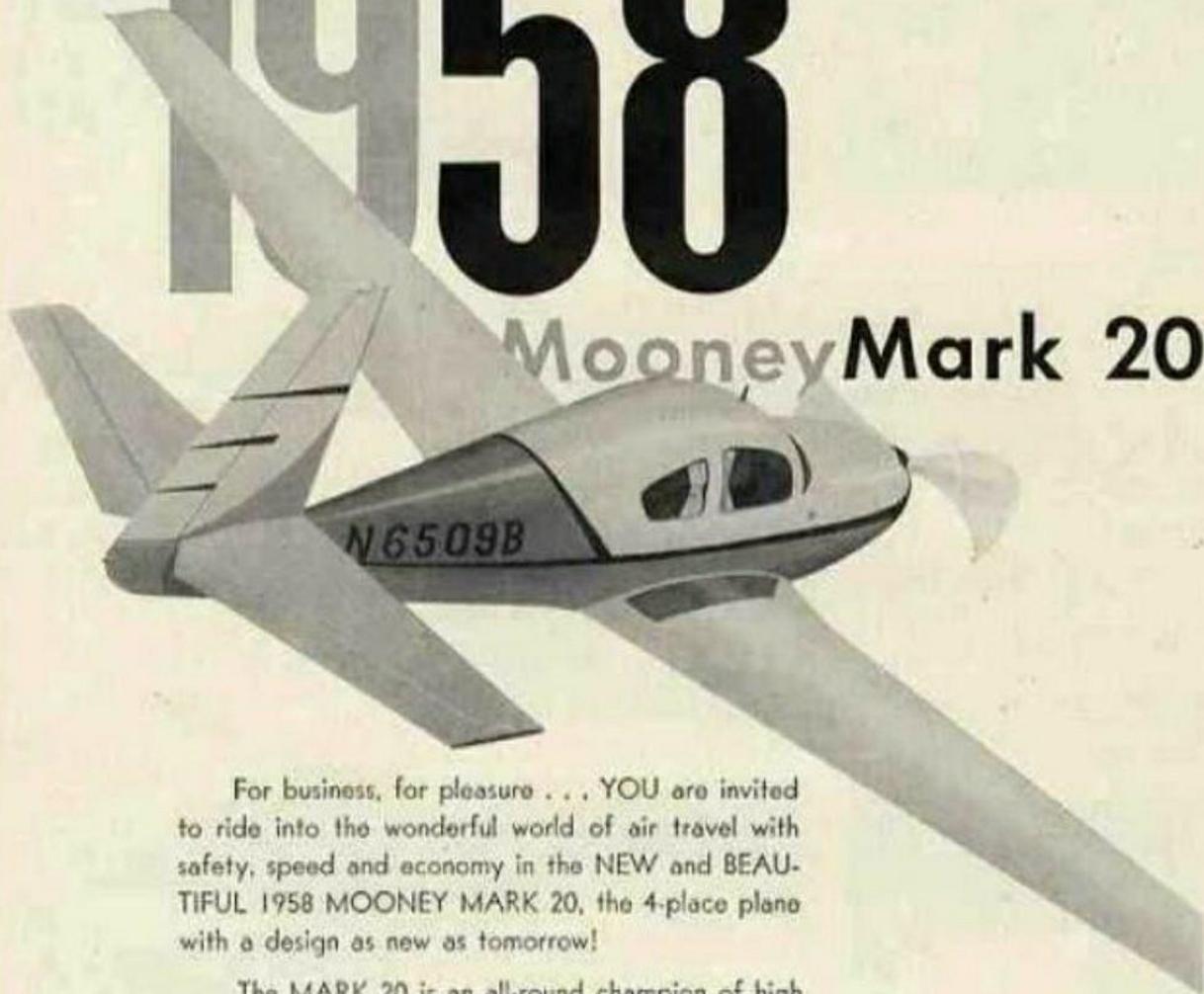


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1958

Mooney Mark 20



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The 1958 Mooney Mark 20

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LET'S TAKE HER OUT FOR A SPIN, OR MAYBE NOT

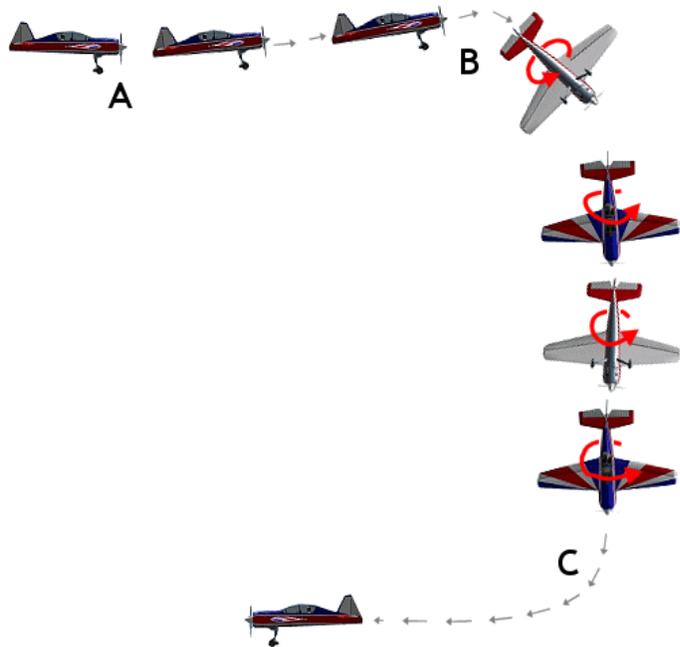
When I was first learning to fly, after I learned the regimen of stalls, I asked my instructor to teach me how to spin and recover from that spin. I was flying a C-172, a most docile plane. The sharpness of the break and quick entry got my attention, but recovery was pretty straightforward. I lost any anxiety about spinning after doing a few.

So when I got my first Mooney, I went through the sequence of stalls, but on the second one, a power on stall, I inadvertently entered a spin. It was because I thought I should let it do a full break instead of recovering during the incipient stall. I must have been slightly cross-controlled. The spin break was not as sharp as the C-172. Instead, it sort of let the wing and nose go vertical in a smooth fashion. But getting out of the spin was way more difficult.

The normal Spin Recovery technique is simple: 1) Push the nose down, 2) Pull the power and 3) Neutralize the ailerons, and 4) Full opposite rudder to the spin rotation. But that may not work in our slippery Mooneys.

Instead, use the following sequence (Courtesy Master Instructor Don Kaye)

1. Forget smoothness when it comes to spin recovery! Abrupt full elevator forward right now!
2. Flaps up to prevent stress on the flaps and more importantly to get the air flowing over the rudder more effectively.
3. If recovery isn't effected using the above technique, then use full rudder into the spin, followed by full rudder opposite the spin.
4. If that doesn't work, then increase – then decrease power a couple of times.
5. If that doesn't work--well, you're on your own



Here's the best idea:

Mooneys have great wings, but according to the POH, they aren't intended to be spun. During practice stalls, avoid full break stalls and "keep the ball centered". You can thank me later.



Jeppesen unveiled new capabilities developed with Garmin, allowing wireless updates of Jeppesen data for general aviation pilots flying with compatible Garmin avionics.

Jeppesen’s Garmin PilotPak database bundles, which combines Jeppesen NavData, Jeppesen charts and Garmin database information, now allows subscribers to use wireless database transfers using the Flight Stream 510 MultiMedia Card (MMC) via WiFi.

Customers will sync their Jeppesen data subscriptions with Garmin, use the Garmin Pilot app to update their Jeppesen charts and data and transfer it directly to compatible Garmin avionics, using the Flight Stream 510 wireless capabilities. Wireless Jeppesen data updates for Garmin Flight Stream 510 data cards are now available for the Garmin GTN 650/750 touchscreen navigators, and select G1000 NXi, G2000, G3000 and G5000 integrated flight decks, company officials report.

Jeppesen customers who operate aircraft enabled with Flight Stream 510 can call Jeppesen Customer Service to update their account and receive instructions to enable this capability, company officials add.



You're probably thinking, "Oh yes, I think I remember TIBS, but I never used it." Well, apparently, you're not alone.

Flight Service will eliminate the Telephone Information Briefing Service (TIBS) in the contiguous United States, effective September 13, 2018. Created in the early 1980s, TIBS is a continuous telephone recording of meteorological and aeronautical information that pilots can access, but which does not satisfy the requirement to become familiar with all available information prior to a flight (see Title 14 Code of Federal Regulations (14 CFR) [section 91.103](#)).

Today there are multiple sources available to pilots that provide weather and aeronautical information, often presented in an easier to understand graphical format. Pilots no longer need to call Flight Service to adhere to 14 CFR 91.103 and maintain awareness of weather and aeronautical information. See 1800wxbrief.com to learn more about automated flight services.



The [FAA](#) has proposed discontinuing the Hazardous Inflight Weather Advisory Service (HIWAS) as part of an agency streamlining effort.

HIWAS is a voice broadcast that has existed since the early 1980s, providing hazardous weather advisories over VOR radio navigation systems.

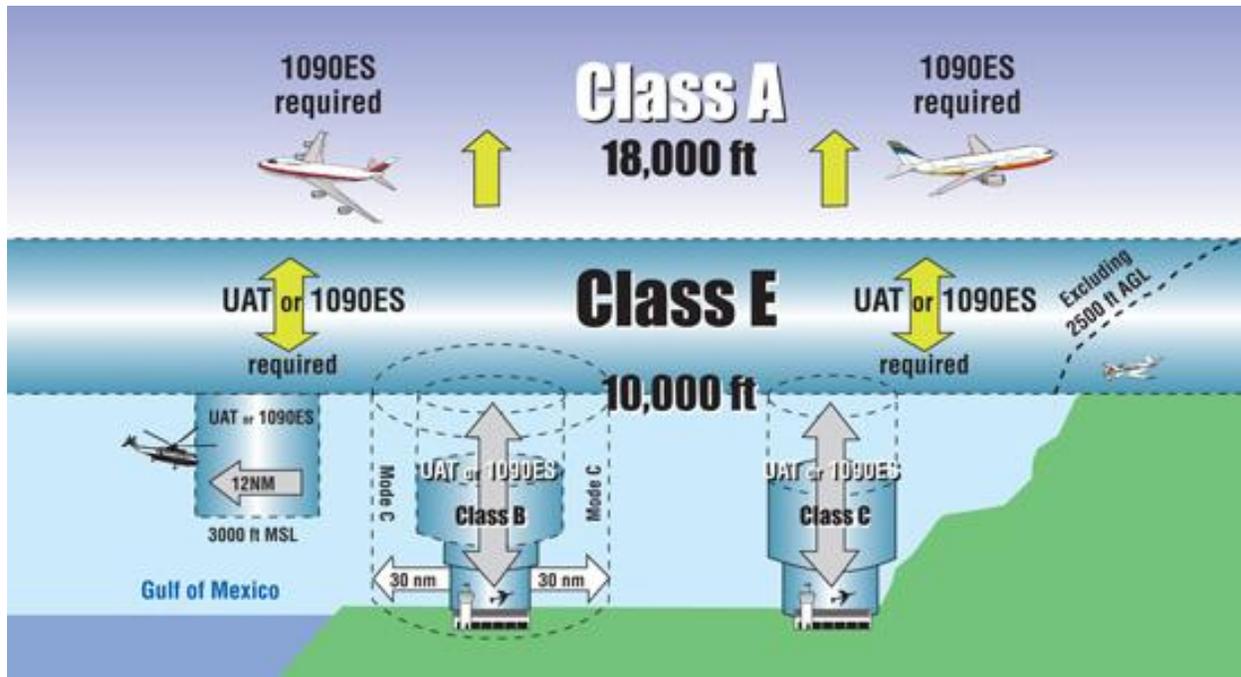
Better sources of weather information are now available to pilots. These newer, Internet-based sources often use graphical formats that make it easier to visualize what is happening along a flight route.

However, Internet-based graphics are often not available in the cockpit because many aircraft do not have Wi-Fi in the air, officials with the National Business Aviation Association (NBAA) note. HIWAS, by contrast, is listened to over frequency and does not need the Internet.



With the advent of the internet and other technology, the demand for inflight services from Flight Service specialists has declined. Staffing was 3,000+ specialists in more than 300 facilities during the early 1980s and now consists of three hub facilities. In 2018, radio contacts dropped to less than 900 per day from an average of 10,000 radio contacts per day.

The ADS-B Mandate is set for January 1, 2020. Are you ready?



uAvionix Statement on Garmin Lawsuit

On June 19, 2018 Garmin International Inc. and Garmin USA Inc. sued uAvionix for patent infringement. Garmin alleges the uAvionix echoUAT and skyBeacon’s method of obtaining an installed transponder’s Mode 3/A code and altitude infringes their U.S. Patent No. [8,102,301](#) (“the 301 Patent”). We do not infringe the 301 Patent. uAvionix has our own [patent-pending](#) method for using Mode 3/A and altitude information that differs from the method in the 301 Patent. We invite you to see for yourself.

Ultimately the court and industry will decide whether we are innovators or infringers.

We are disappointed and frustrated we have to go through the expense, distraction, and effort of defending ourselves, but also recognize that disruptive products often attract unwanted attention from incumbents.

We won't be able to comment on the proceedings, and it will likely take some time to resolve. We just want the world to know that we take Intellectual Property rights seriously. We are innovators with integrity, and we are defending that integrity. As pilots, we will fight hard and stand our ground to deliver groundbreaking and innovative products to this market.

We also want to make a clear statement that this suit in no way impacts our ability to certify and ship any of our products – including skyBeacon and tailBeacon.

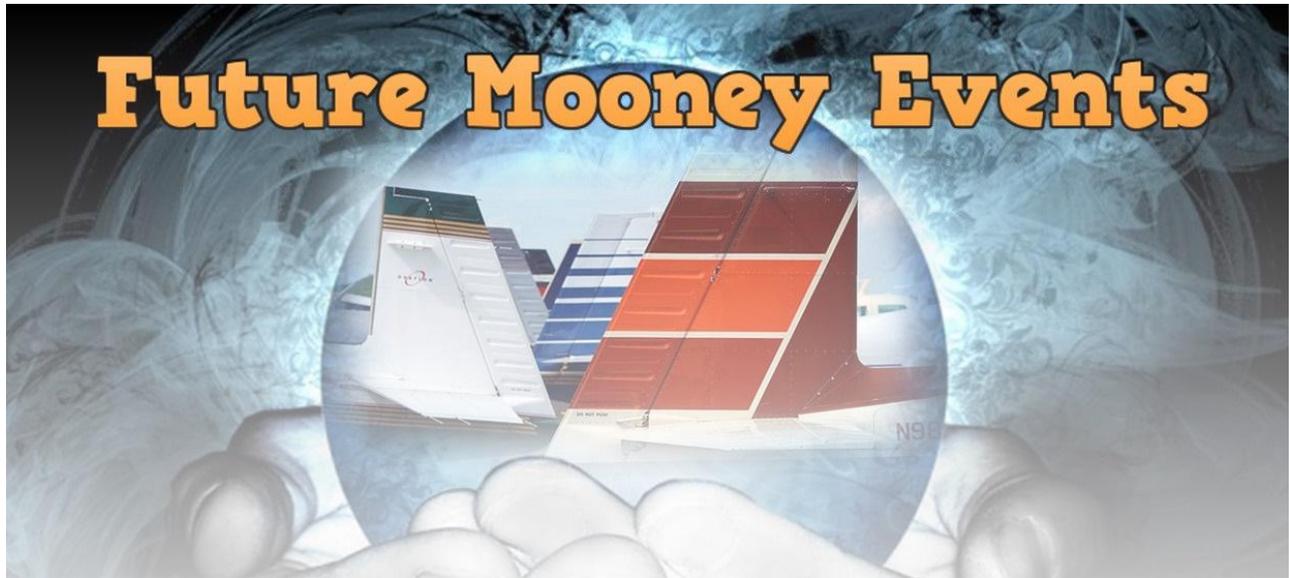


Wednesday, August 29, Garmin announced its acquisition of FltPlan, a leading electronic flight planning, scheduling and trip support services provider, widely known for their industry-leading FltPlan.com web portal and FltPlan Go mobile application. Creating more than 6.3 million flight plans annually, FltPlan is one of the largest flight planning companies in the world. [READ MORE](#)



NOTAMs received via the ADS-B Flight Information Systems–Broadcast (FIS-B) might be incomplete.

The FAA warned pilots that FIS-B NOTAMs are limited to those issued in the past 30 days, even though older ones might still be active. NOTE: NOTAMs received using WiFi or your mobile carrier's data plan are still complete. See [Information for Operators \(InFO\) bulletin](#).



	<p>Contact Dave at daveanruth@aol.com or (352) 343-3196, before coming to the restaurant, so we can have an accurate count</p> <p>September 8: Winter Haven (GIF) October 13: Flagler (FIN) November 10: Vero Beach (VRB)</p>
	<p>No Events</p>
	<p>Oct 5-7: Owensboro, KY (KOWB)</p>
<p>MooneyMax</p>	<p>October 10 – 14: MooneyMax Conference and Clinics, @ Longview, Texas (KGGG) New Hilton Garden Inn and Event Center. MooneyMax Maintenance Seminar Don & Paul Maxwell, Mooney Caravan Formation Clinic, A fresh new list of seminar Speakers & Vendors, Tour of Mid America Aviation Museum, Saturday Night Banquet at The Lake Cherokee Country Club, Banquet Speakers – The REAL Space Cowboys that are Mooney owners.</p>
 <p>Mooney Summit</p>	<p>Mooney Summit VI: September 28-30: At Panama City, FL, Mooney Summit VII: September 27-29 2019 CLICK HERE for details.</p>

2018 MAPA Homecoming
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TME
PRODUCT
REVIEW

FLIGHT GEAR BACKUP BATTERY FOR IPAD

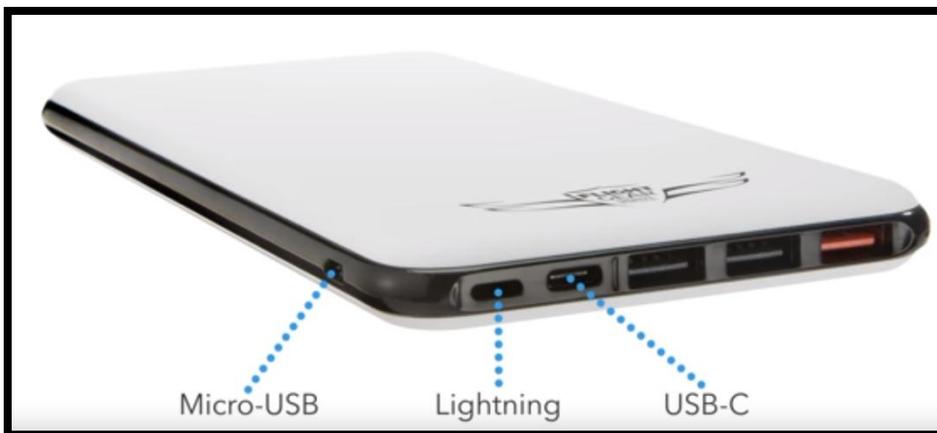


won't interfere with the radios.

The all-new Flight Gear Backup Battery for iPad is the pilot's answer for charging mobile devices on the flight deck. This battery packs 20,000 mAh (milliamp hours) of capacity, but its slim shape will fit in any flight bag.

Two 3 amp USB ports deliver enough power to charge multiple iPads at the same time while those iPads are being used by the pilots. A total of four USB ports are available to charge your devices, three standard USB-A ports (like those found on computers and wall chargers) and one USB-C output port. (See next page).

Sporty's tested the Flight Gear Battery pack in multiple aircraft and through hundreds of flight hours to ensure that it



It can be charged with a Micro-USB, Type-C, or Lightning Cable. What this means is you only need one cable to charge this battery and then also charge your device.

It can detect the optimal charging current for any connected device and deliver that amount of power. This saves the battery power and more efficiently charges your devices.

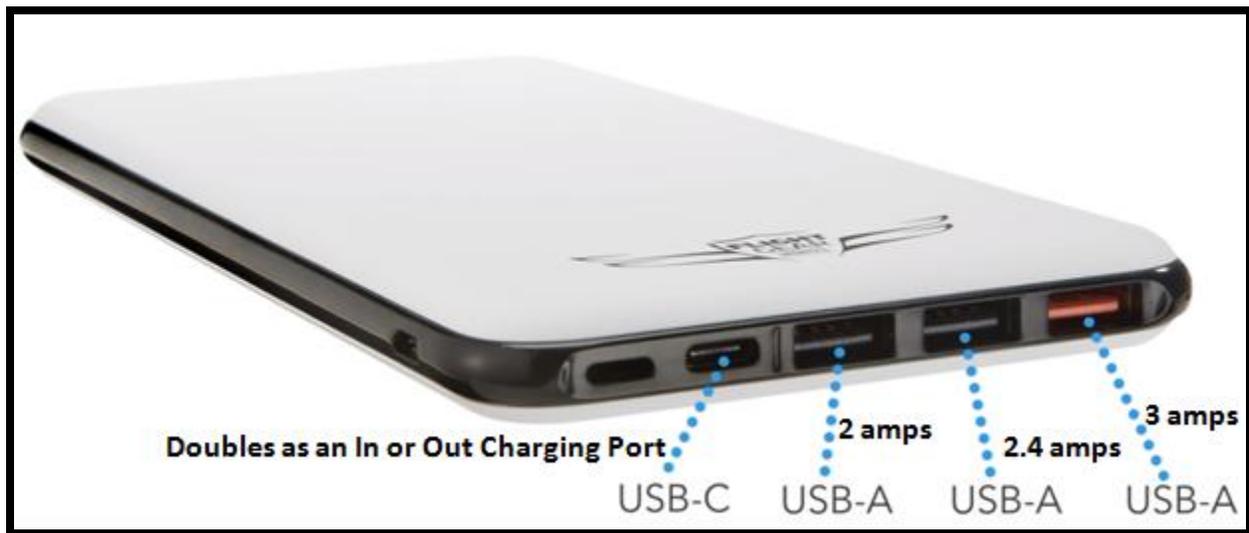
INTELLIGENT CHARGING

The USB-C port on the battery doubles as an In or Out charging port. Based on the connection detected, the battery will either accept power from the charging cord if it's plugged into a power source or the same port can deliver power if the battery detects that there is a battery requiring a charge connected to the cord.

PASS-THROUGH CHARGING

Pass-through charging is supported as well. This means that you can plug the battery into the wall and your device into the battery and both devices will charge off of the wall. Perfect for the night before a flight - now you can make sure everything is charged in one set up.

There are 4 USB outputs, so you can charge multiple devices at once. It can keep 2 iPads and a Stratus topped off at the same time.



At least 2.4 amps are required to charge and keep up with an iPad Air, so this battery backup will keep everything topped off.

\$79.95

sporty's® pilot shop

[CLICK HERE.](#)

Want more, see the Flight Gear Charging Bundle. \$99.95, [CLICK HERE](#)





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of the Mooney Community

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For the latest Mooney and Aviation News

**After a long night, two
freighters swap jokes at
Miami International**





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

For Sale

Bendix/King KX-165 nav/com, 12V, with rack, \$1600.

Electronics International SR8A4, 4 channel EGT/CHT, needs EGT probes, \$200

Both working when removed from my M20J

Mark Leuzinger, SIAI260@gmail.com, 909-720-2702

For Sale

King KT76A Transponder (with tray). Pulled from service in April 2018 during a panel update of my M20J. Works great. Asking \$275 plus shipping.

Mike Martin, 607.398.9009, michael@polytest.org



For Sale: 1978 M20J

Price Reduced to \$120,000



1978 M20J N201TM
\$120,000

Model M20J - 200HP FI Serial 24-0388
Lycoming IO-360-A3B6D

TTAF 4400
TTSMOH, SPOH, prop governor, "0" by Zephyr
New Hoses, oil cooler O/H, "0" magneto
Annual 2/18

Same owner 33 years, Mooney Service Center maintenance

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No damage history. No corrosion. Always hangared.
Mooney brochure plane in 1978, panel "Those Incredible Moonies"
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Bladders, no leaks
Donuts, brakes, tires, good
New Plane Power Alternator
Concorde Battery
3 David Clarkes
Graphic engine monitor with fuel flow
Portable Oxygen, certified 2016
4 life vests
New seat belts and shoulder harness pilot/copilot
Electric gear & trim
Rosen visors
Grey leather interior & refurbished plastic

INSTRUMENTS

Garmin 430 WAAS
KNS 80 with second LOC/GS
Stratus ADS/B in, moving map, weather
IFR certified 3/16
KFC HSI
KFC 200 Flight director, coupled to Garmin 4300 3-axis, altitude hold
KY 197 COMM #2, flipflop
O/H electric DG 2016
BFG Stormscope
Davtron 811B clock, flight timer, stopwatch
4-Place Intercom + Music player
Electric Digital tach
JPI EGT CHT Fuel Flow

Contact: Claude "Sandy" Thomas
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Airframe: 3500TT, Engine: 1000 SMOH. Lycoming IO-360-A3B6 (two separate mags)
Aspen Pro PFD. Garmin GNS530W, SL-30 Nav/Comm, Garmin X-ponder, Garmin Audio panel, KAP-150 Autopilot with Alt hold, Engine monitor with fuel flow interconnected with 530W, Garmin 396 with XM weather and XM Radio, Digital Tach, Strike Finder, LED Landing Light, Leather interior (6), Electric Trim. ADS-B Out Compliant & Stratus for ADS-B In. July 2018 Annual at Cole Aviation. (Mooney Service Center). This is a wonderful partnership situation with established LLC and Operating Agreement. I have never had a scheduling conflict.



**Contact me for more information.
John Saidy, 615-870-7955 or johnsaidy@me.com**



Are you a pilot who is looking for a hangar to rent when you travel? Are you a hangar owner that has extra space and would like to turn that space into extra cash by renting your hangar? DailyHangar.com is a new website that connects transient pilots with hangars for their planes. The website offers an innovative way to connect transient pilots who would like a place to hangar their plane for any period of time with hangar owners who have space to rent. The website is also an excellent way for FBO's and corporate hangar owners to get the word out to more pilots about the space they have available and manage their rentals in one convenient location. DailyHangar.com encourages hangar hosts to sign up and provide options for traveling pilots. Protecting aircraft from weather is necessary for all sizes and types of planes.

"DailyHangar.com offers hangar owners the opportunity to make money renting out their under utilized hangar space, and pilots the opportunity to efficiently book a hangar space to protect their plane from the elements," said Mark Euwema, co-founder of Daily Hangar and a pilot in general aviation for the past 40 years. "DailyHangar.com offers the FBO's and corporate hangar owners a easy way to make their openings known to a broader community of pilots. It's a win-win for both parties."

Designed for the traveling pilot and the busy hangar owner, the website allows pilots, while traveling cross country, to find a hangar that has been posted on the website and book that hangar for the period of time they would need it, according to Euwema. "All you need is a destination and Daily Hangar will give you available options of hangars in your area."

Once the pilot has chosen a destination several hangar options will populate as a place to hangar your plane for your stay. Pilots need only to filter through the options for size, dates of stay and amenities at the hangar to find the price and the perfect location for their plane.

If you are a hangar owner with some space to spare, there is not a cost to list your hangar on the site. Hangar sizes, specifications and amenities are put in by the hangar owners.

There are no upfront or membership fees for the pilot or the hangar owner, there is only a service fee once the hangar is booked.

"I want to change the mindset of the traveling pilot. There are more options than the outside tie downs. I believe there is a lot of underutilized hangar space at airports across the nation and DailyHangar.com is the solution that can connect both the hangar owner and pilot," said Euwema.

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