The Mooney Flyer

The Official Online Magazine for the Mooney Community

www.TheMooneyFlyer.com

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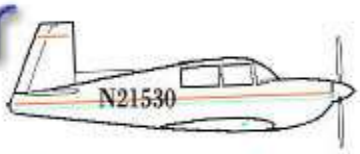
From the Editor

Phil Corman



Formation Flying

This past summer, we were hoping to take one of the **Mooney Caravan Formation Clinics** that are offered around California. It seemed like a way to accomplish two goals. First, it would sharpen our stick & rudder skills by flying close to other Mooneys, which is always a good thing. Secondly, it seemed like a way to meet new people and make new friends. We never got the time to take a clinic, but plan to do so this coming year. **Click Here** for a really good video featuring some pretty good Mooney formation flyers.

Landing at the Wrong Airport

A B-747 Jumbo, headed for McConnell AFB in Witchita, landed at the wrong airport. **CLICK Here** for the ATC recording on YouTube.

The New Mooney

We received a significant amount of feedback on what current owners would like to see from the new Mooney International. We remind readers that Mooney will initially be focused mostly on restarting the manufacturing line for Ovations and Acclaims. But here is a summary of new items owners would like to see:

*** More Useful Load
Side stick instead of yoke
Tighter turn radius
Improved soundproofing
Better ingress/egress
LED lighting
Improved paint schemes
State of the art avionics packages
Garmin 500/600 option to more expensive G1000
New engines: Diesels and/or unleaded options
ADS-B In/Out equipped
Refurbished J & K models with zero time, except for the airframe

Upslope Runways

This month, Jim Price writes about an M20J departing an airport at night, at an intersection with an upsloping runway and a hill a few hundred feet from the departure end. Should upsloping runways be

part of your preflight planning? As with most accidents, this one was caused by multiple errors. Sometimes a single error might not contribute to an accident. But very often, after more than one error takes place, an accident results. Break the chain and live to fly another day.

The New Mooney

Last month we did several in depth articles on the New Mooney International. This month we add a few more details after our Q&A with CEO Jerry Chen.

Funny Nostalgia

If you are old enough to remember the Smothers Brothers, you might enjoy this little standup act entitled "I am a Pilot". Click Here to enjoy it.

To dare is to lose one's footing momentarily. Not to dare is to lose oneself

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Q & A with Jerry Chen

In November, TMF interviewed an extremely busy Jerry Chen, CEO of Mooney International.

Q: Does Mooney have any orders to fill, or would the factory be building airplanes, only to languish on the Kerrville ramp?

A: When Mooney announced that they would begin building aircraft in January, 2014, this generated many orders for the Acclaim and Ovation.

Q: Does Mooney plan to add a refurbishing section to the factory, which would take Js and Ks that could use a "makeover, and turn them into like-new Js and Ks?

A: Not at this time, but the idea is not off the table.

Q: Are you moving to Kerrville?

A: Currently, there are two offices; Kerrville, TX (KERV) and Chino, CA (KCNO). Jerry's final location will depend on future developments.

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

The Mooney Flyer Website of the Month

Pilot Getaways Interactive Map

http://pilotgetaways.com/article-index-map

Most of us enjoy reading Pilot Getaways. It's been around for years and we have been faithful subscribers. My wife has cut out destinations that might be of interest to us over the years.

This past month, we discovered that Pilot Getaways has developed an interactive map on which you can click on their destinations and read about them.

This is much more convenient than going to 3 volumes of notebooks.

We thought you also might find this link fun and valuable for your Mooney travels.

FLIGHT FOLLOWING - 1. Formation flying 2. Bird watching.

Phil, They still don't get it. Maybe the clever Chinese will. Mooney is a superior airplane to Cirrus, but lost out, (and will continue to lose out) because of the PARACHUTE. It's all marketing and advertising. The wives and significant others who ride the right front seat and often control the purse, and less risk-averse pilots , will vote for the chute. The chute can be retrofitted to 172s & 182s now. The engineering challenge in a Mooney would be the lack of energy absorption provided by the fixed gear in the Cirrus. The answer is to install energy absorbing stroking SEATS, similar to those installed in helicopters. In a mishap, the airplane would be sacrificed, but the crew should survive.

Felix T, MD

Editor's Note: Felix, we don't disagree, but we think Mooney's steel cage is a life saver as well. Further, we agree that companies such as Cirrus are driving sales through Marketing, something Mooney will have to do better. We wrote about this in TMF.

Article about Chen, Soaring America and Mooney is well-written and right to the point!

Harley M

I can't not see how Mooney could even consider manufacturing new aircraft until this well know defect is corrected. I don't have the file here in front of me but one failure of the spring that led to a partially retracted gear-up landing with substantial damage was on a new Mooney with I believe less than 100 hours total time. The Dukes actuators were replaced by linear actuators manufactured by Plessey/GE and later by Eaton. The linear actuators incorporate a no back clutch spring. When this spring fails, often the gear cannot be retracted or lowered electrically or manually. These springs are failing on a regular basis for undetermined reasons often with catastrophic results. I personally have lost 3 springs in the last 4 years, the last one having less than 50 hours time in service. Mooney no longer supports the Plessey actuator so now my airplane has been grounded indefinitely for lack of a 20 cent spring. By the way 20 cents is what the spring should cost $700+ was what Mooney was charging when the spring was available. Mooney's response to my appeals for help is basically we understand your aircraft in now useless but we don't care.

The short story is, the failure of this spring can and does cause complete failure of the landing gear system with the expected catastrophic results. Mooney has been either unable (read no money) or unwilling to find a solution. This issue affects a large portion of the fleet. Every Mooney owner with one of these actuators should consider that on any given flight they may not be able to operate the landing gear. Furthermore, if lucky enough to land without bodily injury or damage to the aircraft, chances are they will not be able to secure the parts they need for repair. Also experience would indicate that replacement of the spring is no guaranty that it will not unexpectedly and prematurely fail again. In my opinion, it would be inexcusable for Mooney, to release any new aircraft for flight until such time as this issue has been resolved.

Right now the best part of the Mooney experience for me is reading the Mooney Flyer. Keep up the good work.
MightyMite

Phil, Jim & Team, You do a fantastic job and I'm happy to contribute! Wonderful instinct for content that matches my interests. The "Flyer" is also VERY well-presented - beautiful. I'm looking forward to the next time we cross paths...or runways. Cheers
Rob H / KGOO

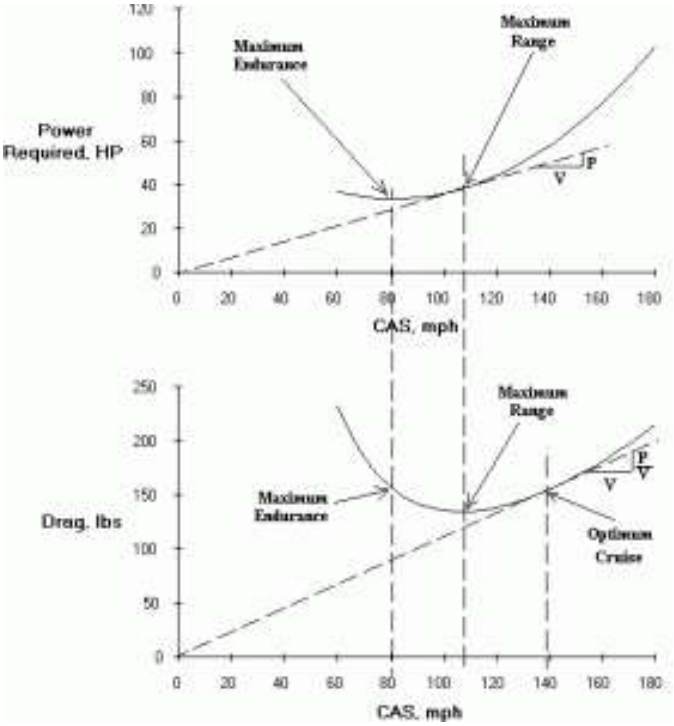
Great articles. I had forgotten all about that turn and go home incident until your article. The whole magazine is very good…you can be proud of the efforts you are putting forth
Ken B

I want to thank and commend the editor for the great articles in the flyer. I thoroughly enjoy and look forward to reading it cover to cover. THANK YOU for all the effort and time you devote to this endeavor, and keep up the good work.
Henry P

I have a "fixed gear, fixed pitch prop" M20D, N1916Y that has just come out of a lengthy restoration..... new engine, new prop, engine mounts, O & N bladders, 406 ELT, new Garmin avionics, Aspen PFD, new panels, new interior, and lots of other stuff. I believe that this is the only example still flying.....and the more I fly it, the more I like it. Pictures below
Ron M

Flying Mooneys Efficiently

Most of us own and/or fly Mooneys for two main reasons. First, let's admit it, they look awesome. They look awesome flying and they even look awesome and *fast* on the ramp. The second reason is they are fast and fuel efficient. Both driving factors in the Mooney brand. But as we talk to Mooney owners and participate in social media, we have found that many Mooney owners are figuring out ways to go slower. Yes, you read that correctly, fly slower. We took the time and researched the reasons why. Here is what we found.



Many are striving for methods to save on AvGas. No argument there. Others are striving to treat their engines better, hoping to get to TBO or beyond. Here are some myths and some facts for your digestion.

Many pilots think throttling back will increase fuel efficiency and this will be better for your engine. This most likely is not saving you much fuel unless you are throttling back several inches, and it definitely is not better for your engine. Some engines don't cool as well below Wide Open Throttle (**WOT**). Mike Busch, piston engine expert, likens throttling back to asking a runner to run a marathon by asking them to breathe less air per breath. For best efficiency on Mooney engines, running them WOT is the most efficient. Top Gun Aviation founder, Tom Rouch, recommends setting the throttle to WOT on takeoff and leaving it there until approach to landing. Even Lycoming agrees that their venerable O360 was made to run open throttle. So if your goal is to get somewhere and get there quickly and efficiently.???

Running over-square is actually good for your engine and good for fuel efficiency.

Another method of saving fuel used by owners is to run Lean of Peak (LOP). Foregoing the religious debates over Rich of Peak (ROP) v. LOP, you will burn less fuel per hour LOP than ROP, but you will do so at a reduction in airspeed. After computing fuel burn per mile, the savings may not be that significant. It is a fact that engines run regularly a LOP, have cleaner cylinders and pistons.

Enough about critiquing various methods of flying our Mooneys more efficiently. Here's some additional fodder for your consumption. Running WOT is the most efficient. Reducing your RPM as low as your POH allows is a great method to save fuel and be good to your

engine. Why, you ask? It's simple. Running lower RPMs reduces frictional losses, increases your propeller's efficiency, and permits your engine more time to extract energy from each combustion event. Many pilots are very concerned about running "over-square" - that is, running a higher MP than RPM. It's no wonder that pilots hold onto this OWT, Old Wives Tail. It's been around for generations and it is patently not true. Most of our engines can run up to 5" of MP over RPM. And the more you operate over-square, within POH limits, the better!

Another simple way to save fuel, in most cases, is simply to fly higher. Most of our non-turbo engines are happiest between 9500' and 12000'. You will go faster and burn less fuel.

If getting there quickly is not your #1 priority, there are several options. Clearly running LOP over ROP is one method. This saves some fuel and your engine is happy; a win-win. Running at a lower RPM is another. Here's a brief review of critical airspeeds that will give you the results you are wanting.

If you are looking for the BEST RANGE, then that is easy, slow your Mooney down to Max L/D, or Best Glide and you will go the furthest.

If you are stuck on top or have a desire to remain aloft for the MAXIMUM DURATION, then select your Max Endurance speed. Don't want to search your POH? Then simply divide your BEST GLIDE / 1.316 and you will have your Max Endurance airspeed. We only have one question for those that are doing Max Endurance? How do you regulate your bodily functions that long?

Carson Speed *provides the maximum speed per unit of fuel burned.*

But here's a speed we learned about from one of Mike Busch's excellent webinars. It's called the Carson Speed. It's named after Bud Carson of the US Naval Academy. Who wants to fly around at Max L/D or at Max Endurance, going nowhere slowly? So Carson came up with an airspeed, ultimately named after him, that produces the maximum speed per unit of fuel burned. This is easily computed without reference to your POH, since we aren't aware of any Mooney POH's that include the Carson speed. You simply multiply your Max L/D x 1.316. Like everything in aviation, the Carson speed is a compromise. It enables you to fly 32% faster than Max L/D, with only a 16% increase in fuel flow, a 52% increase in power and 24% decrease in flight time.

The best answer to flying efficiently in a non-turbo Mooney is to fly high and not bust the Carson speed.

And if you are throttling back to protect your engine from those WOT settings, now you know that you aren't achieving your purpose. The best way to get to TBO or beyond is to follow these simple guidelines:

- Don't let your CHTs go above **380°F** for Lycoming or **400°F** for Continental
- Never fly in the Red Box as it maximizes your ICPs (Internal Cylinder Pressures)
- Fly regularly and change your oil & filter after 35 hrs or 3 months
- Cut your filter and perform oil analysis

GLIDE DISTANCE - Half the distance from an airplane to the nearest emergency landing field.

Is an Up Slope a Big Deal?

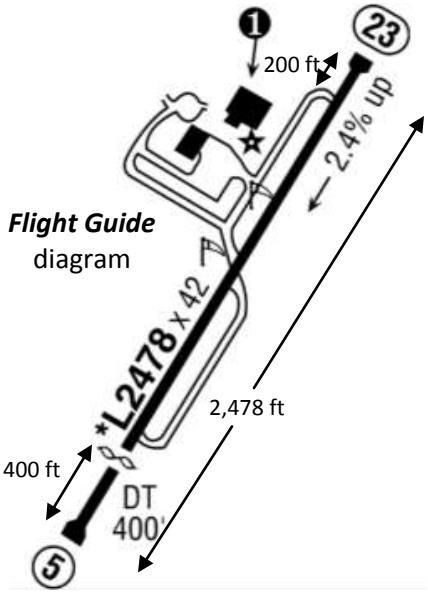
On May 9, 2012, about 2225 Eastern Daylight Time, a Mooney M20J, N9154K, was destroyed following a collision with trees and terrain after taking off from Spring Hill Airport (70N) in Sterling, Pennsylvania, 5 nm East of the Wilkes-Barre VOR. This was their 98 nm return leg to Republic Airport, Farmingdale (FRG), on Long Island, NY.

The pilot, Patrick Sheridan, a commercial pilot with 272 hours total time, and front seat passenger Casey Falconer, also a pilot, were fatally injured. The rear seat passenger, Evan Kisseloff, 21, received serious injuries but survived the crash. All three were students at Farmingdale State College, pursuing degrees in aviation.

No Weight and Balance; No Checklist

Kisseloff reported that he did not recall the pilot performing any weight and balance calculations, nor did he observe him using a checklist at any time. He recalled that the pilot stated they were, ". . . a little overweight from Farmingdale."

The pilot, Sheridan, was aware of the hill at the departure end of runway 23, since he had seen it during the day when they landed at Spring Hill Airport. This hill is such a problem that from sunset to sunrise, landing on runway 5 is prohibited. At night, the hill is lighted.



Flight Guide diagram

Sheridan taxied the airplane to runway 23 and lined up for takeoff at the intersection of the taxiway and runway 23. He elected not to back taxi to the end and utilize the entire runway. This denied him 200 feet of the 2,478 foot runway. The winds were "very light" at the time of departure.

Sheridan advanced the throttle to begin the takeoff roll. Kisseloff reported that the runway lights were on and appeared normal. The airplane became airborne at the departure end numbers, just prior to the displaced threshold; a takeoff distance of 1,874 feet.

Immediately after liftoff, the stall warning horn activated. Sheridan was "unable to recover from the stall." As they approached the trees at the end of the runway, the Mooney began a turn to the left of the runway centerline. Kisseloff could see the trees approaching, and estimated that the airplane was about three feet above the trees. The left wing struck

a tree, and they "went down." The airplane landed upside down, and caught fire immediately. Kisseloff was able to climb out of a rear window that broke out during the impact.

The maximum allowable gross weight of this M20J was **2,900** pounds. Based on a takeoff gross weight of **2,714** pounds and an airport elevation of 1,728 feet MSL , Mooney calculated the aircraft weight and takeoff performance using the prevailing conditions at the time of the accident. The level runway expected takeoff roll should have been **1,490 feet**. Runway 23 has a 2.4% up slope. Mooney Aircraft Corporation did not have performance charts that corrected for runway up slope. Is slope a big deal?

Should we correct for Slope?

Cirrus includes slope correction in their POH. I know, it's hard to acknowledge their existence, or even say the "C" word.; but they have gone through a lot of engineering analysis to provide this tool. Since I'm not a mathematician or an Aeronautical Engineer, the Cirrus data will need to suffice.

Slope Calculations by Cirrus:

Down slope %	Reduce T.O. dist	Up slope %	Increase T.O. dist
1%	**7%**	1%	**22%**
2%	**14%**	2%	**44%**
4%	**28%**	4%	**88%**

Interpolating, we find that a 2.4% up slope increases the charted **1,490'** takeoff roll by **55%** or **820 feet**.

Correcting for slope, the takeoff distance jumps from1,490 to **2,310 feet**. That's not bad, if you have a long runway. My Mooney brothers and sisters, 2,478' is NOT considered a long runway.

To complicate matters:

- Sheridan chose to take off at the intersection of the taxiway and runway 23, instead of a "taxi back" to take advantage of the full length. This shorted the allowable runway another 200 feet to 2,278 feet.
- They took off at night and the lighted hill two hundred feet from the end of the runway must have looked ominous.
- The pilot had no prior experience at 70N
- The pilot rotated at and before the threshold lights, (just prior to the displaced threshold) not taking advantage of the extra 400 feet of lighted runway
- The pilot was operating at or near the maximum takeoff weight
- All three were big men

Haunting Conversation

Shortly before the crash, Evan Kisseloff recalled Casey Falconer asking Sheridan, "Are we going to be OK?"

Sheridan answered, “I don’t think so.”

As Sheridan reached the “numbers” at the departure end of 23, his “ready-or-not” takeoff attempt stalled the aircraft and their M20J was brought down by the trees to the left of centerline.

What if?

Could Sheridan have saved everyone by using the rest of the 400 feet of runway? He would have had 2,278 feet available. Still not enough (2,310 feet required, corrected for the slope). In addition, the hill starts its rise at the end of the runway, reaching it’s 30 foot height 200 feet later. See the *Google Earth* depiction below.

Spring Hill Airport manager Wayne Saar indicated that it would have been difficult to clear the hill and trees if liftoff was achieved at the end of the runway because the terrain rises quite fast.

What Would Have Saved Them?

- QUESTIONABLE: Runway 23 - Back taxi, taking advantage of the full length of runway 23. Theoretically, had Sheridan continued the takeoff beyond “the numbers”, he could have lifted off with 168 feet of runway remaining. Then, there’s the 30 foot hill ahead. 168 feet does not allow for very much pavement to stop, should an abort decision be made at or near the rotate speed.
- BEST DECISION: Takeoff on Runway 5, taking advantage of the down slope and the full length of the runway – with no lighted hill at the end.

Slope Calculations by Cirrus:

Down slope %	Reduce T.O. dist	Up slope %	Increase T.O. dist
1%	**7%**	1%	**22%**
2%	**14%**	2%	**44%**
4%	**28%**	4%	**88%**

The 2.4% down slope reduces the **no wind** takeoff distance by 17% or **253** feet. This means that that night, they would have required just **1,234 feet** for takeoff.

Does Wind Matter?

Note the effects of head and tail winds, derived from the Mooney POH.

Headwind	Decrease Distance	Tailwind	Increase Distance
2 knots	1%	2 knots	6%
5 knots	3%	5 knots	20%
10 knots	6%	10 knots	36%
15 knots	16%	15 knots	56%
20 knots	25%	20 knots	73%

Be Conservative

When calculating a takeoff distance required, NEVER take advantage of a headwind. A headwind is just an added luxury or gift. Be as conservative as possible. However, ALWAYS concern yourself with any tailwind. As you can see by the chart above, tailwinds can be very bad, especially if you are attempting to takeoff on a short runway.

Spring Hill runway 5 - Takeoff with a tailwind

Winds were light that night. However, even with a 15 knot tailwind, he could have accomplished a safe takeoff.

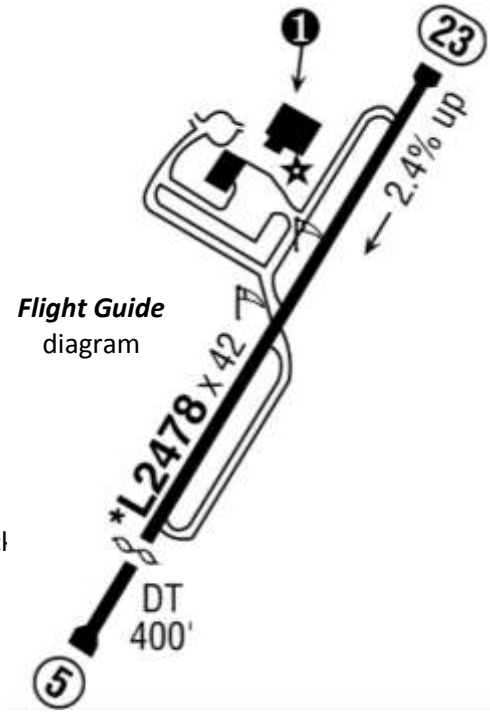
Here's the math:

Runway required (with 2.4% down slope): 1,234 feet.

The 56% penalty for a 15 knot tail wind adds an another 691 feet to the runway required.

1,234 + 691 = **1,925 feet**.

This also provides the luxury of **553** feet should the pilot make an abort decision just prior to rotation.



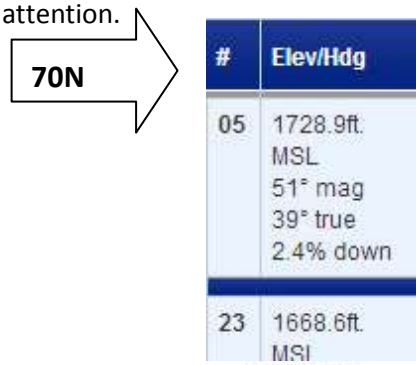
Flight Guide diagram

Where can runway slope be found?

- The Airport Facility Directory (**AF/D**)
- ***ForeFlight*** – Refer to the AF/D tab.
- ***Airnav.com***
- ***AOPA.org*** (Flight Planning 7 Airports)
- ***Flight Guide, FlightGuide.com*** and their app partner, ***eKneeboard***

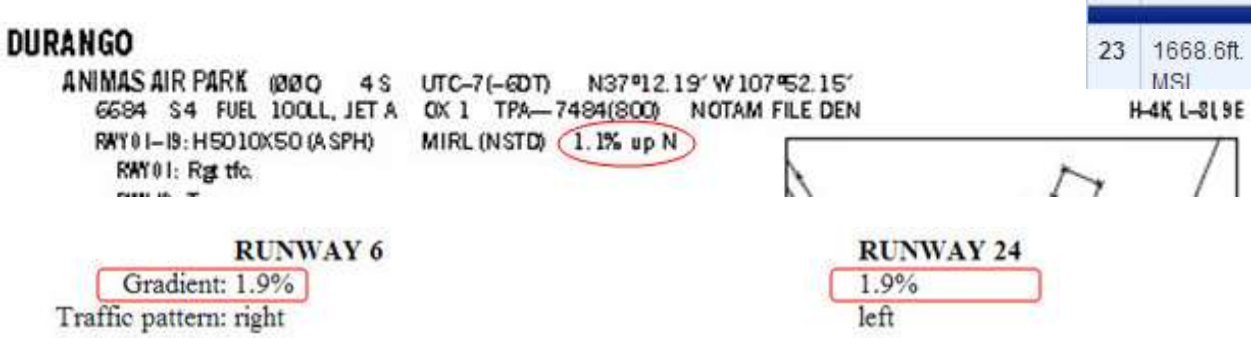
Whichever source you choose to use, the runway slope is not going to be flashing in neon like the Las Vegas Strip. There's no special sign to get your attention.

At *AOPA.org* at the bottom of the web page,you'll find the slope in a box with other runway information.



The AF/D (00C):

AirNav.com (Sky Ranch at Carefree, AZ (AZ18):



Bottom line: You must have a desire to find it. You're the pilot; you are responsible for EVERYTHING!

Killed in this tragic accident, Left to Right:
Patrick Sheridan, 34, and Casey Falconer, 19. Both were Farmingdale State College aviation students.

The National Transportation Safety Board determined the probable cause(s):

- The pilot's decision to take off on an uphill slope without utilizing the entire available runway, and
- His failure to abort the takeoff when he realized he wasn't going to lift off in time to clear the trees at the end of the runway.

READ the Report HERE

Cutting No Slack

Notice that the NTSB didn't find that it wasn't the pilot's fault because he didn't know about the slope. It doesn't accuse his instructors of failing to explain that it's best to take off down hill. Nope! They laid the probable cause of the accident squarely on the pilot's shoulders.

Every time you fly, I want you to remember that!

Is an up slope a big deal?

It all depends on runway available, weight and if you feel safe. Listen to that little voice if it's trying to warn you! Whenever possible, take advantage of the entire runway length. If a tower controller directs you to take off at an intersection, ensure that you know how many feet are remaining for your takeoff. Know EVERYTHING about the airport and be certain to account for the slope. Fly safe,

Jim

Stopped by Customs & Border Patrol

by Gabriel Silverstein

We were climbing through 10,000 feet for 11,000, being vectored around Chicago airspace in the clouds, concerned about late spring icing, and struggling to enter the new route waypoints correctly into the Garmin 430, but my hands were still shaking and it was hard to focus on flying. I admit I shouldn't have taken off without calming down further, but the idea of staying on the ground at KIOW in Iowa City any longer was definitely the greater evil.

What the United States Customs and Border Protection (CBP) had just put us through, over 350 nautical miles from any US border, was a blatant and intimidating violation of our Fourth Amendment rights, and they had made it clear along the way that our only choice was to suffer through it or be arrested (on what grounds nobody likely knows, apparently for obstruction of civil rights violations?).

The basic story has become pretty widely known now, and I won't repeat it all again here. One thing that we deliberately did not publicize at the time, though, was that CBP had a local civilian, *a non A&P mechanic*, remove panels from the airplane without our permission. At the time I flew a Cirrus SR22, and that included removing the panel that accessed the rocket-launched airframe parachute. Can you imagine if that was bumped and went off at the time, with six gun-toting law enforcement officers and a German shepherd K-9 unit surrounding the plane! This obviously gets into more than Fourth Amendment rights, now we are crossing into airworthiness rules of the FAA.

Unfortunately the office and staff of my US Senator (Charles Schumer) completely ignored our pleas and treated me with indifference, at best, before the story originally broke. Thankfully, since that time many of the legislators in the General Aviation Caucus have stepped up strong, including particularly Rep. Sam Graves (R-MO), and several Senators, who have separately demanded answers and threatened CBP with a possible Congressional and/or Senatorial investigation.

CBP's written responses to Freedom of Information Act (FOIA) requests of mine and AOPA's regarding the Iowa City incident were first, to state that they had no records of any of their officers even being in Iowa City that day (contrary to the written response of the Iowa State Police who clearly state their participatory actions

were only at CBP's direction). Then CBP admitted that something had taken place but denied me information citing privacy concerns (as in, not wanting me to know private information about…myself – I couldn't make this up). CBP then said they were doing this under the authority of the FAA , but there is no record of the FAA having given CBP any such authority and the regulations only convey such authority on the FAA itself, non-transferrably. Most recently, after more CBP stonewalling and as the story had gotten more widely publicized, CBP then submitted a proposal to restrict and keep *even more information* secret regarding these activities of theirs. Several legislators have very strongly warned CBP not to do this in the midst of what could become an investigation.

Following the AOPA's breaking our story on AOPA Live, the number of reports of incidents of CBP and other law enforcement stops of pilots and aircraft without probable cause quickly shot up to over 40 such reports. Very recently that has now started to include TSA and other groups within Homeland Security not just CBP.

This is not new for CBP. Last year the American Civil Liberties Union (ACLU) and others recently sued CBP in the State of Washington for illegally stopping and detaining US citizens at the border there without cause. In September of this year, CBP settled and agreed to significant curtailing of their agents' actions and to public reporting of their stops, but that settlement agreement only applies in the State of Washington.

In June, a source who has gone through CBP training was interviewed by Flying Magazine under conditions of anonymity, and stated that "pilots were to be treated as though they had no right to refuse the search" and that despite these stops, "the agents teaching the course admitted during instruction that the stops had a very low rate of success in finding drug traffickers", one of the claimed reasons for the stops.

Kathy Yodice, Tom Zecha, AOPA Legal and the AOPA staff have done an incredible amount of work on this and after all their research and inquiries to CBP, they have concluded that "there wasn't any authority to be found that permitted the stops and the searches that we were hearing about."

Action steps and reminders for all pilots:

- Contact your legislators (especially US congress people and senators) and voice your outrage over this deliberate and systematic violation of the Fourth Amendment rights of the American flying public.
- Print out the AOPA kneeboard search checklist (link below)
- Just say no to illegal searches. Make it clear that you do not consent to any search of your person or your aircraft without probable cause and/or a search warrant. Do not attempt to prevent an illegal search, however, as this could legitimize and provoke other action from law enforcement. After hearing what happened, the folks at General Aviation Security Magazine were kind enough to send me a couple stickers for the airplane that stated this "no consent" message in writing.
- If at all possible, if you are stopped, record everything (voice record setting on phones are great). If you have a companion, ideally one would try to take pictures or video and the other would less obviously record sound only. If there is any law enforcement backlash against the film recording, they may overlook the less invasive (and less obvious) audio recording.
- If stopped or searched and law enforcement touches or removes any part of your airplane, make a very thorough record of that, in writing if not photographically, and get the names and contact information for any bystanders that are witnesses, if possible.

- If they enlist the assistance of anyone other than yourself, knowing what I know today I would make a very firm and clear statement to every such person that they as a civilian (A&P or not) have no right to touch my airplane without my explicit permission (which I am not granting) and if they do I will have them arrested and prosecuted and I will sue them and their employer very aggressively. Remember this – CBP does not have the authority to "deputize" civilians in such a situation, and you have a lot more ability to legally go after non-law enforcement people who touch your airplane.

I was on a filed IFR flight plan, which I had not deviated from whatsoever before landing in Iowa City after four hours of flight. Prior to that, the few people that had heard about these stops thought it was only about low-flying VFR traffic near the US border that seemingly drew the ire of CBP based on suspicion of drug trafficking. I made a decision to break my story and go public. I did so with some trepidation and fear of reprisal, but knowing it had to be done, and that until someone spoke up, this was probably going to happen, in secret, a lot more than anyone knew. I have been overwhelmed by the support of the general aviation community since then, and I am very grateful.

Our story is not the worst, it turns out. One involves a couple who had their hotel room door broken down in the middle of the night without warning, and who were thrown up against the wall and handcuffed. Another man at least got the benefit of a knock on his hotel to open the door, whereupon his room was searched (without a warrant) before being dragged back to his plane for another search, that one with a warrant but a warrant on which the requesting officer admitted openly to lying to the man in trying to trick him to return to the airport for a search without cause earlier in the night.

Gabriel Silverstein is a Manhattan-based real estate investment banker who flies a 2008 Mooney Acclaim Type S and swears he didn't get it because he was flying a Cirrus SR22 when he was stopped twice by CBP on that fateful trip this spring, but that's a story for next month's issue.

Additional reading/links:

AOPA kneeboard law enforcement search checklist printout: http://www.aopa.org/-/media/Files/AOPA/Home/News/All%20News/2013/June/CBPGuidelinesKneeboard.pdf

Recent AOPA update story on the situation and various relevant actions that are underway to try and stop this: http://www.aopa.org/News-and-Video/All-News/2013/November/PPS/balancing-law-and-aviation.aspx?WT.mc_sect=adv&PPS=ePilot.08NOV13.Yodice&WT.mc_id=131108epilot

Washington State ACLU case settlement: http://www.nwirp.org/news/viewmediarelease/10061

Flying Magazine June article with anonymous source on how Homeland trains its agents to ignore the Fourth Amendment, among other things: http://www.flyingmag.com/news/feds-say-pilots-have-no-rights

One of many lists of additional lawsuits against CBP regarding primarily Fourth Amendment rights violations: http://www.legalactioncenter.org/cbp-abuse-authority

Eight senators have called out the Department of Homeland Security (DHS) about numerous stops and searches of law-abiding pilots on domestic flights that never leave U.S. airspace: http://www.ainonline.com/aviation-news/aviation-international-news/2013-12-03/senators-demand-answers-warrantless-ga-stops

Time and GPS

by Geoff Lee, CFII

You know where you are and where you are headed via the compass, time has been the prime factor in navigation since the age of the sailing ships. The Greeks devised the arrangement of longitude and latitude in 300 BC. Latitude could be calculated by using the sun's angle to the earth when at its highest point (Noon). Pinpointing exact Longitude required precise timing from an initial reference point (*Greenwich, zero meridian*) as elements in the calculation. The Greeks had the Sundial which was not too precise and is tough to use on a ship and useless on a cloudy day. Many imprecise techniques were tried from the time of the Greeks, but until the invention and 40 year development of the very precise naval chronometer by an English clock maker, John Harrison in the late 17th century. The exact fixation of a line of Longitude by the navigator was not possible until the invention and perfection of the naval chronometer.This invention was of greater import to global navigation and safety of travel than the modern development and availability of the aircraft mounted or handheld GPS device.

Navigating while hiking or walking only requires a compass. Time is of minimal importance, but when travelling becomes reliant upon any type of powered vehicle, time relates to the duration of the supply of fuel used plus distance travelled in a given time period. Speed across the ground is interesting but not necessarily a prime factor in the navigation exercise. It is simply the dividend of the distance/time equation.

With aerial navigation and the advent of Satellite global positioning, knowing ones current location and direction to the destination is simply a matter of button pushing. Timing the distances that are pertinent to our trip is readily accomplished and automatically updated by the GPS as the various elements of the journey unfold.

Pilots tend to place great importance on speed, i.e., *how fast their plane is passing through the air and across the ground; making one feel good or bad as the case may be.* Speed related to the performance capability of the aircraft is certainly prime information. It tells us if this assemblage of aluminum will fly or not, but speed related to navigation is secondary to time. Distance to travel to a fix or destination is good to know but the time that will elapse in order to reach a fix or destination is much more useful than knowing the distance to any point. Obviously flying has another position related dimension to be concerned within the navigation exercise: altitude. It is not only useful but necessary to know how much time we have to descend from cruise altitude down to a height from which we can conveniently approach and land at our destination. A distance and speed calculation will certainly reveal time, but travel time itself can be presented on any GPS without the need for calculation.

GPS screens provide limited real estate to reflect all the elements of navigational interest at the same time so it is prudent to have "time to next fix" or "time to destination" take space priority over ground speed. Arranging ones GPS screen to exhibit time saves the distance/speed calculation and screen space. As an example, if I am at 10,000ft when approaching a destination I really want to know how much time is needed to descend to the initial approach or pattern altitude; so that I might get a target descent rate. Upon analyzing an approach plate I always calculate the average descent rate (feet *per minute)* to achieve the required descent angle related to a fixed speed. (*Jeppesen plates reflect this, NACO plates do not).* I note speed, rate and time on the NACO plate; *yes, I still use paper plates as backup to a screen generated presentation.)* I also want to know how much time is available to

"configure" (*speed, fuel, gear etc*.) the aircraft for the approach and or landing. Distance is useful to know with reference to any approach situation or "alphabetic airspace" proximity but on newer GPS programs airspace warnings and even geographic obstruction cautions can be related to "time to penetrate" or time to climb.

When arranging the readout labels on your GPS, it is most useful to have "time to fix", "bearing" or "desired course" and "track" located adjacent to each other because this saves eye movement. This cluster is of prime information if loss of DG occurs. Note that the angular difference between your compass heading and your GPS "track" is the wind correction angle and gives you a clue to which direction the resultant wind is blowing from. Obviously a glance at your ground speed relative to your indicated airspeed tells if the wind is on your tail or nose. In the case of a bug or ice plugged pitot tube, GPS ground speed can be most helpful. A reasonably accurate airspeed can be derived if the pilot knows the approximate velocity of wind on the nose. In the landing phase, use the ATIS or AWOS wind velocity plus the GPS ground speed. A little extra speed margin is prudent here if the wind is gusty on approach. (*Voila! Ground speed can be useful.)*. The GPS has minimized the trauma of flight Instrument failure by providing a usable representation of our actual aircraft panel based on satellite inputs which, while not perfectly in sync with the pitot static and altimetric readouts of our panel, they are sufficient to get us down safely.

There still exists a little misunderstanding regarding the use of GPS distance in lieu of DME in the IFR environment. Two things form the bottom line, when it comes to DME or GPS substitution whether it's an approach at your destination or alternate: 1) GPS, WAAS or non-WAAS can take the place of DME on all Localizer/DME approaches and VOR/DME approaches. 2) GPS replaces ADF, except those **NDB approaches** without a GPS overlay. As of April 2013, GPS approaches may be considered for alternates by both WAAS and non-WAAS aircraft if only the LNAV or circling minimums are considered. For non-WAAS equipped aircraft, GPS approaches may be considered for either the destination or alternate, but **NOT BOTH**. Of course for use in the IFR environment, your GPS equipment must be "in-panel" and IFR approved.

I shall be sad to see the final demise of the ADF. I grew up on it and the radio range. There is no ambiguity in the indication of the ADF needle. It just points to the selected station. Also, we used to be able to listen to all the local city radio stations as we travelled across the country. The more powerful 50,000 watt stations were published on sectionals. I must confess that GPS has no ambiguity, minimizes brain exercise and has converted navigation into childs' play. However, it is certainly not as interesting or colorful as an ADF on a long journey.

I have been reviewing a handheld GPS, the "Adventure Pilot" iFly 720 which, for a relatively small amount of money, (*under $700*), provides more features than units costing more than twice as much. The Geo referenced approach plates, (*an added annual fee for the more popular planning program*), were the iFly's initial attraction, but it has many other attributes, including VFR terminal, sectional and IFR charts, Geo referenced taxi on airport diagrams, "rubber banding" course line and all the frequencies relative to any trip. It supports AHRS and ADS-B weather input. The screen software gives the capability to move the instrument indication and performance tabs into convenient locations, ie., *placing bearing and track together*. There are many useful groups of time, speed, distance, descent rate, terrain and airspace alert tabs that can be selected from the database. The 7" diagonal screen has ample room to conveniently place many flight information tabs. The large Menu and action buttons are located on the bottom of the screen. These conveniently fade out when not in use over time, thus providing more map exposure; recall is instant. The performance tabs can be enlarged as necessary. The screen can be

oriented for “Track up” or “North up” at the push of a button. Small criticisms would be that in “Track up” mode the map does not re-orient the map notations accordingly. The unit does have a de-cluttered screen mode termed “Vector” that presents track up with a normally oriented map. Flying South in track up mode on the sectional is visually horrific. The finger pressure needed to activate any buttons or features seems very high and I found that the eraser end of a pencil worked best for me. The display is very bright and readable in a bright cockpit. Direct on screen sunlight however renders it un-readable as with any computer screen. Zooming in and out is a simple matter of button pushing. Satellite reception is readily acquired. Battery power is omitted but Cigar Lighter 12-28 volt and 120 volt cable connectors are provided, plus a suction cup universal mount. An accessory battery is available for additional cost. Opening presentation on the ground I got a satellite picture locating me on the airport.

Note the display on the bottom of the screen reflects your position relative to the terrain and or airspace that you are approaching. (*Need to climb to get over the red area*). This profile view can be enlarged with a tap. It will also depict any approaching alphabetic airspace. The large Red buttons can be set to fade out after some period to allow complete screen viewing, or not; they will re-appear with a finger press on the screen. The scale at the top has a heading marker and a ball for desired bearing. Keep the two together and you will get where you are going. The black/white tabs can be placed anywhere on the screen and enlarged as necessary.

Shown above is “Vector” track up mode and the map is oriented normally sans the terrain detail.

For some reason iFly does not show the step altitudes of the B airspace on the most pertinent map.

This screen shows the faded buttons and a large selection of performance tabs. Bearing and Track are co-located with ETE, Distance, and Time to destination (ETE final).

Comparison with a new iPad mini with Foreflight or Wing X is inevitable; the iPad mini (Retina) has a much sharper screen and is now twice as fast as the old version, but the recommended 32 GB plus WiFi version sells for around $629 with Foreflight adding another $150 to the tab. That's an initial cost of $779 and $150/year subscription to get features comparable to the 720. Price for the 720 is $699, (street price can be found at $650). The full IFR, VFR map/plate subscription is listed at $110. Initial cost is $809. A 2 month free update is provided with the initial purchase giving the buyer a little time before purchasing the yearly update; this works well with a gracious 30 day window which allows the buyer to return the product if they do not like it.

The approximate $30 difference (*7 gallons of gas*) will make for a tough market for the iFly 720. The iPad Mini can perform many other functions than aviation/auto related applications. The iPad has faster response. A subjective observation is that I do believe that the 720 is slightly less light sensitive than the current iPads in a bright cockpit and it does not require a computer aficionado to operate.

Excessive information in popular flight planning apps can be useful on the ground but contribute to a more complex use task in the air, (*Information overload.*) The iFly is a compact and easy to use aviation dedicated GPS unit that provides a generous amount of flight planning and is easy to use in flight. Its size is not overwhelming in the cockpit. Definitely worth a look if you want to keep it tidy and simple.

Suggested Reading: **Longitude** by Dava Sobel, a fascinating read on inventor, John Harrison, who devoted his life to building an accurate clock for navigation on the open seas.

Declaring your Present Position

How many times have you decided to get flight following, but you're out in the middle of nowhere – not even close to your departure airport. You want to tell ATC your position, so you search for the "NEAREST" chapter and the "NEAREST VOR" page in that chapter.

This will list the VORs closest to you, with the bearing to the VOR, listed as "BRG", and the distance from the VOR. For instance, to the TUS VOR, we'd fly 127 to the VOR, but ATC will want to know the RADIAL. You need to do a little math, but you'll get there: It's the 307 degree RADIAL.

There's an easier way to do this, after setup.

Go to the NAV chapter. Some will recognize the map page, or NAV 2, shown on the left. Others like to stay on the NAV 1 page, shown on the right.

While in the NAV chapter . . . turn the small knob clockwise to **NAV 5** (shown by arrow "a") – or just turn the small knob all the way to the end of the NAV chapter (Vertical Nav page or NAV 7). Then, click counter clockwise two clicks to NAV 5.

You've seen this page before, but it probably has not been one of your favorite pages. Look at the bottom boxes. Wow! Bet you didn't know that your position was listed there. This page indicates that we are 142 degrees and 1.8 nm **FROM** the Casa Grande Municipal, AZ (KCGZ).

When you declare your present position to ATC, the controllers prefer that you give them the closest **VOR**. However, the bottom left box is labeled airport ("APT").

Let's change this label from "APT" to "**VOR**".

Press the "MENU" key and with the large knob, highlight "**Change Fields?"**

Press the "ENT" key.

Using the large knob, move the cursor on the page until "APT" (arrow #1) is highlighted.

Turn the small knob one click, and this brings up the "**CATEGORY**" menu, (arrow #2).

Using the large knob, move the cursor until "**VOR**" is highlighted, (arrow #3).

Back to Table of Contents

Press “ENT”, and push the small knob, to remove the cursor. You are all set.

Next time that you want to call ATC out of the blue for flight following and you’re in the middle of nowhere, just go to page 5 of the NAV chapter.

The “POSITION” Page will be all set up for the closest VOR and Radial/DME. Now that’s service! In this case, you’re on the Thermal VOR (TRM) 062° radial at 5.3 nm.

Are You Shaking Your Tail?

by Cliff Biggs
ATP, 767,757,737,727, A320, LRJet, CE500, MU-2, Wright Bros Award
A&P 46 Yrs, B707, B727, B720, B747, DC-10, DC9, DC-8, CE500

How One Question Can Lead to another and another and another

I received a call from a local shop asking me to look at a Mooney that was in the shop. They are not Mooney experts and much to their credit, they know their limitations. I got to the airport and walked around the Mooney to the tail where the other mechanics were standing. One of them asked, "Is this normal?" and proceeded to move the tip of the tail up and down which was accompanied by a loud "click" "clunk" with the tip moving almost a half inch in both up and down and fore and aft directions. Hmmmmmm!

Of course, all of us know what causes this, right?

They had the tail cover plates off and I went over and held my finger on the tail mount bolts and then had them move the tail again. Sure enough, I could feel movement in the bolt bushing area. On closer examination I could see a gray discoloration around the bolt head area and no evidence of any lubrication in the area. In fact everything I looked at in the tail area showed no evidence of lubrication!

I suggested that they not fly it until the wear was repaired and I asked (here's the first question) "who does your maintenance?" The airplane is not based here year round. I was told that a local shop in another state has done the annual for several years. After a little chit chat I mentioned that I felt that the airplane had not been properly lubricated for some time and I asked (here's question number 2) "How much do you fly this every year?" The answer, "Somewhere around 200 hours a year." Hmmmmmmmm!

I then asked (here's question number 3), do you do the lubrication AD every 100 hours"

The answer, "We do an annual every year." Hmmmmmmmm!

Next question (here's number 4), do you know about the lubrication AD? "No, our mechanic does an annual every year." Hmmmmmmm!

I'm going to digress a little here to say that this is not the first time I have run into aircraft owners who, for what ever reason, do not know what THEIR legal requirements are when it comes to maintenance on their airplane.

To many owners, the mere fact that they have an annual done every year is all that they are responsible for on the maintenance of the plane. Unfortunately that's not completely correct. Let me quote from FAR Part 91.405-

§91.405 Maintenance required.

Each owner or operator of an aircraft—

(a) Shall have that aircraft inspected as prescribed in subpart E of this part and shall between required inspections, except as provided in paragraph (c) of this section, have discrepancies repaired as prescribed in part 43 of this chapter;

(b) Shall ensure that maintenance personnel make appropriate entries in the aircraft maintenance records indicating the aircraft has been approved for return to service;

(c) Shall have any inoperative instrument or item of equipment, permitted to be inoperative by §91.213(d)(2) of this part, repaired, replaced, removed, or inspected at the next required inspection; and

(d) When listed discrepancies include inoperative instruments or equipment, shall ensure that a placard has been installed as required by §43.11 of this chapter.

If we go back one paragraph to 91.403 it states-

91.403 General.

(a) The owner or operator of an aircraft is primarily responsible for maintaining that aircraft in an airworthy condition, including compliance with part 39 of this chapter.

So as we can see, you as the owner, have more responsibility than just bringing your airplane in for an annual every year. YOU have to manage the maintenance all year long. If you have a recurring AD, like our lubrication AD 73-21-01, and you fly over 100 hours in the year, YOU have to make sure that the AD is done. Your maintenance shop will probably NOT know you are over 100 hours in the year until he sees your plane at the next annual. It's your responsibility to tell him when the AD is due between annuals. This goes for all recurring ADs, so keep your eyes open.

Back to our story: After discussing how important lubrication is on a Mooney and how he needed to address the tail bolt issues, he mentioned that they had to jump start the airplane with cables even though they had an external power plug. I asked (here's question number 5) "Why?" Because the aux plug doesn't work was the answer. Hmmmmmmm!

It was then volunteered that the airplane had had a gear failure and had been repaired but they thought that the gear doors didn't close all the way! Hmmmmmm!

The owner was convinced enough to ground the airplane and start working on the tail hinge. After 8 shop hours of trying to get the bolts out, a screw press was made to carefully push out the bolts. They were completely dry, rusty and worn. New bolts were tried in the holes and the bushings turned out to be good. Only the bolts and the missing washers on those bolts were needed to bring it back to no slop! Hmmmmmm!

The owner then took all the panels off the plane and started to lube everything movable, as it should have been done every 100 hours.

Having my Maintenance Manual handy I showed them the electrical schematic for the external power plug. While trouble shooting it, I found that the external power relay was missing the ground/diode wire from the coil to ground. Easy fix, just no one knew how to fix it. Hmmmmmm!

Now to the gear problems

With the plane on jacks and the belly open I went to the nose gear first. Fore and aft, left and right lots of play in the vertical bushings and bolt. Twist the tire and way too much play in the steering linkage. In checking the mains I find a little play in the retract linkage but not too bad. OK, lets suck'm up and see what that holds for us.

Sure enough, the mains don't go all the way up. Short by 2 inches, gear doors not flush at all. And this is just a few months out of an annual inspection! Well, let's see what the manual extension holds for us- ooops! It doesn't go down! Turns out that the release lever works but the crank handle won't crank!

So, let's recap what I found on the gear:

1) Nose gear is way worn in the steering linkage and pivot bolt/bushings.
2) Main wheels don't retract properly.
3) Emergency extension doesn't work.
4) One frozen Heim joint on the retract bars for the nose gear.

So, the owner now has a new list of items to fix before he can go fly again.

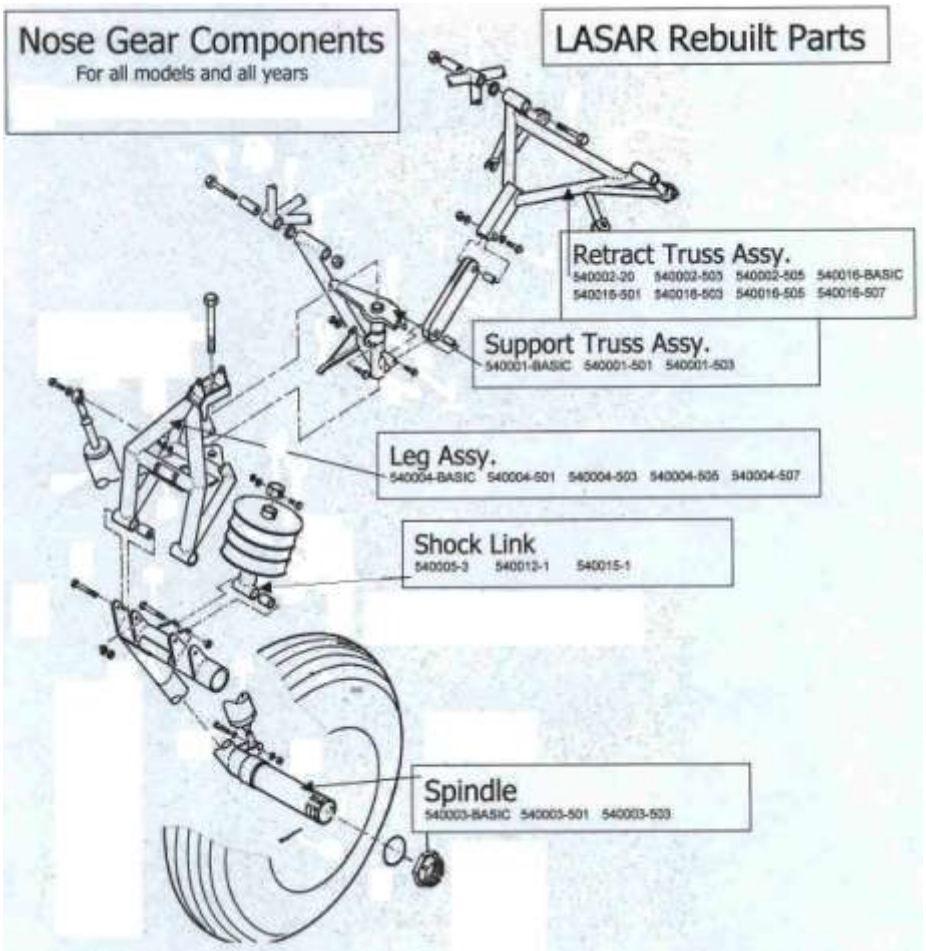
As you can see by this long litany, one question can and will lead to many others when it is noted that there are problems with your airplane. It should be blatantly obvious by now that a maintenance shop has to have specific knowledge of Mooney maintenance practices to be able to do a competent job. The owner "thought" he was getting good maintenance all these years BUT?

And, as an owner, you can't just live with your head buried in the sand when it comes to aircraft maintenance. Remember, YOU are the one in the airplane and as the owner; you have the legal responsibility to maintain your airplane properly. The more you know, the safer you will be.

Nose Landing Gear Inspection and Repair

by Michael Riter (Service Manager at LASAR)

I thought this month we would look at the nose landing gear. There are a lot of parts in the nose landing gear that are subject to wear. With the aircraft on jacks let's get down and take a close look. With the gear down and locked, try moving the gear fore and aft. It should be solid. If there is movement in this direction it is typically caused by play in or about the pivot truss. This can be caused by something as simple as the pivot bolt not being tight. We see this a lot, often being able to turn it by hand. This bolt should be tight, 450 - 500 in lbs, and should be checked every annual. If there is a little bit of play, tightening this bolt should take care of the problem. If there is a lot of play, further investigation should be done. We have seen the lower mounting point of the NLG truss damaged beyond limits and the bolt hole elongated. If the bolt is tight and there is still play, the most likely culprit is the pivot truss. Because the bushing is a stronger material than the surrounding metal, the pivot truss will wear, causing the bushing inside to move. The fix for this is a LASAR pivot truss oversize bushing kit. The pivot truss is reamed and an over-sized bushing is installed.



Before we take the gear out, lets finish looking at things. While looking up at the steering horn, move the nose gear left and right. You are looking for lost motion between the gear and where the steering horn connects to the rudder push rod. Again, some play is OK, but excessive play in the steering horn needs to be corrected. That little play down in the steering horn is represented by a lost motion in the cockpit rudder pedals when steering. Sometimes shiming the 'T' shaft will take away some of this play. What normally happens is that the 'T' shaft wears the body of the horn, requiring replacement of the steering horn. LASAR has

a fix for this and we sell both early and late steering horns that are rebuilt.

The NLG truss also needs to be looked at. Check the aft tubes of the NLG truss for dents caused by over steering. The limit for dents in this area is .032 inch. As you all know a bad line crew member can end up costing you thousands of dollars. We have seen some unbelievable damage caused by people operating a tug who did not know the limits of the aircraft they were moving. When leaving your aircraft at a place where it may be moved, let them know about the turning limits of the aircraft and let them know that you know the condition of your truss. Don't forget to check it before you leave. If something were to happen, LASAR can keep you flying with a new LASAR truss.

The shock disks are often overlooked and they should also be looked at. The NLG shock disks are not subjected to the same weight as the MLG, but they take a beating. Most notably from the oil and grease which breaks down the rubber. Shock disks should be nice and tall, not rounded and bulged. We will talk more about the importance of shock disks in a future article. If you are having your NLG out for a repair now is the time to replace the disks. To keep your disks in good shape: When your engine is washed at annual, wash down the NLG and rinse with water. Don't forget to reapply grease at the grease fittings.

LASAR sells most parts for the NLG. We can also overhaul your gear, whether you bring in your aircraft for service or send us your NLG assembly. You can check out our inventory of parts at our web site www.lasar.com . Dan in parts can help you with any parts you may need.

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 head count for the restaurant on Friday.

January 11, 2014: The tenth anniversary of the Florida Mooney Lunch Group will be hosted by EAA Chapter 534 of Leesburg (LEE). They will cook lunch for us in their hangar.

February 8: Sebring (SEF)

March 8: Fort Pierce (FRP)
April 12: Flagler (XFL)

February 7-9: **Mooney Summit** - Because of the generosity of Dr. Ron Dubin, we are holding the first Mooney Summit on Feb 7-9th in Panama City. The purpose is to help better the breed and a social event for Mooney pilots and their spouses. Wings credit seminars will take place along with scheduled IPC's or BFR's, shopping, dining, pampering and beach activities are available for the non flying partners. The cost of the event is free, but the space is limited. If you would like to participate, please send an email to sillyquestions@aviating.com. I look forward to seeing some of you! **Mike Eliott**

CLICK Here for details at TheMooneyFlyer.com

Click Here to see the current winds displayed across the USA

Send your questions for Tom to TheMooneyFlyer@gmail.com

I was asked a question about mods to help cooling and speed mods for C and E models, but I think I want to expand this into mods in general. I don't think I can cover them all so bear with me.

The kings of mods include Roy LoPresti and Paul Loewen. Probably, nobody has done more for Mooney mods than Paul Loewen!

Let's first go into the best Mooney mods in history. That credit goes to Roy LoPresti when he took the 1976 F model and, through aerodynamic mods only, created the 1977 "201" M20J, and gained 31 mph. The biggest gain was with the windshield and cowling changes. The next aerodynamic change was when he introduced the "231" M20K with sculptured wingtips. All speed changes after the K model were done by combinations of different engines and props. Some didn't work out too well, such as the M20L, which did not have enough horsepower. That led to the M20M, with a lot of horsepower; 270 to be exact, and a fast Mooney. Then came the non-turbo Ovation, coupled with the Hartzell composite prop; a real "barn burner". Finally, the Acclaim with the turbo 550 held the speed record for a production airplane.

Back to the question about cooling and speed mods. Those of us that do mods, modify any model from 1962 to 1976, with most of the mods done to the mid to late seventies models. An example of almost every mod available is Top Guns 1969 F model which incorporates almost all the mods that Roy did to the 1976 F model, several of Paul Lowen's mods (Click Here to see Paul's mods), and some field approvals we originated.

Cooling Mods

Let me first talk about "cooling mods", which are few. One of the best is the oil cooler relocation that Paul Lowen pioneered along with many other mods. Paul should get the credit for doing more to improve performance of the earlier models than any other person. He has more kits and improved parts than anyone in the business. The "cowl closer" was one of the first to modify airflow in the early models.

Cooling, in my opinion, has not been a big problem for Mooneys. Well maintained baffling, correct timing, using cruise/climb speeds in hot weather, will go a along way to controll temps.

There has been an evolution in speed mods thru the years. From the first "cowl closer' on the wide mouth intake to the ARI "201" cowl mod, all have given owner's good options depending on cost. I believe the 201 windshield mod and the ARI nose cowl mod give the best bang for the buck. We used actual M20J cowling on our F model. Then there is the LoPresti cowl mod which probably gives the best performance for the money spent.

ENGINE FAILURE - A condition that always results when all fuel tanks mysteriously become filled with low-octane air

Other Mods

I will go through the list mods; the most common and some uncommon. Putting Nav antennas in the wingtips might give us .001 MPH.

Besides the windshield and cowling, you can rotate the brake cylinders, add sculptured wingtips, install a late model dorsal fin, stabilizer gap fairings, flap and aileron gap seals, and wing root fairings. You can eliminate the top air scoop, fiberglass belly panel, and ram air door. The best mod for the money is cleaning and waxing your airplane. It's worth about 5 MPH.

A large number of the older models have been modified. Mods can help you gain a lot of speed, but it does cost a lot more to "mod" than it did 20 years ago, so it's not very cost effective. I do want to mention, besides Roy LoPresti and Paul Lowen, Russ Stallings, of Southwest Texas. He has made significant speed mods at his shop.

I am looking forward to the new owners of Mooney coming up with even faster planes.

December, 2013

iPad mini Kneeboard

A multitasking kneeboard, binder and versatile cover that is functional, durable, and stylish.
ASA's iPad mini Kneeboard is the ideal cockpit companion for your iPad mini. This professional portfolio protects your iPad mini in flight and on the ground. The elastic strap secures the binder-like case to your leg while in flight and is easily removable for everyday use. The inside sleeve holds your iPad mini securely with full access to controls and buttons. The left side has pockets to store your documents and provides a writing surface. The cover folds into a flap to serve as a horizontal desktop stand, providing easy landscape viewing and full keyboard access. A hole on the back panel exposes the camera lense for picture taking, and a pen/stylus holder is conveniently accessible in any configuration. Beautiful black leatherette with embossed wings; fits iPad mini.
Measures: Height 8-5/16", Width—closed 5-7/8", Width—open 12-1/4".
http://www.asa2fly.com/iPad-mini-Kneeboard-P1984.aspx

H. R. 1848

AN ACT

Small Plane Revitalization Act

The measure sets a Dec. 31, 2015, deadline for the FAA to reform and streamline Part 23 of the federal aviation regulations, which governs the certification of many new general aviation aircraft as well as affecting how modifications are made to older airplanes. The planned changes to Part 23 were designed to create “twice the safety at half the cost,” making it more affordable to make safety improvements to the existing fleet while reducing the cost of bringing innovative new designs to market. Click Here for more detail.

Product Review: GoPro Hero 3+

The only thing we enjoy more than flying our Mooneys is to take pictures and movies of us doing so. The leading camera for this is the GoPro Hero 3+. It retails for $399 and has more capabilities than most other cameras for aerial photos and video. For starters, it only weighs 2.6 oz and can capture cinemagraphic quality video.

Let's start with the video quality. It's amazing. High-resolution, high-frame rate 1440p48, 1080p60, 960p100 and 720p120 video modes result in professional quality footage and allow for liquid-smooth slow motion playback. 4Kp15 and 2.7Kp30 enable ultra high-resolution, cinema quality capture. Yes Martha, it can also capture still pictures at 12MP and also has a burst mode so that you can capture up to 30 pics per second of some high action flying. If video and still photography is not enough for you, there is also a Time Lapse mode that can be adjusted from every ½ second up to every 60 seconds.

Sometimes you will want different settings for wide angle viewing. There are three settings that allow you to set the field of view to match your shot.

The Hero 3+ comes with a few different mounts included and a 3-way pivot arm. You can also order more than 18 variations from GoPro and many more on the internet ranging from helmet mounts, bicycle mounts, wrist, suction cup, and more. **Click Here** to see your options.

Here's another feature that is an absolute must, especially if you mount your Hero 3+ outside of your cabin. It comes with a WiFi remote that allows you to control the functions of the camera. Without this feature, you would have way too much useless video. If you download their App, you can control all of the camera's functions from your iPhone. Our favorite feature is the ability to quickly review video on your iPhone while you are still aloft. Didn't get it right? Just make another pass and re-shoot your video.

If you want to capture ATC audio to enhance and show off your radio skills, that is also doable on the Hero 3+, as an accessory.

Just **Click Here** to read more about the GoPro Hero 3+

You can check out another competitor, DriftHD Ghost. It has one very useful feature not found on the GoPro which enables you to rotate the lens 300° to frame your picture or video without changing the heading of your Mooney. This could be very useful and fun. Check it out by **CLICKING HERE**.

Mooney Instructors Around The Country

California

Chuck McGill (Master CFI) located in San Diego, CA 858-451-2742, Website: Click Here

Florida

Mike Elliott (CFII) located in Tarpon Springs, FL, Contact 317-371-4161
Quality instrument & commercial instruction, transition training, ownership assistance, plane ferrying

Georgia

Jim Stevens, USAF, Col, (ret), CFII. Atlanta, Ga area. 404-277-4123. Instrument, commercial, IPC, BFR, transition training. 20 year owner of 1968 M20F.

South Carolina

Wallace Moran – Charleston SC, 843 822 9725, Email wallace.moran@gmail.com

A NAFI Master CFI with extensive Mooney experience. He is also an FAA Designated Pilot Examiner and has been awarded the FAA Wright Brothers Master Pilot Award. Wallace is a retired airline pilot and Mooney owner.