The Mooney Flyer

The Official Online Magazine for the Mooney Community

www.TheMooneyFlyer.com

April 2014

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In Every Issue

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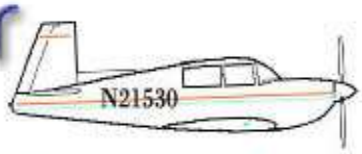
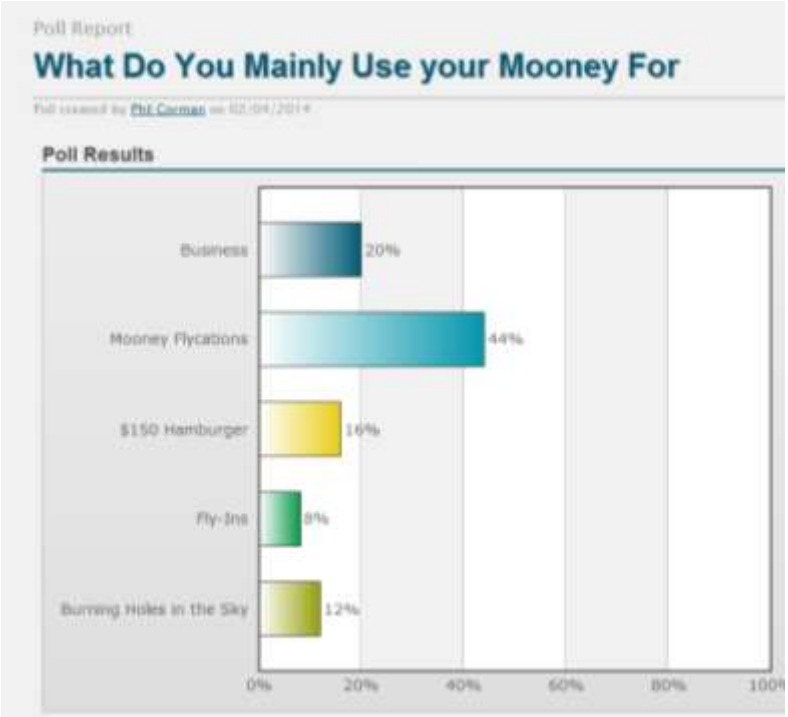
From the Editor

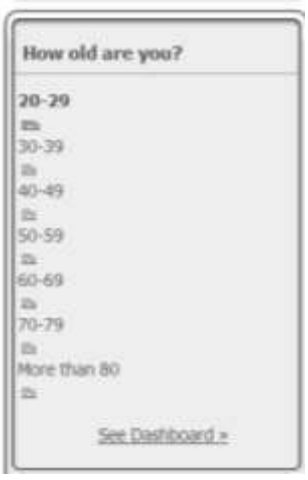
Phil Corman



Here are the results of last month's survey.

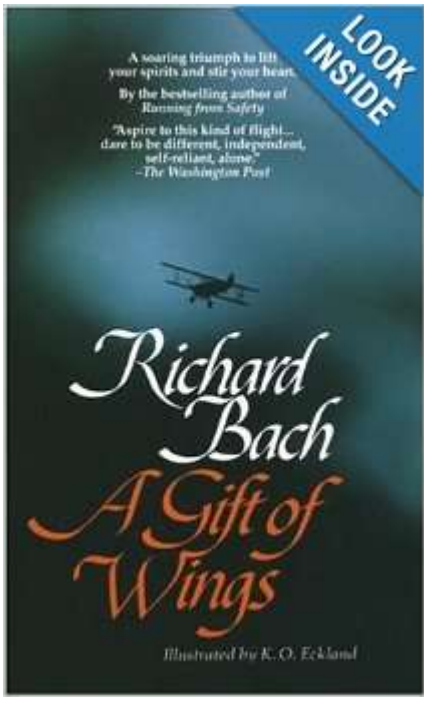


We are a little surprised that the overwhelming use of our Mooneys is for "Flycations". We were expecting the 1-day $150 hamburger to be #1. Given that our Mooneys are cross-country machines, I guess it makes sense.



Here is this month's poll. We are very interested in the average age of Mooney pilots, actually the average age of all pilots. **CLICK HERE** to cast your vote.

Book of the Month



Simply put, this book put "The Love of Flying" into the hearts of countless pilots. If you haven't read it, give it a try. If you have, give it to a child to read.

CLICK HERE to buy it from Amazon

CLICK HERE for an awesome compilation of maintenance and performance articles from Lycoming.

An Anecdotal Account of Camguard

There is a tremendous amount of discussion regarding Camguard's effectiveness on our engines. There are arguments for and against its use, for and against the unbiased accounts of its effectiveness, and even its effectiveness on Lycoming vs. Continental engines. Most of the accounts are based on beliefs.

Here is an example of a "before vs. after" oil analysis on my IO-550. I started using Camguard with the latest oil/filter change. Nothing else was varied.

COMMENTS

PHIL: Nice improvement in wear and lead blow-by. We're not sure what to thank for this, but we hope it keeps up. It looks like you used a little CamGuard additive here (calcium & phosphorus), though we don't normally see that change wear metal this much. Maybe some engine work was done? That would explain the silicon we found here - from sealers. Silicon can also show dirt, but with wear like this, abrasive contamination isn't likely. We'll keep an eye on fuel dilution next time because it did increase slightly and may have lowered the viscosity a little. Still, nice report.

ELEMENTS IN PARTS PER MILLION

ALUMINUM	5	7	9	7				7
CHROMIUM	8	12	13	14				9
IRON	69	113	**142**	**128**				61
COPPER	3	3	3	2				6
LEAD	5645	7790	8541	**9185**				5476
TIN	0	0	0	0				1
MOLYBDENUM	2	3	4	4				4
NICKEL	3	5	6	6				7
MANGANESE	2	3	4	4				1
SILVER	0	0	0	0				0
TITANIUM	0	0	0	0				0
POTASSIUM	1	0	0	0				1
BORON	1	2	4	0				1
SILICON	**54**	21	4	5				7
SODIUM	1	1	1	1				1
CALCIUM	93	37	8	11				17
MAGNESIUM	1	1	1	0				1
PHOSPHORUS	118	39	0	0				706
ZINC	12	9	7	9				10
BARIUM	0	0	0	0				0

PROPERTIES

		Values Should Be*					
SUS Viscosity @ 210°F	**84.0**	86-105	87.9	86.3			
cSt Viscosity @ 100°C	**16.52**	17.0-21.8	17.48	17.09			
Flashpoint in °F	**420**	>430	**430**	445			
Fuel %	0.5	<1.0	TR	<0.5			
Antifreeze %	-		-	-			
Water %	0.0	<0.1	0.0	0.0			
Insolubles %	0.5	<0.6	0.4	0.4			
TBN							
TAN							
ISO Code							

* THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE

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Interesting to say the least…

Question your POH on these two topics. First, think twice before operating your engine at 50° ROP. That causes high Internal Cylinder Pressure which wears your engine. Second, many POHs say you can run your engine for 50 hrs before a change. This might be true if you fly 50 hrs in about 3 months. The less you fly, the more often you should change oil & filter. We think 25-35 hrs per change is much better on your engine. Why? The oil turns acidic.

Appraise Your Mooney's Value

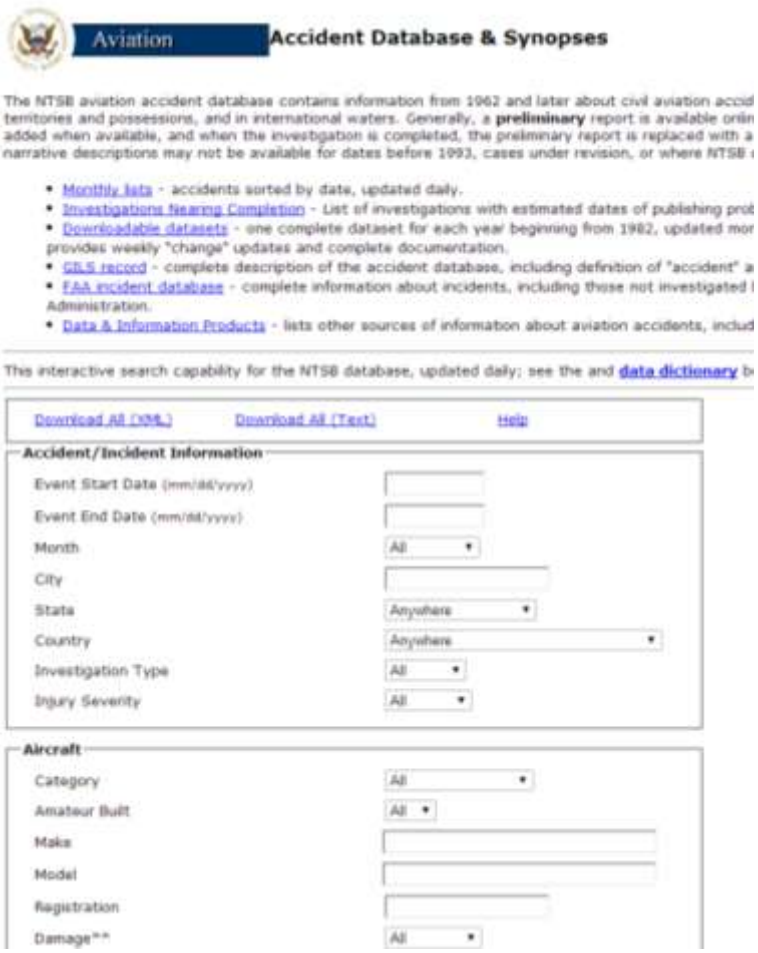
Don't forget about our cool new **Appraise your Mooney's Value** using Jimmy Garrision's valuation. Jimmy is from All American Aircraft, the country's largest Mooney reseller. We have implemented the models for M20C, M20E, M20G, M20F & M20J. Click on your model to simply complete the valuation. You no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

The Mooney Flyer Website of the Month

NTSB Aviation Database

http://www.ntsb.gov/aviationquery/index.aspx



This website enables you to search for any/all NTSB reports by 1) Date, 2) Aircraft, 3) Operation, 4) NTSB Status, and/or 5) Event Details.

You can hone in on any published NTSB report, whether accident or incident.

It is an interesting and safe way to learn from others mistakes, and for that reason alone, is a useful site for occasional review.

I particularly found searching accidents by "phase of flight" to be most interesting.

Most un-interesting is that pilots seem to remain the #1 reason for NTSB reports, and not our Mooneys.

Just a note for those considering the **KT 74 transponder** mentioned on page 29. It is "plug and play" only if you are using it just to replace an older transponder. To get the box to send ADS-B out signals, you will also need a new tray and wiring that connects to a WAAS capable GPS.
Greg D

After I got my J model in 2003 I had the engine replaced with one from the Lycoming factory, but it always ran a bit warm, some times real warm), even thought I had the Mooney service center that replaced the engine check it over a number on times and a couple of other service centers check it with no help then on a trip I stopped at Kjzp and there was a mechanic at this airport and the engine was due for an oil change.

I mention my issue with the engine running warm my mechanic said he would take a look. When I returned he said that there was a lot of slag between the cylinder fins and cleaned them out.

He also said that there is a service letter or an AD about this.
Mike M

Regarding Engine Longetivity: I love the magazine too. I look forward to it every month. I almost always learn something when I read it. However, from the Busch and Deakins articles I've read, except at high power settings, EGT is not what burns valves, an improperly seated valve is usually the culprit. Warped valve, warped head, improperly ground face, misaligned valve guide, worn valve guide, dirty valve guide or manufacturing defect, for example. I'm talking about a normally aspirated, of course, not turbo.

Deakins also has an article that says the most efficient prop speed depends on the prop. If you really want to know what the most efficient prop speed is, you'll have to test your own airplane. If you are talking about cruise altitude, high enough to allow WOT, it is moot. RPM will control both speed and efficiency. You have to decide which you want more of, high RPM for speed or low RPM for efficiency. At lower altitudes where you are setting both RPM and MP, pick a combination, say a target number of 47 for a J, like 2700 RPM and 20". Lean to LOP, check the fuel flow, write down the IAS. Set 2600 RPM, 21" lean to the exact same fuel flow and make sure you are still LOP. If you are, write down the IAS. Change to 2500/22" and do it again. Then 2400 and 23" and so on until you run out of throttle, can't get the same fuel flow LOP, or you don't want to run the engine any slower. The combination that gives you the highest IAS is the most efficient combination
Bob

What a great magazine! I am so glad that I found it and have been consuming all the back issues from #1 onwards. I am new in Mooney country sharing an 89 J DENWU in Germany with my first 20h now accomplished Thanks again for doing this!

With regards
Joe H
Nienhagen near Hannover, Germany

RE: Reference Tim H's letter in March, concerning hot starts and the IO-360:

- Do NOT use any boost pump
- Throttle – Wide Open
- Mixture – Idle cut off
- Once the engine catches, QUICKLY move mixture to rich AND throttle to a little above idle
- Getting the throttle off of Wide Open obviously needs to be done ASAP

Using this method, it takes about 3 to 5 prop blades to swing by the windshield before the engine starts, and she'll run a little rough for a minute or so. But she'll always start, and no more running the battery down or overheating the starter!

I am so glad that Tim shared this. I have an TSIO-360-MB and landing to drop off something or to refuel has always been stressful. It's always a little humbling when we try to restart a warm engine and fail. Recently, I tried Tim's method, (which he learned from Danny), and it is wonderful. My prop turned about one blade before the engine started. I am so impressed with The Mooney Flyer and its service to the Mooney Community. What would we do without you? Thank you so much!!!
Jim D

I'd like to thank and acknowledge The Mooney Flyer for representing "all of the Mooney community". It's Upcoming Fly-Ins show all of the Mooney events including the Florida Lunch Group, Formation Clinics, Vintage Mooney Group, the Mooney Summit, and the Annual Homecoming, plus articles on each. Keep up the good work.
Don C

Stranger than Fiction

Remember the Mooney that crashed departing Sedona (KSEZ). The cause was a clogged oil filter. The oil & filter had not been changed for more than 200 hours, according to the NTSB.

Wake Turbulence can Ruin your Day

by Jim Price

On Friday, February 17, 2012, after flying from Raleigh, NC, the private pilot, Dr. Nitin Desai, an Internal Medicine Doctor, and his wife were landing their newly acquired M20TN Acclaim at their home field, Fayetteville, NC, Grannis Field (KFAY).

Registration number: N118RZ

Dr Desai was seriously injured and his wife received minor injuries. News reports indicated that the pilot remained overnight for observation and was later released. The Acclaim was “written off”, damaged beyond repair.

Around 5:30 pm, the pilot was in the traffic pattern for landing and was informed by the tower air traffic controller that there was a large airplane (Gulfstream) at his one o'clock position on a 5-mile final approach. The accident pilot replied, "I see the Gulfstream ah Gulfstream on the final." A 5.72-mile separation was noted on the controller’s radar screen at that time.

Five seconds later, the approach controller informed the accident airplane, which was at 2,500 feet, "caution wake turbulence" and instructed the pilot to contact the tower. Thirty seconds later, the Acclaim was cleared to land on runway 4 by the controller. The pilot acknowledged the transmission. Approximately one minute later, the tower controller informed the accident pilot, “caution wake turbulence from the Gulfstream". The Acclaim pilot’s response was unintelligible. The pilot stated he encountered wake turbulence from the Gulfstream that landed ahead of him and lost airplane control.

A witness reported that the Mooney stalled from about 8 feet above the runway. The main landing gear and tail section hit the runway “hard". The pilot attempted a go-around and the nose pitched up at a slow airspeed. The airplane climbed about 15 feet and stalled again, colliding with the runway on the

main landing gear and tail section. Again, the pilot applied full power, but the engine torque put him in a 35 to 40-degree left bank. The Acclaim stalled a third time, scraping the left wing and left main landing gear on the runway. The pilot subsequently struck a light pole, and spun around, coming to rest in a grassy area past the parking ramp.

The required separation in accordance with FAA regulations was 4 miles and at one time, the pilot had 5.72 miles of separation. So what went wrong?

It's that one other thing that pilots need to remember about wake turbulence. Pilots landing a smaller airplane behind a larger airplane on the same runway should stay above the larger airplane's final approach path and land beyond it to avoid an encounter with wake turbulence. The pilot had contacted the tower controller, after a handoff from the approach controller, and was cautioned again about wake turbulence.The NTSB determined that it is likely that the pilot did not land beyond the Gulfstream's touchdown point, and the airplane encountered wake turbulence, which led to the runway excursion and upon attempting a go-around, a collision with a pole. The National Transportation Safety Board determines the probable cause of this accident to be: The pilot's failure to maintain adequate separation behind a large airplane during landing, which resulted in an encounter with wake turbulence and a loss of control.

There they go again, blaming the pilot. What about ATC?

Approach controllers are responsible for providing cautionary wake-turbulence information to assist pilots prior to their assuming visual responsibility for avoidance. They did that.

Tower controllers are responsible for runway separation for aircraft arriving or departing the airport. They did that. Tower controllers do not provide visual wake-turbulence separation to arrival aircraft; that is the pilot's responsibility. Yup, the Acclaim pilot had lots of lateral separation.

The pilot is responsible for avoiding wake turbulence when:

a. Flying in VFR and not being vectored by ATC.

b. Maintaining visual separation.

c. Cleared for a visual approach.

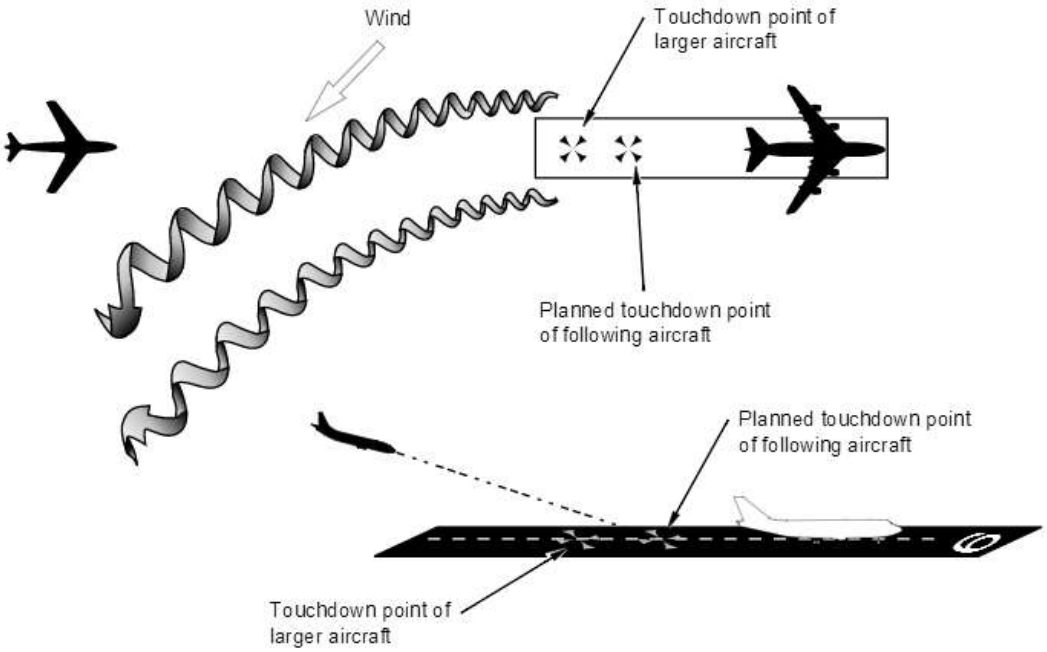
What can we do to ensure that we never encounter wake turbulence.

- Stay at or above the larger aircraft's final approach flight path.
- Note its touchdown point.
- Land beyond the touchdown point, runway length permitting.
- If unable to land safely beyond the touchdown point, go around

For instance, a puff of smoke may appear at the 1,000 foot markings, so you adjust your aimpoint to the 1,500 foot markings.

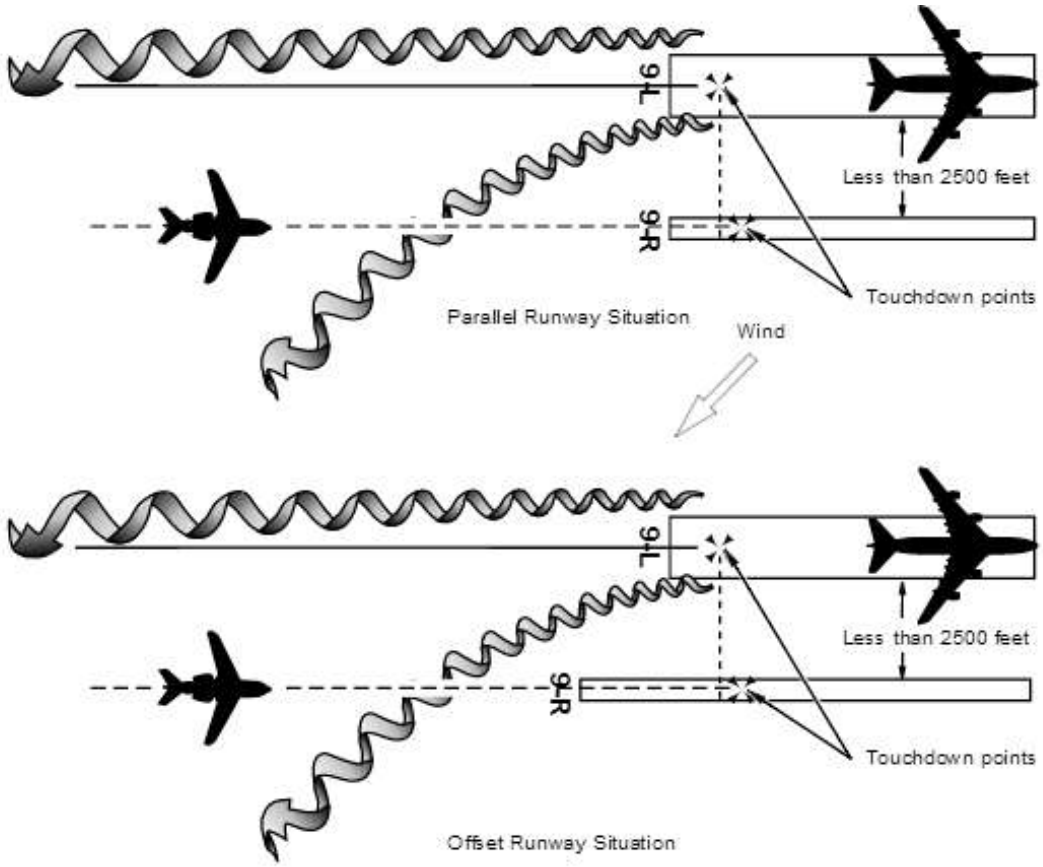
There are numerous scenarios, but we'll examine the most common:

USEFUL LOAD - Volumetric capacity of the aircraft, disregarding weight



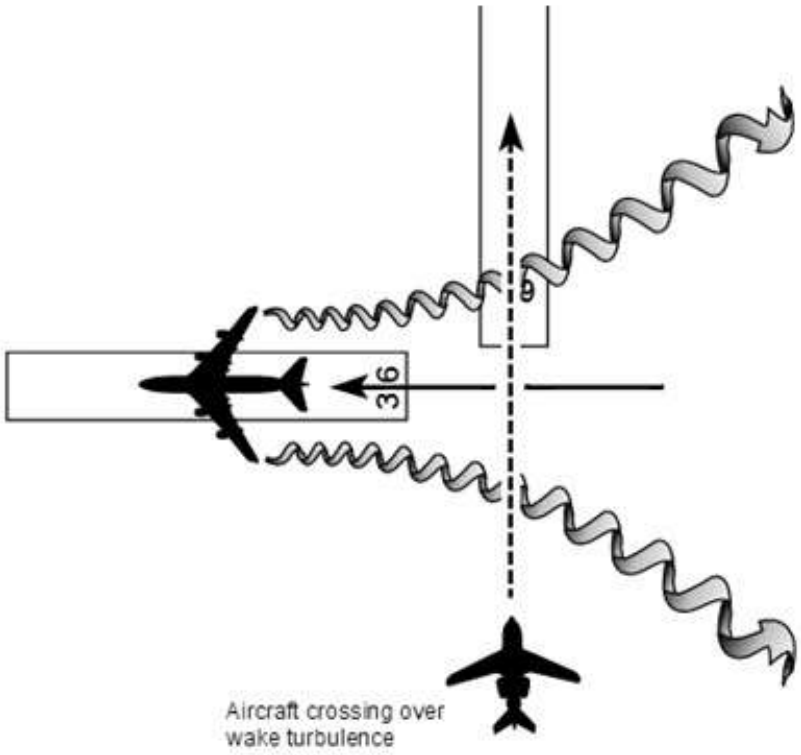
If you're landing behind a larger aircraft on the same runway, touchdown beyond the larger aircraft's touchdown point

If you're landing behind a larger aircraft using parallel runways that are closer than 2,500 feet, consider possible wake-turbulence drift to your runway. Stay at or above the larger aircraft's final approach path and note it's touchdown point:

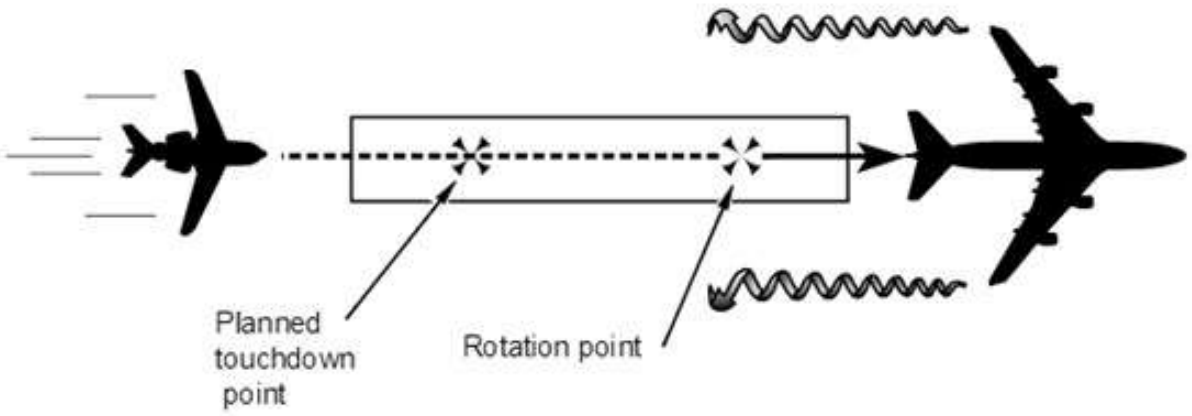


WAC CHART - Directions to the Army female barracks

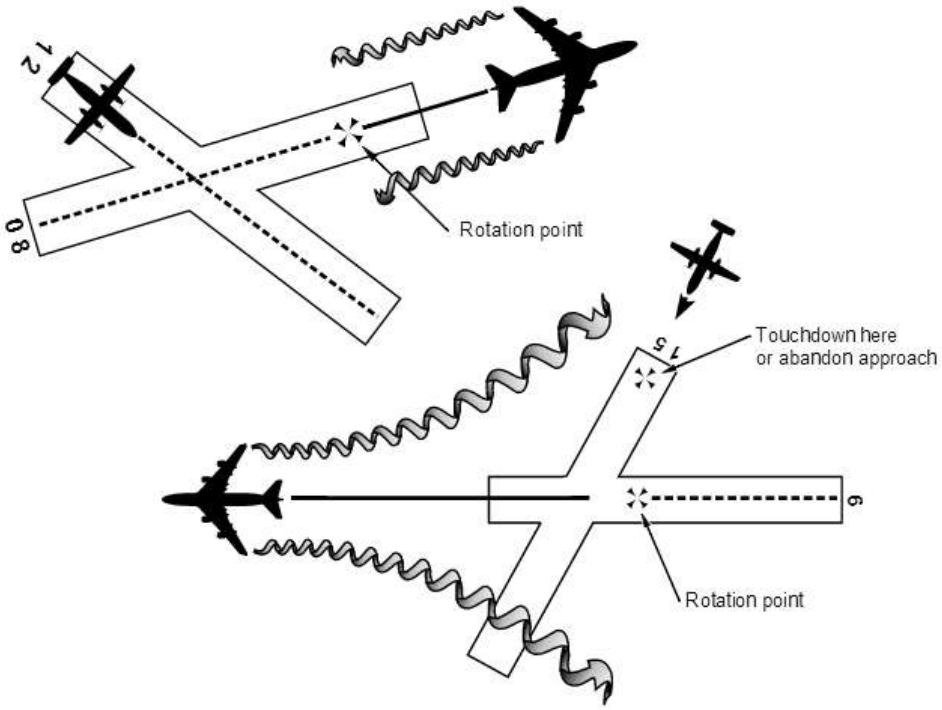
If you're landing behind a larger aircraft that's departing on a crossing runway, cross above the larger aircraft's flightpath. Consider lateral and vertical motion of wake turbulence. If unable to land safely, go around.



If you're landing behind a departing larger aircraft on the same runway, note the larger aircraft's rotation point. Land before the rotation point, or go around.



When landing behind a departing large aircraft with crossing runways, note the larger aircraft's rotation point. If past the intersection, continue the approach and land BEFORE the intersection. If the larger aircraft rotates before the intersection, avoid flight below the larger aircraft's flightpath. Abandon the approach unless a landing is assured well before reaching the intersection.



Give helicopters a wide berth!

In a slow hover taxi or stationary hover near the surface, helicopter main rotor(s) generate downwash producing high velocity outwash vortices to a distance approximately three times the diameter of the rotor. When rotor downwash hits the surface, the resulting outwash vortices have behavioral characteristics similar to wing tip vortices produced by fixed

wing aircraft. However, the vortex circulation is outward, upward, around, and away from the main rotor(s) in all directions. Pilots of small aircraft should avoid operating within three rotor diameters of any helicopter in a slow hover taxi or stationary hover. In forward flight, departing or landing helicopters produce a pair of strong, high-speed trailing vortices similar to wing tip vortices of larger fixed wing aircraft. Pilots of small aircraft should use caution when operating behind or crossing behind landing and departing helicopters.

Avoiding wake turbulence on takeoff

A three minute interval will be provided when a **small** aircraft will take off from an intersection on the same runway (same or opposite direction) behind a departing **large** aircraft, or in the opposite direction on the same runway behind a large aircraft taking off or performing a low/missed approach.
NOTE- *This 3-minute interval may be waived upon specific pilot request, unless the preceding aircraft is a heavy or B-757 jet.* **I don't recommend that you waive the 3 minutes of waiting time!**

At my little home airport, Chandler Municipal (KCHD), I am amazed at the frequency that business jets land and take off. Avoiding wake turbulence needs to be in your thought process before every takeoff and landing.

Fly Safe,

Jim

PHIL CORMAN

Spring Cleaning

Well, it's not spring cleaning, per se, but rather Spring Maintenance for your Mooney. Most of the United States was hit pretty hard with a barrage of blustery winter storms. For many, that meant less flying and more hangar rust for your Mooney. Even if you were fortunate enough to live in Australia or the west coast of the USA where the weather was warm and dry, you should consider reading this article and performing these actions on your Mooney. It can't hurt, doesn't take too much time, familiarizes you again with your airplane, and you just might find something that needs attention. It's always better to discover problems on the ground than in the air!

You could take your Mooney to a Mooney Service Center. That's never a bad idea. But part of this exercise is to intentionally get your nose into your aircraft and familiarize yourself. If you are not sure of something, then drag an A&P over and get some expert assistance.

Before You go to the Hangar

Pull out your Logbooks and review them. Then review your AD list to ensure you are current. You might even go to the Mooney site and check for any new ADs that might have popped up. It's unlikely, but worth a check.

Your Spring Preflight

OK, you haven't done a preflight for a while. We suggest allocating a lot more time for your first Spring preflight. We also suggest using your POH's preflight checklist. Your brain might have a little winter rust as well, so utilizing a checklist and taking your time just plain makes a lot of sense.

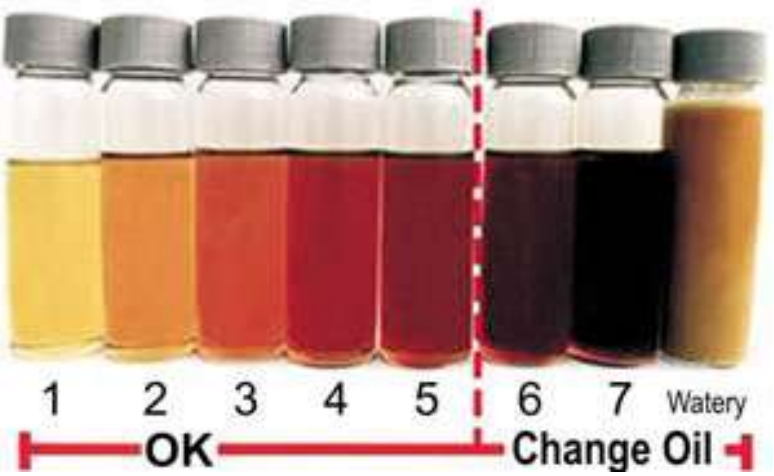
YANKEE - Any pilot who has to ask New Orleans tower to "Say again"

`Inspect Your Mooney for Damage

If your Mooney has been hangared, then it was protected, mostly, from Mother Nature. But if you share your hangar with others, then she's susceptible to hangar rash. Check your gaskets and seals to ensure that they haven't frozen or dried out and cracked. Especially check the O-ring on your fuel caps. These parts usually need changing once per year.

If your Mooney is on the ramp, then after you perform the above stuff, check for damage from other planes and vehicles that might have dinged your plane over that length of time. Assume nothing. It's that one in a million chance that will bite you in the air if you don't catch it on the ground.

Check Oil & Fuel



If your Mooney has been sitting for longer periods of time in the winter between flights, then your fuel and your oil are susceptible to water from condensation. Perform a thorough gascolater and fuel tank sump. In regards to oil, remember that oil goes bad after elapsed time as well as time through usage. If it's been 3 months or more over a cold winter, then change the oil. What else costs you that little for so much protection! Old oil can become acidic and cause corrosion and pitting of components, such as cam lobes and bearings. Rust can then mix with the oil, causing extensive damage to the engine

Your Battery

This is an important check and must be done with care. If you were on top of things, you might have had your battery on a BatteryMINDer. That will keep it charged and desulphated. If the battery isn't dead from old age, you should be good to go. If your battery is dead. Think strongly about removing it from your aircraft before attempting to recharge it. Why? A dead battery could explode and it would be better for it to explode away from your engine compartment or fuselage. In that vein, make sure you are not near your battery when you flip the charger on. Battery acid can sting. Lastly, check the battery leads are snug and corrosion free and ensure your battery mounts are secure.

While you are at it, check the grease in your Zerk fittings and squeeze in additional grease if need be. Can't hurt and can only help.

Your Tires

Tires and inner tubes leak. If it's been a while, there is a likelihood that they are not fully inflated. Underinflated tires are bad. Overinflated, not so much. Don't rely on eyeballing your tires for proper inflation. That is unreliable. While you're down there, check your tires for bald spots, low tread, or tread damage. And while you're at that, check for hydraulic leaks, your brake pads, and your donuts.

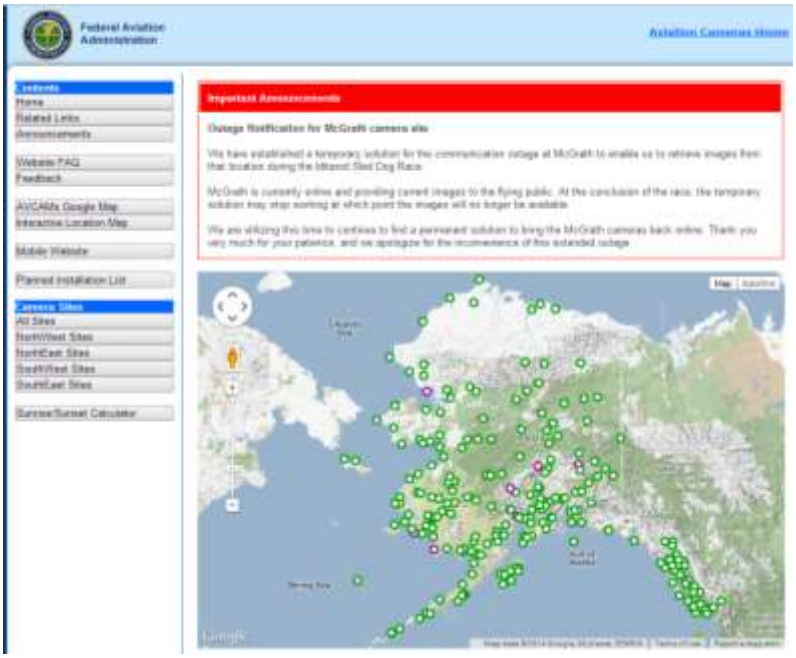
Your Intakes

By intake, we don't mean your food diet. That's another magazine article. Check all of these for nests and rodents: 1) Your air intake, 2) Stall warning flap, 3) Pitot tube, 4) Static Ports. Birds, bees and rodents love idle airplanes. If you have a J-bar, check under the boot.

Now you are ready for your Spring flight. The temperatures are a little milder and the storms a little less powerful, but the winds can be an issue in the spring. So the last thing you should do for your Spring Maintenance is to take that beautiful Mooney of yours and take it around the airport pattern and do all those maneuvers you might be a little rusty on. If you are really ambitious, make it a Wings flight. But just like our planes, we pilots may get a little rusty on those crosswind landings or short field takeoffs; departure stalls, and the like.

Alaska WeatherCams

If you haven't had enough of winter or you just want to check off a bucket list item and fly your Mooney to Alaska, the last frontier, here's a cool website. It's all of the Alaskan webcams, useful in a land of "exciting weather". **CLICK HERE** to visit the site.



Bad decision always make good stories

Some Departures Are NOT what they Seem

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

Put Your Thinking Cap On! Here's a good exercise for all you CFIIs and Mooney drivers that do a lot of IFR. It was brought about by an actual, real life, situation.

To some of you this may be "old hat", but it caused a great amount of consternation among a group of pilots (2 airline Captains, 2 Military IPs and 1 Corp. Jet driver).

Departure Procedures can sometimes be different than first meets the eye. Some carry surprises! This is a good example of why taking that "extra minute" to review the route will pay dividends.

Let's say you are at KONT (Ontario, CA) and want to go to KLAS (Las Vegas NV). You filed PSP-TNP-GFS-BLD-Direct and now you fire up the IO-360 in your M20J and get the ATIS. It's 600 OVC, 2 miles, light winds out of the west. Next, you call Clearance.

Clearance comes back with, "Cleared to KLAS via the HASSA SIX departure, DAG transition-V21-BLD-Direct, climb and maintain 14,000".

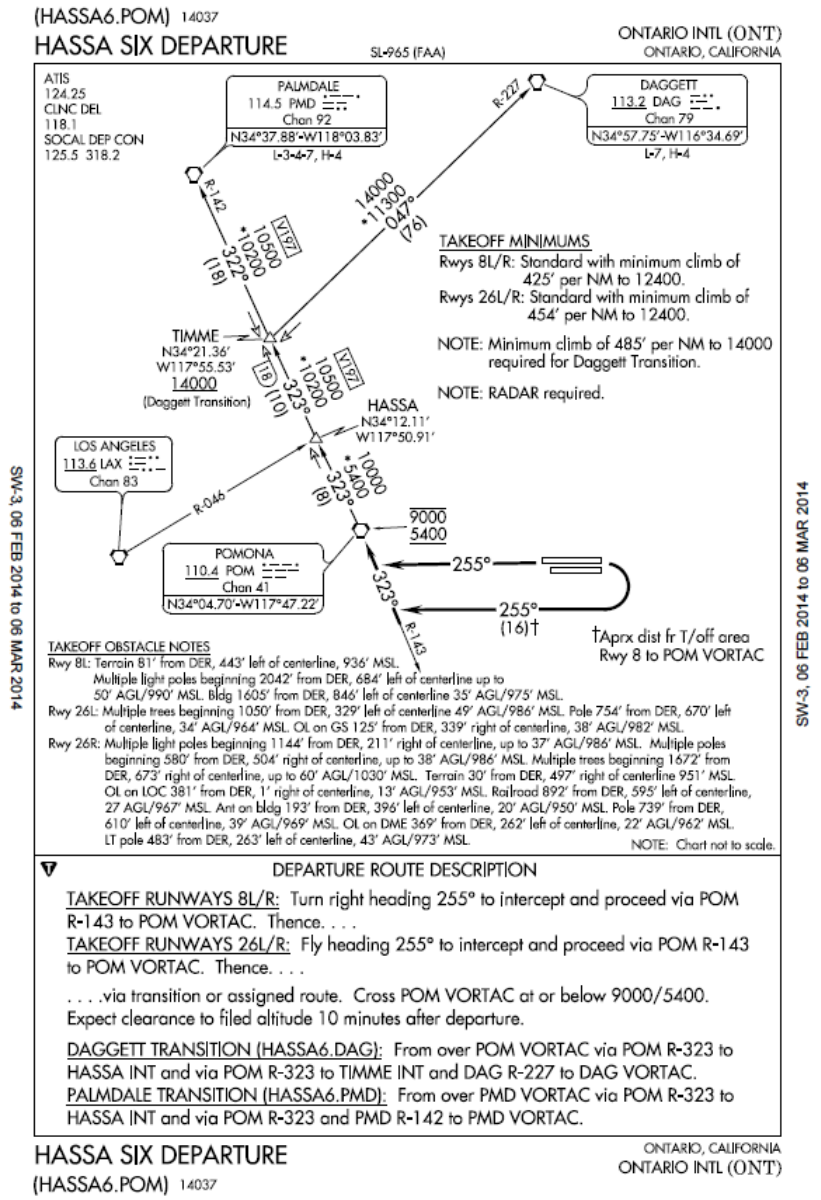
Not quite what you filed. Well, Ok, here you are, engine running, ready to go. Now what? Well, let's take a quick look at the HASSA SIX departure.

At first glance it doesn't seem too difficult, taking off west bound it's heading 255 until intercepting the 143 radial of POM inbound, cross POM and go outbound on the 323 radial to Hassa, TIMME and a right turn to DAG inbound on the 227 radial of DAG.

Simple enough. The question posed to the pilots was: Can you accept the departure procedure? What would you do?

The lateral navigation isn't too difficult, but once we start looking at the vertical situation some surprises are in store.

Our first crossing is the POM VOR and we see a hard bottom altitude of 5400' and a hard top of



9000' as noted by the solid lines beneath and above the respective altitudes. By interpolating our distance to POM by taking off westbound from the distance shown for a RWY 8 departure, we can guess about 12 miles to POM. KONT sits at 943 feet above sea level so we need to climb about 4500' to clear the hard bottom at POM in that 12 miles. So if you normally climb at about 110 to 120 you'll need to climb at 750/min to make that first crossing in the 6 minutes you have before you get there. Can your airplane do that? How about at 90 IAS? You can probably do the climb rate required as you'll have 8 mins until you get to POM and that means a climb of about 600 FPM.

Once past POM toward HASSA, it looks good. We notice that the route altitude between POM and HASSA is *5400/10000, the same as our hard bottom at POM, BUT we need to look further down the line to get a true picture. Sometimes in the heat of battle we may not look all the way down the line and that can hold surprises!

Look at our route beyond HASSA to TIMME. That segment requires an altitude of *10200/10500. Now we've seen that asterisk altitude twice on this departure, (*5400 and *10200). As a reminder, this denotes a MOCA, (minimum obstacle clearance altitude). In dealing with a MOCA altitude we need to remember FAR 91.177 (see below).

Sec. 91.177 - Minimum altitudes for IFR operations.
[(a) Operation of aircraft at minimum altitudes. Except when necessary for takeoff or landing, no person may operate an aircraft under IFR below--
(1) The applicable minimum altitudes prescribed in parts 95 and 97 of this chapter. However, if both a MEA and a MOCA are prescribed for a particular route or route segment, a person may operate an aircraft below the MEA down to, but not below, the MOCA, provided the applicable navigation signals are available. For aircraft using VOR for navigation, this applies only when the aircraft is within 22 nautical miles of that VOR (based on the reasonable estimate by the pilot operating the aircraft of that distance);

So, as we learned from FAR 91.177, we can't cross HASSA unless we are at or above the next segment MOCA of 10200'. Taking a re-look at the distance from POM to HASSA we now have only 8 miles (4 miles less than from the airport to POM) and in these 8 miles we have to climb at least 4800' if we just made POM at 5400". Now, even at 90 mph, we have to climb at an average of 900 FPM all the way to 10200'. Can your airplane do that?

Let's look at the next crossing. We see TIMME at 14000' underlined, it's a hard bottom. We have to make that altitude for the turn to DAG. We have 10 miles to climb 3800' between 10200' and 14,000'? Even at 90 MPH, that's 570 FPM to climb to 14,000'. Can you accept the departure? We haven't even considered the oxygen requirements yet.

Here's another hint to look at if you don't already do it. Did you notice the "Note" in the top right side of the plan form saying – "Minimum climb of 485 feet per nm to 14,000' required for DAG Transition"? This is WAY steeper than the normal departure climb required which is usually around 200 feet per mile. Sometimes in our haste to get going with last minute route changes, we might overlook these important "Notes".

Now it's a stretch for anyone in a J or earlier models to even consider this departure, BUT you turbo, Missile and Rocket folks, what do you think? I hope this provides a good review of the necessity to really look at any change in your filed routing, especially at the last minute on taxi out. It happens to everyone. It happened to me in a B737 out of KDFW, just as I was rotating on takeoff, but that is a story for another time.

The Logbook of a Current Mooney Owner

by Geoff Lee, CFI

My first airplane ride was in an AVRO ANSON. It was 1948 and I was just 15. I had lied about my age and joined the RAF cadet program. The flight has been out of Hendon Aerodrome just north of London on a foggy morning. There were 5 cadets ensconced in the aircraft. We were duly fitted out with parachutes and shared two headsets to listen to the “da dit” and “dit da” of the LF low frequency radio beam signals that were used to give the aircraft geographic direction. If on track, a steady tone was emitted. If left or right of track you would hear either the “da dit” or the “dit da”. We were on a navigational exercise purportedly learning the skill of “radio range” navigation. I was, in fact, much more interested in looking out of the big square side windows of the Anson and excitedly waiting for my turn to sit up front.

Subsequently, I learned to fly at Hendon in a well used DH 82 Tiger Moth that had trained pilots during WW2. My mother had signed away 6 years of my life as a jet mechanic/student apprentice at the De Havilland engine company which was conveniently very close to Hendon Aerodrome. That commitment was comprised of 4 days a week at the factory and two days at university. Not much free time in those days. There were 3 weeks for Summer holidays and a few other odd days off for Christmas and national holidays. Sundays were all mine.

Hendon was a large grass field in the early years. Paved runways were built during WW2. The field was the original London Aerodrome in1911.

I recently revisited Hendon Aerodrome, which is currently the home of the RAF museum. It has an unmatched collection of aircraft from WW1, WW2 and the following era. The historic airfield itself is no longer used as a place to land an aircraft and is, for me, a sorry sight now totally enveloped by urban housing.

My Grandfather was in the Royal Flying Corp (*RFC preceded the RAF*) and in WW1, he flew in FE2Bs. The gunner stood up in front of the pilot and had nothing to hang onto except the handles of his .303 machine gun. To protect themselves from the cold, the gunners would cover their exposed faces with whale oil. Parachutes were not issued. Apparently some "sage" official in government assumed the crew would immediately bale out in the event of any emergency. In actuality, there were instances of the chuteless pilot simply jumping out of aircraft rather than burn to death in a "flamer".

There is a mere 38 years of aviation progress in the following comparison between a 1918 RAF Vimy bomber and a Delta winged AVRO Vulcan "V" bomber that was capable of 650 + mph. The Vulcan was in service from 1956 and used in the Falklands war in the 80s. The BAC Lightning, (*bottom right*) exceeded mach 1 in 1957; Mach 2 soon after.

The Vickers Vimy bomber pictured above left, was the first aircraft to fly non stop across the Atlantic. It was piloted in 1919 by RAF pilots Aldcock and Brown. It took 16.5 hours. Lindbergh's solo flight was in 1927. He successfully flew solo from New York to Paris in 23 hours. Interestingly, during the 8 years prior, about 80 people had made the Atlantic crossing by air before Lindbergh, who had the advantage of major publicity and news coverage to help with the notoriety of his laudable solo achievement. The navigation task alone, having only side windows and no forward visibility except through a periscope, and his capability to remain awake at the controls for 23 hours, are commendable accomplishments.

My own aviation aspirations were nurtured during WW2. I grew up in London during that war and as young boys in that time, at the age of about 11-12 years, we all desperately wanted to be Spitfire or Hurricane pilots. Daily, we wished that we were at least 6-7 years older and could volunteer for service.

At the beginning of the war, the RAF had few resources, engaging the ME109s with Gladiator biplanes off Norway. The RAF main bomber was the Lancaster with 4 Rolls Royce Merlin engines. The Lancaster was slightly faster than a B17 and could carry a heavier bomb load and fly further. The B17 could fly much higher than the Lancaster and it carried more firepower for protection.

The advancement of aviation during and after WW2 was almost explosive, with the advent of the first military and commercial turbine aircraft. As an apprentice at the Dehavilland Aircraft Co., I spent some time learning to build and install early jet engines (Goblin and Ghost) in Vampire aircraft (*shown below*) and the early DH Comet; the first commercial jet airliner. These engines were very simple, single stage compression, radial flow devices producing from 2,500 to 5000 lb of thrust. The GE J47 axial flow engine, installed in many 50s era aircraft like the F86, produced from 5000 to 7500 lbs of thrust and had a smaller diameter frontal area than the radial flow engines. It also had multiple stages of compression. As a comparison, current turbo fan engines installed on a 747 from Rolls Royce and GE develop 37,000 to 60,000 lbs of thrust; a factor of 10 to 12x increase. An F15 has two Pratt & Whitney 229 engines developing 18,000 lbs of thust, each with 29,000 lbs of thrust in afterburner. There has been an incredible increase in aircraft engine power availability since the late 40s and 50s. Aerodynamic designs have evolved at a comparable rate. The combined advances in technology began to produce remarkable aircraft. For instance, *a late 1945 P51D will cruise at 350 mph, climb at 3000 fpm. However, the DH Vampire (below) being built around 1949, will cruise at 550 mph and climb at 5000 fpm. A comparable Lockheed P80 will cruise around 410 mph. It had an Allison J33 centrifugal flow engine, very similar to, if not a copy of, the DH Goblin.*

The first turbine aircraft in combat in WW2, was the German ME 262, shown next page. It was powered by two Junkers Jumo jet engines, each having approximately 1900 lbs. of thrust with a speed capability

of about 540 mph. The engine life was only about 12-25 hours due to the poor materials used in their construction. The science of metallurgy was well behind the design of the gas turbine engine.

The ME 262 was the "opening curtain' for the jet age. The ungainly Junkers JU 87 Stuka dive bomber, shown below, was Hitlers' "terror weapon" at the wars beginning. It was capable of a near vertical dive and had a screaming siren attached to its fixed undercarriage, to frighten the populace it was attacking. Broad use of the JU87 was discontinued when a great many were decimated by Spitfires and Hurricanes as the war developed towards the Nazi plans to invade the British Isles.

Below are the Hurricane and the Spitfire, the two mainstays of the "Battle of Britain". The Spitfire has received the lion's share of the glory as the major combatant in the air war, but the unsung, slower and less romantic Hurricane, actually shot down many more enemy aircraft than the Spitfire during WW2.

The Germans pioneered fuel injection during WW2. It was installed on the Daimler Benz engine powering ME BF109 fighters. The float carbureted Spitfire was at a disadvantage when closing in on the tail of a 109, which would simply dive away. The Spitfires carbureted Rolls Merlin would quit when negative G was induced because the float went high in the bowl and flooded the engine. The Spitfire pilots found a solution, by rolling inverted prior to the "push over", to follow the 109. This kept positive G on the aircraft. The later ME 109s could out climb all the allied fighters, including the Spitfire and the P51 Mustang. The slower Hurricane could easily turn inside the arc of an ME109, and many kills were attributed to that tactic. The young, inexperienced Hurricane pilots were told to simply "pull hard and

turn, turn, turn" when attacked, and eventually they would end up on the tail of the enemy. The four 20mm wing mounted cannons would then make short work of any aircraft.

The VI "buzz bomb" or "doodle bug" and the V2 supersonic Rocket were the end game for Hitler's attempt at world power. The V1, in my own recollection, was psychologically more intimidating than the V2 rocket. The buzz bomb could be heard approaching from several miles away, by the signature pulsing of the ramjet engine. It was fueled just enough to reach London and then shut down. If the pulsating sound ceased, we knew that there would be about 15 seconds of glide time before the inevitable explosion. My sister and I would be under the table counting those seconds off. If it stopped overhead, you knew that you were safe. The V1 was very demoralizing. We did lose the front of our building on one occasion. In reality, the thing that used to scare us most was our own mobile anti-aircraft guns that were towed around the streets firing at aircraft. The noise generated within the narrow street space was ear splitting and window shattering.

The V2 Rocket was supersonic and inaudible up until the massive explosion, so one was at least spared the agonizing anticipation associated with the V1. The V2 carried slightly more explosives than the V1 buzz bomb. Luckily its tenure was short lived because the launch sites were destroyed after the Normandy invasion in June 1944. That rocket was designed by Werner Von Braun, who subsequently became the leader of the US space program. The ultimate goal of V2 development was to hit Targets on the US mainland. All of our lives would be drastically different if that goal had been achieved. It's interesting that the US cruise missile program was born out of initial experimentation with recovered V1 Buzz Bombs. It's a strange world!

I flew on the Concorde on several occasions, marveling at the cabin area display, depicting Mach 2.2. As I sipped a little Dom Perignon while looking out at the curvature of the earth at 50,000 ft, I recalled my first flight in that Avro Anson and made note of the rate of progress made in aviation after WW1. My 80 year old mother accompanied me on one Concorde trip and she related seeing a German Zeppelin over London during WW1. She was not really impressed with the Mach speed and just commented that the lunch seemed a little hurried. *(After leaving Washington, lunch was served reaching 50,000 ft. and was being cleaned up for the descent into Londons Heathrow around 2 hours later*!) Sad to see that beautiful Concorde relegated to a museum piece, to be replaced by the flying "cattle cars" that currently abound. When comparing my Concorde memories with my most recent travel experiences, I find tht there has been no real progress in aviation.

Ah well, back to flying my own personal Rocket which is much more satisfying and enjoyable.

Keep the nose down.

Santa Monica, CA

by Linda Corman

KSMO is under siege by the City Council as we write this travel tale. They voted 6-0 to begin "starving" the airport by taking any/all steps to kill the airport, in a slow and presumably legal manner. CLICK HERE for an LA Times story.

It was a lovely warm California day and we decided to fly to one of my favorite SoCal locations, Santa Monica. We can do this as we live in California and the flight is a short 50 minutes for us. The airport in Santa Monica is interesting if you have never landed there. It is on a level hill in the middle of a large city. I understand the neighbors are not always happy with the airport location as jets of many sizes land there. But, it is fun for us in our Mooney as it is a handy place to land and have access to a beautiful beach and find shopping. After we parked and tied the airplane down, it was an easy walk through a neighborhood to the main street to catch a bus that took us to the pier and the beach front area. The street is Ocean Park and the bus service picks you up at the corner and delivers you at the water's edge for less than $2.00. No rental cars needed here. The Santa Monica Pier is located at the end of Colorado Avenue and has been around about 100 years. If you watch movies and TV at all you have probably seen the pier in many productions. This is a fun place to walk around with an amusement park on the pier and an aquarium. Next door to the pier is Santa Monica Beach, another easy walk. The beach is huge and on a good day you can see many celebrates soaking up the warm California sun. This beach is also groomed daily to clean up all the litter and make it nice for all the volleyball games and jogging that takes place there. On the frontage road that faces the beach is Ocean Avenue, where you can find some very fine restaurants. We just walked until we spotted a restaurant that specialized in seafood and went in. The big bay windows that face the ocean were the best place to people watch and enjoy the afternoon with coffee or a cocktail. There are also many outside cafes to sit and pick up the afternoon breeze off the ocean.

One of my favorite things to do in Santa Monica is shopping. The Third Street Promenade is one of the best shopping districts in all of California. The promenade stretches for many blocks and is a pedestrian-only outdoor shopping district. The brand name stores with up-scale merchandise seem to go forever. For a Shopaholic, this is a dream come true. On any given holiday

and of course every weekend this place is jammed with people. I recommend you go there on a weekday if it is possible. Any one of the above attractions could take most of the day to complete, so I advise you go for a couple of days and enjoy what Southern California has to offer in Santa Monica. However, if you only have time for a short visit, you could stay near the airport and eat at a cute restaurant just off the airport property. It's just a short walk down the hill to the Spitfire Grill. The outside seating is lovely on a warm day and the food is worth the flight. We always enjoy going for a short or longer visit, as Santa Monica is fun. Of course the Mooney flight there and back home, is always the highlight of the day.

Flying into KSMO

Flying into Santa Monica (KSMO) is much easier than you think. We arrived VFR from the west, contacted SoCal Approach near Oxnard. We were handed off smoothly to SMO Tower and told to report a Right Downwind to Runway 21. When we got there, we were cleared to land without any delay. We stayed under the LAX Class Bravo, so we really only needed to talk with the tower.

You can park at transient parking in front of the terminal or with the very friendly folks at American Flyers. We paid $6, which we considered wonderful at such a conveniently located LA area airport.

It was equally easy departing VFR to the northwest, with a scenic departure over the coastline.

Getting Dowtown

Pretty easy and inexpensive. Walk 1 mile to the north side of the airport. Exit the airport & walk west to 23rd. Turn right to Ocean Park. Catch the bus for a few bucks.

Things to Do

Museum of Flying is across the street from the airport. Very convenient and fun.

Hungry? **The Spitfire Grille** is also across the street with indoor/outdoor patio dining.

If you have the afternoon, then your best bet is to take the bus to **The Promenade**. There is virtually unlimited shopping along a walking promenade and an equally unlimited choice of restaurants on the promenade or along the beach.

Go to the Santa Monica Pier for beach and Amusements.

Flying is 90% mental and the other half is skill

April 12: Flagler (XFL)

April 5: A Vintage Mooney Group Fly-In, hosted by Mert Bean in beautiful **Laughlin, NV** (the Las Vegas on the Colorado River). Fly-in for the weekend or just drop in on Saturday morning for some ramp camaraderie followed by a BBQ hosted by Landmark Aviation. Go to http://www.vintagemooneygroup.com/VMGWest/index.htm to register for this free fly-in. All Mooneys are welcome.

April 10-13: MAPA Homecoming to **Kerrville, TX** (KERV)
For more info, CLICK HERE.

Internet Clippings

F35 All Purpose Fighter

The soon-to-be F35 is a new form of "mobile" computing, sort of the next thing after iPhones and iPads. Why, you ask? It has 24 million lines of software code.

The probability of software bugs is practically 100%!

An M20S Eagle being flown home…

Gear? We don't need no stinkin' gear!


AIR FACTS

the journal for personal air travel—by pilots, for pilots

ARTICLES DICK'S BLOG JOHN'S BLOG VIDEOS AIR FACTS APP EMAIL

DICK'S BLOG

What's wrong with Mooney pilots?

Not a lot...

Here's an article we found on the internet. It's interesting reading.
[Click Here](#) to read it.

Fly Away Prop

Here's a stranger than fiction case of a prop separating from the engine, on the ground and its flight through the air. **CLICK HERE** for the amazing and somewhat humourous story.

Always learn from other pilot's mistakes, else they will learn from yours

Send your questions for Tom to TheMooneyFlyer@gmail.com

Do Mooneys cost more to maintain than other comparable airplanes?

First, I want to say we are both a Mooney and Cirrus Service Center. We also maintain quite a few Cessnas; 182, 206, 210, and some 310s. We also maintain a number of Pipers, especially Malibus and Mirages. Plus, a few V-35s, A-36s and a mixture of of kit and odd planes.

The Cirrus history is relatively short, but we have noticed that they are very hard on engines, cylinders and landing gear wheel pants.

I think cost to maintain may be more related to models than to a particular make. For example, I feel the Cessna T-210 and the Piper PA-46 are two of the most expensive planes to maintain. The Cessna P-210 may be at the top of the "expensive" list.

Since it is not unusual to have a 50 year old Mooney or Cessna, they bring special problems. Getting parts is very difficult, so we have to use retrofit parts or kits and that means that the maintenance costs are high.

The question really boils down to the cost of parts. Beechcraft probably leads the list for costs, followed closely by Piper and then Cessna.

Throughout the Mooney plant closure, we were still able to get most parts at what I consider reasonable costs. Remember, everything has gone up considerably in the last 5+ years. This is mostly due to reduced demand with fewer new planes from all the manufacturers, plus the large drop in flying hours by the general public.

My business relies heavily on the owners flying more hours, but my guess is that 50% of the owners are flying half as much as they did in 2008.

Question: How often do we see corrosion in the fuselage, wings, and panels in older Mooneys? What is the cause and what can owners do for preventative maintenance?

Surprisingly, the older Mooneys are doing quite well. Most are in good condition. What we see the most is filiform corrosion on the top trailing edge of the ailerons, elevators, and flaps.

Some of that is caused by poor cleaning before repainting, but it's mostly caused by leaving planes sit dirty. Outside airplanes, especially those in coastal areas have moisture problems. Rain runs down and settles on the trailing edge of the flight controls. Simply washing your plane can be the best preventative. The wheel wells are the most important area to keep clean since the spar is exposed and corrosion at the spar can be devastating.

I have seen Mooneys totaled due to spar corrosion. We can't change a main spar and the last rear spar we changed generated a $30,000.00 bill. We have seen internal corrosion in the wings and fuselage,

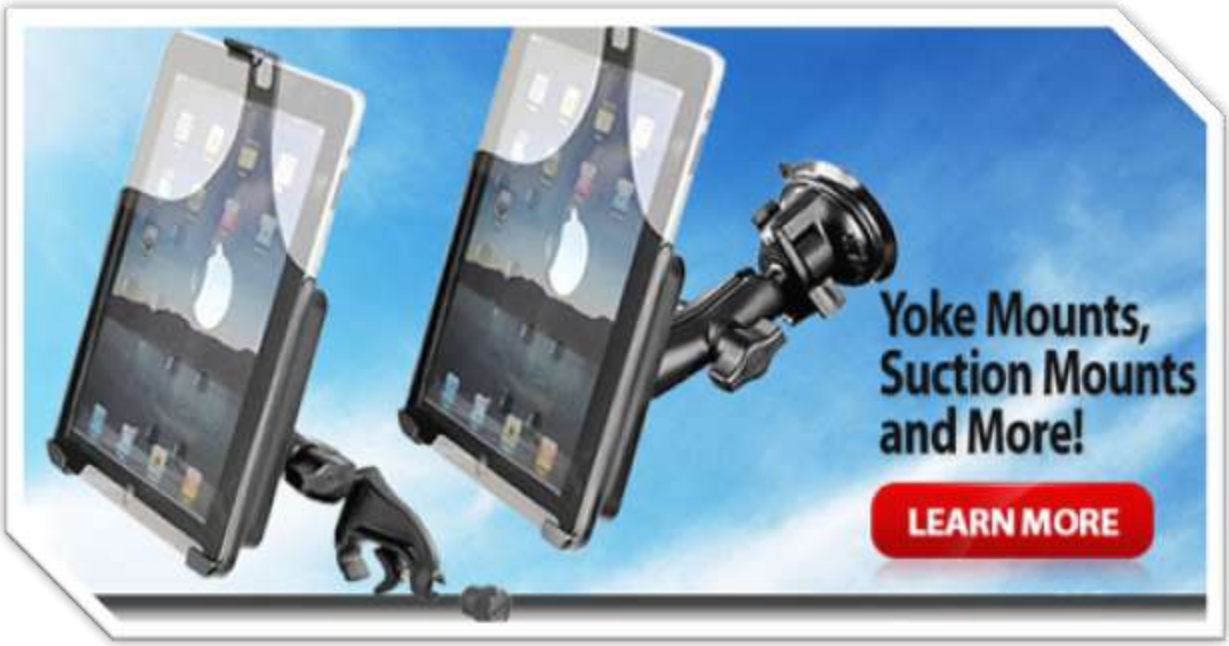
which can also be rust on the tubular structure. We have separated the fuselage from the wing to replace steel tubes at the lower roll cage. SB M20-208B covers this thoroughly.

The next action we suggest is to spray the internal area of the wings and fuselage with corrosion preventative. We like the Boeing product, *Boeshield*. It is wax-based and does not weep though rivets like other products.

Summary: Keep your plane clean and lubed like I suggested in previous articles. By the way, I consider any pre 2000 Mooney to be older. I have customers with 40 plus years old Mooneys that look better than some of the "newer" Mooneys.

April, 2014

iPad Air Ram Mounts now Available



In the past, you could buy a RAM MOUNT for an iPad or iPad Mini, but the mounts for the new iPad Air had not been produced. Marv Golden has great news for iPad Air owners. Click Here for more information.

BendixKing KLR 10 AOA Indicator Gains FAA Approval

Following the FAA's recent policy guidance making it easier to install angle-of-attack indicators in small airplanes BendixKing reports it has received a letter of approval from the agency green lighting sales of the company's new **KLR 10 Lift Reserve Indicator**.

The KLR 10 is designed to provide instantaneous readouts of angle-of-attack on a small cockpit indicator fitted in the pilot's forward line of sight. Priced at $1,600, the unit uses color coding to provide AOA information . . .

Click Here for more information

Bendix King Drops myWingMan app – Refunding money to subscribers

Citing a crowded aviation tablet app market, Bendix King said it will drop its myWingMan navigation app, effective immediately. The company said that customers with existing paid subscriptions will be issued a full refund and that the decision to pull its myWingMan navigation app from the Apple store was difficult, but is the "right thing to do for customers." Click Here for more information

Aspen Introduces New VFR Glass

Anxious to convince VFR pilots to upgrade their legacy aircraft, Aspen Avionics introduced a new VFR primary flight display at the Aircraft Electronics Association convention. The new Evolution 1000 VFR PFD is a stripped-down version of the company's popular Evolution 1000 Pro PFD. Focusing on features important to VFR pilots lowers the price from nearly $10,000 for the Pro model to $4,995 for the VFR package. The price for the certified system is similar to the glass cockpit systems offered by those serving the Experimental market. Read more HERE

Product Review: Avidyne AXP340

Avidyne Corp. has secured technical standard order (TSO) approval for its AXP340 transponder. It's a plug-and-play unit that can be installed as a slide-in replacement for Bendix/King legacy transponders including the KT 76A.

Priced at **$3,995** (with an optional connector and mounting kit for $200), the AXP340 is a Mode S transponder that broadcasts an extended squitter signal at 1090 MHz. When coupled with a Wide Area Augmentation System (WAAS) GPS, a Mode S transponder is one equipment combination that satisfies the coming FAA mandate that will in 2020 require Automatic Dependent Surveillance-Broadcast Out (ADS-B Out) capability for aircraft operating in controlled airspace or internationally.

The transponder, like other Mode S transponders, can receive high-precision position data from a WAAS GPS and transmit that data to ground stations and other aircraft equipped with ADS-B "In". The resulting three-dimensional, real-time image of all ADS-B Out-capable traffic, supplemented by radar, will become the primary traffic separation tool (available to both pilots and controllers) under the FAA NextGen airspace modernization plan.

The company announced that European regulators have also approved the device.

The AXP340 integrates with Avidyne's TAS-A series traffic advisory systems, which display traffic based on ADS-B In signals, including both ADS-B-equipped aircraft and others painted by ground radar in areas where radar and ADS-B ground stations are available.

The AXP340 includes a direct-entry numeric keypad, altitude alerting, a flight timer, stopwatch, and displays latitude, longitude, and pressure altitude.

Mooney Instructors Around The Country

California

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

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

Florida

Mike Elliott (CFII) located in Tarpon Springs, FL, Contact 317-371-4161, Email mike@aviating.com
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.

Texas

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

This seems like a normal rural neighborhood, right?

It's not. This is what the area looked like before. It was the Lockheed airport base.

Colonel John F Ohmer, an expert in camouflage and misdirection techniques, had the responsibility of creating a strategy for California.

Scenic designers, painters, art directors, landscape artists, animators, carpenters, lighting experts and prop men from movie studios in Hollywood, Metro-Goldwyn-Mayer, Disney Studios, 20th Century Fox, Paramount, Universal Pictures and others helped disguise this base.

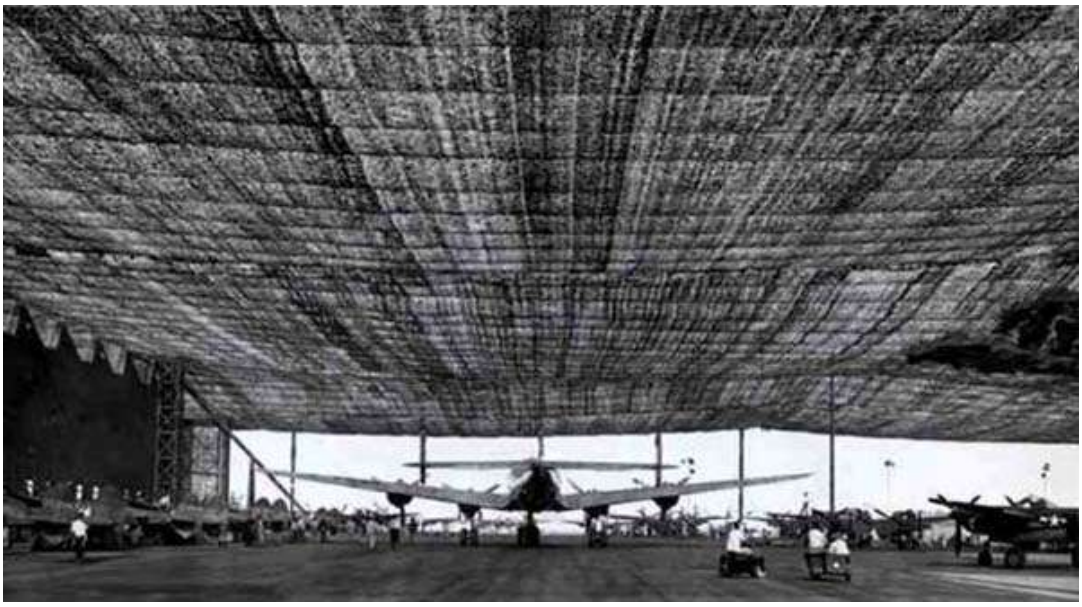
For months after California's Northridge earthquake of 1994, aftershocks rocked the San Fernando Valley and Van Nuys Airport. One morning, about three weeks after the initial quake, there was a particularly sharp aftershock. Moments later on Van Nuys' ground control frequency: "Uh, 43K would like to file a pilot report for moderate turbulence on the east taxiway…"

A heavy-duty netting was spread over the top of the base, with trees and houses on top of it.

To make the camouflage seem like a legitimate neighborhood, the military had to maintain the illusion of life and activity on the surface. People were paid to ride their bicycles over the netting

The netting protected airplanes, soldiers, and the lives of so many people that lived on the air base.

It was an outlandish tactic, but from the air, the airport base looked like a normal US neighborhood.



Before seeing this, if someone told me that the United States protected its soldiers by covering a base with a giant net made to look like a town, I'd think that the officer in charge was Wile E. Coyote. As it turns out, this intricate and well-strategized camouflage did the trick.

5 belly panels from my '78 M20J available after I installed a 1 piece belly speed mod.
For Sale. Make offer. John Hughes at 760-910-1022 or jeffecito@yahoo.com