

# *The Mooney Flyer*

The Official Online Magazine for the Mooney Community

[www.TheMooneyFlyer.com](http://www.TheMooneyFlyer.com)

May 2019



**E**ditors

Phil Corman & Jim Price

**C**ontributors

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

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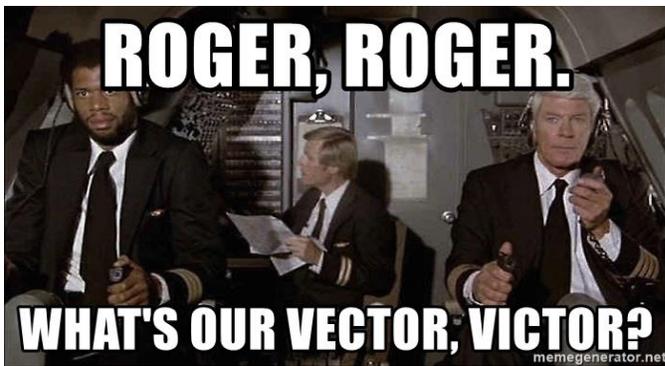


# From the Editor

## Phil Corman



## Things pilots do to drive me nuts



### #1: Bad Radio Calls

The first “bad” type is this call. “Cirrus xxx is over the Salvation Army Center landing”. To a transient pilot that tells me nothing. I have no idea where the Center is. The only correct call is “Cirrus xxx is n miles (south/north/east/west) of the airport”, or a posted Visual Checkpoint. The second type of “bad” radio call is confusion over the pilot’s intended runway. A full and informative call announces the vector from the airport with distance and right/left pattern for a specific runway. Now everyone knows what they need to know.

### #2 Running Out of Fuel (Fuel Starvation)

I just don’t understand how anyone can run out of fuel. It’s simply avoidable. Today a Cessna made 4 or 5 attempts to land at Republic on Long Island and ran out of fuel on the last attempt. Two things went wrong. Where was his reserve? And why didn’t he simply go to an airport with better weather. Everyone survived as the Cessna was buffered by electrical wires which softened the impact.



The one valid reason for running out of fuel might be that you sprung a fuel leak enroute and thought you had more fuel.

### #3 Gear Up Landings

Approximately 92% of gear up landings are not caused by mechanical issues. Yes, more than 9 out of 10 gear ups are caused by Pilot Error. The number one reason pilots give is that they were taken out of their landing routine by some form of a distraction. The distractions include a busy pattern, another plane flying a non-standard pattern that impacts you, passenger distractions, or simply not double or triple checking that your gear is down and locked.

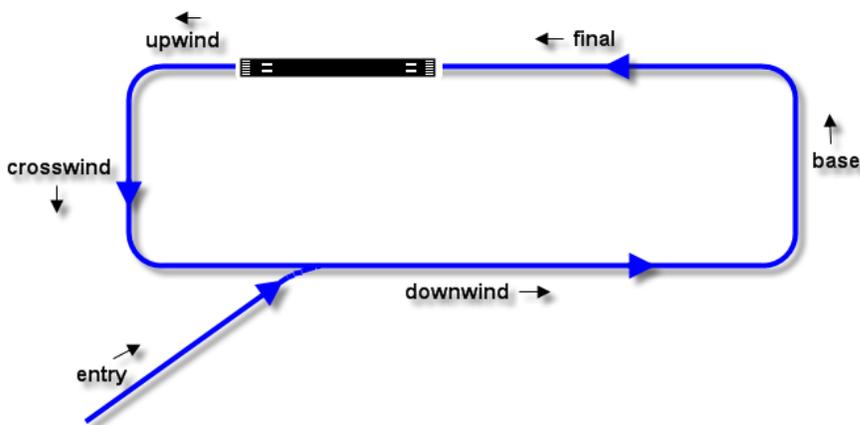


Years ago, I went to a seminar that featured Rod Machado, who suggested that before landing, the PIC should check the gear 3 times. First, when you extend the gear. Secondly, when you turn base, and thirdly when on short final. Additionally, the PIC should say “Gear is Down & Locked” aloud each time. Psychologically, this is a significant factor to avoid forgetting to extend your gear.

Those with Johnson Bars should ensure that the J-bar is locked into place by tugging on it with the gear light as a backup. Pilots with electrical gear should look at the mechanical location of the gear on the floor indicator and use the gear light as a backup. Just sayin’. 9 out of 10 gear up landings can be avoided. Duh!

### #4 Flying a Right Pattern in a Left Pattern Runway or vice versa

#### Left Hand Pattern



It is never OK to fly the wrong pattern. It’s a violation of the FARs and it’s unsafe. I was recently on a Left Base for R/W 19 and another plane announced Right Base for R/W 19. He coulda, shoulda flown over the airport at pattern plus 500’ and entered a 45° for R/W 19 or entered a midfield. Instead, he was just lazy and definitely unsafe. Oh, by the way, earlier, he announced that he was landing on the “active runway”. And silly me, I didn’t think there were “active” runways at uncontrolled fields.

## #5 Taxi into Position and Hold at Uncontrolled Fields

Two things wrong with this, and fortunately most pilots don't do this, but it happens. First, you should never enter the runway at an uncontrolled field until you can and will depart immediately. Secondly, it's not "Taxi into position and hold" anymore, it's "Line Up and Wait" and only when instructed to do so at a towered airport.



## #6 Calm Wind Runway

When the wind is calm, you can land on any runway you choose, but should you? I think there are at least two considerations. First, try to blend in with traffic. If everyone is using R/W x, then why not blend in and make it easier for the other pilots. The second consideration is to consult the airport Chart Supplement (formerly called the AF/D) and utilize the designated "Calm Runway". This is not a mortal sin kind of thing, but only a cardinal sin, and only a sin at all if you are Catholic ☺. No letters please... I'm enjoying this fun rant.

## #7 Waiting Until Now to Install ADS-B Out

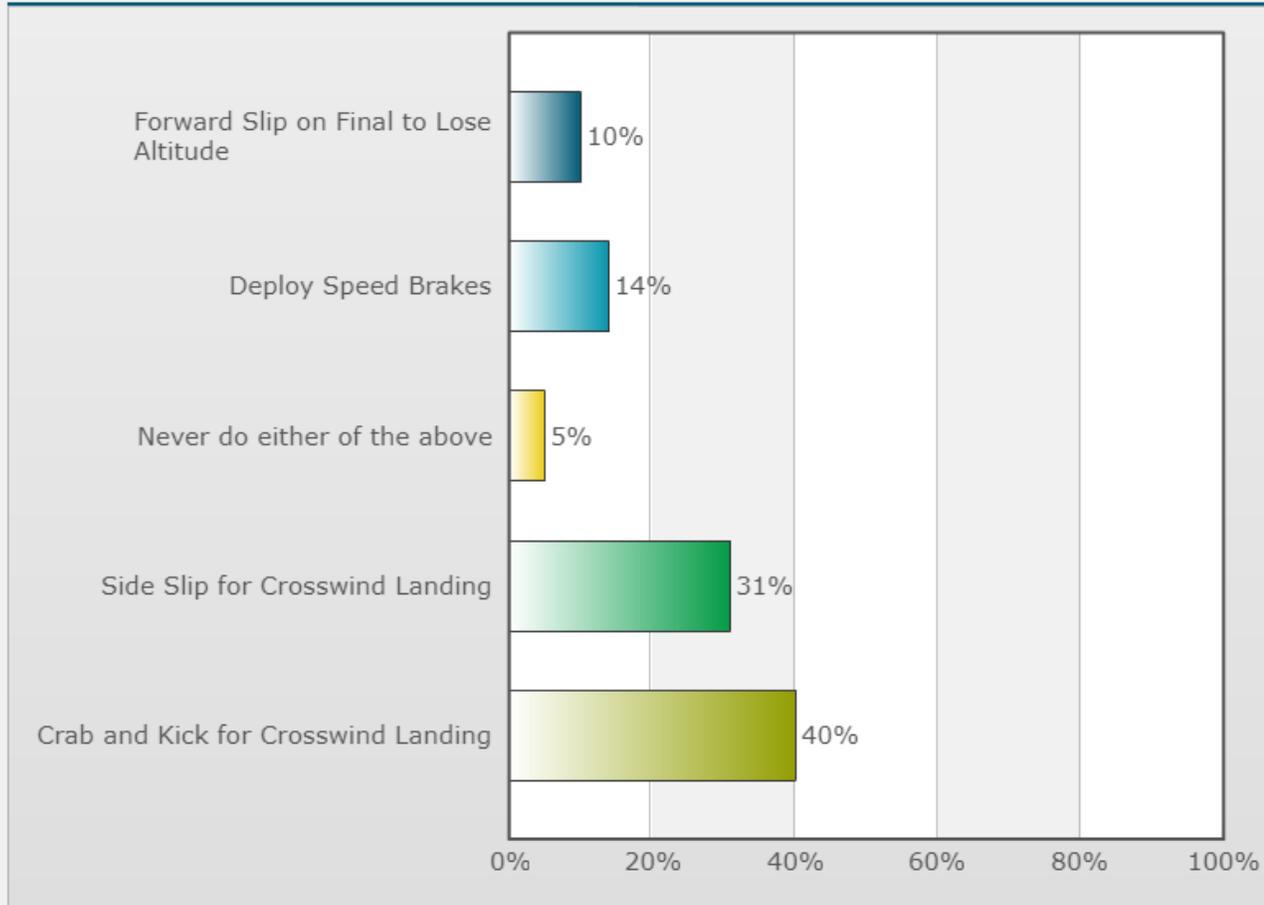
With only seven months or so until it's mandated, what have you been waiting for? There are many options and some just don't break the bank. Lots of avionics shops are booked now since so many owners have delayed installation. ADS-B IN is fantastic and the weather and traffic data is amazing. Do it now or lose me forever, or something like that line from Top Gun.



# My Mooney Flying Techniques are:

Poll created by [Phil Corman](#) on 02/18/2019

## Poll Results



Next month's poll: "Most of My Mooney Flying is: " [CLICK HERE](#) to vote.



**APPRAISE IT**  
Check Your Mooney's Value

[M20C](#) [M20E](#) [M20F](#) [M20G](#)  
[M20J](#) [M20K](#) [M20R](#) [M20M](#)

**Mooney Instructors**

**CLICK HERE** for the most comprehensive list of Mooney instructors in the United States

# PROP SUPER CENTER



We won't be undersold!

## Mooney Props



Airplane Eligibility	Prop Style	STC #
M20A-J	2 bladed Scimitar	SA0241 CH-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

BLACKMAC

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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**On Slipping Mooneys** - I agree with Bob Kromer, that slipping a Mooney, the J in particular, is safe and easy with no complications.

I would avoid side-slipping aggressively with passengers in the normal course of flying, unless they are thrill-seekers.

However, I believe it is worth practicing, as there is one time I will aggressively slip my M20J, and that is during a forced landing without power. Approach high - very high - on finals, clean at 90kts for best glide, and at the right moment (a judgement call), gear down, 15° flaps and push the nose down for a full rudder side-slip maintaining 90 - 100 kts. Rate of descent is almost off the VSI. If judged correctly, at about 50 - 100 ft, gently release the side-slip and land.

The rate of descent is highly controllable by varying the slip allowing the approach profile to be fine-tuned, so except in a bad case of misjudgment, there should never be the need to stretch the glide with an unhappy ending.

Neil F

Great magazine! I've been meaning to ask you, . Do you happen to have a PDF of the entire article: "The Philosophy Behind My New 4-Place Design" by Al Mooney?

The first page of that article is on page 19 of the March 2019 issue of The Mooney Flyer. If you do, would you send it to me?

Thanks, John M

**Editor's Note:** *We have a scan and have emailed it to you. Thanks for the kind words.*

I enjoyed your article on "Speed Brakes" in the April Issue. We have these on our Mooney Missile and occasionally use them to increase descent rate (spoil lift).

Personally, I consider these devices to be spoilers, not speed brakes. I find that they do very little in terms of speed reduction for our Missile.

Particularly questionable is the notion that they slow the Mooney on the landing roll.

Do you know of any actual data demonstrating speed reduction? It would be interesting to see.

Rae W

**Editor Note:** *We agree on two counts: 1) There is almost no effect in the landing roll, and 2) Speed Brakes have the most value in increasing descent rate at little or no increase in airspeed.*

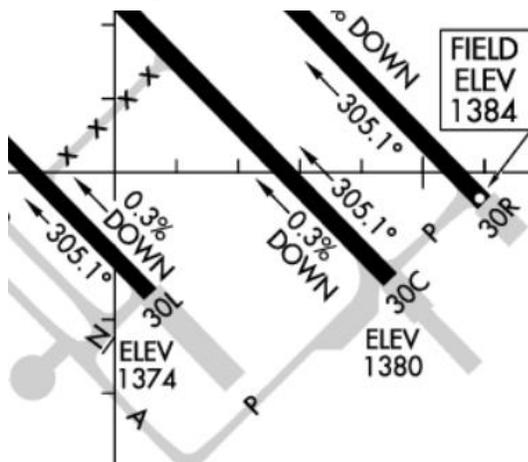
# Fly Runway Heading



**Jim Price**  
Co-Editor

What does it mean when you're cleared for takeoff and told to "fly or maintain runway heading"? It all depends. Are you IFR or VFR, and what does controller assume that it means?

## IFR Departures from TOWERED Airports



Runway heading is the magnetic direction that corresponds with the extended runway centerline. For instance, the diagram at the left shows three parallel runways – 30L, 30C and 30R. All three have a charted runway heading of 305.1°. IFR flights cleared to 'fly or maintain runway heading' from these runways, would be expected to fly or maintain a 305° heading, and the pilots **would not apply wind drift correction.**

## VFR Departures from TOWERED Airports

According to the definition of "runway heading" from FAA JO Order 7110.65W, it's incorrect phraseology for a controller to instruct VFR aircraft to, "Fly runway heading" (that's the IFR phraseology), and expect the pilots to maintain centerline by accounting for wind drift. But, in reality, when you're a VFR flight, a controller may expect you to maintain runway centerline even when issuing the IFR phrase, 'fly runway heading'.

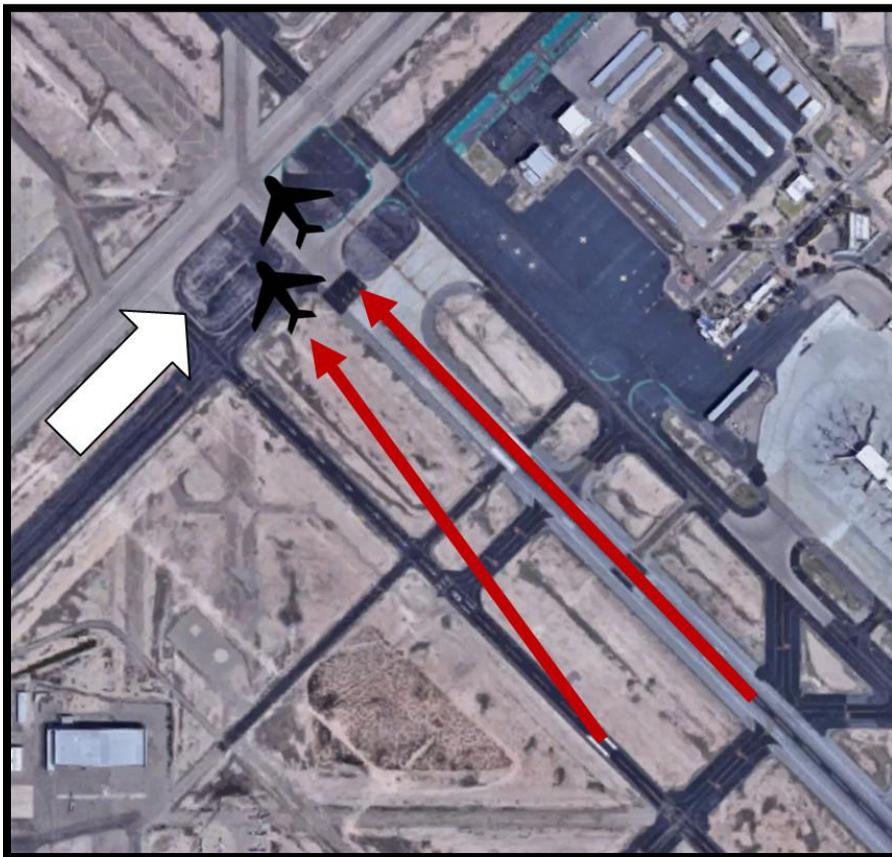
**Some, but not all controllers, in order to avoid confusion, may issue the following instructions to VFR aircraft:**

- "Maintain runway centerline"
- "Fly straight out"
- "Track runway heading"

All three mean the same thing in the controller's mind – that they want you to apply wind drift correction.

**If you're a VFR aircraft and the controller instructs you to "Fly runway heading", you should clarify the instructions.**

"Tower, do you want me to maintain runway centerline, fly straight out, or track runway heading?" This is especially important if, on a windy day, you're departing from an airport with close parallel runways. For instance, if there's a left crosswind, the guy departing the left runway who just happens to be flying the runway heading will drift into the guy departing the right runway who is crabbing into the wind to maintain runway track.



**Controllers would rather you take a second to clarify any confusion, rather than make an assumption and create a traffic conflict.**



# MooneyMAX

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- 3 days of Vendors and Exhibitors
- MooneyMAX Maintenance Clinic (value \$199)
- Right Seat Ready® - non pilot 2 day clinic (value \$199)
- Mooney Zoom Speed Trials
- Mooney Mixer Cocktail Party
- Lunch provided all 3 days
- Homemade Ice Cream Feast

**Registration: \$295.00**

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High-profile aviation writer, speaker and teacher since 1970. Operation and maintenance of piston-powered general aviation airplanes.

### Bob Minnis

310 horsepower conversion, GAMI, Teledyne Continental Motors

### Alfred "Lucky" Louque

2009 National FAA AMT of the Year – Accident & Investigation

### Bob Kromer

40 years General Aviation in Engineering and flight testing, Test Pilot for the complete Model M20K 252 FAA development and certification

### Captain Mike Jesch

40 years as a Flight Instructor, airline pilot for over 30 years, Boeing 737, 2 time Master CFI

### Jimmy Garrison

All American Aircraft Sales and aircraft appraisal

### Dr. Chuck Crinnian

Mooney Caravan, President, CEO/CMO/Chief pilot at Frontier Aerospace Medicine, FAA Senior Aviation Medical Examiner

**Don Maxwell and Paul Maxwell,**  
MooneyMAX Maintenance Clinic

**Jolie Lucas and Jan Maxwell,**  
Right Seat Ready®- Non-Pilot Clinic



# FOR THE LOVE OF MOONEYS



**Phil Corman**  
Co-Editor

Mostly we provide articles on the technical aspects of flying, modifying, and maintaining our Mooneys. I hope you will indulge me as this article is simply about “The Love of My Mooney”. I hope that it puts a smile on your face and reminds each of you of some amazing moments with your Mooney.



## Over The Grand Canyon

Earlier in our lives, our first Mooney was a 1965 C. We flew to Lake Powell from San Jose, CA. It was one of those amazing and “severe VFR” days. As we briefed ourselves on the Grand Canyon Special Flight Rules, we thought we would be too high (altitude, not drugs... although our Mooney is sort of an addictive drug), to see the Grand Canyon in close detail. However, we were wrong and we were awestruck by its grandeur. It was a little more difficult to focus on flying, so I let Linda do the picture taking.



We zigzagged through the flight corridors and didn't want the flight to end, so we throttled back to Cessna/Piper speeds. Linda was a relatively new co-pilot and knew that I always had a landing place picked out in the event of a catastrophic engine failure, or similar. So, in the middle of it all she asks "Where would you land in an emergency right now?" I looked at her, and with my best straight face responded "Just enjoy the ride down". Great day in our Mooney.

### Angel Flight

We have flown some [Angel Flight West](#) missions. If you are not

familiar, you sign up to help folks that need medical attention, and fly them from point A to Point B. On one occasion, a young boy, maybe 8 or 9 years old, with severe burns, needed a ride to get his burns treated. Initially, he was sullen, probably dreading the treatment, which no doubt was not enjoyable. Halfway through the flight, I asked if he would like to fly. His mom was in the back and he immediately looked to her for approval. After getting the OK, we instructed him in the basics. He went from sullen to exuberant in 3.7 seconds. The rest of the flight was pure joy for all of us. His mother couldn't believe her son was flying himself to the doctor.

Upon landing, he waited for us on the ramp, then ran over and said, "When I woke up, this was feeling like the worst day of my life. But it turned out to be the best! Thank you". Mooneys make our world just a little more rewarding.

### Attacking an Enemy Destroyer

My Dad and I had an OK relationship until the day I got my Private Pilot Certificate, and then everything changed. He had wanted to become a pilot, but he had a bad heart and could not get a valid medical. Everything changed the day I invited him to fly with me. Immediately, we bonded beyond my wildest imagination.

Over the next few months, I essentially taught him to fly and then let him do the flying. Initially, he did takeoffs, cruise and pattern entry to landing. But over time, he became proficient in patterns and landings. He was a natural, and flying together brought us ever closer to an amazing father and son relationship.

But the best story was during a flight to Nantucket and back. On the way down, we were told about some military flying activity near Otis AFB. My dad was hoping to see some jet activity enroute and we were not disappointed. Two A-10s pulled up on our right wing with their flaps and gear down, giving us an up close and personal view.

On the way back, my Dad saw what looked like a sunken barge in Cape Cod Bay. He was still elated with the A10 experience, and thought he was pretending transmit, "Boston Center, we see an enemy destroyer in Cape Cod Bay and request clearance to strafe it." Harmless as it was and giddy

*Please send us a short story or two of your amazing moments with your Mooney!*

as he was, he inadvertently keyed the PTT button and had transmitted the request to Boston. I thought this isn't going to end well, but Boston came back with "Permission to strafe enemy destroyer. Report back when completed." So we did a wing over, or something close to that, like they did in Tora Tora Tora. We attacked the barge and then climbed back to altitude. My Dad, fresh with his new buddies in Boston, got on the radio and transmitted "Boston Center, mission accomplished!" We received a rousing, "Well done", and then a series of double clicks from airlines on frequency. Just another fun day.

### **Giving Our Grand Daughter Her First Ride**

We couldn't wait for our first granddaughter to be old enough to take her first airplane ride.

There's nothing better than such an initiation in a Mooney. At 5 years old, Madi was typically



afraid of very little. We departed Paso Robles (KPRB) for Santa Barbara (KSBA) with her mom, (my first daughter Marina).

The initial part of the flight was smooth and clear, however, as we flew over the mountains before Santa Barbara, we encountered some wind and turbulence. We were cleared for 15R, but as we approached, the tower changed us to 33L. As we turned downwind, tower changed us once again, this time to RWY 7. It was bumpy in the pattern and I thought maybe we should go somewhere else, but I'd at least fly the pattern and see if things would improve. We were number two behind a United RJ. He went around. That should have been another warning, but I gave it a shot and it was just fine. We touched down and

walked the boardwalk to the beach and had lunch at the Beachside Café. The wind got stronger over lunch and I was convinced it would be an E-Ticket ride home. As we climbed out, about 500' AGL, we hit a nasty bump. I thought Madi would never fly again. But, within a second, she hollered "Do it again, Papa!" She's a natural born Mooney pilot.

### **Favorite Tower Instruction**

While training for an Instrument Rating, I was flying an approach at Oakland (KOAK). I knew we were going to "go missed", so I carried a little extra speed; well maybe a little more than a little. But then I got the words every Mooney pilot wants to hear from ATC, "Mooney, slow down for the 737 ahead of you."

## First Flight to Mexico



We had heard all the war stories of flying into Mexico, including plane jacking and bribery. But we wanted to go to [Hacienda De Los Santos](#) in Alamos with some other Mooneys. So we “manned up” and flew to the foothills of the Sierra Madre.

After departing from Marana, near Tucson, AZ, we flew in loose formation with two other Mooneys. Enroute we chatted, pointing out some cool sights on the ground. Later, we all checked the winds and determined that we had about 15kts on the nose. The wind gods always seem to slow us Mooneys down. But the story becomes funny when we heard two Cirrus pilots talking together as they were heading northbound (the opposite direction of ours). They were also complaining about the headwinds, claiming that they had 12-15kts on the nose. Go figure.

We landed at Ciudad Obregon to clear immigration/customs and were dreading the possibility of bribery and delays. We stopped the engine and were greeted by 4 military guys: Each had M16s and they positioned themselves on the nose, the tail, and each wing, Wow! We got out of the Mooney and Linda gave the guys cookies and we are all A-OK with our new found friends. All the immigration/customs guys were wonderful and helpful; a pleasant stop on the way to Alamos.

Mexico was pretty hot and I was concerned that our Mooney might “melt” during our stay in Alamos. We landed and a big hangar door opened. It was pristine, with a floor clean enough to have a picnic, and the hangar was air conditioned. So much for my unfounded concern about the heat. I was worried that our Mooney would have better accommodations than the human guests.

Us Mooniacs took over the place, and Jim and Nancy Swickard, who own the Hacienda, treated us like royalty. On the initial tour, we saw a Tequila bar with approximately 400 different Tequilas. Linda said, “So much tequila... so little time”... and that’s how this amazing Mooney adventure began.

### **My Mooney is Prettier Than Yours**

This is just a fun short story of two lunch runs we did with our good friends, the Palmers. The first lunch was at General Fox Field (KWJF) near two storied airports, Edwards AFB and Palmdale. We were essentially the only two GA aircraft on the ramp. We looked out and saw a guy walking towards our Mooneys. Larry’s J is beautiful, but I teased him that the stranger would bypass his Mooney and gawk at mine. And that’s what he did! He kept looking at our Mooney and we went out to see what the attraction was. Lo and behold, he had previously owned my Mooney.

A few weeks later, we flew for lunch, this time to the Roadkill Café at Apple Valley (KAPV). Again, we were essentially the only 2 airplanes on the ramp. Some guys walked out to our Mooneys, right past Larry’s J to my C. Once again, they gawk at it. We walked out and lo and behold, one of them had previously owned my Mooney.

Small world, but I wouldn’t want to paint it.



### **Harley Motorcycle Ride**

We had a raffle to give a member of the local Hollister Harley Motorcycle Club a ride in a Mooney. A tough looking hombre won. He got in and was holding on for dear life. I circled and made a high speed pass for the guys and gals. When we landed, he got out and kissed the ground. Good fun.





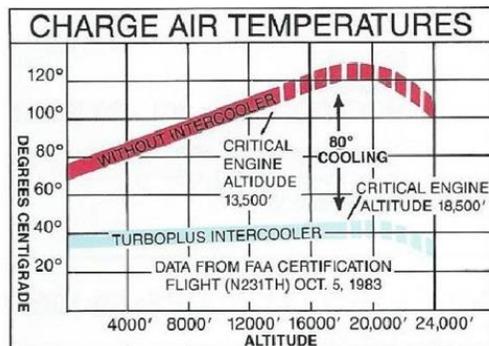
# INSTALLING A *TURBOPLUS* INTERCOOLER ON A MOONEY M20K 231

by Geoff Lee, CFII

With a reasonable amount of mechanical skill, the average owner could install this useful STC'd modification. All the components are in the kit, but it does require a certified mechanic to supervise and bless the installation, sign it off in the engine log book, and submit a form 337 to the FAA.

The advertised benefit for the hot running TSIO 360- GB engine in the early M20K is that it will run cooler in the climb and at altitude. Additionally, it claims to provide the same horsepower at any given RPM, using around 3 to 5 inches less manifold pressure.

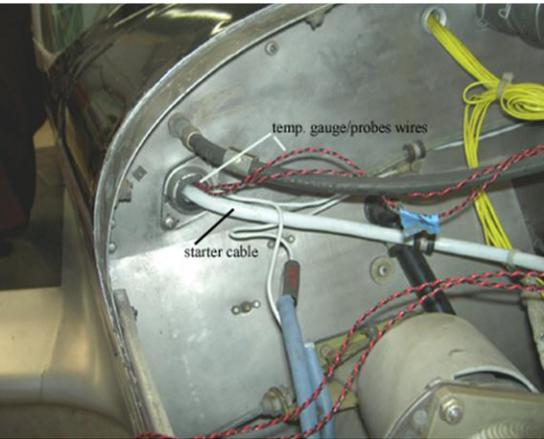
Critical altitude is raised by about 5,000ft, (13,500 to 18,500ft).



Prior to commencing the installation of the Kit, the instructions direct that the aircraft be flown, as is, to different altitudes and in that process, document the EGTs, cylinder temps and power settings associated with the activity. A formatted document for recording the pre-modification flight temperatures is provided.

After the installation of the intercooler, the flight process is repeated and the comparative (*lower*) manifold temperature readings are noted. This routine is required by TurboPlus in order to secure the warranty on the product. A small panel mounted intake manifold cooling temperature gauge is supplied with the components package.

The temperature gauge switch has 3 positions. It will reflect the airflow temperature going in and exiting the intercooler plus it will show the difference between the temperatures in degrees Centigrade.



The temperature gauge wires and probes need to be fed through the firewall into the engine bay on the copilot side of the aircraft. Removing the metal /rubber sealing grommet from around the starter cable will facilitate the process. There is a backing plate on the inside of the cockpit that accepts the retaining screws.



During the pre-modification flight exercise you can refresh yourself on how to calculate **density altitude** and **how to obtain pressure altitude**.

Pressure altitude is revealed by setting your altimeter to 29.92.

The temperature lapse rate is 1.98 °C / 1,000ft.  
**(Density altitude in feet = pressure altitude in feet + (120 x (OAT - ISA temperature))**

**Standard day conditions at sea level: 29.92 in-Hg (1013.2 mb) and 15°C (59°F)**

**OR**  
 You can **simply print a copy of a standard density altitude chart and use that.**

*(Ok, I know that you already knew all of that.)*

Power	Alt.	Air.	RPM	M.P.	J.A.S.	Y.A.S.	P.P.	C.R.T.	O.T.	S.A.T.	E.S.T.	C.S.T.	Side Temp.
100%	1000'												11°C
100%	3000'												9°C
75% Cruise	10,000'												11°C
75% Cruise	10,000'												11°C
75% Cruise	10,000'												11°C
75% Cruise	10,000'												11°C
75% Cruise	10,000'												11°C

We flew the required pre modification test flight in slightly warmer than ISA standard conditions, taking engine power, cylinder and oil temperature readings at several altitudes per the supplied format. The critical altitude is stated in the POH to be 13,500ft. On this day, it turned out to be about 11,500ft due to the warmer than standard temperature above 10,000ft. The 40" MP could not be sustained by throttle application at or above 11,500ft pressure altitude.

After completing this activity, we will commence to disassemble the existing manifold plumbing and install the components of the intercooler.

The first task in that process is the modification of the cabin heater box, which requires the installation of a less obstructively shaped plate on one side to provide much needed clearance for the intercooler assembly.

This modification involves removing the existing heater box from the firewall and installing the new side plate. De-riveting is called for and then the new plate must be riveted in place. The task will take about one and a half hours and a modicum of youthful agility, since the 4 nuts retaining the box are inside the cabin in the copilot foot well.



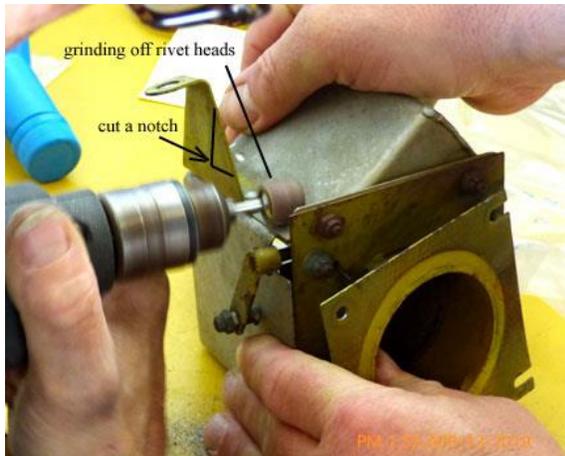
New



Original

It soon becomes apparent that Mooney aircraft are, to a degree, “hand built” and the precise location of items like the cabin heat box are probably not totally identical on all aircraft.

Some modification “trimming” of brackets and the cowling is necessary to obtain a functional fit of the Turboplus kit components.



Removing the original manifold ducting is the next step. The manifold pressure over boost valve is removed and installed upon the new ducting, which locates it on top of the engine.

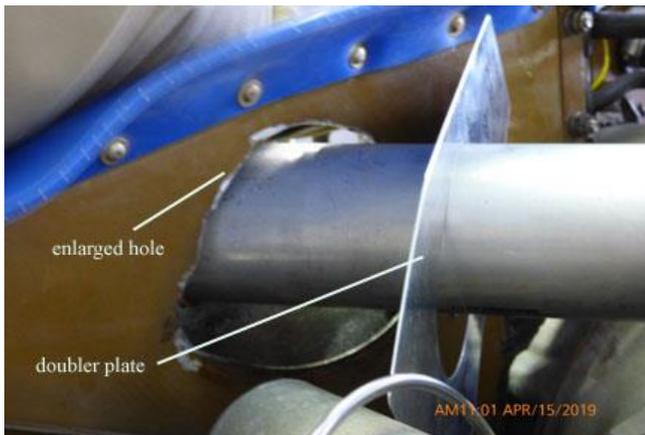


< Original

New >



The airflow baffling requires some modification by enlarging the hole for the new duct, and pop riveting a supplied backing plate to accommodate the new duct location.



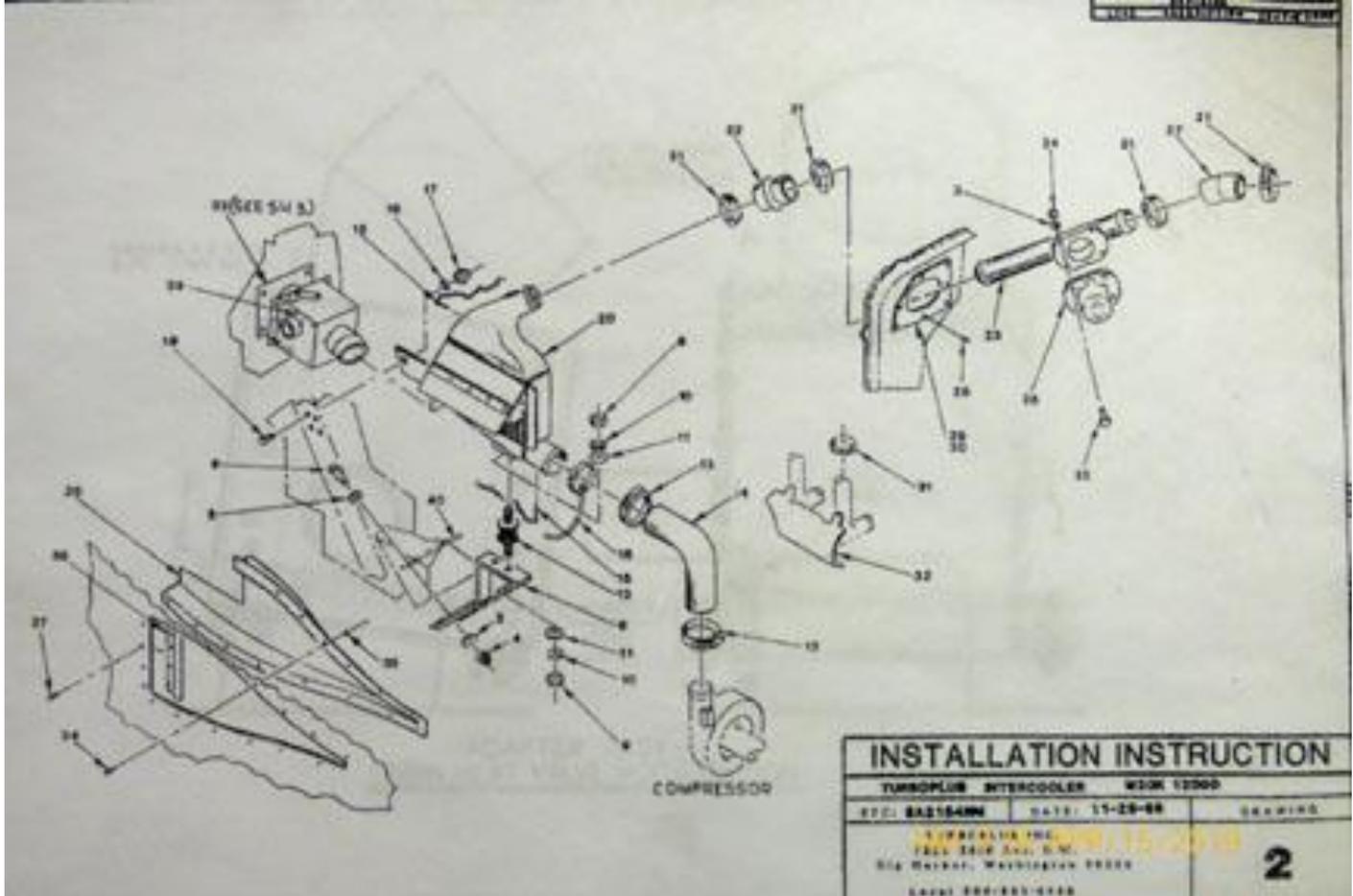
Pop riveting capability is called for in several locations throughout this project.



The new position of the over boost valve is now on the top of the engine and care must be taken to make sure it is positioned low enough to clear the top cowling.

Mounting the intercooler itself is accomplished by installing a bracket to the firewall area associated with the protruding co-pilot foot well. The bracket incorporates two sturdy rubber supports and is secured to the firewall prior to mounting the intercooler assembly, which is subsequently attached to it.





The overall picture of this installation is revealed by an installation drawing and attached step by step instructions.

The whole installation process, while not very difficult, is time consuming due to the tight fit of the modification within the nose cowling area. Small unstated modifications to the lower cowl are necessary to achieve an acceptable fit.

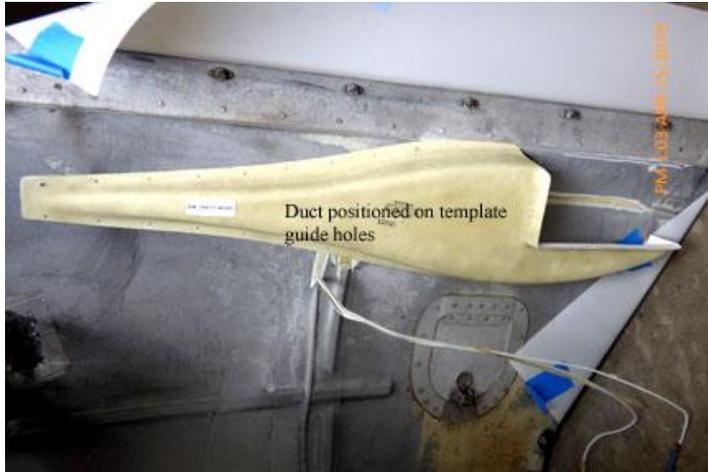
Preparation of the lower cowl for cutting the aperture for air intake and mounting the NACA duct is left until last.

Extricating a portion of the landing light wiring from beneath the fiber glass tape, as indicated below, is necessary, as is cutting back the small stiffening flange along the edge of the cowling.



A supplied paper template is located along the top and side edges of the lower cowl and taped in position.

Three locating holes are then drilled through the removed cowling as indicated by the template and the template is fixed in place with CLECO fasteners. The NACA duct is then placed in position temporarily on the inside of the cowling, locating it on the three protruding CLECO points to verify hole alignment and clearance on the cowling edge stiffener, which needs to be trimmed for clearance and fit.



Using the template as a guide, *(and after taking a deep breath)*, we cut the aperture that will allow airflow into the side of the cowling to the intercooler. Sealant is applied around the inside edges of the cowling and the duct. The landing light wires will be rerouted around the duct.

You can see that the duct installation encroaches on the edge stiffener adjacent to the upper edge of the cowling. This is not addressed in the instructions. Additionally, both cowl flaps are shortened by two inches.



Duct rivet holes are drilled using the paper template as a guide and the duct is CLECO'd in place and flush riveted.

## The Mooney Flyer

After allowing the sealer to cure for a day, there is some rough edge trimming and painting to be done before the sign-off test flight.

The intercooler completion flight was done on a much warmer day than our initial test flight sans the intercooler. There was a temperature inversion. The temperatures aloft at and above 10,000ft to 16,000ft pressure altitude was around 7°C. (At these altitudes, Standard temperature is about **minus 17°C**). Generally, temperatures were about 7 to 8 degrees higher than the pre install flight and 24 degrees higher than standard for the final test flight altitudes.

The critical altitude attained on the initial, no intercooler flight was 11,000ft pressure altitude (at an OAT of 4°C, the **density altitude would be 12,500ft**).

With the installed intercooler and warmer temps, the engine started to lose MP, down from 40 inches as we climbed through 13,500ft. OAT was 4.1°C, approximating a **density altitude of 16,000ft**, so the gain in critical altitude above the initial flight under much warmer conditions was approximately 3,500ft.

It was also apparent on the ground that the engine was idling much smoother than pre-install. / *guess it likes the additional "breathing hole" via the duct.*

The panel temperature gage displayed a 45 -50°C reduction in the intake manifold air flow throughout the flight.

It remains for the IA to update the weight and balance record and dispatch the form 337 paperwork.

The conclusion is that the TurboPlus intercooler provides much improved intake manifold cooling and an increase of 3 inches in available MP at altitudes above the original 13,500 ft. critical altitude. The product delivers significant performance benefits across the board to the hot running, non-intercooled GB engine in the Mooney 231 M20K.



# Oklahoma City

June 7 – 9, 2019

Ted Corsones

President, The Mooney Safety Foundation



Howdy, Mooney pilots. This is your invitation to join us in the wide-open spaces of Oklahoma. On the weekend of **June 7-9, 2019**, we will bring our pilot proficiency program to Oklahoma City. This will make it easier for our pilots in the middle Southwest to saddle up and join the Mooney wagons for an aviation filled weekend.

We will base our activities at the **Wiley Post Airport (KPWA)** which offers ILS, LOC, RNAV/GPS, VOR and Radar Approach Procedures. Located close by are several other airports: Sundance (KHSD) offering LOC, RNAV/GPS and VOR approaches; Page (KRCE) offering RNAV/GPS and VOR-B approaches; El Reno Regional ((KRQO) offering RNAV/GPS and VOR/DME approaches; University of Oklahoma ((KOUN) offering, LOC, RNAV/GPS and NDB approaches. So, study your approach charts before arriving and make your selections. For those of you with an ADF on board, you won't have too many more opportunities for an NDB approach. If you haven't done an "under the hood" Radar Precision Approach in a while, you will be afforded the opportunity during the weekend.



As an exceptional and unique bonus for this program, the FAA has reserved Friday, June 7, 2019 solely for our Mooney group to receive reduced oxygen training at the FAA Civil Aerospace Medical Institute at the Mike Moroney Aeronautical Center in Oklahoma City.

The lectures will be given by the specially trained FAA team at the reduced oxygen training enclosure, which is a normobaric hypoxia training enclosure using reduced oxygen percentage (caused by increased nitrogen percentage) to cause a low oxygen environment.

The plan is to start the class shortly after 8:00 a.m., take a one-hour lunch break and be complete with training no later than 4:00 p.m. The topics which will be covered include:

Spatial disorientation (including a 5-minute demonstration per person in dealing with motion-based illusions); physics of the atmosphere; respirations and circulation; decompressions; hypoxia; hyperventilation; human factors affecting hypoxia onset and recognition; trapped gas problems; oxygen equipment familiarization for hypoxia demonstrations; and reduced oxygen training enclosure (hypoxia demonstration) familiarization flights.

“Incredible” is not an excessive description. It will open your eyes to the environment populated by pilots – and insidious hypoxic effects it can have on our skills.

Oklahoma City is the state’s capital. Although it is a metropolitan area, it has retained its western charm. In the revitalized downtown area will be found the Bricktown Entertainment District and top-notch museums, among which are the National Cowboy & the Western Heritage Museum and Science Museum. Time permitting, learn Oklahoma’s story at the state capitol and visit the nearby History Center, the City Zoo, Frontier City and the Myriad Botanical Gardens.

As an added incentive, our FBO host will be offering us discounts on the fuel and all services.

During the weekend you will receive recurrent flight training by Mooney specific and learned instructors. You will have an opportunity to enhance your skills while performing normal and maximum performance maneuvers, and develop a greater appreciation of the importance of maintaining coordination through all phases of flying – visual as well as instrument.

At the completion of the program, eligible pilots will be endorsed for their biennial flight review and instrument proficiency check and receive a WINGS certificate. They will also receive a Certificate of Successful Completion of the Mooney pilot recurrent training program. Many insurance carriers are now asking pilots on their renewal applications, whether they have received recurrent flight training during the year and the name of the school or organization that provided the instruction.

**To register, go to <https://www.mooneysafety.com/ppp-registration/>**

**There are Insurance Advantages for those who attend the Mooney Pilot Proficiency Program.**

Here is what was written by an insurance agency and published in the *MAPA Log*:

“MAPA members know the importance that the aviation insurance industry places on recurrent training for pilots. This is based on the fact that both actual experience and statistics have shown that pilots who are current and well trained are better equipped to handle in-flight emergencies. Further, actual training is intended to prevent bad habits from forming which create hazardous

situations. However, the fact of the matter is that the quality of the training pilots get is no better than the course of instruction that they are receiving and the proficiency of the CFI that is providing it. Therefore, it is important to make sure that the training is of good value.

“The Pilot Proficiency Program offered to MAPA members through the MAPA Safety Foundation is an excellent source of training with proficient Certified Flight Instructors.”

So, be sure to send your agent a copy of the completion certificate that we will provide to you. This should have a beneficial effect on the insurance premium.

Please check our website for more information about our organization at *Mooney Safety Foundation*.

So that you will not be disappointed, I encourage you to make your reservations without delay.

**To register, go to <https://www.mooneysafety.com/ppp-registration/>**

If you have any questions, you may call me at 802-775-0125.

We look forward to seeing you in Oklahoma City.

## *Safety Is No Accident*





When Boeing and ForeFlight unite  
**you win**



**Jim Price**  
Co-Editor

## ForeFlight Background



ForeFlight was founded in 2007 when general aviation pilots Tyson Weihs and Jason Miller developed a weather planning service for the first generation of the Apple iPhone. When the next iPhone model could handle apps, the team quickly expanded its capabilities into flight planning. When the iPad entered the market in 2010, the product sprouted IFR and VFR chart overlays and many other features. Today, the app integrates weather and preflight planning with a moving map and overlays a variety of additional resources for GA, business aviation, the military, and the airlines. In addition to the mobile app for Apple iOS products, the company offers a free online flight planner that integrates with the app. Subscription prices in the GA world vary. Annual subscriptions start at \$100 for the Basic Plus plan and \$200 for the Pro Plus plan. ForeFlight has developed a reputation for innovation and new features. It is currently the world's premier flight planner / Electronic Flight Bag, with an admirable reputation for customer service.

The company now boasts 180 employees spread across three US offices, and customers ranging from bush pilots to major airlines to the US Air Force.

ForeFlight not only supports Personal GA, but it is also involved in applications for Business Aviation, Military, Helicopters, Education / Flight Training, and FBOs.

## **BOEING** acquires ForeFlight

On March 6, 2019, ForeFlight, was acquired by Boeing and ForeFlight co-founder/CEO, Tyson Weihs spoke with AOPA's Tom Haines to explain what the Boeing acquisition means for general aviation pilots. Here are some highlights of the interview:

**ForeFlight has been working with Boeing/Jeppesen for a few years.** You may have noticed that association when ForeFlight began to offer a Jeppesen chart option for an extra \$200 per year.

**How does ForeFlight fit in with the Jeppesen and Boeing family?** Both Jeppesen and ForeFlight are part of Boeing's Digital and Analytic Capabilities division, which is part of Boeing's Global Services Organization.

**What does Boeing's acquisition of ForeFlight mean for General Aviation?** ForeFlight's roots are in General Aviation; it's their passion. It's important to support the full spectrum of aviation, from the Cessna 150 weekend pilot, to the professionals who fly a business jet. ForeFlight is dedicated to GA and that's not going to change.

**Will pricing change?** Absolutely not.

**What does it mean now that Boeing is the boss?** The ForeFlight board of directors has been the boss. Now the board is gone, and Tyson Weihs has one boss. That doesn't mean that Boeing will change anything.

**Will there be any staff changes or ForeFlight job losses?** No. In fact, ForeFlight has an aggressive hiring plan and is currently building a new 30,000 square foot facility in Austin, Texas. They just signed an expansion for their lease at the Houston, Texas location, and they are opening a new office in Denmark. You can watch the interview [HERE](#)





## Predicts

After the Boeing acquisition announcement, Seattle Avionics and FlyQ owner, Steve Podradchik, commented on ForeFlight's future on his Seattle Avionics Blog. He wrote, "One major reason for the success of ForeFlight, FlyQ, WingX, Garmin

Pilot, and other apps, has been the mass distribution of FAA approach plates and airport diagrams. Before these apps, pilots certainly could choose to use the FAA printed diagrams over expensive Jepp charts, but the ease of use of these apps combined with the vastly higher cost of Jepp plates definitely drove the success of these apps. Now that Jepp and ForeFlight are together under one roof, one must wonder if it's in Boeing's best interest to continue to favor FAA plates or to push expensive Jepp data much more strongly into ForeFlight. Perhaps 'nudge' people towards using Jepp data by increasing the price of the FAA subscriptions?

Podradchik also wrote that before Boeing's acquisition of Jeppesen (in August 2000) . . . "it had been a very innovative company that significantly increased GA safety. They were admired and respected by GA pilots. But after the purchase, I don't think I saw anything innovative come from Jepp again. . . Because of that, ForeFlight will exhibit a "slower pace of innovation, higher prices, and focus on commercial aviation".

## **My Thoughts on Podradchik's predictions that ForeFlight will "nudge people towards using Jepp data by increasing the price of the FAA subscriptions."**

ForeFlight has a great product and there's no reason for Boeing to drive the chart price higher. I believe that ForeFlight will continue to use the Government charts and plates, with an upgrade option for professional pilots who prefer Jeppesen products. There is absolutely no reason to predict otherwise, unless of course, the predictor owns a competing aviation app like FlyQ and wants to place fear in the hearts of ForeFlight subscribers so that he can increase the FlyQ market share.

## **My thoughts on Podradchick's statement that, "after [Boeing's] purchase [of Jeppesen], I don't think I saw anything innovative come from Jepp."**

As an airline pilot, I saw some great Jeppesen innovations, one of which improved the data placement on the charts to improve the approach briefing experience. It's a wonderful product and to insinuate that Jeppesen has not been innovative since the 2000 acquisition, is just a statement – with no examples or data to back it up. Just another attempt to put fear in the hearts of ForeFlight users with wild, unfounded statements.

Podrachik is very happy to introduce doubt and negative predictions if he can encourage ForeFlight users to come over to FlyQ.

## No Predictions – Just Jim’s Reasoning

Boeing purchased ForeFlight because it was successful, innovative and had about 90% of the market share. The purchase price was never disclosed, but we do know that in 2000, Boeing paid \$1.5 Billion for Jeppesen Sanderson.

Corporate aviation departments pay \$300 annually for each pilot (they use ForeFlight Performance Plus). AOPA claims that there are 487,000 GA pilots and about 200,000 are non-business pilots. If 75% of the corporate flight departments subscribed to ForeFlight, the bill would be \$64.5 million to subscribe 215,250 pilots to Performance Plus.

What about the pilots like us; the 200,000. If ForeFlight was the app of choice for just 180,000 of those pilots (90% market share), and half had a Basic Pro subscription and half had a Pro Plus subscription, that’s \$27 million. Why drive 180,000 subscribers; the subscribers who made ForeFlight what it is today – towards the FlyQ, Garmin Pilot or WingX market? Boeing bought ForeFlight because it makes money; not to throw millions of dollars away.



Jeppesen’s current apps are available on iOS and tablets, so some pilots are hoping this announcement could lead to an Android or Windows version of ForeFlight. Time will tell, but Boeing certainly brings new resources and new customer requirements.

Boeing’s Ben Davis said, “Boeing is excited to build on ForeFlight’s experience in business and general aviation so we can provide integrated digital lifecycle solutions to commercial and government aviation customers. Combined with Boeing’s global market access and resources, ForeFlight is well positioned to capture new opportunities.”

I could expound on the virtues of one app over the other, but just like politics, your heart and mind will invariably agree with the reasoning of the person that you want to believe. I’m not a prophet, so I’m not predicting a ForeFlight rate hike, but I am leaning towards a sustained and constant annual subscription cost.

I think ForeFlight users should wait and see. If ForeFlight does raise subscription rates, have you lost anything? Absolutely not. You’ve had access to a world class Pilot app that has been one of the greatest tools introduced to the GA world. If you don’t like the subscription rate, it’s a free country. You can choose any app that suits your aviation needs, but why would you jump ship based on a Seattle Avionics’ rate hike prediction?



One reader commented that he had never felt that ForeFlight was innovative, but it was merely “a group that introduced slick and good-looking versions of other people’s ideas.” Another reader commented that,

“Innovation on the part of ForeFlight will come to a crawl.”



## What?

ForeFlight has had 11 releases in the last year with new features in each one. FlyQ has had five new releases. When I think of ForeFlight, I think of great advances with each new release. Yes, some advances are aimed at professional pilots, but many are of great interest to Mooney pilots. From runway extension lines, map choices, popular IFR route choices, rate of descent advice, engine loss glide “can you make it” circles, and ADS-B “In” presentations, ForeFlight has been the picture of innovation fed by a passion for GA.

One pilot who has both FlyQ and ForeFlight on his iPad wrote and is a FlyQ Beta Tester wrote: “I think FlyQ is a very good product, but I usually use Foreflight. The fact that I have a lifetime subscription to FlyQ, but still pay for Foreflight Pro Plus should tell you something. I’d really like to see FlyQ pick up the pace a little bit with innovative enhancements that really make FlyQ better and shy away from gimmicky enhancements”.



Let’s allow the Boeing acquisition to “play out”. If you’re with ForeFlight, I would encourage you to stay with it, especially if it’s what you know, love and understand.

Give ForeFlight the chance to prove themselves and try not to let a competitor’s biased prophecy guide your choice in aviation apps.



# BOEING 737 MAX

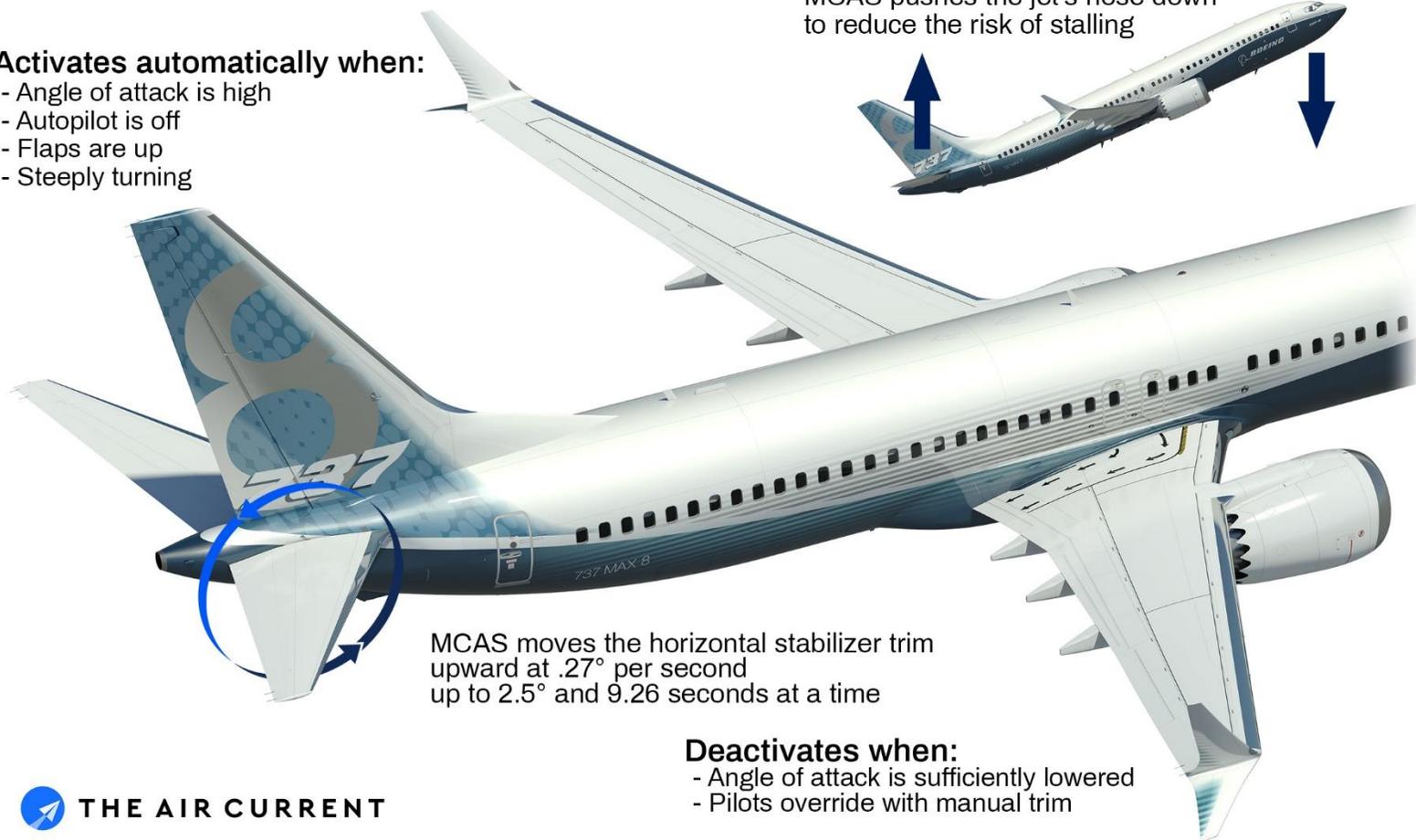
## TAKEAWAYS FOR MOONEY PILOTS

### Boeing 737 Max Maneuvering Characteristics Augmentation System

#### Activates automatically when:

- Angle of attack is high
- Autopilot is off
- Flaps are up
- Steeply turning

MCAS pushes the jet's nose down to reduce the risk of stalling



MCAS moves the horizontal stabilizer trim upward at .27° per second up to 2.5° and 9.26 seconds at a time

#### Deactivates when:

- Angle of attack is sufficiently lowered
- Pilots override with manual trim



The new 737 MAX comes with new software called MCAS (Maneuvering Characteristics Augmentation System), which didn't exist on the previous generation of Boeing 737s.

This was required because the MAX had bigger engines than earlier models, providing up to a 14% savings in fuel consumption. The engines are fitted further forward under the wings, which could potentially cause the plane to stall. In order to prevent this, Boeing engineers developed the new MCAS software.

The software tells the flight control system to change its Angle of Attack (AOA) downward if a stall risk is perceived, which the computer initiates automatically. The pilots would have no chance to intervene even if the autopilot was switched off.

On the aircraft, there is a sensor called the “Alpha Vane”, which measures the AOA. There are two of them, one on each side of the plane. The AOA sensor seems to be the problem. In the case of Flight 610, a faulty sensor sent false AOA data and MCAS took control of the aircraft. The system concluded that the AOA of the plane was over 40 degrees and pushed the aircraft’s nose down, causing a sharp dive into the Java Sea.

## **There are some Takeaways for Mooney Pilots**

### **When to Engage Your Autopilot**

We don’t have an MCAS system, but we have an an autopilot. Like the MCAS, our autopilot automatically manages the control surfaces without pilot intervention. One of the MCAS accidents happened at roughly 450’ AGL. Our first takeaway might be to strongly consider delaying Autopilot engagement until you’re at a higher altitude. The main reason? If it malfunctions and you cannot react quickly enough, there could be a catastrophe.

### **When to Engage and/or Disengage Your Autopilot (part2)**

Usually the Autopilot is engaged after your Mooney is at a safe altitude and in a positive/stable flight condition. It is a rare situation that you would engage your Autopilot to correct an unusual attitude or control surface malfunction. The crew of the 737 MAX re-engaged the MCAS system after disengaging it without any positive results. The takeaway is to disengage your Autopilot if you suspect a malfunction in a system that is controlling your ailerons, elevator or in particular, your rudder. I don’t see many situations where you should engage your Autopilot to recover from an unusual attitude that was caused by a faulty system.

### **Know All the ways to Disengage Your Autopilot**

There are 3 ways to disengage your Autopilot. First with the disengage switch which is usually placed on the yoke. The second method is to power it off with an Autopilot panel switch. And the final way is to pull the circuit breaker. Make it muscle memory to reach any and all of these quickly without much thought or searching.

### **Disengage Your Electric Trim**

When your Autopilot is controlling your trim, it is difficult or impossible to manually control it with the trim wheel. A runaway electric trim is not good. A common way for this to happen is for the PIC to keep control of the yoke and not consciously apply a little forward or backward pressure. This causes the trim to fight back and will ultimately reach full deflection. This is an example of runaway trim. The problem is that the Autopilot may disengage, leaving that situation to you. Imagine your Mooney at cruise power and suddenly, you’re at full up / down trimming. It’ll take a lot of muscle to keep your Mooney under control until you can manually adjust the extreme trim. Know where the Electric Trim power switch is located and make it muscle memory to reach it.

**If you change anything, and something bad happens, then UNDO it**

If you make any change in your Mooney’s configuration and something bad happens, then UNDO it. The simplest example is that you switch tanks and your engine runs rough. Switch back to the original tank. Other situations particular to automated systems include 1) You engage the Autopilot and you do not get the performance you expected, or 2) you engage the electric trim and your Mooney makes undesired control surface changes.

**Think Through, in Advance, the Types of Failures that May Occur**

When a critical component fails, it could be the primary instrument, such as the Autopilot, or it might be an input component failure that is feeding your Autopilot bad data. Sometimes it takes too much time to recognize that a component has failed and/or which unit has failed. The only way to deal with this is to think of all the critical components that provide input to your control surfaces. If these systems fail, lay out how that failure will present itself. Then, you should have a plan to disengage the system and be prepared to take control.

The extent of the 737 MAX pilots’ MCAS system training is unclear. However, a good way to ready yourself for a system malfunction, is to read and re-read your POH, especially the Emergency Procedures section.

**Summary**

Our Mooneys are not equipped with MCAS, but there are analogies that we can learn from the MAX pilots.

If you are knowledgeable about your Mooney’s systems, you can make intelligent decisions when things go wrong.

Inform yourself on how to detect critical failures so you can quickly disengage or power off faulty units without thinking... remember muscle memory.

**ADS-B EQUIP NOW!**

**DON'T GET LEFT IN THE HANGAR**

**January 2020** 🇺🇸

Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11

**LEARN MORE AT** [faa.gov/go/equipadsb](http://faa.gov/go/equipadsb)

# What is a DISCRETE CODE?

As used in the Air Traffic Control Radar Beacon System (ATCRBS), a discreet code is any one of the 4096 selectable Mode 3/A aircraft transponder codes except those ending in zero zero.

Discrete code examples are 0010, 1201, 2317, 7777.



Examples of non-discrete codes are 0100, 1200, and 7700.

Non-discrete codes are normally reserved for radar facilities that are not equipped with discrete decoding capability and for other purposes such as emergencies (7700), VFR aircraft (1200), lost communications (7500), etc.



discreet *vs.* discrete



cautious  
sensible

*You should be discreet with your comments at funerals.*



detached  
separate

*The Lego building set contained 400 discrete pieces.*

# 2019:

# Insurance Rates Increase



**Jim Price**  
Co-Editor



## Insurance History

After some upward movement in 2000-2001, the events of 9/11 had a significant impact on insurance rates, especially on war-risk pricing and availability. One business jet operator watched premiums rise from \$59,000 in December 2000 to more than \$113,000 in December 2002.

By early 2003, rates began to plateau and then trend downward. For much of the aviation

industry, the ensuing “soft market” – rate reductions and broadening of coverages – continued uninterrupted for almost 16 years.

From 2005 through 2010, the number of insurers providing aviation insurance in the U.S. grew from 9 to more than 20. Then, in 2018, six reinsurance companies and several underwriting companies pulled out of the market. The remaining companies are consistently seeking rate increases, limit reductions, and tightening of underwriting standards.

## Market Hardens and Pressures Increase

The aircraft insurance market has swung from a soft to a hard market “in just a few short months,” according to Matt Drummelsmith of Aviation Specialty Insurance. “What was once a process of sourcing competitive quotes from several carriers has now turned into a matter of hoping the incumbent carrier doesn’t pass off an unjust rate increase.”

The reinsurance market has also been pressuring insurance carriers to increase their rates or lose their support.

## Disasters Don't Help

Whenever there is an accident or disaster, like the East River helicopter crash, Grand Canyon helicopter tour incident, and Lion Air Boeing 737 crash, it puts a strain on the insurance carriers. Because of a particularly bad year in 2018, in order to make a profit, the insurance carriers found it necessary to increase their rates.

You can expect to see your insurance rates climb anywhere from 4.6% to 30% in 2019. The rate increase depends on accident/loss history, age, industry, and aircraft type.

## Coming Together to Solve an Industry Issue

If all Mooney pilots had been safe and accident free in 2018, our rates would still increase. I know, that doesn't seem fair to be lumped in with helicopters and airliners. But, when it comes to insurance, we all belong to the world of aviation. Drummel Smith explained, "At this point, we have an industry issue, not an individual policyholder issue. It's like a town or community coming together to support a common cause."



# Don't use the phrase



"Any traffic in the area please advise"

## Mooney CFIs



The Mooney Flyer has an extensive list of CFIs that have Mooney experience. You can find a CFI at [themooneyflyer.com](http://themooneyflyer.com), by clicking on the "MOONEY FLYER STUFF" drop down menu and selecting "MOONEY CFIS".

If you're a Mooney CFI, and you want to be listed, simply send your information to [themooneyflyer@gmail.com](mailto:themooneyflyer@gmail.com)



The Mooney Flyer has a comprehensive list of Mooney Service Centers, plus shops and mechanics that are great when it comes to the Mooney. You can find these at [themooneyflyer.com](http://themooneyflyer.com) by clicking on the "MOONEY FLYER STUFF" drop down menu and selecting "TECH-MECH".

If you would like your favorite shop or mechanic added to the list, send us an email at [themooneyflyer@gmail.com](mailto:themooneyflyer@gmail.com)



# ***The Mooney*** ***Maintenance*** Puzzle



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models





# Ask the Top Gun

**Tom Rouch**

Founder of Top Gun Aviation, Stockton, CA

Send your questions for Tom to [TheMooneyFlyer@gmail.com](mailto:TheMooneyFlyer@gmail.com)

**Q**uestion: The 2 amp Gear Warning CB randomly pops on my M20J (see attached picture). It doesn't pop every time the gear is cycled, and appears to only affect the gear light and I imagine the gear warning horn, (but not sure about that last, as I don't put the airplane in a configuration that causes the horn to sound - i.e. gear up, power full back). What should I be looking at?

**A**nswer: The question about the 2 amp CB on your J model is very difficult to answer since there are over 20 years of Js with several versions of gear systems. However, I will assume it is a late model, since it has a 2-amp CB. Therefore, it must be a 28-volt aircraft.

The other main problem is “intermittent”. It’s the worst word a mechanic can hear. The shop can and has spent hours trying to find an intermittent problem without success. How many owners want to pay for the shop hours without a fix? Always frustrating.

On later models, they incorporated an electronic control for the gear and stall horns, which has caused problems and much higher cost to repair because of the electronic control. In addition to the lights for the gear in the annunciator panel, which is also more costly, there is also the floor light so you can see the manual stripe on the floor board (positive proof of the gear locked down). What most people don’t know is that light is in series with panel lights, so you should have a light on the floor when the gear is locked down. A common problem when the wire to the floor light breaks, the hot wire touches ground and pops the breaker. We had problems with the horn controllers, so we didn’t know which horn was blowing and that controller is mounted in the cabin beside the pilots left leg, making it hard to get to. I think it was mounted there on purpose. Anyway, what used to be a simple system, got complicated on the later models. You can see I don’t have an answer for you, but when a CB pops, it is either a short to ground or a high amperage draw. With it randomly popping, it would require a shorted wire that moves, like the light wire I described, or “a long shot” that the bulb in the annunciator is a 12 volt by mistake. Even if it’s a 24 volt light, I would just change it, since it’s easy and cheap.

# ***Top Gun Aviation***



**Specializing in Mooney**

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This portable carbon monoxide detector will detect and alert you at extremely low levels with fast response times. The alarms have escalating signals corresponding to the ppm level. It features the industry's most stable and longest life sensor and the sensors never require re-calibration and have a 10-year lifespan.

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Size 85 x 48 x 15 mm (3.35 x 1.89 x 0.59 inches). 38 grams (1.34 ounces)

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## [Multi-sander](#)

Just introduced is the [WORX 20V Sandeck 5-in-1 Multi-Sander](#), which does the jobs of a 5" random orbit sander, ¼ sheet finishing sander, and detail sander. [CLICK HERE](#) for more information

## [Aithre Shield CO detector and app](#) \$180



The new [Aithre Shield](#) was designed by a group of RV pilots to offer more precise monitoring of cockpit conditions and more choices for alerting. The electrochemical sensor does not require any calibration for 10 years, is accurate to within 1 part per million (ppm), and is very responsive –within 30 seconds. The sensor is also insensitive to pressure and temperature changes, so it's well-suited to the cockpit. The sensor has just a single on/off switch on the back and a built-in rechargeable battery. Included in the package is a charging cable and charging clip – just snap the Aithre Shield onto the clip to charge it up. When it's time to fly, you can snap it onto a second clip which allows it to be mounted to the panel. This works reasonably well, but a little Velcro

will work as well. Since the sensor is only about 2" tall and weighs about an ounce, it's easy to mount almost anywhere.

The front of the Aithre Shield has a transparent A logo that changes colors (blue, amber, red) depending on the CO level. There's also a fairly loud beep that comes on above 50 ppm.

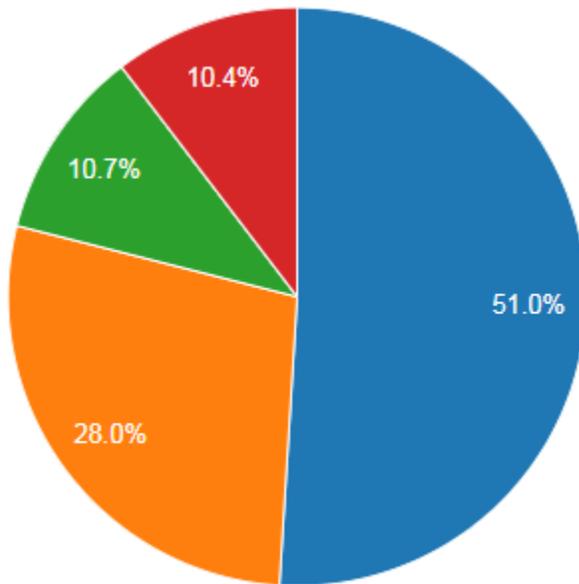
The real benefit, though, is the free iOS companion app. It uses Bluetooth Low Energy (BLE) so it's really easy to use. Just turn on the sensor and open the app; your phone will connect automatically and stay connected, with no pairing or passwords. It's dead simple. The app shows the current CO level at the top of the screen, as well as the trend over the last 15 minutes. This is surprisingly helpful at reducing nuisance alerts. [Get it at Sporty's](#)

## [Sporty's FAR/AIM app Updated with New Features](#)



**\$9.99**

[Sporty's FAR/AIM app](#) for iPhone and iPad has been a popular option for many years, but a recent update adds some helpful new features. First, it includes the latest AIM Change 3 and regulation updates through April 2, 2019. The app is continuously updated as regulations change, and a one-time purchase includes all updates. Just buy it once and you'll always be up to date. Get it at the app store.



■ 1 to 5 ■ 6 to 10 ■ More than 20 ■ 11 to 20



### **Monthly Flying**

A recent AOPA poll found that most pilots fly 1 to 5 hours per month.

Where do you fit in this pie chart?

**We hope that you can see yourself as pilot who flies 6 to 10 hours per month.**

## ***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](http://www.jaegeraviation.com)**



**Jaeger Aviation**

**Email: [bruce@jaegeraviation.com](mailto:bruce@jaegeraviation.com)**

**320-444-3042**



# Future Mooney Events

	<p><b>Contact Dave at <a href="mailto:daveanruth@aol.com">daveanruth@aol.com</a> or (352) 343-3196, before coming to the restaurant, so we can have an accurate count. Events begin at 11:30</b></p> <p>May 11: Sebring (<a href="#">SEB</a>)          June 8: Vero Beach (<a href="#">VRB</a>)          July 13: New Smyrna Beach (<a href="#">EVB</a>)</p>
	<p>May 3 – 5: Newton, KS (<a href="#">KEWK</a>)          May 31- June 2: Northern Flights Formation Clinic (<a href="#">KBJJ</a>)          June 14 – 16: Hickory, NC (<a href="#">KHKY</a>)          July (TBD): Chino, CA (<a href="#">KCNO</a>)          July 20, 2019: AirVenture Caravan (<a href="#">KMSN</a>)</p>
	<p>June 7-9: Oklahoma City, OK – <a href="#">CLICK HERE</a> for more          September 6-8: Atlantic City, NJ          October 4-6: Ogden, UT</p>
 <p><b>Mooney Summit</b></p>	<p>September 27-29, 2019: Mooney Summit VII, Panama City  <a href="http://www.mooneysummit.com">www.mooneysummit.com</a></p>
	<p>September 6-9: Spring Fly-In to Mt. Hotham          Go to <a href="https://www.mooney.org.au/">https://www.mooney.org.au/</a> for details</p>
 <p><b>European Mooney Pilots &amp; Owners Association</b></p>	
<p><b>Other Mooney Fly-Ins</b></p>	<p>May 25: Memorial Day Family Picnic Fly-In (<a href="#">KUKT</a>)          Quakertown, PA. Starts at Noon. Contact Brian Nelson at <a href="mailto:orionflt@yahoo.com">orionflt@yahoo.com</a></p> <p>June 7-9: Walla Walla, WA (<a href="#">ALW</a>) – Wine, Parties, Hangin’ Out          Contact: Henry Hochberg, <a href="mailto:aerocadoc@comcast.net">aerocadoc@comcast.net</a></p>



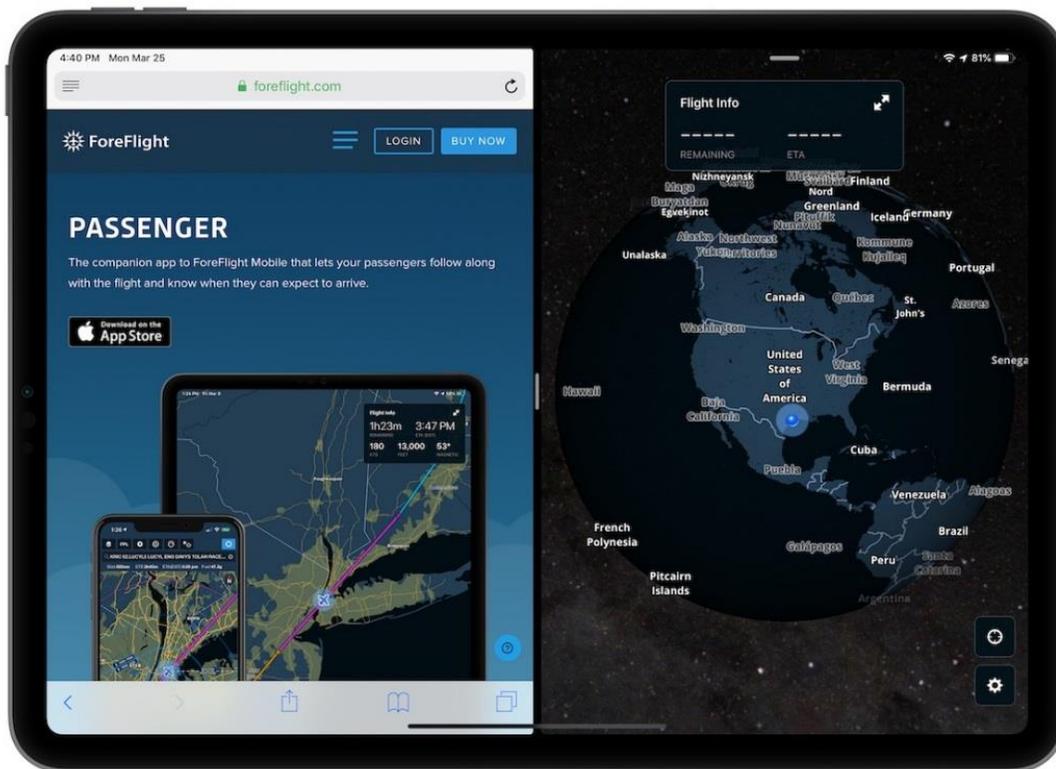
## FOREFLIGHT PASSENGER

Here at The Mooney Flyer, we are strong advocates of getting your copilot involved in the flight. It increases their enjoyment of your flight and helps to mitigate any fears or discomfort caused by turbulence, etc.

ForeFlight just announced **Passenger**, which is a companion app to ForeFlight Mobile, and it's free! **Passenger** automatically connects to your pilot's ForeFlight app and displays the current route, so the passenger can monitor the flight's progress. **Passenger** also provides helpful flight information, like time to destination, expected arrival time, altitude, groundspeed, and magnetic bearing. Any time the pilot makes changes to the route in ForeFlight, **Passenger** will reflect those changes and automatically update the route.

No need to ask, "Are we there yet?" - **Passenger** uses your device's GPS data to power helpful inflight metrics, showing your speed, altitude, magnetic bearing, time to destination, and estimated arrival time. Your pilot's device will also provide some of this information to **Passenger** before takeoff or when GPS data isn't available, such as when using a Wi-Fi only iPad.

Once your pilot enables ForeFlight's route sharing, **Passenger** will automatically connect and display the current route on your device, along with any changes made during the flight. There's no limit to how many devices ForeFlight can share its route with, so everyone on board can stay on the same page with **Passenger**.





### 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](mailto: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  
CFI, MEL, ATP

**Master of  
The Instrument  
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