The Mooney Flyer

The Official Online Magazine for the Mooney Community

www.TheMooneyFlyer.com

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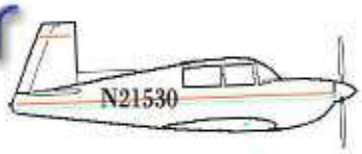
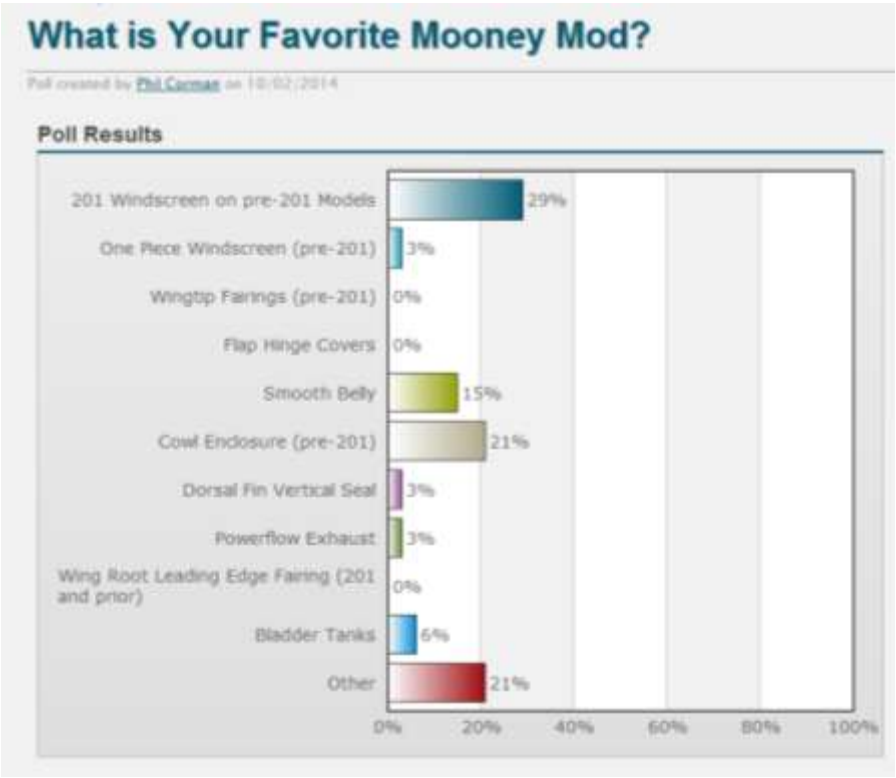
In Every Issue

From the Editor

Phil Corman



Last month's poll asked, **"What Is Your Favorite Mooney Mod?"**



Next month's poll: **"Round Gauges vs Glass Devices"**

CLICK HERE to vote.

Insurance

I read an excellent article by Mike Busch of The Savvy Aviator regarding aircraft insurance.

I'll recap some of his key points and then provide you with a link to read the entire article if you are interested. First, it is bad if you over insure your hull or under-insure your hull. Let's say your Mooney is valued at $60,000. Most insurance companies will take the salvage value of your Mooney into account. Assume your Mooney has a salvage value of $15,000. That means if you incur more than $45,000 in damage, the Insurance Company is more than likely going to declare your Mooney totaled and give you a check for $60,000, even though it's well below the $60,000.

Conversely, let's say you insure your hull, on the same Mooney, for say $90,000. And let's say you incur $60,000 in damage. The insurance company is more than likely going to pay you the $60,000 and you will not be flying her for a long time. The bottom line… insure the hull for the real value.

Regarding Liabilities… $1,000,000 liability is not always the same. There are sublimits, which most of us have, and "smooth". If you have a million in sublimit, you be covered for $100,000 per person (maximum) up to 10 people. With "smooth", you get a million coverage for the complete incident, regardless of the number of people involved. It's hard to get smooth and it costs more… but if you have lots of assets… You must evaluate which is best for you.

CLICK HERE to read Mike's full article.

New Mooney Models

It's old news by now, but Mooney introduced 2 new models, the M10T and M10J. These models put Mooney smack in the middle of the Composite world; the Trainer market with the T and the Diesel market with the J. The M10T is fixed gear and the M10J is retractable. The M10J will be equipped with the CD-155 Diesel engine. Both are two-seaters.

M10T

M10J

More Reading

The American Diesel Plane that Could Bring GA to China
http://www.wired.com/2014/11/mooney-m10-diesel-plane/?mbid=social_fb

Mooney's Announcement
http://www.mooney.com/news/mooney-international-introduces-first-new-mooney-models/

Appraise Your Mooney's Value

Don't forget about our cool new **Appraise your Mooney's Value** using Jimmy Garrision's valuation. Jimmy is from All American Aircraft, the country's largest Mooney reseller. We have implemented the models for M20C, M20E, M20G, M20F & M20J. Click on your model to simply complete the valuation. You no longer need paper and pencil. Just another benefit to our subscribers.

M20C M20E M20G M20F M20J

RE: *After 50 Years* – I loved Mr. Biggs' article regarding the decisions, often by very experienced pilots, who make errors in judgement or decision making. To me, it is a wakeup call. Questionable decisions can be made by rookie pilots all the way through experienced pilots. Bravado and overconfidence can be a killer. I appreciate Mr. Biggs reminding me, and all of us of that fact.

I also agree with his concept of a "chain of errors". I'm one of those Mooney pilots who thinks many incidents and crashes are not the result of 1 thing, but of a chain of 2 or more warnings. I thank Mr. Biggs for sharing his stories, which may still be a little painful for him to recall, these years later. But, I hope his article gets the attention of us all. The "brave" decision is to make the right aeronautical decision, despite what we or our passengers may think otherwise.
Anthony G

RE: *A Leak Speaks* by Geoff Lee – Geoff Lee hits home with me with his first hand articles on our older Mooneys. A chief benefit of owning your own Mooney is that you begin to "feel" her. By that I mean, we sense any change in the normal operation. This can be by sight, smell, feel (a vibration), hearing, etc. Geoff brings home that we need to "not ignore our Mooney when it communicates with us". His articles are not hypothetical, but first hand, which makes them that more real to me. Thanks sir.
Tommy M

RE: *Mooney Tales: Flying for our Co-Pilots* – My wife is ambivalent about flying in the Mooney. It has none of the appeal for her that it does for me. I asked her to read Linda's article because I think if our spouses get more involved in the act of flying, they might begin to enjoy it more often. Linda's excitement about flying, with her tales of Mooney vacations, and now her ideas on getting my wife more involved is great. Thanks
Jim B

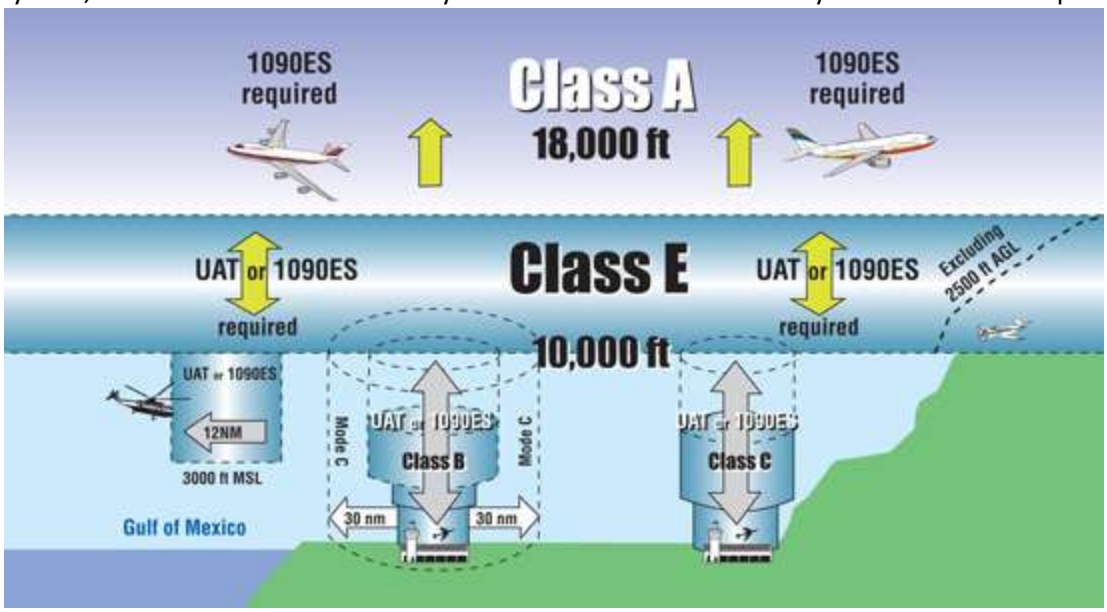
RE: *ADS-B PIREP* – Phil's article is making me think differently about an ADS-B OUT solution. It seems like there are a lot of benefits to be had right now, and waiting 'til 2020 is wasting that. I am one of those people that don't think the FAA can deploy anything useful to us pilots, but this may be different.
George S

PHIL CORMAN

ADS-B: Fact vs. Fiction

The 2020 Mandate

Here at The Mooney Flyer, we have written extensively about ADS-B. Our goal is to enable the Mooney pilot community to be the most informed in the GA fleet. When people ask us why, it's because it's a mandate which is scheduled to become the law of the world in 2020. Many tell us that the mandate will be delayed. There are some arguments that support this idea, such as the fact that only 10% of GA and approximately 3% of Airliners are equipped with ADS-B "OUT" at this time. There are 6 years left. As the price of ADSB-B "OUT" continues to decline, more GA planes will be equipped and the airlines will follow. ADS-B will become the law. Remember, this is not a US-only thing. It's world-wide. To be sure, radar will still be employed after 2020 since the new ADS-B system, embedded in the overall NextGen system, will not have been sufficiently tested. So it's more than likely that the transition period will be long and painful.



Let's face it. The FAA currently runs 50 year old technology. There is not a lot of expertise in rolling out new technologies in that bureaucracy. Our guesstimate is that the 2020 mandate will be met. Remember this: If you do not fly into Class C, Class B (including 30 mile veil), Class A or above 10,000' MSL, you won't need ADS-B. That's a lot of GA airplanes.

Myth: ADS-B is all Cost and No Benefit

This is simply not true and easy to refute. With ADS-B "IN", you get FIS-B, which is FAA-speak for a bundle of weather, NOTAM, TFR, and other information. This includes NexRad, Winds Aloft, METARs, TAFs, PIREPS, TFRs, and more. If you are ADS-B "OUT" equipped, you will get TIS-B, (FAA-Speak for Traffic). And it is fiction that you will only see "other ADS-B" traffic. You will see Mode C and Mode S traffic when receiving a re-broadcast stream from 1 or more of 750+ ADS-B towers. Where else can you buy panel devices that start at $2500 that will provide all of this information to you with "No additional subscription costs". XM Weather does NOT provide all of this and costs $660/ year for the comparable weather feed. How much more would it cost to get traffic, such as TCAS or TIS? Considerable AMUs (Aviation Monetary Units which equal $1000 per AMU). So the benefits are measurable and significant. Additionally, ADS-B covers most, if not all, of the entire USA above 5000'. There are many areas, especially in the western USA and Canada that currently have no radar services and certainly no FIS-B or TIS-B information. Once the initial system is robust, the data collected could be enhanced to include alerts, avoid runway incursions, etc.

Myth: ADS-B is Too Expensive

Everything in General Aviation is too expensive as far as we are concerned. GA equipment costs are akin to the $300 DoD Hammers that we hear about. Remember, when we all had the Mode C mandate? I, for one, screamed about the cost of it and couldn't quantify the benefit. ADS-B is the same. General Aviation will survive. ADS-B costs will continue to decline. But unlike Mode C, ADS-B is clearly valuable in the cockpit today! Remember, you don't need to equip your

Mooney if you do not intend to fly into the designated airspaces. There's a lot of flying to be done outside ADS-B "OUT" mandated airspace. One potential is that alternatives to panel-mounted ADS-B "OUT" devices, i.e., portables, might drive the cost down significantly. Some Aviation groups are working on lower cost alternatives to comply with the mandate. AOPA seems to be taking the path of complaining, so we don't see much from that group at this time. A large cost item is the WAAS GPS requirement. However, remember that if you already have a WAAS GPS, you do not need to buy an ADS-B receiver with another WAAS GPS. This will also save money.

ADS-B FIS-B and TIS-B Services are only Advisory

Well, this is a fact. Nothing about FIS-B or TIS-B replaces "See and Avoid" for VFR flights. We are baffled that this is a drawback. More expensive traffic systems such as TCAS are also advisory, as is Flight Following. The real point here is that the information is incredibly valuable in the cockpit, and after installed, it is free. You can make more informed weather decisions enroute, and believe me, you will be aware of more traffic than you have ever seen or been advised of during Flight Following.

To us, a chief concern is that there is so much information flow into the cockpit, with weather, TFRs, NOTAMs, and Traffic. The PIC must remember to keep his/her eyes outside of the airplane during VFR flights. The TIS-B and FIS-B information should only be a part of your instrument scan. This takes concentration during initial flights after an ADS-B install.

Real Potential Downsides

The main downside is that this is a government technology rollout. The FAA has little expertise, so this is likely to be a painful rollout. Government conspiracy pilots will see that Big Brother will now have detailed GPS tracking information along with Mooney tail numbers to prosecute offenders. Still, others believe that the FAA will have a ready mechanism to bill pilots for a variety of Usage Fees, which have been proposed for the past decade. ADS-B would enable an easy way to track and collect those fees. Lastly, it's a significant infringement on your privacy. The Federal Government will have a data base of all of your flying. It's hard to imagine how that information can be used for the positive development of GA.

*While **TIS-B** is a useful aid to visual traffic avoidance, its inherent system limitations must be understood to ensure proper use.*
***(a)** A pilot may receive an intermittent **TIS-B target** of themselves, typically when maneuvering (e.g., climbing turns) due to the radar not tracking the aircraft as quickly as ADS-B.*
***(b)** The ADS-B-to-radar association process within the ground system may at times have difficulty correlating an ADS-B report with corresponding radar returns from the same aircraft. When this happens the pilot may see duplicate traffic symbols (i.e., "TIS-B shadows") on the cockpit display.*
***(c)** Updates of **TIS-B** traffic reports will occur less often than ADS-B traffic updates. **TIS-B** position updates will occur approximately once every 3-13 seconds depending on the type of radar system in use within the coverage area. In comparison, the update rate for ADS-B is nominally once per second.*
***(d)** The **TIS-B** system only uplinks data pertaining to transponder-equipped aircraft. Aircraft without a transponder will not be displayed as **TIS-B** traffic.*
***(e)** There is no indication provided when any aircraft is operating inside or outside the **TIS-B** service volume, therefore it is difficult to know if one is receiving uplinked **TIS-B** traffic information.*

IFR Refresher Part 1

Pilots are really smart people. Why? Because on a typical flight, the average pilot may be required to comply with 700 FARs?

"Google" your brain cells and let's see if you can remember some of the FARs as they apply to IFR!

What Aircraft Instruments and Equipment are required to fly IFR? (In addition to the equipment required for VFR) (FAR 91.205)

- Clock – Installed in the aircraft, displaying hours, minutes and seconds.
- Directional Gyro.
- Attitude Indicator.
- Rate of turn indicator or an additional attitude indicator
- Skid/Slip Indicator.
- Two-way radios and navigational equipment appropriate to the ground facilities used.
- Altimeter.
- Generator or alternator with adequate capacity.

*You can take off with inoperative instruments or equipment that's not required by FAR 91, as long as that instrument or equipment is removed or placarded "**Inoperative"** and a pilot or mechanic determines that the loss of that instrument or equipment is not a hazard.*

If you have a non-WAAS GPS, what else do you need to Navigate on an IFR Flight Plan?

*The aircraft must have navigation equipment necessary to f*ly the route to the destination airport. All of the route's navigational aids must be operational, & the pilot must back up the route with a VOR.

What are the Benefits of having a WAAS GPS?

CATEGORY	A	B	C	D
LPV DA	1608-1 250 (300-1)			
LNAV/ VNAV DA	1685-1¼ 327 (400-1¼)			
LNAV MDA	1740-1 382 (400-1)			1740
CIRCLING	1800-1¼ 418 (500-1¼)	1840-1¼ 458 (500-1¼)	1840-1½ 458 (500-1½)	194

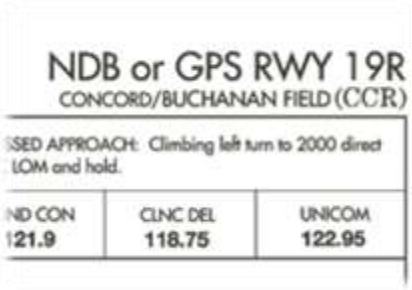
- Pilots can use WAAS GPS as the primary navigation system from takeoff through landing, (No VOR back up required).
- Pilots may also fly RNAV/GPS approaches using "LNAV/VNAV", "LPV", or "LNAV" approach minimums.
- If equipped with WAAS GPS, pilots can file for, and use, NAVAIDs that are NOTAMed out of service.

Can you Substitute Your panel installed GPS for an ADF or a DME?

(AIM 1-1-19 & 1-1-20)

An IFR GPS – either WAAS or non-WAAS – <u>usually</u> qualifies as a substitute for ADF and DME with the following exception:

- If an approach is not a GPS overlay, such as an "***NDB or GPS***" approach, the aircraft must be equipped with an NDB to fly that approach.


NDB or GPS RWY 19R
CONCORD/BUCHANAN FIELD (CCR)
SED APPROACH: Climbing left turn to 2000 direct LOM and hold.

ND CON	CLNC DEL	UNICOM
121.9	118.75	122.95

What are the Fuel Requirements for IFR? (FAR 91.151 & 167)

You need enough fuel to fly to the destination and alternate (if required) + 45 minutes of reserve fuel.

What is the Required Forecast Weather for a Legal Destination? (FAR 91.167)

The destination weather must be forecast to be at or above that required for the planned approach.

What Destination Weather Forecast will Require You to Choose and File an Alternate Airport?

- The destination doesn't have an instrument approach, ***or***
- One hour before and one hour after your planned arrival, the destination weather is forecast to be less than:
  - 2,000 ft ceiling, **or** 3 statute miles visibility.

Memory Helper - The 1-2-3 Rule

- ***± 1** hour*
- **2**,000' ceiling
- **3** miles visibility

If your destination does not have a Terminal Area Forecast (TAF), use the Area Forecast.

What are the Forecasted Weather Requirements for a legal Alternate?

(FAR 91.167)

- Airports with a precision approach (ILS or PAR): **600 & 2.**
- Airports with a non-precision approach – (no precision approach available): **800 & 2.**

Airports without an instrument approach can be used as an alternate if the forecast weather conditions are basic VFR from the Minimum Enroute Altitude (MEA) to the planned alternate airport.

Can you think of any Exceptions to Alternate Planning if you have a panel mounted WAAS GPS? (AIM 1-1-20)

Although LNAV/VNAV and LPV approach minimums approximate ILS approach minimums, they are still considered **non-precision approaches** (classified as an Approach with Vertical Guidance (APV)). Therefore, if an alternate doesn't have an ILS or PAR approach, it must have, ±1 hour of the ETA, a forecast of **800 & 2**.

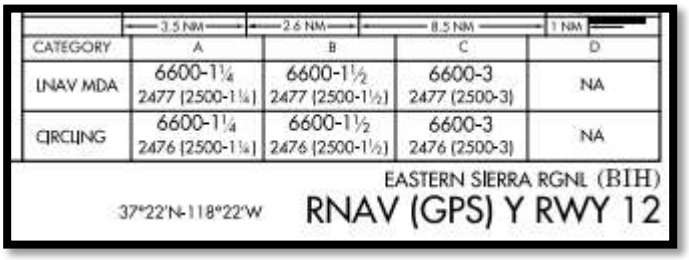
When it comes to Approach Planning, what do you need to consider for WAAS & Non-WAAS GPS?

- GPS users may plan to use a GPS-based instrument approach at either their destination or alternate airport, **but not at both locations.**
- Properly trained and approved WAAS GPS users equipped with and using approved baro-VNAV equipment, may plan for LNAV/VNAV or RNP 0.3 DA at the alternate airport. (This applies to FMS users).
- WAAS users **without baro-VNAV,** (that's most light GA aircraft users), may plan for an LNAV approach at an alternate airport.

IFR Operations to High Altitude Destinations and Alternates *(AIM 5-1-9)*

Three high altitude airports in the U.S. have approved instrument approach procedures where all of the MDAs are greater than 2,000 feet and/or the landing visibility minimums are greater than 3 miles. These are South Lake Tahoe, CA (KTVL), Bishop, CA (KBIH) and Aspen, CO (KASE). It is possible for a pilot to elect not to carry sufficient fuel to get to an alternate when the destination's forecast ceiling and/or visibility is actually lower than that necessary to complete the approach.

A small number of mountain airports have MDAs that are just below 2,000 feet AGL. If the weather deteriorates slightly, the airport could be below minimums.



	3.5 NM	2.6 NM	8.5 NM	1 NM
CATEGORY	A	B	C	D
LNAV MDA	6600-1¼ 2477 (2500-1¼)	6600-1½ 2477 (2500-1½)	6600-3 2477 (2500-3)	NA
CIRCLING	6600-1¼ 2476 (2500-1¼)	6600-1½ 2476 (2500-1½)	6600-3 2476 (2500-3)	NA

EASTERN SIERRA RGNL (BIH)
37°22'N-118°22'W
RNAV (GPS) Y RWY 12

Choosing an Alternate

- Avoid alternates within 10 minutes of your destination. They're probably in the same weather system.
- Pick a downwind alternate airport and if you need to go there, use best endurance power settings.
- Try to find an alternate with multiple approaches.
- Choose an alternate that isn't blocked by restricted or complicated airspace.
- Consider choosing a 2nd alternate that's prior to your destination, in case you need to cut your trip short.

When is an Alternate <u>not</u> an Alternate? *(AIM 1-1-20)*

When it's your new destination! If the destination weather deteriorates, and you divert to your alternate, it's now your "**destination**" and the alternate weather requirements, (600 & 2, and 800 & 2), are replaced with the weather required to make the approach. GPS users need to plan to use a GPS-based instrument approach at either their destination or alternate airport, <u>but not at both locations</u>. After diverting to an alternate, any approach is fair game.

What is RAIM?

It is an acronym for ***Receiver Autonomous Integrity Monitoring*** *(AIM 1-1-19)*
The GPS receiver verifies the integrity or usability of the constellation of GPS satellite signals to determine if a satellite is providing corrupt info. A RAIM failure annunciates **two minutes after t**he GPS can't see at least **5** satellites for integrity monitoring, or **two minutes after** the RAIM integrity monitor detects a potential error.

What do you do if you receive a RAIM Warning on Approach?

- If a RAIM failure annunciates prior to the final approach waypoint (FAWP) – Execute a missed approach.
- If a RAIM failure annunciates after passing the FAWP – The receiver may continue to operate and allow you to complete the approach without a warning. If a warning appears – Execute a missed approach.

PREDICTING GPS RAIM, Non-WAAS GPS

Non-WAAS GPS users must confirm GPS RAIM availability prior to an IFR flight. Checking ***www.RaimPrediction.net*** satisfies this requirement. If you flight plan with ***www.FltPlan.com,*** it will automatically check RAIM for you.

How do you find Wide Area Augmentation System (WAAS) NOTAMs?

GPS NOTAMs can be located online at ***https://pilotweb.nas.faa.gov/PilotWeb/***

From the "*NOTAM Functions*" menu, select "*View All GPS NOTAMs*"

SAMPLE WAAS NOTAM:

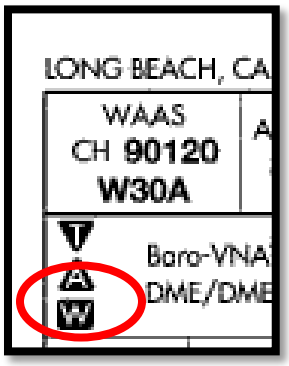
!BOS BOS WAAS LPV AND LNAV/VNAV MNM UNREL WEF 0305231700—0305231815.

In a WAAS NOTAM, the term "*UNREL*" means that the expected level of WAAS service may not be available.

WAAS NOTAMs are Predictive and things could change.

For instance, using the sample WAAS NOTAM above: If upon arrival in BOS, it appears that the LNAV/VNAV or LPV service is available, (annunciated as such on the GPS), vertical guidance to LNAV/VNAV or LPV minimums is allowed.

If a WAAS NOTAM has not been included in the ATIS broadcast, controllers are required to tell pilots about the NOTAM as they clear him or her for a RNAV (GPS) approach.



What does the Negative "W" Symbol mean?

It means that there are no WAAS NOTAMs provided at this airport. Airports that are on the edge of WAAS coverage may experience WAAS vertical guidance outages on a daily basis. At those airports, a negative **W** symbol appears on their RNAV (GPS) approach charts, meaning that WAAS NOTAMs **are not provided**.

At these airports, whether used for a destination or alternate, plan to use LNAV minimums. Upon arrival, if WAAS GPS annunciations indicate LNAV/VNAV or LPV, you may use the lower WAAS minimums.

Be prepared to revert to the higher "LNAV" minimums if a WAAS outage occurs.

What does it mean to be IFR Current?

Within the previous six calendar months, (the beginning of this six month window starts on the **1st**), you must have:

- Completed an IPC, *or*
- Maintained IFR currency by logging:
  - Six Instrument Approaches,
  - Holding procedures,
  - Course interceptions & tracking

How can You maintain IFR currency?

- In actual instrument conditions,
- Hooded / Foggled with a safety pilot, *or*
- In a simulator, under CFI-I supervision.
    - The CFI-I must sign your logbook, verifying that the simulated instrument time and approaches were accomplished. *(FAR 61.51)*

The aircraft or simulator used for the IPC, or for maintaining IFR currency, is **category specific**. That is, you can't become or remain IFR current in a helicopter or helicopter simulator and expect that currency to be valid in an airplane.

What Qualifications are Required of a Safety Pilot?

Safety Pilots don't require an instrument rating, but must have:

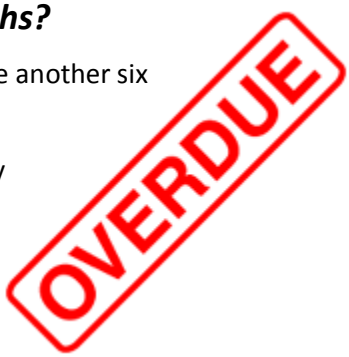
- A private pilot certificate with **category** and **class** ratings appropriate to the aircraft being flown, &
- A current medical. *(FAR 91.109(b)).*

After the flight with a safety pilot, log the:

- Amount of simulated instrument time,
- Airport(s) where you flew the approaches,
- Types of instrument approaches, &
- Safety pilot's name.

What Happens if You Didn't Fly Six Approaches in the Last Six Months?

If you failed to fly six instrument approaches in the last six month window, you still have another six months – ***a grace period*** – to meet IFR currency requirements.



During the grace period, you can only dream of filing an IFR flight plan until, in simulated instrument conditions, you log enough approaches to bring the six month window total to six, plus holding, course interceptions and tracking.

If you fail to become current in the grace period, you'll need to take an IPC before filing an IFR flight plan.

Before you file IFR, what are your PIC Responsibilities regarding the aircraft's air worthiness? *(FAR 91.413)*

You make sure that your aircraft is airworthy. This includes ensuring that:

- The aircraft has received an Annual Inspection within the past 12 months. (The annual expires the last day of the 12th month). *(FAR 91.409)*
- The transponder has been tested and inspected within the past 24 months. (Expires the last day of the 24th month).
- The Pitot/Static System has been tested and inspected within the past 24 months. (Expires the last day of the 24th month).

How Often Must You Check Your VOR(s)? *(FAR 91.171)*

Every 30 days, the VORs must be checked by using either of the following:

- VOR test signal (VOT), allowable difference ± 4°.
- VOR ground check point, allowable difference ± 4°.
- Designated airborne VOR checkpoint, allowable difference + 6°.
  - The locations and details for VOTs, ground and airborne VOR checkpoints, can be found in the Airport Facility Directory (A/FD).
- Dual VOR checked against one another. The allowable difference is ± 4°.
  - The VORs can be checked on the ground or in flight, but must be checked using the bearing "to" the station, &
  - The VOR receivers must be independent, except for the antennae.

Log the date, place and bearing error. In the case of a dual VOR check, record both bearings to the VOR.

Sign the log.

Drake VOR, 8-25-2011. #1 170°. #2 174°. Grant Canyon

Prescott VOT, 8-26-2011. #1 3°. #2 1°. Don Patrol

(FAR 91.171)

Can you have your VORs tested at a repair station?

Yes. The VORs must be ± 4° of the test signal and the repair station's technician must make an aircraft log entry, certifying the check.

Next month in Part 2, we'll review GPS approaches.

Fly Safe, Jim

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Six Mooney Statesman to Mac Aire

"We can make money with them!"

Jim Keena, President
Mac Aire Aviation Corp., Long Island, N. Y.

"I like the extra room in the new Mooney Statesman and I like the economy of the 180 hp Lycoming engines. These planes give us excellent performance, they are comfortable and we can make money with them." Jim Keena.

Mac Aire Aviation Corporation recently took delivery of six 1968 Mooney Statesman. These high performance aircraft will be used by Mac Aire for scheduled air taxi, demand charter, rental and flying club service. Mac Aire carries an estimated 2000 air taxi passengers per month.

More and more operators are discovering that Mooney is the best buy they can fly. If it's true for them, shouldn't you be flying Mooney, too! Write for descriptive brochure on this exciting new addition to the Mooney line for '68.

MOONEY
MOONEY AIRCRAFT, INC. • KERRVILLE, TEXAS

90

Your Mooney flies faster as CG moves aft

News from

Lake Aero Styling & Repair "LASAR"

"Serving your Mooney Needs since 1975"

www.lasar.com (707 263-0412)

By Shery Loewen, owner

I haven't written for The Mooney Flyer before, but I am so excited about some Lake Aero Styling "LASAR" news that I wanted to send more than just a "Press Release." This note is from the heart!!

Paul and I were so disappointed when Michael, our Service Manager, chose to leave us. It was all on good terms, but he made a decision to "move to greener pastures." God has to close one door to open another, and we are SO EXCITED about the door that opened!

Dan, our Parts Manager, remembered a young Mooney owner who had several years in the past called about Mooney parts. He happens to be a co-owner of one of our previously owned, personal, modified Mooneys;, a 1965 M20C. He had told Dan, "If you ever need an A&P mechanic, I would be interested." He had family in California and would like to relocate. The young Mooney owner had sold his share in the Mooney, so Dan had not heard from him recently, but he remembered his name. Dan wrote an e-mail, telling him that we were looking for an A&P/Service Manager and asked if he knew of anyone. The response came back, "I'm interested."

Paul and I would like to take this time to introduce you to Kyle Kennedy, LASAR's new Service Manager. Kyle is an A&P, an IA , and an **enthusiastic Mooney pilot,** as well. He graduated Cum Laude from Andrews University in Berrien Springs, Michigan, with a Bachelor of Technology in Aviation Maintenance, in 2002. He has a very impressive work history, part of it with Gospel Ministries in Collegedale, Tennessee, working in Mission Aviation and maintaining local planes, as well as planes in South America. For two years, he was with Adventist Aviation Services in Papua, New Guinea . He has held titles of "Aircraft Maintenance Engineer," "Shop Foreman," and "Lead Mechanic." He has a background in piston and turbine aircraft, and has worked on Lear, Citation, King Air, Conquest, Beech, Cirrus SR22, Columbia 400, Lancair IV, Cessna, and Piper, as well as Mooneys. We are excited to continue to maintain our Mooney expertise, as well as broaden out and work on other aircraft as well. We know you will enjoy meeting Kyle. Give him a call!!

Kyle is married to Shelley, and they have two adorable children: Nova, age 7 and Kameron, age 4. We are so excited that they have chosen to make Lake County their home, and join the LASAR team.

The Mooney Flyer sends a huge WELCOME to Kyle and his family to both LASAR and the Mooney Community. You have joined a storied MSC and a passionate group of Mooney pilots and owners.

Geoff lee.

CFI

Aging and Anomaly

There are certain basic things in aviation that we need to be able to take for granted, but occasionally, we get a surprise when the unthinkable happens.

As aircraft age, aside from the components that are associated with engine TBO, many electrical and mechanical items that we take for granted begin to fail from age and constant usage. Switches, light bulbs, door handles, seat track rollers and even the seats fail. We can usually accommodate or fix many of the smaller things, even as we operate the aircraft, but not everything!

In the 70s I owned an Aero Commander/ Myers 200D. It's a fast aircraft with minimal rudder. Takeoff always required a good deal of right rudder to keep the plane aligned with the runway. With my back pressing firmly against the seat back in order to apply sufficient pressure to the right rudder, rotation came at about 80 mph. I had a positive pitch up of around 10 degrees, producing a 1500 fpm initial climb rate and rapidly accelerated through 100 mph and higher. Then, the seat back broke, snapping cleanly off and left me flat on my back with full throttle and a rapidly increasing pitch attitude. I reflexively hung onto the yoke until I could no longer reach it. I managed to save the day by flinging my right arm out and hooking it into the right seat back. This provided enough leverage so that I could place one foot on the yoke and push nose down, allowing me to gain an upright stance. I recovered control of the aircraft at 100ft AGL.

200D Aero Commander/Myers

In the Mooney F models that I have owned, I always kept a pair of vice grips in the front seat pocket. This habit was acquired when my wife and I were trapped inside the plane when the door handle broke off one evening at an empty airport. On the older Mooney, the plastic door handle is attached to the door mechanism via a square shaft and a cotter key through the handle and the shaft. The handle fractured in 3 pieces on a line through the cotter key hole, leaving nothing to grip the short square shaft with. The baggage door latch did not have the current internal release arrangement. We were finally released from the incarceration by the airport manager who just happened to be leaving late in the day. We were trapped for just under an hour, yelling ourselves hoarse through the wind window. I still keep a pair of vice grips in my 231. That baggage door exit would be challenging.

On a VOR approach to HWD one foggy morning in an F Mooney, I had just reduced throttle at the final fix and the throttle cable broke. The knob came out in my hand, leaving a minimum amount of applied power. This occurred just prior to emerging from the overcast. I blessed the Mooney glide ratio that day.

While departing South Lake Tahoe, I leaned the mixture on the takeoff roll to max the power. The mixture cable and knob came clear out and the cable separated, just prior to rotation. The long runway allowed me to sedately discontinue the takeoff.

1963 C model, Johnson bar failure.

The foregoing picture is an example of age/usage related failure. This recent ugly event occurred during taxi and put the aircraft firmly on its belly. This picture should prompt the manual gear owners to give the weld at the base of the Johnson bar a close inspection.

You should show this picture to your favorite mechanic. I do not believe that this area gets a great deal of scrutiny. A hairline crack around the base of that weld is not easily detected.

Those very reliable magnetos that we trust to keep us sparking, degrade somewhat with age. There are a couple of strong magnets incorporated internally that interact with the magneto coil in order to produce electrical output. These magnets tend to degrade or lose their magnetic strength over time. The result is a weakened spark or no spark at the plugs. If you are chasing ignition issues regularly, it may be prudent to have the magnetos “bench checked” like the one on the next page. The magnets can easily be re- energized. It is an eye opening experience to see the age related issues that arise inside that magneto housing. Consultation with an expert rebuilder is worth the visit to the magneto shop.

Courtesy of SAVAGE magneto service, Hayward, CA

Looking at the exposures related to the new products in our lives: We have trusted the FAA sectional map implicitly, but with the use of computer based technology, we can now probably begin to dispense with much of the paper maps and charts. This blessing comes with some caution. The depiction presented below on a popular planning application, shows two Victor airways with the same designation emanating from different VORs to the South. That's an obvious error. This anomaly is not present on other planning products or the FAA chart.

All vendors of these aviation planning applications get the basic cartography for their products from the same agency, but they have the capability to overlay geographic and routing "enhancements" to the basic charting. Human error can intervene. When planning a trip to an unfamiliar location, 'tis not a bad idea to review the old paper charts when at home or carry them as backup. This will cover any confusion arising from a possible computer coding error or "black screen" event. We contacted the company that produced the pictured map and they told us that the situation was being addressed. It may have been fixed by the time that you read this.

Trust but verify, (*President Reagan*)

Mooney Maintenance with LASAR Precision

By Paul Loewen, Owner of Lake Aero Styling & Repair (LASAR)

Aircraft Maintenance & Improvements

By Paul Loewen—Lake Aero Styling And Repair

What is maintenance? The FAA tries to address that with all the rules and regulations that apply to certified airplanes. We are required to "Maintain" the airworthiness of the airplane and all its components as it was originally built and certified, plus all the subsequent approved upgrades and modifications, STCs- Supplemental type Certificates.

Mooney's Type Certificate 2A3 lists all the original equipment for each model. These documents are reviewed on Annual Inspections to verify that the airplane still has all the original or added approved components.

Definition according to Wikipedia: ***MAINTENANCE, REPAIR, AND OVERHAUL***

Involves fixing any sort of mechanical, plumbing or electrical device should it become out of order or broken (known as repair, unscheduled, or casualty maintenance). It also includes performing routine actions which keep the device in working order (known as scheduled maintenance) or prevents trouble from arising (preventive maintenance).

Preventive maintenance

Preventive maintenance is maintenance performed in an attempt to avoid failures, unnecessary production loss and safety violations. The effectiveness of a preventive maintenance schedule based on the ground rules used for cost-effectivemness.

Corrective maintenance

Corrective maintenance is probably the most commonly used approach, but it is easy to see its limitations. When equipment fails, it often leads to downtime in production. In most cases, this is costly business. Also, if the equipment needs to be replaced, the cost of replacing it alone can be substantial. It is also important to consider health, safety and environment (HSE) issues related to malfunctioning equipment. Corrective maintenance can be defined as the maintenance which is required when an item has failed or worn out, to bring it back to working order. Corrective maintenance is carried out on all items where the consequences of failure or wearing out are not significant and the cost of this maintenance is much greater than preventive maintenance. Corrective maintenance is the program focused on the regular task that will maintain all the critical machinery and the system in optimum operating conditions. The major objectives of the program are:

1. Eliminating breakdown
2. Eliminating deviation
3. Eliminating unnecessary repairs
4. Optimize all the critical planned systems

LASAR performs a complete Annual inspection following a Mooney 100 hour checklist provided by the factory. The last section of the checklist is completed by a Post Annual Test Flight to assure all is functioning correctly.

I decided a Pre-Annual checklist might be useful to the owner especially while delivering the Mooney to a shop for the Annual Inspection. This is like visiting a doctor's office where they give you a pile of

papers to fill out and sign before you can see the doctor. The items on the list are checked off by our pilots before we bring it into our shop to begin the inspection. We first begin by draining the hot oil and performing a compression check of the cylinders.

The checklist prepared by the owner gives him a chance to see what is expected at the beginning of the inspection and to develop a list of corrections needed.

PRE-INSPECTION OPERATIONAL CHECK: (Refer to Mooney Owner's Manual or POH)	*Reading*
Ground Check propeller governor operation with the engine running at 2000 RPM & pitch control at low pitch (High RPM): When propeller control is pulled out to high pitch (low RPM), engine speed should decrease at least 500 RPM.	
Check ease of operation of all engine controls with engine running.	
Flight Check generator/alternator output & indication. Volts _____ Load _____	
Check oil pressure indication_____LBS. L_____LBS.	
Check fuel pressure indication.____LBS _____LBS.	
Check fuel quantity indication.	
Check cylinder head temperature (CHT) indication.	
Check oil temperature indication.	
Check idle RPM, idle mixture & idle cut- off.	
Check propeller pitch through complete range.	
Check operation of cabin & panel lights.	
Check Radios/Avionics & VOR operation.	
Check Auto Pilot operation.	
Check magneto drop and grounding circuits.	
Check operation of brakes.	
Check fuel selector valve for smooth operation.	
Check vacuum warning lights & instruments for proper operation.	
Check flap position indicator (Take-Off & Full down).	
Check trim position indicator and smooth operation of Trim System.	
Flight check gear-up warning horn at: 12" manifold pressure (MP) (M20J prior to S/N 24-3154); 14-16" MP (M20K [231, 252]) & with throttle 1/4-3/8 inch from idle position (M20L, M20M, M20R, M20S, M20J [after S/N 24-3154] & M20K [Encore])	
Flight check aircraft flight control rigging.	
Flight check P.C. or other Autopilot systems for proper operation.	
Check cabin ventilation and heating system for carbon monoxide.	
Check EGT/TIT gauge and any other items of installed equipment.	
Other checks -Specify as necessary- rigging?	

A proper annual inspection requires 25 hours or more to complete the prescribed 100 hour Checklist. Deferred maintenance is just that—deferred. Eventually the corrective work must be done. When you

sell an airplane, you are representing it as airworthy. It may need things to be done like paint and interior, but it must meet airworthiness requirements.

I can think of incidences in the past where we were doing a prebuy inspection and we found an AD (Airworthiness Directive) that had been overlooked for several years. It called for a mandatory replacement of the crankshaft. At the time of issuances, Lycoming offered a special deal on a crankshaft. Now, as the owner was trying to sell his Mooney he was required to comply with the AD. Long story short, it cost him $50,000 off the selling price he had hoped for, because he had poor inspections in the past.

Another prebuy inspection cost $15,000 to bring the Mooney back to an airworthy condition. This was a Mooney that we had maintained 11 years ago, but the annual "sign-offs" since then failed to maintain its condition. There was no savings over those years, when in the end, the money had to be spent to sell the airplane.

I believe an Annual inspection encompasses both Corrective and Preventive Maintenance, and a Proper Annual saves money in the end. An owner may participate in the Annual Inspection by having the documents in order and completing the Check List, thereby saving the inspector's time and saving you money.

ANNUAL **PAPER WORK / DOCUMENTS/ DATA NEEDED**

Current Tach or Hobbs Time: _____

Log books (all –none missing), POH (current revision #_____) , aircraft "ARROW" documents intact ?

Current Equipment list and Weight and Balance

Last Annual: _____ Tach Time: _____ SMOH:_____ and Major O/H records

ELT battery date: _____ Due:_____ Type: _____

O2 Hydro date: _____ Due:_____ Steel___ Aluminum___ Composite ___

AD list: ADs and reoccurring and important SBs

Total Times for: Engine_____ Propeller:_____ Aircraft: _____

Propeller times since service: _____ Notes: _____

IFR Certification Date: _____ Due:_____

Records of Modifications & Repair 337's & ICAs:

_____

Misc Notes & Discrepancies: _____

This information gives us the information needed to prepare a Preliminary data sheet from which we begin our Annual Inspection.

References:

http://www.mooney.com/wp-content/uploads/2014/03/100_Hour_Annual2007.pdf
http://www.faa.gov/regulations_policies/airworthiness_directives/search/?q=mooney+m20j
http://www.lasar.com/sales/checklist.asp

Monterey, CA

by Linda Corman

A couple of years ago, Phil and I decided to fly to Monterey for a New Year celebration. We love Monterey and Carmel and we can easily fly to these places. Monterey is an amazing place to visit at any time of year. New Years is a special time in Monterey as they have a home town celebration every year's end called "First Night". They clear Alvarado Street and set up booths with food and live music bands of every genre on each block. They also have a quaint parade with groups of many nationalities and clubs that walk the street and perform for the crowd. Of course, come midnight, the drummers take over in the street, which can be heard for blocks away.

We stayed at a cute Victorian hotel on Alvarado Street called the **Monterey Hotel**. This hotel is a step back in time with elegant Victorian rooms; some with fireplaces. We decided to go at the last minute, so we got a corner room on the top floor. It was small but still nice. The only downside to the room is that the walls are very thin and you can hear people walking up and down the stairs as well as voices in the hallways. The hotel is located in the heart of the city, so it is close to all the main attractions. Not needing to drive our car on New Year's Eve was a definite plus, but the location of this hotel is also good year round, with easy walking access to shopping, the Wharf, and Cannery Row. We tried a couple of restaurants in the immediate area and one I really enjoyed was an Italian place called **Cibo**. This place has received numerous awards, including Best Italian and Best Place for Jazz. Also, for those who enjoy cocktails, they have an extensive range of wines and creative cocktails to complement your dinner.

When one speaks about Monterey, one thinks Cannery Row and Fisherman's Wharf. These are wonderful places to visit and we always like walking from the wharf to Cannery Row. The walk along the shoreline is beautiful and well maintained. You will occasionally need to get out of the way of bicycles, but it is half the fun of the walk. All along the path you can see sea lions basking on the beaches and swimming in the surf. The entire walkway winds along the ocean and you can see sailing and fishing boats in the bay.

There are restaurants located on Fisherman's Wharf and Cannery Row and there are just too many to mention. However, I have a couple of favorites. One is the **Gilberts** on Fisherman's Wharf, with lovely views out the windows onto the bay. The fish is fresh. That's because they are located where the commercial fishing boats come in and they are right on hand to fling the fish from the boat onto the grill. Another favorite is at the end of the waterfront walk, past Cannery Row, called the **Chart House**. This restaurant has been around for a very long time and just recently went through a remodel. It is a bit pricey, but the food is great. In the area of Cannery Row, one block back from the ocean front is the **Sardine Factory** restaurant. This is a place to go for dinner and if you are quick enough you can get a table in front of the fireplace. This place is romantic and the wait staff is very formal and makes you feel like you are having a special experience.

Enough about food, as almost anywhere you go the food is outstanding. One of the primary reasons we like to take friends to Monterey is, of course, the Monterey Bay Aquarium. The aquarium is located along Cannery Row and during the summer months, the tourists descend on it. Depending on the time of year, to avoid the long lines, you may need to get your tickets online. If you have never been to the aquarium, it is the premier place to see the type of marine life that is abundant in the bay. I love looking at the jellyfish. They are so surreal in a huge tank with glass walls, that are almost invisible. It looks like art in motion. I also love watching the playful sea otters on display. This is an amazing place that should not be missed.

One of my favorite things to do is shopping. Cannery Row is a fun place to pick up local artists' works and lovely wine. It is however, not a good place to shop for clothing. Cannery Row caters to tourists who are looking for trinkets to take home to show that they've been there, done that.

For the best shopping, drive to Carmel and Pacific Grove; only 5 minutes away. They are both worth visiting. Also, Seventeen Mile Drive, Pebble Beach Golf Course and the Carmel Mission are located a short drive down the coast. These are, however topics for future articles, so I won't bore you with them right now.

If you can, celebrate New Years in Monterey. We had a great time with the small town feel and the friendly, happy revelers, all within walking distance to our hotel. The weather in Monterey is sunny and pleasant on the last day of December and the first day of January.

Getting to Monterey is easy and fun, especially in a Mooney.

Flying There

Although **KMRY** is a Class C airport, it is very simple to arrive VFR. There is not much traffic and the tower is most helpful.

We use Del Monte Aviation as they treat us Mooneys well. There is a free courtesy car as well.

Eating

Italian: **Cibo**

Seafood: **Sardine Factory**

Seafood: **Gilberts**

Seafood: **Chart House**

In Carmel

The Forge for lunch or dinner, inside or outside

The Hogsbreath, previously owned by Clint Eastwood, has great steaks and indoor or outdoor seating.

Things to Do

Monterey Aquarium, This is perhaps one of the best in the country.

Seventeen Mile Drive, This is the classic drive to take while visiting the area. There is a fee, but well worth it, taking you along the water, past cypress trees, and ending at Pebble Beach.

Point Lobos, This is a state park with many easy trails along the cliffs, through the woods, along the water. It is classic California and lots of marine life to view.

Carmel Mission, One of 21 missions in California; very historic and quite beautiful.

Big Sur is about 30 miles down the coast with stunning beaches, mountains, and hiking or strolling

Mooneys to the North Carolina Mountains

by Robert Belville

When **Randy Bruinsma** bought N201AT, a beautiful '78 M20J with a Lopresti cowl STC, it brought the number of Mooneys based at KMRN up to 5! One of those was a M20J belonging to **Lee Layton** (N918TH), who suggested we ought to host a Fly In for Mooneys. Randy, **Gary Jensen** (N700CR), and **Buddy Shelton** (N1967F), said they'd help, so we talked to the Manager of our airport, Foothill Regional Airport, KMRN, *(http://foothillsairport.com)* **Brent Brinkley,** a CFI and an A&P who is native to the area, was very encouraging, even enthusiastic. We quickly started working on the date, with winter not far away. Realizing that Mooney Summit and the regional AOPA Fly In @ KSSI would be conflicts, we settled for November 15. It wasn't perfect for everyone, but doable for all but Lee, who would be out of the state that weekend.

The details came together quickly and rather easily. Brent committed to providing lunch and meeting facilities, projection equipment, chairs and personnel. KMRN is jointly owned by four government entities: the two counties it sits on the border of, (Burke and Caldwell), along with the two county seat "cities", Morganton and Lenoir. The Foothills Regional Airport board is very supportive of General Aviation. Foothills, with a well maintained 5500' runway and a broad ramp is a favorite access for jets and turbos visiting the local business, NC State government facilities, and mountain resorts. We're the closest all-weather airport to popular mountain destinations like Boone and Blowing Rock.

We wanted to offer Mooney owners as many reasons as possible for them to spend a Saturday or even a weekend with us, so Brent contacted our FAAST team Coordinator, **Al Bormuth**, about doing a WINGS workshop. Al quickly agreed and arranged with **Brandon NeSmith**, owner of Table Rock Aviation *(http://tablerockaviation.com)* and a highly regarded pilot/instructor with a lot of Mooney experience, to do a workshop on Emergency Procedures in our Mooneys. I contacted my aviation insurance agent, **Eddie Price**, owner of Carolina Aviation Insurance, *(www.carolinainsurance.com/aviation-insurance)* and **Robbie Greer**, owner of Twin Lakes Avionics *(www.greeraerospace.com)*, and asked them to make presentations on their specialties. These topics would be of interest to all Mooney owners.

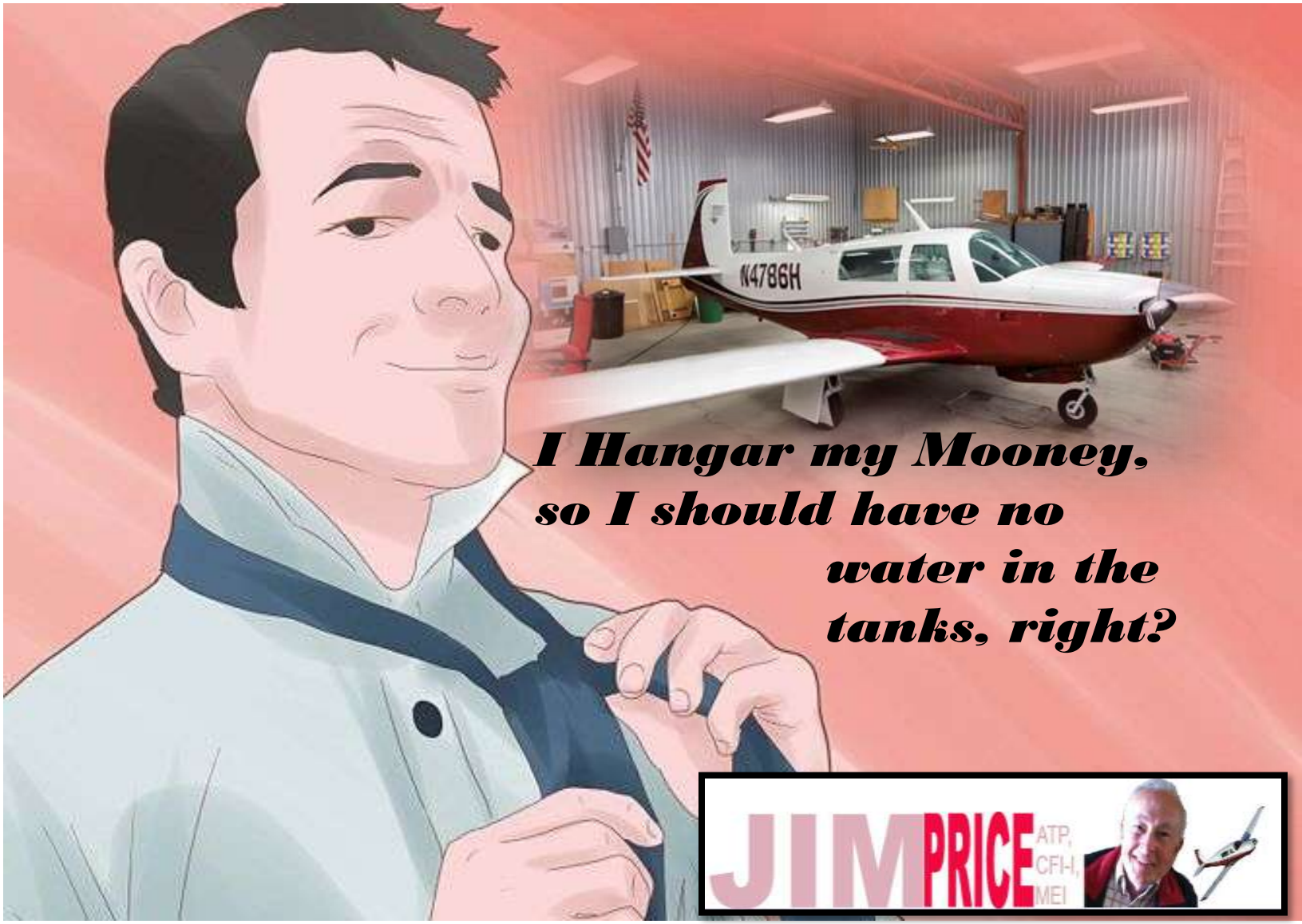
We were a go! But we had more to do to make a visit attractive. Gary offered a great room rate at his beautiful resort hotel in Little Switzerland, up on the Blue Ridge Parkway. The Inn is about an hour away, so Gary agreed to provide transportation to and from the airport. We hoped these attractions would encourage the spouses to come.

MooneySpace, MAPA, Mooney Flyer, Mooney Ambassadors, 4 Mooney Facebook Groups, SouthEast Mooney Pilots, and mailings to Mooney owners, all helped to get the word out. **Bill Heybruck** and **Jeff Schlueter,** who were coordinating the Ambassadors presence @ AOPA-SSI, were involved. **Jolie Lucas** and **Mitch Latting** shared their Mooney Ambassador and Mooney International factory materials. **Mike Elliot,** who had his plate quite full with the wonderful Mooney Summit, was very supportive and was disappointed he could not come from Tarpon Springs.

Everything was set except sweating out the weather. We figured most of the folks who were coming would not want to deal with IFR conditions, so when the week of the Fly In came and the forecast was looking great, we were relieved. The sun came up Saturday morning and we were delighted with Carolina Blue skies and not a cloud to be seen. It was cold, but that just gives an airplane eye popping climb rates. The first arrivals came in Friday afternoon from Edenton, NC and Toccoa, GA and headed up to the mountains for fun evenings. By 10:00 A.M. Saturday morning, those gorgeous tails started swinging into the downwind and were shortly on our ramp. The winds were so calm, that the first arrivals were on runway 3, but the 2 knots were favoring 21 for most of the day. Brett brought in 3 of his line staff, reduced his fuel price, and soon Mooneys were arranged in a very attractive circle around the ramp; all facing each other. Jeff's 2006 M20R from KPDK was the newest long body, but Larry Starr's 1960 M20A from KVUJ might have been the most popular. The 54 year old wood wing, metal tail bird complete with curtains in the windows was just wonderful to behold.

By 11:30 A.M., almost everyone had arrived and we were treated to a BBQ lunch from Smokin' Hogs in Lenoir, courtesy of Foothills Regional. Shortly after noon, we started our workshops and people were torn away from their ramp tours and what Mimi calls "Mooneyakking". Eddie started with a presentation featuring a special booklet that he had prepared, covering insurance, claims, etc. Brandon did a great job customizing a WINGS PP presentation on emergencies, zeroing in on Mooney specific issues. Robbie brought lots of avionics literature and discussed current choices and prospects for new ADS-B solutions and the subtleties of on board traffic information. The participants had high praise for all.

By about 3:00, goodbyes were being exchanged and hopes for next year were being expressed. Thanks guys, especially Al, Brandon, Robbie, Eddie, and Gary. And, a special thank you to Brent and his staff for all the hard work, done with a smile.



Once in a while I find an aircraft accident that, although not having any Mooney ties, grabs my attention. I must admit, that I am guilty of thinking that because my aircraft is hangared in the beautiful and dry Valley of the Sun, that I need not drain the tank sumps after every refueling and before every first flight of the day. With this article, I hereby repent of this notion. If you too are guilty of not sampling fuel as directed in the POH, I encourage you to reconsider your preflight and post refueling procedures.

The day is November 13th, 2012 and the Piper Cherokee Six hasn't flown since September 3rd – over two months. This airplane has been stored in a hangar in Jackson, MS (JAN) with its fuel tanks at half full. During the past two months, there have been varying temperature conditions.
The ATP rated pilot and CFI is planning to fly himself and two passengers to an FAA Safety Seminar in Raymond, MS (JVW). The seminar starts at 4:30 pm.
The airplane has been pulled out of its hangar and the fuel truck has topped off the tanks.

It's shortly before 5:00 pm, and Civil Air Patrol, Mississippi Wing members Col. John E. Tilton Jr., 65, Lt. Col. David Williams, 69, and Capt. William C. Young, 78, have just arrived at the airport.


CAP Colonel John E. Tilton


CAP Colonel David Williams


CAP Captain William C. Young

The ATP rated Pilot in Command, CAP Colonel John Tilton, performs a preflight inspection, which the manager of the hangar facility characterizes as “real quick.”

A lineman observes the pilot in a position to reach the fuel strainer valve, but he does not see the pilot sump the main fuel tanks. When the lineman drives by the airplane, he sees a puddle, about one foot in diameter, on the tarmac beneath the fuel strainer. However, he doesn’t see anything under either main fuel tank drain.
The lineman, just glancing at the Cherokee Six, notes that the airplane's right tire is low. However, he’s busy and before he can inform the ATP, he sees the airplane start up and taxi away.

The lineman advises the FBO manager of the underinflated tire, who then watches the airplane during the run-up, and also the takeoff, just in case assistance is needed.
The engine run-up is much quicker than usual and then Colonel Tilton taxies onto runway 16, applying power for takeoff. The airplane lifts off and climbs. The FBO personnel agree that the engine sounds "normal, real strong."

About two minutes after takeoff, Colonel Tilton reports an “engine problem” to air traffic control and turns back toward the airport.
The Cherokee descends at a steep angle, consistent with a stall and crashes into a house near the airport, where both the house and airplane burn.

The post-accident examination

When the fuel flow divider was opened, water was found in it. This most likely caused the loss of engine power.
Could Water Rain Water Seep through the Fuel Cap?
Not likely, because the airplane was stored in a hangar.
Could it have been Water from the Fuel Truck?
Not likely. According to the manager of the FBO, the fuel truck was sumped daily.

A fuel sample was taken from the truck after the accident by FBO personnel within 20 minutes of the accident, examined, and found to contain no water, debris or other anomalies. Also, on the day of the accident, five airplanes received fuel from the same truck before the accident airplane, with no reports of any performance problems.

Condensation

Investigators determined that it was more likely that condensation occurred in the half-filled fuel tanks during the previous two months that the airplane was sitting in the hangar under varying temperature conditions. There was not enough evidence to determine whether the pilot actually drained each main tank to ensure that all of the water was removed. It is likely that the pilot either did not sufficiently drain the main fuel tanks or that he was relying on draining the main fuel tanks through the fuel strainer and fuel lines and did not sufficiently drain them all. Given witness statements indicating that the pilot was in a hurry and his oversight of the under-inflated tire, it is likely that the preflight inspection was inadequate, which resulted in his failure to notice the fuel tank condensation.
Probable cause: The pilot's inadequate preflight inspection, which resulted in his failure to note the water in the fuel tank due to condensation, which subsequently shut down the engine in flight.
NTSB Identification: ERA13FA055

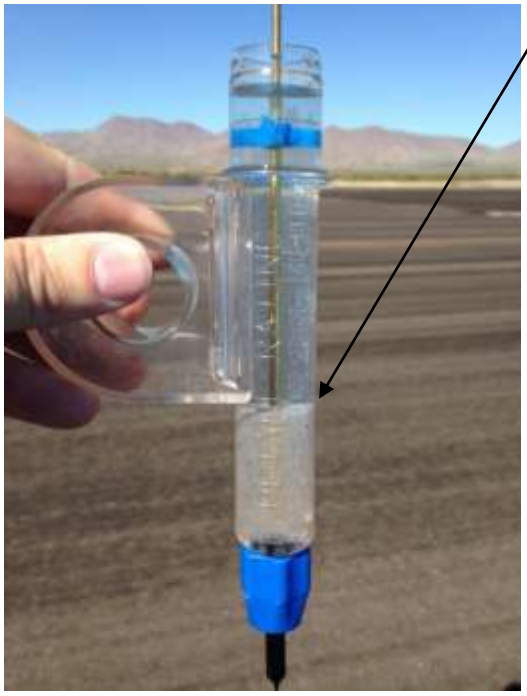
Your Mooney

There are sump drains at the lowest point in each tank. This is where fuel samples are taken to check for sediment contamination or an accumulation of condensed water.
Above 8,000 feet, standard temps are below freezing. It is possible that, at freezing temperatures, condensed water in the lines will freeze and cause fuel starvation.
The gascolator drains the tank selected by the fuel selector valve and drains condensed water and sediment from the lowest point in the fuel lines.

BEFORE THE FIRST FLIGHT OF THE DAY AND AFTER EACH REFUELING

Drain the gascolator and take fuel samples from the wings. If you have just refueled, wait five minutes to allow sediment and water to settle in the tank and the fuel selector valve drain before draining and sampling.

If Water is in Your Fuel . . .



a distinct line, separating the water from the gasoline will be seen through the transparent fuel sample cup. Because water is heavier, it will settle to the bottom of the cup, while the colored fuel will remain on top. You should continue taking fuel samples until all water is purged from the tank.

I have promised myself that I will check the tanks every flight and after each refueling. If I "go down", I hope the probable cause won't be attributed to a lazy preflight.

Fly Safe, Jim

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December 13, Punta Gorda (PGD)

January 10, Leesburg, (LEE). The local EAA chapter will cook lunch for us like last year. Then, after lunch, we will transport everyone who is interested, to and from our house to see Ruth's Garden RR operation. She has about 1,000 feet of G gauge track, and if all goes well we should be running 6 to 8 model trains.

Fort Myers, FL February 6-8, 2015
Santa Maria, CA April 24 -26, 2015
Chattanooga, TN June 5-7, 2015
Atlantic City, NJ September 11-13, 2015
Fort Worth, TX October 23-25, 2015

Send your questions for Tom to TheMooneyFlyer@gmail.com

Q1: What makes it so difficult when "rigging" the landing gear on a Mooney?

There are some common items on all Mooney landing gear. The gear shock discs, (biscuits) will eventually require replacement on all models. They get hard after time and will not expand, or the opposite will occur and they will become "crunched", and have excessive free play. Both can cause extra wear on the gear and possibly contributing to fuel leaks, etc. Then we have to deal with two systems: Johnson bar (manual) and electrical. The electrical systems started in 1978 and are divided between Dukes/ITT actuators and the Avionics Products, Eatons, etc.. The manual gear is pretty simple and the locking is done by the gear handle. There are adjustments to make sure that the gear is completely retracted/extends properly and as easy as possible and that the warning lights work as designed. The main point to inspect is the up lock mechanism. The handle will wear into the up lock where it can come loose on landing or even during taxi, causing the gear to collapse. When it comes to the electric gear, it is much more involved. On some models, there are gear airspeed safety switches, squat switches, up and down limit switches, a gear lever, throttle switches, etc.

There are no *uplocks* on the Mooney electric gear. The gear is preloaded to hold the retraction system "over center". We check the preloads on Annual Inspection. Because the gear is operated by a tube mechanism there are many rod ends to wear and check at Annual. Next, are the different gear actuators. Those with Dukes and ITTs have gear wear that is a continual problem, with a visual inspection required every 200 hundred hours. Next, are the Avionics Products, Vickers, and Eatons, which have a recommended 1000 hr. time change of the no-back clutch spring. This also applies to the Plessey Actuator, but the spring has been declared obsolete, so this makes the actuator virtually obsolete. What is a no-back clutch spring? It connects the input and output gears inside the actuator so that when the gear is up and power to the actuator is off, the spring prevents the gears from turning backwards. Hence "no-back clutch spring". When it slips, the up switch will turn the motor on and bring the gear back up. If you cut off power, the gear drops again and you have continuing cycling of the gear.

Q2: What does it take to become an MSC? What is the difference between an MSC or a good Independent shop.

I became an MSC 35 years ago and renewed ever since, so I don't have the answer.We'll leave that to Stacy at the factory. There are many good independent shops. The best ones call me for help on mainly the landing gear systems. The landing gear, flight control system, stabilizer trim and fuel systems are really Mooney specialty items.

It is interesting that I do get a lot of calls on engines installed in Mooneys. To me, they are just another engine and the only one that is really peculiar to the Mooney is the TIO-540-AF1B in the Bravo. The "B" is where the name "Bravo" came from, and the TLS stands for Turbo Lycoming Sabre.

Alternative Fuels UPDATE - Some of this may surprise you

by Phil Corman

As many of our readers know, Phase 1 Testing of replacements for 100LL have begun. These include alternatives from Shell, TOTAL, and two (2) from Swift Fuels. If all goes well for the FAA certification, a fuel will be selected by 2018. But that does not mean you will be buying this fuel in 2018. The FAA then has 5 more years before this fuel is selling at an FBO near you. This translates to 2023. By my arithmetic, that is 8 years from now. So there will be a lot of talk, but we will continue to burn 100LL for a while, if not indefinitely. Here's another tidbit that you may not be aware of. At the time of certification by the FAA, the fuel that could be used in each aircraft is specifically named in the Data Type Certificate. The FAA will have to "blanket certify" all of the aircraft previously approved for 80, 100, and 100LL AvGas. This will be a first for the FAA. That's a lot of certifications and to our knowledge, the FAA has never done this before. So there are a lot of variables in this equation.

Says Dan, "Our engines actually run better on unleaded, with no lead buildup or fouling." It should also be noted that in the entire world, only Innospec makes the Tetra Ethel Lead (TEL), which is a separate and real concern.

Regardless of the fuel selected, here is the part that AOPA and the FAA have been NORDO on; the likely cost of the alternative. We spoke with **Dan DeMeo, Rabbit Aviation** in San Carlos, CA (KSQL). He gave us a background on this. A barrel of oil is 42 gallons. Years ago when most oil was "sweeter", a refinery could yield 8-10 gallons of base alkalyte, the majority component of AvGas. As crude has become more noticeably "sour", today's yield is 7-9 gallons. As we move to these alternative fuels, a higher quality of base alkalyte will be required to make 100 octane fuel without lead. A refinery may yield only 3-4 gallons of the higher quality base alkalyte per 42 gallon barrel of crude oil. From this observation, it seems clear that the fuel must be more costly, and probably by a significant amount. This lower yield does not take into account the super additive packages that must be added to this lower yield. It is not unreasonable to expect that the alternative fuel will cost $1.50 - $3.00 more than 100LL, based on cost alone. Several years ago, Swift told folks at Oshkosh that their expectation was around $10/gal. Hopefully that is no longer true. But what is true is that the FAA-selected fuel seems to be headed for a significantly higher price.

Dan recently started selling an unleaded MoGas at KSQL which is a 92AKI Octane MoGas without the Ethanol. The fuel is refined, stored, and shipped separately from other petroleum products just like 100LL, and is quality controlled just like 100LL at Rabbit Aviation. Other industries have used this is fuel as well, such as marine, Motorsports, and the US Military. Only about 65% of existing airplanes/engines can utilize this fuel, and they need an STC from EAA or Petersen in order for Rabbit Aviation to fill their tanks with this fuel. Dan's goal is to provide this proven fuel for $1.00/gal less than 100LL. At today's AvGas price, that would be just under $4 a gallon. This will be a boon to many GA pilots and especially Training Schools, since most C-152s/C172s and the likes can burn this less expensive fuel. Pilots love it, the County loves it, environmentalists love it, and it's less expensive; a winning proposition.

Hjelmco Oil

This is the fuel alternative that you have probably not heard, or know much about. It's a Swedish company that makes a fuel that practically 90% of existing GA piston aircraft could use today. But you won't read much about this in the USA.

We don't know what engineering would have to take place to make this fuel usable in 100% of the existing GA fleet. We plan to find out.

Here's a story: If you buy a new C172 in the USA, it informs you that 100LL is certified. If you buy the exact same C172 in say, Germany, the POH indicates 100LL or Hjelmco 91/96 UL. Here's another data point. The TBO for that engine goes from 2000 hrs to 3000 hrs.

CLICK HERE to read about Hjelmco.

December, 2014

Aviation Custom Carts from Pilot Mall

PilotMall has launched its new line of Aviation Custom Carts, electric vehicles optimized for FBO, airport and airpark use.

The line includes aviation-themed four-seat "California Custom Roadsters" (reminiscent of 1950s "Hot Rods") and eight-seat "Estate" versions modeled on the GM Hummer H-3 or Cadillac Escalade.

FBOs and flight departments can use the carts for passenger transport, baggage hauling and general ramp duties. **Both versions are street-legal**, meeting DOT and NHTSA standards as Neighborhood Electric Vehicles (NEV)

The lineup highlights aviation-themed paint schemes by artist Gary Velasco.

The vehicles also boast standard automotive headlamps, brake lights, turn signals, horn and conventional speedometer. They come standard with large wheels and tires, four-wheel braking, front disc brakes and independent front suspension, according to PilotMall officials. READ MORE

FltPlan app now works with a variety of ADS-B receivers – but not Status

The free FltPlan Go iPad app now works with five ADS-B (Automatic Dependent Surveillance-Broadcast) receivers**: Sagetech Clarity, Dual XGPS170, Flight Data System's Pathfinder, iLevil AW, and the Sky Radar DX.**

The company plans to add the same ADS-B flexibility to its FltPlan Go Android app in the near future, officials noted. READ MORE

Cruz Tools Introduces Pilot's Tool Kit

CruzTOOLS has entered the general aviation market with the introduction of a tool kit aimed at pilots and aircraft owners. Experienced pilots know they should carry tools, although their selection may be unwieldy or incomplete.

The kit provides the most commonly needed tools and components, including a set of combination wrenches, adjustable wrench, tire pressure gauge, locking pliers, 6-in-1 screwdriver, hex wrenches, and diagonal cutters. The kit also includes a telescopic mirror, cable ties, and 30 feet of aviation-grade safety wire. Retails for $99.95; part number PTK1. A spark plug socket can also be purchased separately using part number ASPS78, $19.95.

CLICK > CATALOG PAGE FOR PILOT'S TOOL KIT

Cruz Tools does not have online ordering, but you can call them toll-free at 888-909-8665 (209-536-0491 outside the USA). They're open Monday through Friday 8am to 5pm Pacific Standard time, and accept major credit cards. Shipping is extra, and California customers will be charged sales tax.

Performance Planning Feature Added To ForeFlight App

The new *ForeFlight Mobile* version (v6.4) released in mid November has added performance-planning capability, cloud-based syncing of aircraft profiles and flight plans, World Aeronautical Charts (WACs) and new recording options using the Stratus 2 ADS-B receiver.

Its performance-planning feature allows users to add details about taxi, takeoff, climb, cruise and descent performance (speed and fuel use). Once the information is entered, the user can then view aircraft performance at various altitudes using ForeFlight's "altitude advisor" feature.

The new cloud sync feature allows pilots to start working with ForeFlight on one device and then continue the flight-planning and filing process on another. As long as both devices are connected to the Internet, profile and planning information is synchronized.

ForeFlight Mobile can record flights, but now the Stratus 2 unit can record flight parameters automatically when its GPS senses aircraft movement. Recording is part of the version 1.6 firmware update for Stratus 2.

CLICK HERE TO LEARN HOW TO UPDATE STRATUS 2 FIRMWARE.

DJI Phantom Drone

With the Holiday Season upon us, we thought we would include a gift that many of our readers might appreciate, a Drone QuadCopter.

The DJI Phantom will appeal to RC enthusiasts, as well as pilots and people wanting to do aerial videography or photography. Because of the complexity associated with multi-rotor aircraft, the Phantom relies on the Naza-M autopilot system. This system uses GPS for navigation and to maintain flight stability. While fully manual operation is possible, most users, especially videographers hoping to get the smoothest possible shoots, will opt for GPS Flight Mode. GPS Mode is an autopilot system that keeps the Quadcopter stable and right-side-up when moving, and holds it in a fixed horizontal and vertical position whenever the controls are released.

The Phantom Quadcopter has two GPS-assisted flight modes for you to choose from. Of the two, GPS Mode is the most automatic. In GPS Mode, the Quadcopter will stop as soon as you release the controls, and will stay hovering at a fixed horizontal and vertical position. This setting is the easiest to fly and is generally preferred for shooting video as the Quadcopter won't drift or be as susceptible to wind gusts.

GPS Attitude Mode, or Attitude Mode, is a more manual flying mode in which the Phantom Quadcopter does not try and maintain a fixed spatial position. When you release the controls it will continue to drift unless friction slows it down, or you stop it. In this mode the Quadcopter will be susceptible to wind gusts.

If the Phantom loses the signal from the controller for any reason, the "return to home" feature will initialize. The aircraft will ascend to 60 feet, then make a straight-line course back to the "home position" specified during GPS calibration. Once home, the Quadcopter will safely descend to the ground and power itself off.

The drone operates on 4 AA batteries, has 6 control channels and works up to 985’ away from the controller. It will fly at 33 fps and climb/descend at 20 fps. It’ll stay aloft for almost 15 minutes before a recharge of the batteries is necessary. Seems like a great toy to us.

CLICK HERE for more information about DJI.

Mooney Instructors Around The Country

Arizona

Jim Price (CFII, MEI, ATP). Chandler, AZ (KCHD). 480-772-1527. Proficiency training and IPCs. Website: www.JDPriceCFI.com

Connecticut

Robert McGuire , Durham, 203-645-2222 cell, rmcguire007@hotmail.com

Winslow Bud Johnson, smgemail@aol.com, 203-348-2356

California

Chuck McGill (Master CFI) located in San Diego, CA 858-451-2742, Master CFI, MAPA PPP Instructor, M20M, M20R, M20TN, Website: Click Here

Don Kaye (Maser CFI) located in Palo Alto, CA, (408)-249-7626, Website: www.DonKaye.com

Geoff Lee, San Martin, 69050@comcast.net

Rodrigo Von Contra, Oakland, (510) 541-7283, Rodrigo@vonconta.com

George Woods, Woodland (O41), (530)-414-1679, , georgemichaelwoods@yahoo.com, Fixed wing CFII, Multi-Engine, Helicopter, Glider & Gyroplane CFI. Owns Mooney Rocket

Florida

Mike Elliott (CFII)Master CFI located in Tarpon Springs, FL, Contact 317-371-4161, Email mike@aviating.com, Quality instrument & commercial instruction, transition training, ownership assistance, plane ferrying

Robert McGuire , Hawthorne, (203) 645-2222, (Dec – Feb), rmcguire007@hotmail.com

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Kansas

John R. Schmidt (COL, USAF, Retired) Fort Leavenworth, Kansas and the Kansas City area. Instrument and commercial instruction, transition training, BFR. (913) 221-4937 jspropilot@att.net

Massachusetts

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New Jersey

Parvez Dara, daraparvez@gmail.com, 732 240 4004

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Jack Napoli, Long Island, kj4kqvh1@yahoo.com, 631-806-4436

A tailwind of 10% of your final approach speed increases your landing distance by 20%; A headwind of 10% decreases landing distance by 20%

Texas

Austin T. Walden, Lubbock & Abilene, Texas 432-788-0216, Email AustinWalden@gmail.com
PhD, Specializing in Models C thru J, www.WaldenAviation.com

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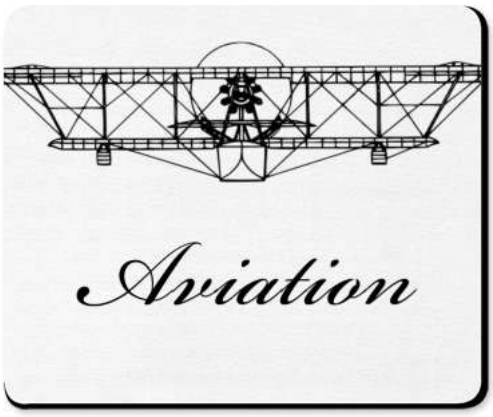

Rule of Thumb: A 10% change in A/C weight will result in a 20% change in T/O distance

LASAR'S Free Site

Check out Lake Aero Styling & Repair's " LASAR" Web Site: www.lasar.com : New under Mooneys for Sale, "List your Mooney for free" and "Mooney Instructors." Also check out Parts, Mods, and Services! LASAR, est. 1975 **(707) 263-0412** e-mail: parts-mods@lasar.com and service@lasar.com

Rule of Thumb: Va decreases 1% for each 2% reduction in gross weight