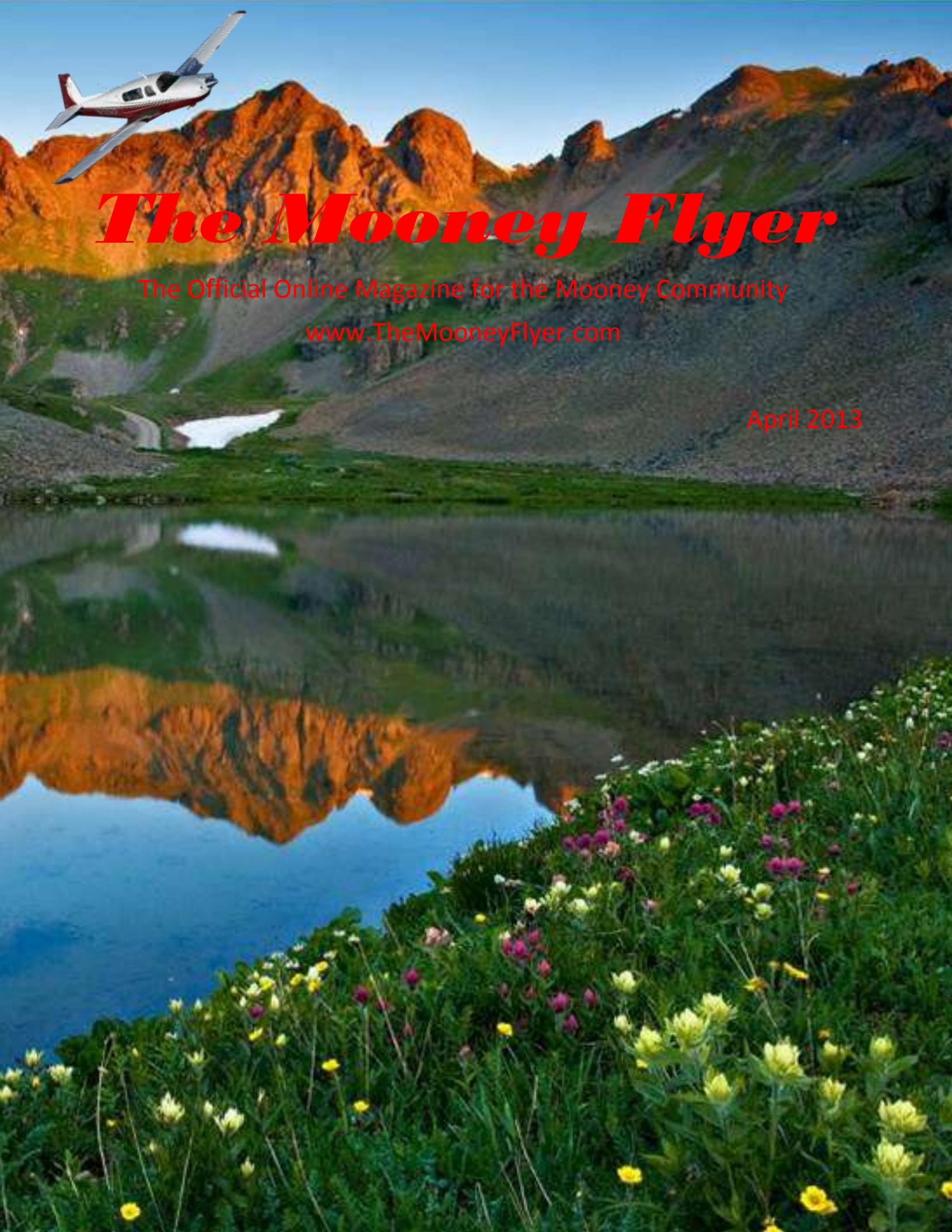


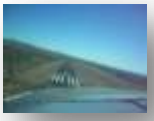
The Mooney Flyer

The Official Online Magazine for the Mooney Community

www.TheMooneyFlyer.com

April 2013

Contents



Features

In Every Issue

Editors
Phil Corman
Jim Price

Contributing Writers
Bob Kromer
Tom Rouch
Paul Loewen
Geoff Lee
Linda Corman

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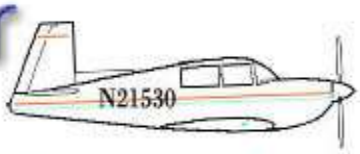
From the Editor

Phil Corman



General Aviation Forecast

I was perusing an FAA forecast for Aviation from 2012-2033 and concentrated on their forecasts for General Aviation. From 2012 to 2033, the general aviation forecast is as follows:

- The general aviation fleet increases from 220,670 aircraft in 2012 to 246,375 in 2033, growing an average of 0.5% a year.
- Fixed-wing turbine aircraft grow at a rate of 2.8% per year, fixed-wing piston aircraft decline at a rate of 0.3% per year, and rotorcraft grow at a rate of 2.7% per year.
- General aviation hours flown are forecast to increase from 24.6M in 2012 to 33.6M in 2033, an average annual growth rate of 1.5% a year.
- Fixed-wing turbine aircraft hours flown grow at a rate of 3.5% per year, fixed-wing piston aircraft hours flown decline at a rate of 0.5% per year, and rotorcraft hours flown grow at a rate of 2.7% per year.

I thought this means that GA is not participating in the growth that most other things will experience over this period. Or it might mean that the FAA doesn't know how to forecast. But there definitely has been a major decline in pilots which can only result in numbers like this, it seems.

ForeFlight vs WingX vs Garmin Pilot

It is fun to read the internet blogs and forums with each pilot having a favorite app. Some pilots use multiple apps to get the advantages of all of them. At a recent seminar, where ForeFlight, WingX and Garmin Pilot had seminars, the following numbers were recorded: Garmin Pilot had 6 attendees, Wing X PRO had 14 attendees, and ForeFlight had 75 attendees. So the early tip of the hat to **ForeFlight**. Click Here for what's new in this amazing release.

The End of an Era – So Long Pacific Flyer!

After 32 years of doing what he loves, Wayman Dunlap has retired the Pacific Flyer. Most of us have picked up monthly copies of this publication for what seems like forever whenever we stopped at an airport. We relied on it for upcoming fly-ins, airshows, and open houses. We relied on it to keep abreast of what was going on in the coming month, or to stay current on various topics and various people. At The Mooney Flyer, we salute Mr. Dunlap for filling our hearts and minds with anything and everything aviation. Thank you sir!

Appraise Your Mooney's Value

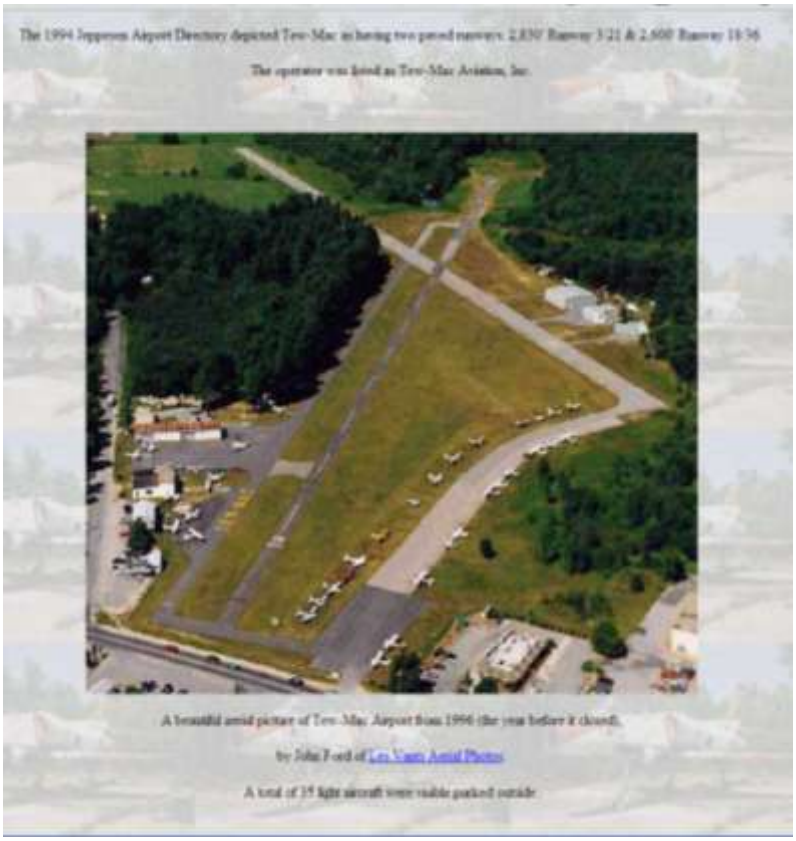
Don't forget about our cool new **Appraise your Mooney's Value** using Jimmy Garrision's valuation. Jimmy is from All American Aircraft, the country's largest Mooney reseller. We have implemented the models for M20C, M20E, M20G, M20F & M20J. Click on your model to simply complete the valuation. You no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

M20C M20E M20G M20F M20J updated September 2012

http://www.airfields-freeman.com/

Abandoned & Little Known Airfields

This website is mostly for the nostalgic Mooney flyer. It is a compilation of airfields that have been abandoned or closed. Airfields are listed by state and then by areas within each state. There are pictures and first hand history in some of the write-ups.



Pictured to the left is Tew-Mac airport, once in a vibrant GA airfield in Tewsksbury, Massachusetts. I landed there while learning to fly, and also gave my first ride to a dad and his son at that airfield. After landing there, I saw this boy and his dad sitting on the fence watching airplanes, mostly Cubs and Aeroncas working the pattern. I walked over and said, wanna go for a ride. It made their day and mine.

That's what this website will do for you. Bring back memories of wonderful things, tinged with their loss.

Just wanted to say how much I enjoy reading the Mooney Flyer ! You are doing a great job!
Richard Bristow

Great Saturday morning reading. Thank you for all you do for the Mooney community.
Ivan

I just wanted to take a note to tell you again how impressed I am with the website and the resources you bring together. I'm starting an Annual today and it was great to review several resources conveniently provided there. I continue to feel that The Mooney Flier is the best publication of its kind.
Robert Hess, M20J / N1071Y

Regarding Flaps when Landing Mooneys in a Crosswind

The February issue of the AMPA Newsletter featured an article recommending partial flap extension in crosswind landings. Different settings were recommended by a US Mooney pilot for light, medium and strong wind conditions. On the next page, Gavin Rutherford was shown landing MIP at Dig Tree airstrip, in Queensland, with half flap extended in what appeared to be a fairly strong crosswind.

I shuddered when I read the account of the landing as it brought back memories of a similar scenario many years ago when I was a young instructor based at Narrogin, in the WA wheatbelt. In those days I had been taught, and it appeared to be general GA practice, that partial flap could be used in gusty crosswind landings.

On this particular day the local hospital matron came out to do some solo in a PA 28 from the long, wide runway 28 at Narrogin. The wind was SW at 20 kts and was gusty. The Piper made the approach at normal airspeed and planned to land with 20 deg of flap. As she rounded out, kicked straight, and was about to do a perfect landing, a strong gust of wind came through (not uncommon in semi-strong crosswinds) and picked the aircraft up, leaving her 10 feet in the air with nothing on the clock.

Being quite experienced (as she owned and flew a Chipmunk) the pilot saw the imminent danger and poured the power on. However, with not enough time for it to have any effect, the aircraft stalled and the nosed pitched down fairly dramatically, impacting the ground and causing extensive damage.

I was quite upset, not to mention the effect it had on the poor matron. I phoned my DCA FOI and mentor, Ron East, and related the incident (accident) to him. He immediately asked what flap setting was used, and when I told him he directed me to teach only two flap settings to be used from that day on: full flap for most landings, including crosswind, or no-flap landings. No in-betweens!

The reason he gave, and we all teach it to this day, is that with partial flap the wing presents a high-lift rather than high-drag situation and when a big gust comes through on landing it can generate a lot of lift and put the pilot in a position that is hard to recover from. This is especially prevalent in crosswinds because the wind blows from the side of the runway and due to surrounding obstacles is usually turbulent and gusty.

So in summary, we teach full flap normally as it presents more drag which, when a gust hits, slows rather than lifts the aircraft. It also results in the lowest safe landing speed. A pilot can elect in extreme conditions to use no flap, provide runway length is not a problem. It will result in a higher landing speed, more control, and will not present a high-lift situation with a gust.

John Douglas, former CFI and acknowledged guru of the Royal Aero Club of Western Australia

I'm a new Mooney owner and have enjoyed reading your publication. I do have a question about something I read in one of your issues. It spoke of keeping the engine 'out of the red box' to prolong engine life.
Bob Patch

Editor: Here are a couple of links.
http://www.avweb.com/news/pelican/182179-1.html,
http://www.avweb.com/news/pelican/182176-1.html,
http://www.avweb.com/news/pelican/182583-1.html.

Hope these help.

Mooneys and Crosswinds

Factory Flight Tests: Crosswind Landing Characteristics

By Bob Kromer
Mooney Factory Engineering Test Pilot 1983-1986
Mooney Executive VP and GM 1986-1991

Introduction

When the wind blows across the runway, we Mooney pilots start asking questions. *"Can my airplane handle this much wind? What crosswind procedure should I use? How about approach airspeed? Flap setting? Might speed brakes help? Do I have enough rudder authority to keep the nose straight in the landing flare? Can my Mooney's landing gear take side loads if I mess up"?*

The good news is each question has an answer, born during the development and certification flight testing conducted on your particular make and model of Mooney. I was fortunate enough to serve as Mooney's engineering test pilot in the 1980's and was directly involved in crosswind landing evaluations on the shorter-fuselage M20J and M20K as well as the first longer-fuselage model, the M20L. I was also able to talk to the test pilots who flew most of the pre-M20J airplanes and learned how they performed crosswind landing tests in those airplanes. In this article, I will share this information. I hope you find it useful.

Crosswinds and Flight Instruction

The topic of this article, crosswind landings, has a couple of slightly different operational techniques that work equally well in your Mooney. Both of these procedures were tested and evaluated on your model Mooney by factory test pilots during development and certification testing. More on that subject will follow, but I will present my personal opinion on which works best for me and what I used when testing the various Mooney models in crosswinds. But to determine which works best for you, find an experienced Mooney instructor and go flying. Those flights will help you develop your own best practices when the wind is blowing "sideways".

The Mooney community is fortunate to have many excellent flight instructors with Mooney type-specific experience and knowledge. They are the best at teaching technique and are an excellent source of gaining crosswind proficiency in your airplane. You should take advantage of this opportunity to learn from some of the best.

Crosswinds and the Certification Regulations

To begin, let's look at the certification regulations related to crosswinds. As thorough as the regulations are for most areas of operation, crosswind landing testing has been one area with limited guidance for the test pilot. Mooneys were originally certified under the old CAR 3 (Civil Aviation Regulations) dating back to the 1930's. There is very little guidance in CAR 3 pertaining to crosswinds. Thus you find little information about them in most of the pre-M20J Owners Manuals.

Today's FAR Part 23 aircraft certification guidance is still a bit limited when it comes to crosswinds. It's difficult to even locate the regulation pertaining to crosswinds. It's buried in FAR 23.233 under "Directional Stability and Control". Here is what that regulation states related to crosswinds:

23.322 Directional stability and control

A 90 degree cross-component of wind velocity, demonstrated to be safe for taxiing, takeoff and landing must be established and must be not less than 0.2 Vso.

That's it. The test pilot goes out on a windy day and conducts numerous landings with all approved landing flap configurations. The test pilot verifies that a direct 90 degree crosswind component *no less* than 0.2 Vso (power off stall speed in the landing configuration) "*does not require particularly skillful or abrupt maneuvers after passing the 50 foot point on the approach and the airplane is satisfactorily controllable*".

Assume a power off stalling speed in the landing configuration of 58 knots. 0.2 X 58 knots = approximately 12 knots. That would be the minimum requirement for a 90 degree crosswind component to be demonstrated in your airplane. In the absence of crosswind information in your Owner's Manual, this can serve as a pretty good guide as the minimum your airplane might handle for a demonstrated crosswind component. But as mentioned earlier, flying with an experienced Mooney instructor will help you determine your own personal crosswind limit. Chances are you'll find your own limit will be a bit higher than 10 knots.

The good news is that most conscientious test pilots at Mooney went beyond the regulations and investigated deeper into crosswind landing characteristics of the airplanes they were certifying. From this testing, I think you will find a common consensus of test pilot opinion that most Mooneys can be operated in 90 degree crosswinds up to 15 knots with an acceptable level of pilot workload. 15-20 knot crosswinds can be handled, but require a much higher level of pilot proficiency and skill in crosswind landing techniques. 20 knots or above, you should consider finding find another airport to land.

Is There a Best Crosswind Landing Technique?

This is an opinionated subject, with some Mooney pilots swearing by "crab on final approach with a transition to a wing-low sideslip on short final" to those who believe the only way is "a sustained wing-low sideslip all the way down final approach". Which one is best?

Sorry to take the middle ground, but factory test pilots for as far back as I have asked and certainly for the testing I conducted evaluated both procedures. We discovered very little difference between the two, so there is no right or wrong answer for your airplane. Get with a flight instructor and try them both, then pick the one that works for you.

With that said, I will offer my opinion. From the testing I conducted, sometimes to the extreme limits of crosswind capability, here is my personal observation:

My opinion is Mooneys seem to require slightly less workload in a crosswind if the pilot flies the initial final approach segment in coordinated flight, wings level, with the nose crabbed into the wind. The amount of nose crab into the crosswind is determined by the need to keep the airplane from drifting off runway centerline. On short final (prior to crossing the runway threshold) at proper airspeed (more about that in a moment) and with all pre-landing checks completed, the airplane is then transitioned to a wing-low sideslip, with the wing banked into the wind to stop any downwind drift off runway centerline and opposite rudder used to as necessary to keep the airplane from turning and to keep the nose

(longitudinal axis) parallel with the ground track down the runway. Touchdown is on the upwind main wheel first followed by touchdown of the downwind main wheel. Nose wheel touchdown follows last with the landing rollout made using nose wheel steering as necessary to maintain runway centerline. Upwind (into the wind) aileron is held throughout the landing rollout as needed.

That's how the previous factory test pilots advised me to best perform crosswind landings. That's how they did them in the "old days" and it's how I did them on the airplanes I tested. And I'm almost certain that's how they were done after I left.

A technique I did not mention is the "crab and kick" method which allows a wings level, coordinated flight crab be held into the crosswind during final approach and in most of the landing flare. At the last instant in the landing flare, the idea is to "kick out" the crab angle with rudder while keeping the wings level, timing that kick so the nose of the airplane is pointing down the runway at the moment of main gear touchdown. This takes great timing on when to "kick" out the crab angle with the rudder and also results in a lot of necessary and simultaneous control wheel input with the aileron and elevator to get the airplane quickly onto the runway before drifting off centerline. Most test pilots I have worked with and talked to do not recommend this procedure. They will say, "Too many variables and simultaneous control inputs required, resulting in excessive skill requirements from the pilot". After evaluating this technique, my opinion is I agree.

The Importance of Proper Approach Airspeed

Flight testing demonstrated proper airspeed control is very important when landing a Mooney in a crosswind. Too slow and the controls get mushy and rudder effectiveness is reduced. Remember, rudder authority is needed to keep the nose from turning into the direction of the wing-low sideslip. Too fast and it can be difficult to get weight on the main wheels during the landing flare, which can result in sideways skidding, scuffed tires and unwanted side loads on the landing gear.

As with all approaches, optimum approach speed in crosswinds with full flaps is 1.3Vso (stall speed in the landing configuration, gear down and flaps full down). That's the number generally shown in the Owner's Manual or Pilot's Operating Handbook. If there is a higher number shown in the POH, use it. If it's gusty, add ½ the gust factor to the approach speed, but no more. Too fast and crosswind landings can become more difficult. A Cessna or Piper might tolerate higher than necessary approach speeds in a crosswind, but a Mooney might not be as forgiving.

Flaps Up or Down in Crosswinds?

The use of flaps is another area where subjective flight testing demonstrated no preferred flap setting in crosswinds. Using no or partial flaps does require an upward adjustment in approach speed (use 1.3 times the stall speed shown in the OM or POH for the flap setting being used). My personal opinion was that partial or no flaps flattened the approach angle to the runway, making it more difficult to see the runway environment over the nose to properly judge drift correction. I personally liked the steeper approach angle and better visibility of the runway environment provided by full flaps when testing Mooneys to their crosswind limits.

While at the factory, we heard some pilots who told of a "bootleg" flap procedure they liked to use in a crosswind. They would execute the approach with full flaps, and then during the landing flare they would retract them before the airplane touched down. The idea was to dump some of the full-flap lift in the flare to get weight onto the main wheels.

My opinion is to avoid this procedure. This takes 1) timing and 2) guts. Timing to know just when in the flare to start the flaps up and guts to avoid grabbing the gear switch (for those airplanes with electric gear) and retracting the gear instead of the flaps. More than one retractable gear pilot has done this, including more than a few Mooney pilots.

Speed Brakes in Crosswinds

I performed the original development and certification testing on the wing mounted speed brakes installed as optional equipment beginning in 1984-1985. These devices proved very popular with those and later model Mooneys. While retracting the flaps is not recommended as a way to dump lift and put more weight on the main wheels during the landing flare in a crosswind, extending the speed brakes could be a convenient way to dump some lift and get weight on the wheels. For those of you who have speed brakes installed, you might try extending them during the landing flare so you can make your own judgment as to their effectiveness. If you do, be prepared for an increased sink rate due to the loss of some wing lift along with an increase in drag. Speed brakes work well in the Mooney.

Rudder Power (Authority)

Airplanes with high levels of rudder authority make the best crosswind airplanes. That's because rudder authority applied opposite the direction of the low wing being held into the crosswind (sideslip) is needed to keep the airplane from turning, aligning the nose (aircraft longitudinal axis) and the ground track both pointed down the runway. More opposite rudder authority allows for a higher bank angle into the wind, resulting in the airplane being able to land in stronger crosswinds.

Our Mooneys have some history here. Ever noticed that some early Mooneys have rudders that extend only down to the horizontal tail while others have rudders that include the area beneath the horizontal tail? The shorter rudder (part number is 46000-3) was installed on all models prior to 1967. Beginning with the M20F Executive in 1967, the larger rudder (part number 460023-000) was installed. This rudder extended below the horizontal tail. Early Mooney test pilots told me the longer rudder design was incorporated for better spin recovery characteristics with an added benefit being more rudder authority for handling crosswind landings. Both good things.

Side Loads and the Landing Gear

While it is true Mooney landing gears are stiff and somewhat lacking in shock absorption compared to Cessna spring gears and Piper oleos, our landing gears are tough. Factory testing proved it takes a mighty strong side load to break or damage a main landing gear in a crosswind. You might skid and flat spot the main gear tires, but if you hear a story of someone damaging a Mooney landing gear in a crosswind, chances are it was grossly abused. There were either excessive side loads imposed due to a huge crab angle on touchdown or there was an extremely hard main gear touchdown associated with the excessive crab angle. I remember having a sore back after some landing tests due to the extremely hard touchdown conditions being evaluated. My back hurt, but the landing gear was fine.

Conclusion

I hope this article included information and insights on the subject of crosswinds you'll find useful in your flying. The Mooney test pilots made sure your airplane met the regulations when your airplane was developed and certified. They worked hard to keep you safe. With crosswinds, you'll need to add to their efforts by flying with an experienced Mooney instructor and discovering your "personal crosswind limit" and "best crosswind landing technique". Thus prepared, you'll be able to keep your head on straight when the surface wind isn't.

Ramp Checks

Most pilots have an over anxious attitude towards FAA Ramp Checks. They are not performed very often, but if you are selected, here are some guidelines.

1. Attitude: Don't panic. Be polite and cooperative. Belligerence will only make it worse. These people are expecting it.

2. Authority of requester: Ask the inspector to present his or her identification for your inspection, and copy the information on it. Inspectors don't wear uniforms.

3. Witnesses: If at all possible, have a witness or two present to observe in case there is some future dispute.

4. Inquire: Unless the information is volunteered, ask why the ramp check is being conducted and what he or she will be inspecting.

5. No warrant is necessary: The inspector doesn't have to have a warrant, however, he or she must observe that you are the pilot.

6. Don't volunteer information: If questioned, cooperate on the basics; your name, show the required documents. (Airworthiness Certificate, Registration, Radio station license (International only), Operating Limitations, Weight and Balance, Current Medical, and Pilot Certificate) only if requested. Do no more. Rambling has fouled many a ramp check.

7. Aircraft inspection not included: The inspector does not have the right to touch or board your aircraft!!!! If he or she is attempting to do so, courteously ask him/her to refrain.

8. Do not retaliate: If you feel you are being harassed, discriminated against, or treated discourteously, keep cool and remain courteous and cooperative. Following the ramp, document everything you saw and heard, having your witness independently do the same. Call your lawyer, and get advice on how to protest. AOPA is a good starting point.

9. Inspectors have no right to confiscate or retain your Pilot Certificate. They can only inspect it. Do not surrender your license. Hold it up for the inspector to see it easily.

10. Continued aircraft operation: Do not allow the inspector to ground you or your airplane based on a ramp check. They have no power to do so. Take the inspector's advice into consideration, but the final decision is yours.

LASAR Supplies New Replacement Mooney Parts

In an effort to fill orders requesting replacement parts, LASAR is steered by “no-supply and demand”. Last year a supply shortage for bushings used in the landing gear and gear retraction system prompted LASAR to manufacture and get FAA approval for these needed parts.

FAA-PMA approval was obtained for all the standard size bushings used in all Mooney models. STC is now being finalized for the same bushings made in an oversize dimension. An STC is required for the oversize bushing because it requires instructions for machining (reaming the worn hole) to accommodate the new dimension and restoring new tolerances, and can be supplied with the correct reamers.

LASAR has years of experience in manufacturing some of these bushings in the nose gear. Initially we made the bushings of hard chrome plated steel, but later abandoned this process and adopted a newer “industry standard” material, aluminum/ nickel/ bronze, for at least 3 good reasons:

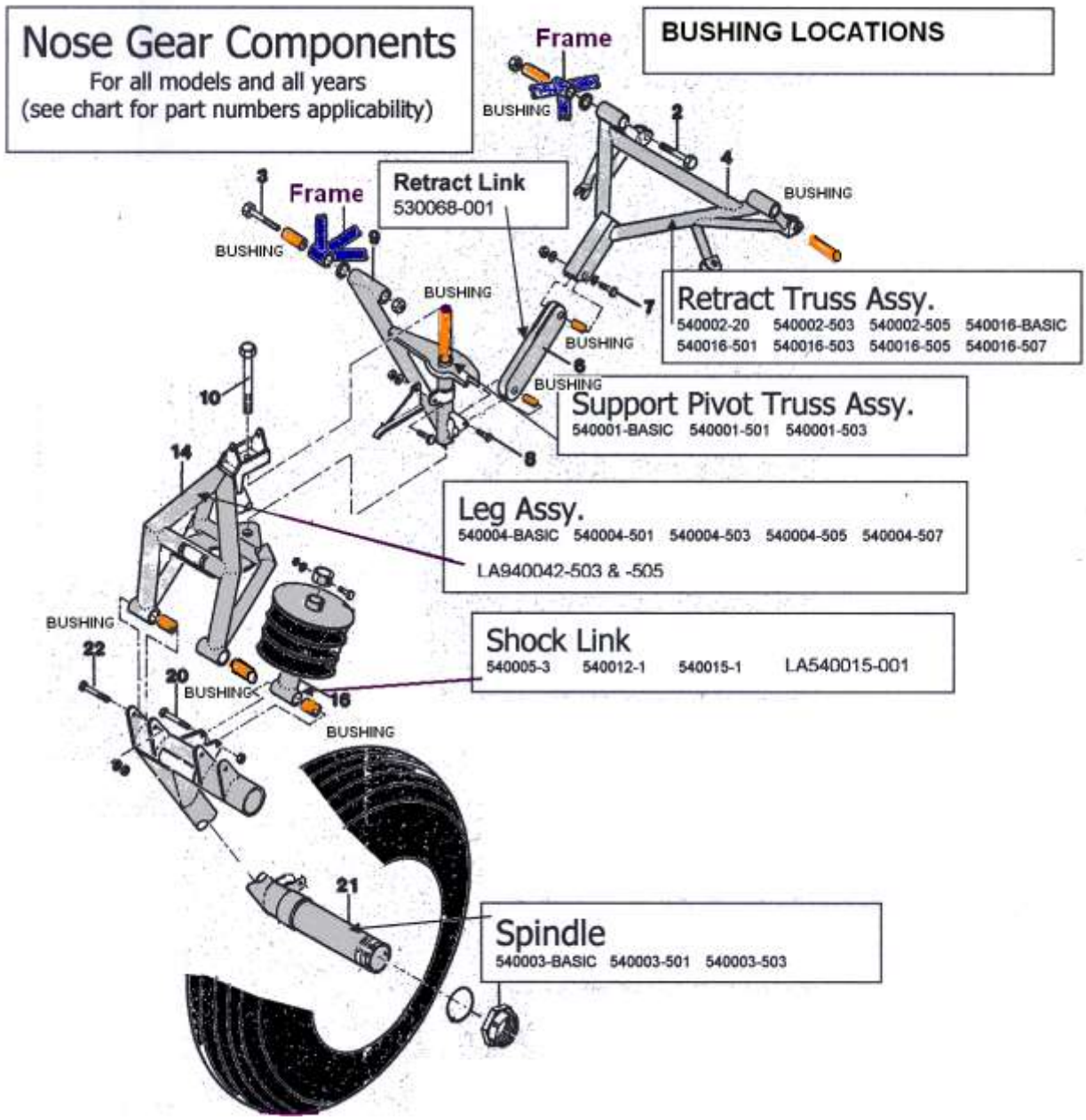
1. The “ANB” is a tougher material
2. Its history shows little or no wear in the steel components where they are used.
3. We need less lead time to supply them because they require only one process to machine the material.

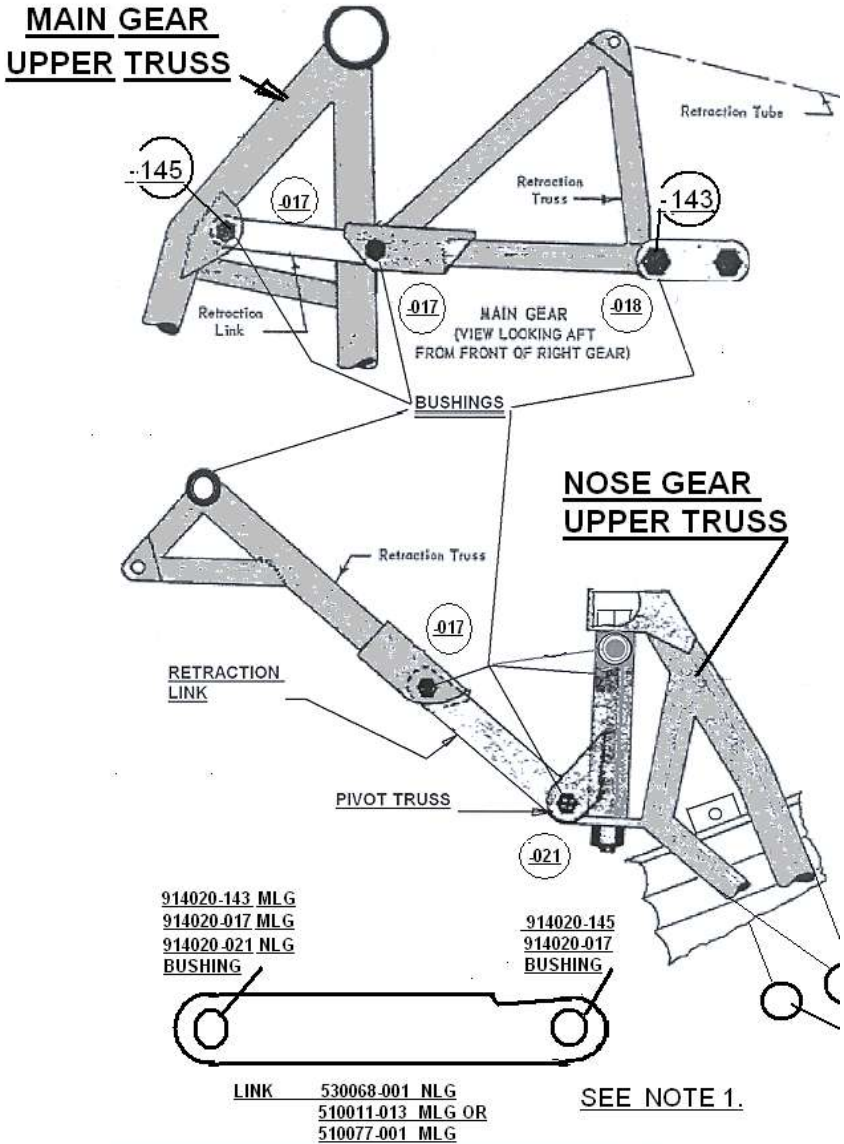
Oversize bushings have never been offered by the Mooney Factory. Reworking a worn part with an oversize bushing is a way to keep that part in service while restoring new tolerances. Reworking old parts has a long history with LASAR. For more than 45 years, LASAR has been repairing the nose gear truss, Johnson bars, rudder torque tubes, and most steel components including engine mounts.

Having a big inventory of used and salvaged Mooney airframe components, LASAR has been restoring many parts made of aluminum, also. Recently LASAR has been restoring control surfaces with new skins, and gear doors that are suitable for repair. LASAR Parts usually sells these components exchange, so that we can provide a continued supply of rebuilt products. The rebuilds are approved under our FAA certified Repair Station status.

We consider our new or rebuilt components to be as good or better than new as failure points are beefed up to be stronger than original.

We are currently rebuilding front seat backs of the earlier models that are prone to break. We’re using a lot of new metal and incorporating our hide-away armrest , headrest and inflatable lumbar cushion..


Nose Gear Components
For all models and all years
(see chart for part numbers applicability)
BUSHING LOCATIONS
Frame
BUSHING
Retract Link
530068-001
Retract Truss Assy.
540002-20 540002-503 540002-505 540016-BASIC
540016-501 540016-503 540016-505 540016-507
Support Pivot Truss Assy.
540001-BASIC 540001-501 540001-503
Leg Assy.
540004-BASIC 540004-501 540004-503 540004-505 540004-507
LA940042-503 & -505
Shock Link
540005-3 540012-1 540015-1 LA540015-001
Spindle
540003-BASIC 540003-501 540003-503


MAIN GEAR
UPPER TRUSS
Retraction Tube
-145
-017
Retraction
Truss
-143
Retraction
Link
-017
MAIN GEAR
(VIEW LOOKING AFT
FROM FRONT OF RIGHT GEAR)
-018
BUSHINGS
NOSE GEAR
UPPER TRUSS
Retraction Truss
-017
RETRACTION
LINK
PIVOT TRUSS
-021
914020-143 MLG
914020-017 MLG
914020-021 NLG
BUSHING
914020-145
914020-017
BUSHING
LINK 530068-001 NLG
510011-013 MLG OR
510077-001 MLG
SEE NOTE 1.

Flying Mooneys Down Under

by Tony Rees

Tony *owns a J model and produces the Australian Mooney Pilots Association newsletter*

The first thing to get straight (and level) concerning flying Mooneys in Australia is that we don't fly upside down. Well, not most of the time.

We land on dirt or gravel more often than not

Our fleet of about 150 Mooneys ranges from Cadet to Acclaim, with the J model accounting for nearly 50 per cent. These are spread across a land mass roughly equivalent to that of the contiguous United States, which is as good a place as any to start explaining how different – yet how similar – aviation here is to flying in the US. Add to that the fact that we have 23 million inhabitants compared with your 320 million and you'll begin to see the differences emerge.

This reflects, of course, in our flying attitudes (see first paragraph) and conditions. Generally speaking our weather is pretty good, barring a long way south in winter and a long way north in summer. Yes, we go from cold to tropical, but nowhere as cold as you guys get. We also have comparatively flat topography – no Rockies, no Appalachians; our only significant bumps are along the Great Dividing Range, which runs down the east coast, peaking at Mt Kosciusko (7,310 ft).

All this means you can plan to fly VFR most of the time and not run into anything. This is probably just as well, because Australia's services to pilots in flight outside controlled airspace – and there's an awful lot of G-space here – are primitive compared with Uncle Sam's. We don't have downloadable weather via XM or ADS-B, and while basic weather forecasts can be requested, controllers have little ability to deal with requests for "actual" weather enroute. Flying in Australia gives new meaning to flight planning; airports tend to be few and far between and fuel services are sketchy at times. Locals know that it is essential to call in advance about fuel availability. Traffic also deserves a mention. Unlike busy airports in the USA such as Van Nuys where airplanes line up to land (in two patterns) stretching across the entire San Fernando Valley, Australian controllers tend to feel things are very busy when there are more than a few aircraft in the circuit. Most Mooney drivers in the US wouldn't think of operating their birds on unimproved strips. Here it is more the norm. These planes are tougher than many think, though one always needs to think about that prop!

On the other hand, we do have a lot of country to fly over and, if you choose carefully, some wonderful sights to see. Apart from the obvious, such as Sydney – one of the world's most beautiful cities – you will find breathtaking scenery and wildlife in Kakadu National Park and the Kimberley, in the nation's north; towering karri trees to rival California's redwoods in the south-west; dense, fabulous rainforest in the north-east; some of the world's most spectacular wilderness in island Tasmania; more top-class wine than you can shake a glass at in the south; and, in the middle, the second-biggest rock on the planet, Uluru (the biggest, Mt Augustus, is in Western Australia).

But I digress. This is not meant to be a travelogue – Google is a much better guide than I could ever be. Flying between these and other points of interest is fairly easy for the most part. Provided you stay clear of CTA and restricted areas, and below 10,000 ft (Flight Levels above this) unless you carry oxygen (up to a maximum 20,000 VFR if you do), you can go pretty well where you like. Below 5000 ft you can fly at any level you choose; above that, stick to VFR hemispherical. You don't even have to turn your radio on below 5000 ft (with certain minor exceptions), though I wouldn't recommend flying deaf. Flight plans here are optional for private VFR ops outside CTA– instead, you can leave a "flight note" with a "responsible person" with enough information to enable that person to contact the search and rescue people if you don't turn up on time. Transponders are also optional in G airspace, but nonetheless recommended on code 1200.

Regulations here are much as in the US because, in the past, our Civil Aviation Safety Authority more or less mirrored the FAA, which makes sense because America invented flying and almost all our GA fleet is made up of American aircraft. However, this may be about to change for GA operations because CASA has suddenly become infatuated with the appallingly repressive EASA regs that have brought private flying to its knees in Europe. For the moment, don't worry about it.

Flying an Australian-registered aircraft here on a US licence is a doddle. CASA will happily take a pack of your money and issue you with a temporary Australian licence. Strangely, the price increases if the licence includes retractable gear and/or a constant speed prop, though the paperwork simply involves checking a few extra boxes. Unfortunately Australia has outdone the US on security and demands that pilots visiting airports with RPT service (read that translated into American as "commercial operations") display an ASIC card. This is a security check card that can be a bit vexing to obtain, though an outfit in an obscure country town can issue these to visiting pilots if requested far enough in advance (www.aviationidaustralia.com.au). It would be possible to plan a trip around the country without an ASIC, though it would prove more difficult going into some major cities. However, there is every probability that an American pilot showing up in a rental aircraft would be cut some slack. On the other hand, our jails are quite nice too.

Tony Rees (front) and Frank Kotai with their M20J attending a Pilot Safety Program at Jandakot Airport

One of AMPA's members – US citizen Peter Rejto – keeps his N-registered Mooney in Sydney and has indicated that he would possibly consider leasing out his IFR "J" to qualified visitors (prmooney33@gmail.com). Flying an N-registered plane requires no licence conversion. As for finding your way around, anyone contemplating a flying adventure in Australia has a choice of navigation software, for iPad and PC, some with free month-long trials.

Once you've got your head around the above, there's one thing we can promise you in the outback Australian skies: freedom. The chances of banging into another aircraft are about the same as Jupiter taking up orbit in Andromeda. We've had lots of US visitors – Yanks are more than welcome here – and they're all gobsmacked by the huge distances with little in between drinks.

We call it the GAFA, the Great Australian F* All**

We call it the GAFA (the Great Australian F*** All) because we're a laid-back mob and probably a little loose with our language. Still, it gets the feeling across.

You'll know you're in Australia when you've been flying a Mooney all day and nothing much below you has changed except perhaps the colour crossing a coastline; when you land in some one-horse town and have to pay more than $2.60 a litre (nearly $10 a gallon) for Avgas; when people who speak an English dialect say "G'day, mate" even if they don't know you; when someone tells you a koala isn't a bear. This is a place where you can (legally) take off from the coast and fly for 10 hours in a straight line over land without being seen on radar, crossing CTA or having said a word on the radio, even if you could, as much of the route will be outside VHF coverage.

Our air traffic controllers generally aren't as friendly or accommodating as yours, which is a good argument for steering clear of major airports and getting to know the real flying people who congregate – like everywhere else in the world – at smaller, more friendly fields. You'll find the Mooney fraternity particularly easy to get along with – provided you buy everyone a beer. And some of us will even lend you our pride and joy – and our wives, if you like – to go exploring. The Perth-based 1978 J I own in partnership with medico Frank Kotai is available to suitably qualified pilots (tonyrees@iinet.net.au). Wife is extra.

If you're thinking of taking the plunge Down Under, please place a post on the Australian Mooney Pilots Association website (www.mooney.org.au) or get in touch with the president, John Hillard (john@hillard.net.au). We also do a newsletter that contains all manner of interesting stuff about Mooneys (as well as the odd lie and fabrication). You can subscribe to this rag for free by registering on the AMPA website.

They Pioneered America's Aviation Industry

Recently The Mooney Flyer editors came across some first-hand observations from a time when the aviation industry was in its infancy. Denham S. Scott's presented a personal recollection of memories and events to the Aerospace Industries Association (AIA) on March 19, 1968. His words should be included in the study of aviation in America – and the role played by family business entrepreneurs.

Decades before geeks and nerds altered our way of life, young and gutsy aviation pioneers changed the world with wooden sticks, bailing wire, canvas and aluminum.

How many of you know that in 1910, mighty Martin Marietta got its start in an abandoned California church? That's where Glenn L. Martin with his

Back to Table of Contents

amazing mother Minta Martin and their mechanic Roy Beal constructed a fragile biplane that Glenn taught himself to fly. [Ed. Note: On the previous

page, there are newspapers stacked on the lower right wing of the bi-plane. Martin delivered newspapers in order to fund his first plant].

It has often been told how Douglas Aircraft started operations in 1920 in a barbershop's backroom on L.A's Pico Boulevard. Interestingly, the barbershop is still operating.

The Lockheed Company built the first of their famous Vegas' in 1927 inside a building currently used by Victory Cleaners at 1040 Sycamore in Hollywood .

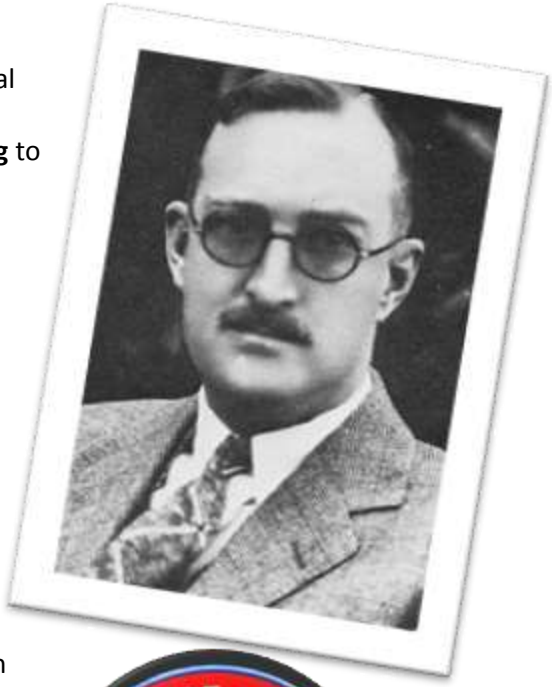
In 1922, Claude Ryan, a 24 year old military reserve pilot, was getting his hair cut in San Diego, when the barber mentioned that the 'town's aviator' was in jail for smuggling Chinese illegal's up from Mexico. Claude found out that if he replaced the pilot 'sitting in the pokey,' that he would be able to lease the town's airfield for $50 a month - BUT he also needed to agree to fly North and East - BUT not South!

Northrop's original location was an obscure Southern California hotel. It was available because the police had raided the hotel and found that its steady residents were money-minded gals entertaining transitory male hotel guests.

Glenn Martin built his first airplane in a vacant church, before he moved to a vacant apricot cannery in Santa Ana . He was a showman and he traveled the county fair and air meet circuit as an exhibitionist aviator From his exhibition proceeds, Glenn was able to pay his factory workers and purchase the necessary wood, linen and wire.

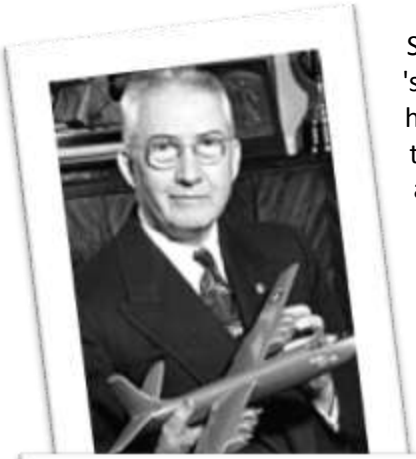
His mother, Minta and two men ran the factory while Glenn risked his neck and gadded about the country. One of his workers was 22-year old **Donald Douglas** (shown at left) [who WAS the entire engineering department]. A Santa Monica youngster named **Larry Bell** (shown at right) [later founded Bell Aircraft which today is Bell Helicopter Textron] ran the shop.

Back to Table of Cont



Another part of Glenn Martin's business was a flying school with several planes based at Griffith Park , and a seaplane operation on the edge of Watts where his instructors taught a rich young man named **Bill Boeing** to fly.

Later, Boeing bought one of Glenn Martin's seaplanes and had it shipped back to his home in Seattle . At this same time, Bill Boeing hired away Glenn's personal mechanic. Later, after Boeing's seaplane crashed in Puget Sound, he placed an order to Martin for replacement parts.



Still chafing from having his best mechanic 'swiped,' [a trick he later often used himself] Martin decided to take his sweet time and allowed Bill Boeing to 'stew' for a while. Bill Boeing wasn't known to be a patient man, so he began fabricating his own aircraft parts, an activity that morphed into constructing entire airplanes and eventually the Boeing Company we know today.

A former small shipyard nicknamed **'Red Barn'** became Boeing Aircraft's first home. Soon, a couple of airplanes were being built inside, each of them having a remarkable resemblance to Glenn Martin's airplanes that, interestingly, had its own remarkable resemblance to Glenn Curtiss' airplanes.

A few years later, when the Great depression intervened and Boeing couldn't sell enough airplanes to pay his bills, he diversified into custom built speed boats and furniture for his wealthy friends.

After WWI, a bunch of sharpies from Wall Street gained control of the Wright Brothers Company in Dayton and the Martin Company in L.A. and 'stuck them' together as the Wright-Martin Company.

Wright-Martin began building an obsolete biplane design with a foreign Hispano-Suiza engine. Angered because he had been outmaneuvered with a bad idea, Martin walked out taking Larry Bell and other key employees with him.

From the deep wallet of a wealthy baseball mogul, Martin was able to establish a new factory. Then his good luck continued, when the future aviation legend Donald Douglas, was persuaded by Glenn to join his team. The Martin MB-1 quickly emerged from the team's efforts and became the Martin Bomber.

Although too late to enter WWI, the Martin Bomber showed its superiority when **Billy Mitchell** used it to sink several captured German battleships and cruisers to prove it's worth. He was later court martialed for his effort.

In Cleveland, a young fellow called **'Dutch' Kindelberger** joined Martin as an engineer. Later, as the leader of North American Aviation, Dutch became justifiably well-known.

Flashing back to 1920, Donald Douglas had saved $60,000, returned to L.A. and rented a barbershop's rear room and loft space in a carpenter's shop nearby.. There he constructed a classic passenger airplane called the Douglas Cloudster.

nts

A couple of years later, Claude Ryan bought the Cloudster and used it to make daily flights between San Diego and Los Angeles. This gave Ryan the distinction of being the first owner/operator of Douglas transports. Claude Ryan later custom built Charles Lindbergh's 'ride' to fame in the flying fuel tank christened: The Spirit of St. Louis .

In 1922, Donald Douglas won a contract from the Navy to build several torpedo carrying aircraft. While driving through Santa Monica's wilderness, Douglas noticed an abandoned, barn-like movie studio. He stopped his roadster and prowled around. That abandoned studio became Douglas Aircraft's first real factory.

With the $120,000 contract in his hand, Donald Douglas could afford to hire one or two more engineers. My brother, Gordon Scott, had been schooled in the little known science of aviation at England 's Fairey Aviation, so he hired Gordon.

My first association with the early aviation pioneers occurred when I paid my brother a visit at his new work place. Gordon was outside on a ladder washing windows. He was the youngest engineer. Windows were dirty. And Douglas Aircraft Company had no money to pay janitors.

Gordon introduced me to a towhead guy called **Jack Northrop**, and another chap named **Jerry Vultee**. Jack Northrop had moved over from Lockheed Aircraft. And all of them worked together on the Douglas Aircraft's world cruiser designs.

While working in his home after work and on weekends, Jack designed a wonderfully advanced streamlined airplane. When **Allan Loughead [Lockheed]** found a wealthy investor willing to finance Northrop's new airplane, he linked up with Allan and together, they leased a Hollywood workshop where they constructed the Lockheed Vega. It turned out to be sensational with its clean lines and high performance. Soon Amelia

Earhart and others flew the Vega and broke many of aviation's world records.

I had the distinct pleasure of spending time with **Ed Heinemann** who later designed the AD, A3D and A4D. He told me how my Dad would fly out to Palmdale with an experimental aircraft they were both working on. They would take it for a few hops and come up with some fixes. After having airframe changes fabricated in a nearby machine shop, they would hop it again to see if they had gotten the desired results. If it worked out, Mr. Heinemann would incorporate the changes on the aircraft's assembly line. No money swapped hands!

In May 1927, **Lindbergh** flew to Paris and triggered a bedlam where everyone was trying to fly everywhere.

Before the first Lockheed Vega was built, William Randolph Hearst had already paid for it and had it entered in an air race from the California Coast to Honolulu.

Send your questions for Tom to TheMooneyFlyer@gmail.com

Should the fuel tanks be kept full and how does most of the water get in tanks?

I feel that the more fuel in the tanks the better, but really half or better should work to keep the sealant "wet"

The big difference is whether the plane is hangared or not. If hangared, I don't believe it really matters how much fuel is in the tanks, but outside in the sun, the more the better, but not full or the pressure will build up and maybe cause a leak in the top panels. Of course, I mean in the summer, like in front of my shop where it might be 110 degrees.

The composition of the sealant itself was changed about 25 years ago so the later models do better and if you have had a reseal, they would have used the newer sealant. I also feel that since the Mooney is really hand built, and the sealant applied by hand, that there are some with a "thinner" coat on some areas.. I know that AD 85-24-03 on the fuel tanks was caused by the factory sealing over drain holes in the bottom of the tank ribs, so human error is also a factor, so some leaks may just be the "luck of the draw".

Water in the tanks is caused 95% by bad fuel cap o-rings or improperly adjusted fuel caps. It's very rare to get water in fuel these days. Condensation could be a factor but also rare.

Short story: I pulled an F model out of a field after the engine quit on takeoff. When we were able to check, we drained almost two quarts of water out of each tank. The o-rings must have been 20 years old. The owner said he drained fuel before takeoff and the samples were clear. He looked at me with a blank stare when I said it should be bluish. He had owned the plane for over ten years. Spend a few bucks and change the o rings every year, and I mean both in each cap.

My electric flaps don't have micro switches. Where are they?

We do talk a lot about the flaps sticking down and tapping or cleaning the micro switches on the actuator in the belly between the flaps. This is more prevalent on the newer models, 1977 and up.

To clarify, there are some Mooney models with electric flaps that don't have any micro switches. These operate with a spring loaded flap switch that you hold in the down position and the flaps stop when you let up on the switch. If you hold the switch too long the motor will keep running and the actuator will just slip on a clutch mechanism.

The year models that don't have switches are mostly 68 through 76. There are many planes that have different updated systems so there may be other years with that system.

Mooney Accidents

What can we Learn?

by Jim Price

On Monday, July 9th, 2012, a Mooney crashed at the Scottsdale Airport (KSDL). This immediately caught my attention because it involved a Mooney and it occurred not far from my home. On February 14, the "probable cause" of the accident was approved by the NTSB.

Bob Littlefield, a CFI since 1973, was instructing the owner of a Mooney M20L, which had been purchased the week before. Try to pick out the irregularities that led to the accident.

What the CFI told the Press

From his hospital bed, Bob Littlefield explained that at 9:30 a.m., they were making their fifth touch-and-go landing. The plane had a hard bounce and Littlefield instructed his student to add power. However, the engine "didn't respond properly" and the plane slid off the runway.

"The engine didn't run up like it's suppose to," Littlefield said. READ THE ARTICLE

What the CFI and Student told the NTSB

On the fifth landing, the pilot flared too high, and the airplane dropped to the runway, landed hard, and bounced into the air. The flight instructor directed the pilot to "go around." The pilot applied power and fully retracted the flaps. (The go-around procedure directs that the pilot is to retract the flaps to the 10 degree position). Both pilots stated that the engine did not respond.

A Video Recording showed that the airplane's altitude was about 30 feet above the ground when it rolled left to a bank angle of about 90 degrees. The left wing tip impacted the runway, and the airplane cart wheeled and came to rest upright about 200 feet left of the runway centerline and in the rocks.

Engine Examination

Post accident examination of the engine revealed that two O-ring seals were installed on each of the engine's six fuel injector nozzles, whereas the engine's maintenance manual called for the installation of only one O-ring seal on each nozzle. However, flow testing showed that placing two O-rings on the nozzles had no effect on the operation of the fuel system.

No other anomalies were found, and the examination and testing indicated that the engine was capable of operating normally and producing its rated horsepower. Further, the damage to the propeller blades was consistent with the engine operating at a mid-range to high power setting at impact. The airplane's left roll to a steep bank angle is consistent with the engine developing power as the airplane enters an aerodynamic stall, which resulted in a torque roll to the left.

Probable Cause

The NTSB found that the the pilot failed to maintain airplane control during an aborted landing, and the flight instructor was late in taking remedial action. Contributing to the accident were the pilot's improper landing flare, which resulted in a bounced landing, and his premature flap retraction while performing a go-around maneuver.

What can we learn?

SAY NO TO A TOUCH 'N GO: If you've ever participated in the MAPA Safety Foundation Mooney Pilot Proficiency Program, you know that touch and go landings are forbidden. Why? Because in a complex aircraft, there's just too many things going on; too many chances to make a mistake during a touch and go. Although a touch and go didn't cause this accident, it's something that you should consider during your next BFR or Wings Flight.

A NEW AIRPLANE: Certainly, after a week of ownership, the pilot would have had some questions about procedures. Suddenly finding himself in a go-around situation, it would be hard to remember one's own name, let alone the power, flap and gear retraction procedure.

NO RUDDER – NO FLAPS: Both the CFI and owner reported that "the engine did not respond. Perhaps the sinking feeling that they felt after the pilot improperly retracted the flaps to UP, produced the sinking sensation and a feeling that the engine was not producing power for the go-around. Certainly you might be frightened enough to pull back on the yoke to compensate for the perceived lack of power. Forgetting the rudder put them 90 degrees to the horizon and exacerbated the stall.

About the M20L ***- In 1988 Mooney partnered with Porsche to include their geared single-lever Porsche PFM 3200 N03 engine of 217 HP (162 kW). They stretched the fuselage to produce the first long body M20. Most M20Ls no longer use this unique engine. M20L production ended in 1990. This model was marketed as the Mooney PFM.***

April 13: Flagler (XFL) High Jackers
May 11: Winter Haven (GIF) Pappy's Grill
June 8: Punta Gorda, (PGD) Skyview Cafe
July 13: Williston (X60) Pyper Kub Cafe
August 10: St. Augustine (SGJ) Fly By Cafe
September 14: Lakeland (LAL) Air Harts Cafe
October 12: Flagler (XFL) High Jackers
November 9: Winter Haven (GIF) Pappy's Grill
December 14: Punta Gorda (PGD) Skyview Cafe
E-mail DaveanRuth@aol.com by Thursday night of the week of the event so we have a headcount for the restaurant on Friday.

April 27: Return to Kerrville (KERV) – Click Here for details
May 18: Morgan Military Aviation Museum at Curtis Field (KBBD) – Click Here for details
June 7-9: Wings to Walla Walla (KALW)– Click Here for details
June 21-23: Gathering of Mooneys at Lake Tahoe (KTVL)
October 5-6: California Capitol Airshow & Mooney Fly-In (KMHR)

April 12-14: SoCal Combined Formation Clinic (KMHV). Email dandtmarten@hotmail.com for details. The session is oriented to introduce and/or polish formation flying at the B2OSH/Mooney Caravan formation level in preparation for Oshkosh with the secondary goal to prepare pilots for advanced formation. For pilots demonstrating readiness, we will introduce them to initial 4 ship procedures. Safety pilots will be available for the initial flights. Both 2-ship and 4-ship training sessions will be scheduled.

Back to Table of Contents

Have You heard the News?

A SUMMARY OF USEFUL AVIATION NEWS

April, 2013

AOPA's flight planner is now FlyQ Web

AOPA's new online flight planner, FlyQ Web™, provides robust and easy-to-use flight planning that automatically syncs with the other members of the AOPA FlyQ family—FlyQ Pocket for iPhone or Android smartphones and FlyQ EFB for iPads—for flight planning, aviation weather, and airport information anytime, anywhere. The old AOPA Internet Flight Planner was retired Feb. 28. READ MORE

What's New in ForeFlight version 4.9?

You can now display your map in "track up" and display all the obstacles. Click HERE for the video

A Total Ban on 121.5 ELT's?

The FCC wants to provide a one-year grandfather period to "enable manufacturers, importers and distributors of 121.5-MHz ELTs to largely avoid any significant economic burden associated with stranded inventory." After that, the FCC would select a specific date to "**prohibit the continued use** of 121.5-MHz ELTs in service."

The Aircraft Electronics Association has said it sees no reason for the manufacture of "obsolete" 121.5-MHz ELT technology. AOPA, meanwhile, has called the FCC's latest action on ELTs a "measured approach." In other words, nobody's really fighting for the lowly 121.5-MHz any longer. READ MORE

See lower fuel prices at nearby FBOs at FlightAware.com

When displaying FBO fuel prices on FlightAware, they now search nearby airports and show prices at FBOs that have lower prices. (AirNav.com shows nearby FBOs if the FBOs pay AirNav). It's FREE and unbiased. CLICK HER E TO CHECK IT OUT or go to FlightAware.com and click on ***Pilot Resources***

Their First Contract with an Air Carrier

As part of its EFB program, Denver, Colo.-based Frontier said it has entered a partnership with ForeFlight, of Houston, Texas, "to provide pilots with supplemental weather information and Notices to Airmen through ForeFlight's mobile application."

ForeFlight also provides service to the U.S. Coast Guard, Drug Enforcement Agency, NASA, Customs and Border Protection, and numerous state and federal aviation departments. READ MORE

Product Review Showdown: *ForeFlight vs. Garmin Pilot vs. WingX Pro*

By Jim Price

PLAN COMPARISON

Each app works the same way: download the free app and then buy an annual subscription:

- **ForeFlight**–$74.99/year for the Basic package, which includes all charts for the entire US (sectionals, IFR hi/lo en route, approach plates, A/FD pages). The Pro package, $149.99, includes everything from the Basic package, and adds geo-referenced approach plates and airport diagrams (shows your airplane on the map, when GPS is available). As of **Version 5**, Pro also includes Hazard Advisor which shows the terrain **yellow** when you are within 1000' and **red** when you are within 100' or less. Note that both plans show your airplane on sectionals and IFR en route charts–the Pro only adds geo-referencing to approach plates and airport diagrams. There's also an option for Canadian IFR en route charts and approach plates, which is an additional $149.99.
- **Garmin Pilot** –This is structured much like ForeFlight, with a $99.99 standard subscription plan that includes all charts, and a $149.99 Pro plan that adds geo-referenced approach plates and taxiway diagrams.
- **WingX Pro** –The base $99.99/year package includes all charts, plus terrain and geo-referenced airport diagrams. The $174.99/year package adds geo-referenced approach charts. For an additional $99.95/year, WingX adds Synthetic Vision. If you want fuel prices (from 100LL.com and accessible in flight) that's another $29.95/year. For $299.99/year you can get it all.

GENERAL EVALUATION – PLUS AND MINUS

FOREFLIGHT – Works with iPad and iPhone only

PLUS: DUATS briefing and flight plan filing. ForeFlight has QICP certification, which means it can be an approved source of weather for commercial operators. ForeFlight integrates airport information and FBO data from the Federal Aviation Administration, AOPA, and Universal Weather and Aviation. In addition, it features the A/FD. **MINUS:** The icing display shows only the maximum icing potential.

WINGX PRO – Supports both Apple and Android

PLUS: Split screen view, allowing the pilot to view up to four separate screen areas at the same time, like a moving map sectional, airport diagram, text airport information and flight plan route. Includes the A/FD and AOPA Airports.

If you add synthetic vision, this adds another helpful layer, especially for pilots who fly in mountainous areas. The 3D presentation takes the terrain view to the next level. Note that for complete synthetic vision features, including pitch information, that requires an additional $100 annual subscription and an external AHRS sensor.

MINUS: No icing forecasts graphics. Receiving fuel prices requires a $29.95 annual subscription. The interface is not very intuitive, and many of the unique features require an additional data subscription.

GARMIN PILOT – Supports Apple, Android, and aera® 795/796

PLUS: Shows forecast icing maps at each altitude (3000, 6000, 9000, etc.). Full AOPA Airport Directory. Most comprehensive weather maps of the three. The unique features of Garmin show up when you tap the arrow button in the bottom right of the screen and bring up the split screen mode. Garmin GPS users will be at home here. Pilot includes Garmin's SafeTaxi charts that show detailed taxiway diagrams at hundreds of airports in the US.

MINUS: No A/FD.

DURING FLIGHT

ForeFlight added several features in Version 5 that set it apart from the others. Hazard Advisor shows you how close you are to terrain, similar to Garmin 430/530 methodology. They have also added LOW and HI resolution Terrain databases, claiming that they have filled in blank spots that others use. Other cool new features include Extended Runway Centerlines and Traffic Pattern Advisor. Extended runway centerlines do exactly that. They are shown in an extended fashion on the map pages. Traffic Pattern Advisor does two things: 1) You can select the runway and then select different methods to enter the pattern, and 2) It will recommend a preferred runway based on surface winds reported. This is very cool. It also shows the direct wind and crosswind component for each runway. Finally, when on the ground, it will show Safe Taxi diagrams similar to Garmin products. This is a feature of the Pro package. Click Here for all the details on Version 5.

BEYOND FLIGHT PLANNING

ForeFlight Documents is ideal for POHs, weight and balance data or FAA publications. Because this feature includes a catalog, finding documents is easy. There's also a handy Scratchpad tab in ForeFlight that is perfect for copying clearances or ATIS information. Pilots can draw with their finger, or type in information.

Garmin Pilot probably has the least amount of features here, as the app emphasizes the core pre-flight and in-flight tools.

WingX Pro also has a documents function, although it's not quite as robust as ForeFlight's version. One feature that is exclusive to WingX is its built-in E6B flight computer, which can really help when making performance calculations.

UPDATING

ForeFlight: Once you've selected by state, the charts you want to keep updated, simply tap a button and walk away. New charts are downloaded and automatically made active as soon as they are valid. The app will let you download new charts up to four days early, so there's no need for last-minute updates. ForeFlight even prompts you on the home screen app icon to update your charts.

Garmin: Like ForeFlight, the app icon notifies you when updates are available. One unique feature is the option to choose areas of coverage by chart (e.g., the Cincinnati sectional), and not just by state.

WingX Pro: Area of coverage is different for approach charts–select either the entire US, 1/3rd sections of the US or an individual state. This isn't quite as flexible as Garmin or ForeFlight, where you can pick state-by-state coverage areas depending on your flying.

GPS

All of these apps work well with external GPS devices like the Garmin GLO, Dual XGPS150 and Bad Elf.

WHAT DO PILOTS CHOOSE?

At a recent FAA FAASTeam iPad workshop in the Phoenix area, in attendance were eighty pilots. Sixty were ForeFlight users (70%), 14 were WingX Pro users (5.7%) and 6 were Garmin Pilot users (less than 1%). All three appeal to pilots and do the same thing: Flight plan, present weather and file a flight plan. However, more pilots seem to enjoy ForeFlight's features over Garmin Pilot and WingX Pro. Are WingX and Garmin that bad? No! It's just that the ForeFlight team is really good!

ForeFlight has clearly dominated the market and it's not hard to see why. The clever guys at ForeFlight produced the first major aviation app and then, through improvements and happy customers, they have maintained market share in a very competitive market. They serve individual pilots as well as corporations with hundreds of pilots, with a very useful product at a reasonable price.

In March, Denver based Frontier Airlines, after evaluating all the possible Electronic Flight Bag (EFB) apps for 12 months, chose ForeFlight. This was a contract coup for ForeFlight.

ForeFlight is also growing in the government sector, including the U.S. Coast Guard, Drug Enforcement Agency, NASA, Customs and Border Protection, and numerous state and federal aviation departments.

A comparison Chart of ADS-B Receivers

App	ADS-B receiver	Connects via	ADS-B Traffic Display?
ForeFlight	Stratus. $799. BATT LIFE: 8 hours – Rechargeable.	WiFi connection allows multiple iPads to connect to Stratus.	No*
WingX Pro SYNTHETIC VISION uses AHRS-G Mini from Levil Technology or Clarity SV from Sagetech Corp	Dual XGPS170 ADS-B Receiver. $799. BATT LIFE: 5 hours. Charges via 12-28V Cig.Lighter charger; 110V wall outlet with iPad charger. Charger also charges the iPad and iPhone.	Bluetooth sends GPS and ADS-B data to up to two iPad devices simultaneously. Also integrates with SkyRadar, Dual XGPS170, Clarity SV and others	Integrates Zaon Traffic enabling traffic threats to be shown on enroute charts.
Garmin Pilot	GDL 39. $799. BATT LIFE: 4 hours. Includes Cig. Lighter charger.	Bluetooth, simultaneously providing wireless data to 2 devices while hardwired to a third.	Yes – Only from ADS-B "Out" equipped targets

**Why no Traffic with Stratus and ForeFlight?*

Stratus does receive the traffic stream. However, ForeFlight Mobile does not choose to display it, and here's why:

You're flying along and an aircraft passes by. No alert. Another aircraft passes by, no alert. Then another, and another, and another. No alerts. Occasionally, you get an alert. But for the most part, day in and day out, traffic passes by, no alerts. In pretty short order, you lose confidence in your portable ADS-B "traffic" system.

Try before you buy! *Each of these apps offers a free trial (OK, WingX is $0.99) that shows off all the main features. Get all three of them and go flying. Only you can decide which app works best for you*

Did you know?

Most of us Mooney pilots fly our Mooneys Balls to the Wall. But probably many do not know its origin. "**Balls to the Wall**" is a term that pilots use that has origins from the earlier days of flight, when the throttle, prop control, and mixture had knobs that made it easier for the pilot to grip ... full forward to the instrument panel ..."balls to the wall."

Diverging Needles

by Geoff Lee, CFI-I

Three of us had been skiing at Heavenly Valley, South Lake Tahoe, and my new 1968 Mooney Executive was stuffed with people and ski gear. The skis were suspended between the seats and protruding into the hat shelf. It was about 2am, very dark and cold, before we departed the South Lake Tahoe airport. The new Mooney had about 90 hours total time on airframe and engine and I was feeling very confident with its capability.

There was no wind so I elected to use runway 36 which points straight out over the lake. My departure technique with the non-turbo IO-360-A1A at Tahoe, after run up, was to apply full throttle and commence takeoff roll. I would pull back the mixture control until the EGT was on scale and roughly 100 degrees rich of peak which was marked by the convenient and previously set red reference needle on the EGT. I n*ever cared for full power run ups, which tends to suck stuff into the prop*.) In the cold clean air, I would also open the intake air filter by pass and gain an additional 1.5-2" of additional manifold pressure to maximize climb performance. It was really dark with a high thin overcast so I focused on the instrument panel trimming pitch to about 5 degrees initially to allow the airflow to get established over the wing. I could get it to about 7 degrees later with the ASI close the end of the white arc. It was about 5 degrees below freezing. Climb rate was about 700 Fpm and we had about 38 gallons of fuel on board, which was sufficient for the estimated 70 minute flight to San Jose.

The initial heading when out over the lake at about 800 ft AGL would point us at Homewood where there is a low spot in the surrounding high terrain. I would normally cross the ridge close to Homewood at about 9500ft and then commence a very slow descent all the way to San Jose. In the late 60s, flying by IFR required position reporting due to the sparse radar coverage throughout the country. There was no "alphabetic airspace" to be concerned with. Visibility was good under the high overcast, engine sounding great, and my companions were nodding off.

Aiming just a little left of the few lights from Homewood I was scanning the instruments and observed that the oil temp needle seemed a tiny bit on the hot side of the small "cube"gauge common in Mooneys, EGT and oil temp/pressure looked good so it was attributed to pitch and climb airflow. I reduced pitch just a little and figured that the planned descent would normalize the anomaly.

Reaching 9,500 and the rim of the lake, the overcast disappeared revealing a bright moonlit landscape and the distant ground lighting out in the central valley, I leveled off for about 10 minutes glancing at the oil temp gauge which remained at a good needle width on the hot side of center, seemed weird with an OAT about 10 below zero. I pitched down for a 100fpm descent and reduced the RPM to about 2,400 just above that hated RPM restriction on those early IO-360s.

Placerville was my next check point so I entered the Hangtown VOR frequency into my Narco omnigator. Without much point to point flying done at night in that area, we flew the airways. Slowly descending toward Placerville, the oil temperature needle stayed obstinately on the wrong side of center but the engine was running smoothly and I was rationalizing that it was probably that "dinky" oil temperature gauge. My companions were both snoozing as we crossed Hangtown and headed for Stockton. I decided to preserve altitude as we approached Stockton *just in case* because by now the oil pressure needle was just very slightly moving in the opposite direction to oil temperature needle. This was not a good sign, but the engine was still happily humming along and CHT was fine.

Holding around 7,000ft as we passed Livermore airport I was feeling ok about getting to San Jose intact when the engine emitted a faint rattling sound. We were coming up to the pass at Mission San Jose, the oil pressure was obviously headed downward and the oil temperature needle was at the ¾ point on the gauge. I called Bay approach and confessed my predicament. Simultaneously the propeller stop and engine stopped dead. (I *think that my heart did also*). A short transmission to the controller stating that I was "dead stick" and contemplating a landing on the brightly lit Fremont drag strip which was below and to my right. We were high at 6,000ft so trimming for best glide I commenced a descending right turn, while starting to secure the engine. As I pulled the throttle back the engine came alive again; glancing at the altimeter it showed 5,700ft and I could see San Jose airport. I immediately recovered my original heading and proceeded there. The controller asked if I wanted emergency equipment out, I told him that I would confirm on final. We crossed the "White tanks", a regular fix, on a 2 mile, 45 degree entry to runway 30 at 3,900ft *and the prop stopped again*. Keeping the gear in the well until short final and blessing the glide ratio of that Mooney I made a very short, steep, slipping approach to runway 30 remembering to tell the controller that we were ok prior to touch down. We even rolled off the active onto a taxiway. The guy in the rear seat never did wake up until we stopped.

The 90 hour, new IO-360-A1A had "spun" a center main bearing. The dowel pin securing the lower half the split bearing had sheared off allowing that lower half of the bearing shell to rotate and totally close off its oil supply by covering up the oil channel aperture that supplied it; the engine was toast. *Later, upon reflection I realized that the aircraft had been "talking" to me all the way home.*

A call to the factory in Kerrville regarding my warranty got me in touch with an "engineer" that proceeded to regale me with a story of how his VW engine had quit once but he received no compensation or consideration from the factory. That was a short conversation. My insurance company seemed somewhat resistive to get involved because it seemed to be a warranty issue. One of my students, a lawyer sent the Mooney factory and Lycoming a stern letter. We determined that at least 10 or more "new" Mooneys with the identical engine all had failed for the same reason within 110 hours from new and the weak center main dowel issue.

That inadequate dowel on the IO-360-A1A was a known discrepancy. Mooney had put out a factory bulletin on the issue but they had an existing supply of these defective engines on hand plus whatever new aircraft it had produced incorporating same so they continued to sell the planes with the defective engine. No one had informed me of any "bulletin" regarding any possible engine defect when I purchased that plane and I did take possession at the factory in Kerrville.

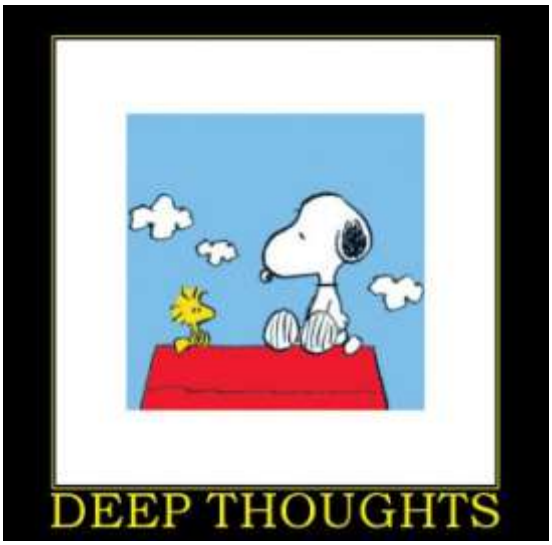
Factory bulletins are generated as a result of the frequency or quantity of "Service difficulty" reports generated by mechanics in the field. Federal ADs seem to appear when there is apparent potential for or actual loss of life resulting from airframe, engine or component failure.

The bottom line was that I got a new engine with a redesigned dowel arrangement as did several other new owners, owners having subsequent failures of the engine related to this dowel failure were treated on an engine hour prorate basis. A mandatory AD rectifying the dowel problem was issued at a later.

The IO-360 is a robust engine and has been for many years but it has gone through an evolution. I have been flying behind them since 1968. I have endured 3 engine failures in two of the three Mooneys that I have owned. All incidents directly related to the engine design, but that's another tale.

Keep your nose low (*and your eye on your oil temp. and pressure, also "listen" to your plane*)

Deep Thoughts on Flying



Pilots: People who drive airplanes.

Fighter Pilots: Cold, steely eyed, weapons systems managers who kill bad people and break things. However, they can also be very charming and personable. The average Fighter Pilot, despite sometimes having a swaggering exterior, is very much capable of such feelings as love, affection, intimacy and caring. These feelings just don't involve anyone else.

Words of Wisdom from Aviators

- Flying is a hard way to earn an easy living
- Both optimists and pessimists contribute to society. The optimist invents the airplane; the pessimist, the parachute

If helicopters are so safe, how come there are no vintage helicopter fly-ins?
Death is just nature's way of telling you to watch your airspeed.

Real planes use only a single stick to fly. This is why bulldozers and helicopters (in that order) need two.

There are only three things the copilot should ever say:

> Nice landing, Sir.
> I'll buy the first round.
> I'll take the fat one.

As a pilot only two bad things can happen to you and one of them will.
One day you will walk out to the aircraft knowing that it is your last flight.
One day you will walk out to the aircraft not knowing that it is your last flight.

There are Rules and there are Laws.

The Rules are made by men who think that they know better how to fly your airplane than you.

Laws (of Physics) were ordained by nature.

You can, and sometimes should, suspend the Rules, but you can never suspend the Laws.

- About Rules:
  - The rules are a good place to hide if you don't have a better idea and the talent to execute it.
  - If you deviate from a rule, it must be a flawless performance…(e.g., If you fly under a bridge, don't hit the bridge.)

The ideal pilot is the perfect blend of discipline and aggressiveness.

The medical profession is the natural enemy of the aviation profession.

Ever notice that the only experts who decree that the age of the pilot is over are people who have never flown anything? Also, in spite of the intensity of their feelings that the pilot's day is over, I know of no expert who has volunteered to be a passenger in a non-piloted aircraft.

Before each flight, make sure that your bladder is empty and your fuel tanks are full.

He who demands everything that his aircraft can give him is a pilot; he that demands one iota more is a fool.

There are certain aircraft sounds that can only be heard at night.

The aircraft limits are only there in case there is another flight by that particular aircraft. If subsequent flights do not appear likely, there are no limits.

Flying is a great way of life for men who want to feel like boys, but not for those who still are.

"If the Wright brothers were alive today, Wilbur would have to fire Orville to reduce costs." President, DELTA Airlines.

In the Alaskan bush I'd rather have a two-hour bladder and three hours of gas than vice versa.

It's not that all airplane pilots are good-looking. It's just that good-looking people seem more capable of flying airplanes.

An old pilot is one who can remember when flying was dangerous and sex was safe.

Airlines have really changed, now a flight attendant can get a pilot pregnant.

I've flown in both pilot seats. Can someone tell me why the other one is always occupied by an idiot?

Son, you're going to have to make up your mind about growing up and becoming a pilot. You can't do both.

There are only two types of aircraft - fighters and targets.

The scientific theory I like best is that the rings of Saturn are composed entirely of lost airline baggage.

You define a good flight by negatives: you didn't get hijacked, you didn't crash, you didn't throw up, you weren't late, and you weren't nauseated by the food. So you're grateful.

They invented wheelbarrows to teach FAA (CASA) inspectors to walk on their hind legs.

The FAA (CASA) Motto: We're not happy till you're not happy.

Experience is something you don't get until just after you need it.

Spinner cracked? Here is a one time good deal: A Hartzell 835-33 spinner complete with the mounting ring for a Mooney with a Hartzell HC-C2Y(R or K)-1BF propeller. Excellent condition.

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