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a letter from the editor

WHY DID YOU BECOME A PILOT?

Why did you become a pilot? It is an important question. In my opinion, the future of aviation depends upon knowing why. You may be well aware of the impending pilot shortage (and overall shortage of aviation professionals). But, we must know what motivates one to fly if we can identify the next generation of aviators. A colleague of mine and I are hoping to learn more about the characteristics (likes, dislikes, interests, professional goals, life priorities, values, and motivations) of professional pilots in order to accurately identify those who have similar characteristics, haven't yet chosen a career path, and have a high potential of being interested in a flying career.

I chose this topic to write about because the shortage has global impacts. According to Garcia (2018), "Boeing has projected that aviation will need 790,000 new pilots by 2037 to meet growing demand, with 96,000 pilots needed to support the business aviation sector. At the Farnborough Air Show, Airbus estimated demand at 450,000 pilots by 2035. Even with Airbus' more conservative number, the gap between demand and supply is vast."

The pilot shortage impacts private/general aviation (and obviously commercial aviation) as all aviation outlets are competing for the same pool of qualified pilots.

I am sure most people are aware of the 1500-hour rule, which began in 2013, which now requires 1500 flight hours instead of the 250 hours previously required to qualify for SIC or First Officer status.

In short, how do we train future pilots quickly, safely and efficiently enough to meet the demand of the future?



Rachel Friedman, Editor

Rachel B. Friedman

Rachel Friedman, Ph.D., Editor
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AIR JOURNEY TO THE
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FEBRUARY 23 - MARCH 4, 2020

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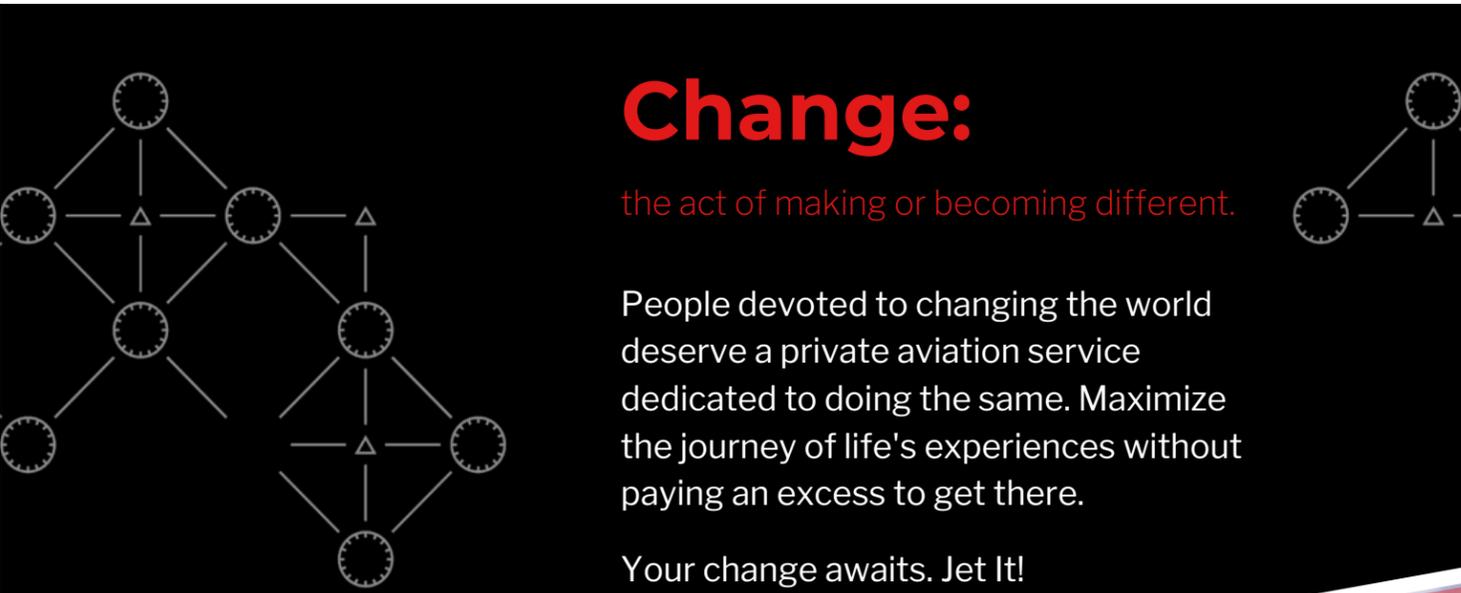
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MEET THE OWNER

JOHN SPRINGTHORPE

1 What airplane(s) do you currently fly and how many hours do you have in it?

I have a Cessna Citation CJ3+ and I recently acquired an ex-military T-34A. I have over a 1000 hours in Citations and more than 3200 hours total.

CONTINUED ON PAGE 10 >>





Photos:
(Clockwise from top)
John departs Gibraltar in his CJ3+ / John starts up B-25 Panchito / John poses in the bombardier seat of a B-17



2 What are your favorite vacation spots?
I am fortunate to have been to more than 100 countries, so it is hard to pick just one spot. My wife and I have been to the Turks and Caicos multiple times, but we also like the Bahamas, Nevis, and Sicily.

3 What were your favorite things about flying to Turks and Caicos?
The first time I flew outside of the United States was to Turks and Caicos, so it remains a significant memory. It is easy to get to from the eastern US, has a beautiful beach, and good food.

4 What are your procedures for getting around foreign countries?
Most of our foreign travels have been with Air Journey. They make the arrangements for the hotels and transportation. It is always first class.

5 What is your favorite flying experience?
It's hard to pick just one. My first solo was a blur, but I loved it. I also relish upset prevention and recovery training in a jet and earning type ratings in Citations and a B-25 Mitchell bomber. But, an early morning flight in a Waco YMF-5 biplane is an experience that is hard to beat.

6 What drew you to flying?
I got started in small planes at an early age. My dad is a pilot. I flew with him out of our local cow-pasture airport. My grandmother lived in Florida. My dad would borrow a friend's Cessna 182, and we would fly there from North Carolina to see her.

7 What is your career background?
I served in the U.S. Army and was a defense contractor for 16 years before returning home to North Carolina where I helped build a digital printing business. I ran the business for 28 years before selling it and retiring.

8 How many hours do you currently have?
When I started the business, I sold my 172 and did not fly at all for seven years. Since that hiatus, I have accumulated more than 3,200 hours.

9 What is the first plane you ever flew?
I trained in a Cessna 152 in South Korea where I earned my private license.

10 What is the first plane you ever owned?
The first plane I owned was a Cessna 172 that had been retired from Embry-Riddle. It had one of the original RNAV boxes with the dual VOR inputs that I never did figure out how to use.

11 Do you have any recommendations for pilots out there?
Keep flying any way you can and always reach out for new aviation experiences, particularly those that push you to enhance your skills. 

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TAKEOFFS

PART 1: DEFINING V1

By NEIL SINGER





One of the many things a first-time jet pilot learns in training is a set of entirely new speeds- V1, V2, Vref just being a few. To make the issue even more complex, different manufactures sometimes call the same speed by different names; what Embraer calls VFS, Cessna calls Venr. Most pilots struggle through these new performance considerations along with a raft of other new topics, and understandably often come out with a shaky grasp of just what exactly these new speeds represent.

V1, for example, is the very first “V” speed a jet will encounter as it transitions to flight, yet most pilots have an erroneous picture of what this critical speed represents. Ask the average jet pilot to define V1, and they will respond along the lines of, “V1 is takeoff decision speed - the

highest speed at which the plane can have an engine fail during takeoff and abort on the runway in the space calculated, or continue the takeoff on one engine.” This statement, besides being almost universally believed, is false.

The critical fallacy lies in the assumption that V1 represents a decision speed of sorts. Most pilots believe that if an engine fails at V1, the pilot is given a space of time (three seconds is often claimed) to recognize the failure, then begin the process of aborting the takeoff- bringing the thrust levers to idle, initiating braking, deploying speedbrakes or spoilers. What the FAA defines V1 to be is very different.

FAR 1.2 defines all the V speeds a pilot could ever use. Telling about the complexity of V1 is that while most speeds are defined in just a few words - “Vr means rotation speed, V2 means takeoff safety speed” - the definition for V1 runs for

two lengthy sentences. That definition reads, in part, “... the maximum speed in the takeoff at which the pilot must take the first action (e.g., apply brakes, reduce thrust, deploy speed brakes) to stop the airplane within the accelerate-stop distance...” Clearly if the pilot must take the first action at V1 in order to stop in the calculated distance, the decision to abort must have been made well before V1. It also follows that if an engine fails at V1, there is no way a pilot could instantaneously recognize the failure and initiate the abort.

Indeed, the highest speed at which an engine can fail on takeoff and still allow for an abort within accelerate-stop distance is not V1 at all, but a speed most pilots have never heard of - Vef, or engine failure speed. Vef is not published by aircraft manufacturers, but rather is used during the testing that determines the V

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RECENT CITATION TRANSACTIONS



2000
Citation CJ1
525-0395
N507HP



2006
Citation CJ3
525B-0076
N181KA



2015
Citation M2
525-0870
N135RU



2016
Citation Mustang
510-0475
G-ERLI



2008
Citation Mustang
510-0143
N510BA



2000
Citation CJ1
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N211JH

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speeds which are published. The most critical engine is failed at Vef and the airplane continues to accelerate on one engine while the pilot recognizes that the engine has failed and makes the decision to abort. Once the test pilot initiates the abort, that speed is noted and becomes V1.

The practical implication of this distinction is that once V1 has been reached, it is too late to initiate an abort within the runway distance calculated. Unfortunately, as Vef is not published, it is impossible to know exactly when the moment passes which would allow for a successful abort. For this reason, many operators call "V1" out loud at 5 knots before V1, not at V1 itself. Once the flying pilot hears "V1" spoken, the hand on the thrust levers is moved to the control yoke, signifying that from that point on, no matter what occurs the plane will be taken airborne.

Important also to understand is that during the aircraft testing for calculation of accelerate-stop distances, the speed never gets above V1. Every second that an airplane is accelerating beyond V1, the energy the brakes would be required to dissipate during an abort increases as a function of the square of the speed increase.

Putting some numbers to this abstraction, consider the case of a light jet departing at maximum takeoff weight, with a calculated V1 of 105 knots. Just as V1 is reached, and the pilot erroneously thinks he has his last chance to decide to abort, a loud bang is heard, and the plane pulls to one side. Unfortunately for the pilot, rather than the perceived engine failure, what has actually occurred is a tire blow-out. During the few seconds it takes the pilot to react both engines, not one, are producing takeoff thrust, and continuing to accelerate the aircraft past V1. If the plane reaches a peak speed of only ten knots beyond V1, the brakes must now dissipate 20% more energy than had the abort been initiated

at V1. Beyond the fact that there is no certification requirement for the brakes to be able absorb any energy beyond that existing at the highest weight and V1 combination demonstrated, there is also no performance data to know how much runway would be needed even if the brakes are able to handle the extra energy.

"V1...is the very first "V" speed a jet will encounter...yet most pilots have an erroneous picture of what this critical speed represents."

Unfortunately, many rejected takeoff (RTO) accidents have been caused by such a set of circumstances. One industry study found that 80% of RTO accidents were avoidable, and the accident planes would have been able to safely continue the takeoff with the problem in effect. For this reason, most jet operators use a two-phase abort decision tree. Up to a specified airspeed, usually 70 knots for light jets, the takeoff can be aborted for any reason. Above this speed and before V1, if the runway available is less than the runway required plus a defined safety margin (often 50%), the takeoff will only be aborted for an engine failure, engine fire, or the perception that the aircraft is unable to fly.

When there's a loud bump right at V1, a pilot has no way of knowing for sure what has occurred and what the safest course to take is. But history and certification requirements point to continuing the takeoff as the path most likely to lead to a happy outcome. **C**



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the making of an

AFRICA

Journey

By THIERRY POUILLE

For the past 20 years, Air Journey has been offering Journeys to exotic destinations all around the globe. After a foray in 2011 and 2014, we came back to a very exciting Africa Journey in 2019 which we have been working off of for an outstanding Africa Discovery in 2020.

By opening the world to the private pilot, we are always looking for new and exciting places to visit, while keeping off the beaten path, away from busy places overwhelmed with mass tourism. With so many destinations becoming more and more accessible to general aviation, a lot of research goes into finding the right locations, most desirable hotel accommodations, out of the ordinary sightseeing as well as favorite highlights, state of the art transportation, exquisite restaurants, the very best local guides and so much more.

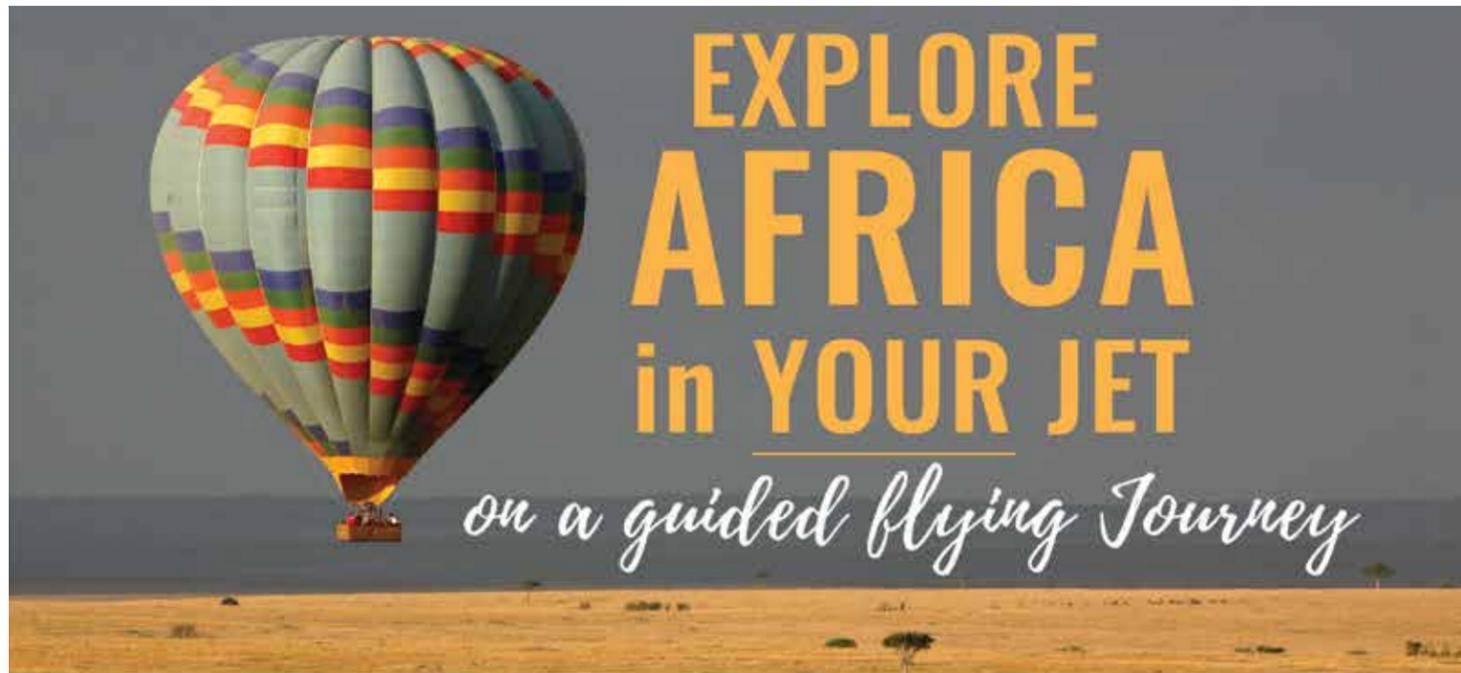
At Air Journey, our adventures are designed with a minimum of three nights at each destination, no departure before 9:00am and no overnight flights. We take advantage of the best weather in that part of the world, at any given time.

So what goes into making the 2020 Journey to Africa happen? Like many other journeys, it starts with travel news and hotel research while staying on top of new resort openings and destination highlights.

Once we decide on which destinations we will Jour-

CONTINUED ON PAGE 20 >>





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THE MAKING OF AN AFRICA JOURNEY



ney to, then we create what I call a distance chart. We basically put these different places in a certain order and compute the distance from one airport to the other. This gives us a better picture of how the program will materialize and how the journey will progress. We try to have an average distance of about 750 nautical miles per flying day, but we are not against a technical stop in order to expand that journey. The maximum acceptable is no more than 1,500 nautical miles on a flying day.

When the distance chart is done, we have a skeleton itinerary created with the amount of nights at each stop, the highlights to be visited, etc. Then we start to look at a budget.

The budget starts with the costs of accommodations as well as what is included at each of these stops along the way. In Africa, it's going to be the cost of the different camps and additional private transfers, including by helicopter or airplane. If we experience Victoria Falls in Zambia for example, we are going to include the cost of visiting the Devil's Pool on top of the falls. We are also going to be adding a dinner train excursion across the Zambezi River. We also plan to visit the mountain gorillas of Rwanda in their natural habitat at Volcanoes National Park (where we went for the first time in 2019). In Ethiopia we are going to be expanding our program to add a stop in the Omo Valley to meet the traditional tribes that live there.

We are also researching the idea of stopping at the big island of Madagascar in the Indian Ocean and visiting Nosy

Be Island, etc.

After the budget has been established, we create a detailed day-by-day itinerary.

When the final itinerary is approved, we include the details on our website: <https://www.airjourney.com/> highlighting the hotels where we will be staying, maps of the route, and additional details needed to get started. There is also a reservation page allowing you the opportunity to make your reservation with us online.

When the program is ready to be booked, we start the marketing campaign which will be done through various email broadcasts, direct email and PR in different publications. Then we are ready to go!

We are already working on changes for the 2020 Journey to Africa. The program continues to evolve. Among some of the changes to be made, we are considering adding a stop in Cairo to visit the vast Egyptian Museum and Giza with its iconic pyramids and Great Sphinx. In Botswana we are looking into visiting the Okavango Delta with a stay at one of the new Sanctuary Resorts overlooking the Okavango floodplains. And for Namibia, we'll be returning back to the desert instead of the coast as we have recently been doing, we are also considering going to Kulala Desert Lodge there.

Our journeys are limited to six to eight airplanes. This is mostly because of the parking situation, overflight permits, and separation in flight - especially in Africa. So stay tuned for the 2020 final itinerary which will be shared with you and explained in detail in the next publication. 

By TIM WHITE

CITATION MARKET DYNAMICS

FALL 2019

Since our Summer article, listing activity for aircraft entering the market for sale remained strong, but the industry experienced a slower buying season through the dogdays of summer. According to JETNET iQ data, whole-aircraft retail transactions were down 21% year-over-year at Summer's end.

Was this a not-uncommon Summer Swoon? It's looking like it. I am pleased to report that buying activity has increased substantially through September and October with positive momentum heading into year-end as indicated by multiple metrics our firm tracks: the number of aircraft sale contracts finalized; in-bound lead activity; and the volume of LOI/Purchase Agreement requests. All are on the rise with a notable uptick since early September.

Aircraft listing activity continues to be strong, which is a good sign. This is

not from owners "getting out" but wisely preparing for a sale and/or replacement transaction prior to year-end 2019 or early 2020, which has resulted in jetAVI-VA having a record number of listings for sale. This, combined with Q4 tax-driven transaction energy and pricing expectations aligning between buyers and sellers makes for an ideal time to consider making a move prior to year-end. Please be mindful allowing time for the contracting, pre-buy inspection, and closing processes.

CJ4:

The CJ4 market has been one of the more consistent markets in the Citation fleet, and the trends we saw in Q1 and Q2 continued throughout Q3. With five total transactions closed through mid-September, the CJ4 market is averaging one to two sales per month in Q3, up slightly from the pace we saw set over the first half of the year. Available inventory in the CJ4 market continues to hover between 3% and 4%, a mark that we've seen for the past two years. At current pricing, the highly-capable and extremely efficient CJ4 represents an excellent value across the light and mid-size jet spectrum. Early-vintage, average-time CJ4s continue to trade in the mid-\$5Ms, and at the top end of the market, late-model, low-time CJ4s are trading in the high-\$6Ms, down slightly from the low-\$7Ms we saw at this time in 2018. The CJ4 market's combination of low inventory, consistent sales activity, and healthy demand sets the market up for a very strong finish to the year in Q4.

CJ3:

Following a two-year high in inventory levels in the first half of 2019, the CJ3 market recorded 14 transactions for Q3, bringing inventory levels back down below 8% of fleet availability. At a rate of approximately five transactions per month, the CJ3 market has increased in market liquidity when compared to the first half of 2019, a trend we see continuing through the end of 2019.

Earlier models (YoM 2003-2007)

enrolled on an engine program with average or above-average total time can be bought in the low-mid \$3Ms; we've even seen a few with damage or other "stories" dip into the high \$2M range. Highly-optioned, late-year models (YoM 2008+) on an engine program, with low total time are holding their values in the mid \$4Ms. Many buyers these days are looking for sub-3,000 hour airframes, and the best values remain with those aircraft that have upgraded avionics (e.g. Fusion, Garmin GTNs, WAAS, ADS-B), updated paint and/or interior, and/or Tamarack Winglets installed.

CJ3+:

The market for the CJ3+ currently sits at just under 6% of fleet availability, or eight airplanes for sale. While this may seem like a small number, it represents the highest inventory level in the history of the CJ3+ pre-owned market. This said, there have been four transactions and three newly listed airplanes in Q3, so while still young and developing, the CJ3+ market is still quite active and liquid.

Nearly half of all CJ3+ owners have upgraded from an M2, and while the M2 market is already at a three-year high in terms of inventory levels, we predict that market could continue to rise in Q4 due to additional owners upgrading into the CJ3+. This anticipated increase in demand for the CJ3+ will support both new factory deliveries as well as pre-owned activity, resulting in what we predict will be a record number of CJ3+ transactions for Q4.

CJ2:

Much like Q1 and Q2 earlier this year, the CJ2 market was slower than expected again in Q3. Only four CJ2s sold as of this writing in late Q3, while seven new listings were added to the market, and one aircraft was removed from the market. The result was a net increase in available inventory, continuing the trend from previous several quarters. As of mid-September, CJ2 inventory was at a three-year high with approximately 12% of the current fleet for sale. As we enter Q4,

"... buying activity has increased substantially through September and October with positive momentum heading into year-end..."

pricing, especially at the top end of the market, is down \$150,000+ year-over-year from the start of Q4 2018. Early-vintage CJ2s with higher time are trading just over \$2M, while late-model, low-time CJ2s are available in the mid-\$2Ms. The good news is the CJ2 market appears to be finally turning a corner; we've seen a noticeable uptick in interest from prospective buyers in the past week of Q3. With the market possibly heating up, we anticipate a much more active Q4 as CJ2 buyers move to close by year-end for tax purposes and take advantage of some of the tremendous values currently out there.

CJ2+:

The CJ2+ market has been very healthy this year and continued its strong 2019 throughout Q3. As of mid-September, six CJ2+ transactions had closed in Q3. For the year, the CJ2+ market has been consistent in transaction volume, averaging two transactions per month. CJ2+ inventory declined slightly in Q3, reversing the upward trend of the past several quarters. The strong demand and healthy inventory levels we are seeing are being driven, in part, by the strong value proposition that is the CJ2+ at current pricing. Aircraft fully enrolled on an engine program start in the +/- \$3M range, while a highly-optioned, low-time 2010/2011 CJ2+ can command a price up to the mid-\$3Ms. As the end of the year rush kicks into high gear, we expect an uptick in CJ2+ sales activity and Q4 to finish as the strongest quarter of the year.

CITATIONJET:

Sales transactions for the straight CJ slowed a bit in Q3 2019 with ten transactions on the books, as compared to a total of 15 transactions over the same period in 2018. There are some great value opportunities now as CJs are being prepared for 2020 mandates for ADS-B. Many sellers are preparing by upgrading to Garmin GTN 750s, but we're not seeing correlating sales price increases -- great news for buyers. In the final weeks of Q3 we've seen considerable movement, and we expect that Q4 will have a high volume of buyers taking advantage of the opportunity to get into their first jet at the right price.

CJ1:

After several consistent quarters of available CJ1 inventory, the levels spiked in Q3 about four percentage points. At 29 airplanes for sale, the market is at 14.9% of fleet availability. Over the past three months, the new-to-market inventory has been largely outpacing sales, and in Q3 alone, eleven airplanes came to market with only five selling.

Despite the large rise in inventory, values are holding well. We're seeing the better equipped, early models that have average total time and enrollment on an engine program can still be bought in the low-mid \$1Ms. Considering the CJ1 market has historically been an active market, we expect Q4 to be a time of "catch-up," where increased buying activity should absorb some of the excess inventory.

CJ1+:

As of mid-September, four CJ1+s have sold since the start of Q3 2019, with another pending sale looking to close before the close of the quarter. As we predicted in our last market report, inventory levels have risen to about 15% of fleet availability, the highest we've seen in several years. The late model CJ1+s that are on engine programs and have low total time are holding their values in the mid

\$2Ms. Earlier models that are on engine programs and have low total time can be bought near \$2M or even the high \$1Ms.

Our outlook is bright for the CJ1+, despite the seemingly ever-climbing inventory levels. The transaction volume has also been on the rise YTD, so we believe we will see the inventory levels plateau in Q4 and potentially reverse course to end 2019 at healthier levels.

M2:

Following a steady decline in inventory levels for the first half of 2019, the summer brought a sharp rise in the M2 inventory which now sits at 8% of fleet availability. This level is still healthy by most measures, it is just high for the M2. As many M2 owners upgrade to the Citation CJ3+ (approximately half of all CJ3+ owners come from an M2), and due to the maturing of the CJ3+ market, jetAVI-VA predicts another ten or so M2s will be newly listed in Q4. Now, there is plenty of demand for the highly capable M2, it just may not be enough to keep pace with the increasing inventory.

The third quarter should end with four transactions, making it a slower quarter comparatively, but given the excess inventory and dropping prices, this should make for a fairly active, liquid market in Q4 2019. At this point, a well-equipped 2015 or 2016 M2 on an engine program with average total time can still be bought in the low-mid to mid \$3Ms.

MUSTANG:

Inventory levels for the Mustang continue to hover around 9% of the fleet, ever-so-slightly declining since the beginning of 2019. A drop of just two percentage points would reflect what we feel is a healthy market, and with a recent slowdown of new inventory being listed, we may see that as we move into 2020.

The Mustang market has seen a substantial price correction since the beginning of 2019, with values dropping in excess of \$100,000, and even more for late-year-model Mustangs. The market has softened up quite a bit since Q2

of 2019, with forecasted Q3 transaction volume dropping to its lowest point since 2017. With relatively higher inventory levels and lower transaction volume, pressure is being put on sellers to stay competitive through pricing. This said, the Mustang remains a top choice for those transitioning out of high-performance pistons, Meridians, and TBMs.

With the fleet gaining hours and additional factors previously listed, we are seeing some higher time aircraft in need of some "TLC" trading at all-time lows. And, while many are hoping to see it, sub-\$1M Mustangs will not likely be coming anytime soon, if ever. Overhauled engines, refurbished paint and interior, along with avionics upgrades all allow these perfect entry-level jets to maintain their values well above \$1M. Assuming an aircraft is enrolled on an engine program, 2007-2009 models are selling for \$1.35M to \$1.6M; 2010-2012 models in the \$1.65M to \$1.8M range; 2013-2014 models in the \$1.8M to \$1.95M range; and 2015+ year models in the low \$2Ms.

In summary, collectively we know what today's economic and business environments represent. While there is chatter relating to the world and U.S. economy, currently U.S. fundamentals remain solid for the world's largest market for aircraft, and we know the current tax law advantages are helping: 100% depreciation in year one for aircraft purchases, applicable to both pre-owned as well as new. 2020 is expected to usher in an interesting political environment in the U.S., and while we're all keeping an eye on the international scene, there is an opportunity for changing landscape. All of this to say, if you are interested in a transaction in the next twelve months, your timing is good sooner rather than later, and now is not too early. Safe flying out there and remember

LIFE IS SHORT.
FLY A JET! 

KEEPING the EDGE

By ANTHONY CIRINCIONE

Most Citation owner/operators are quite successful in their respective fields. Usually, this is because they are high-energy people who squeeze the most productivity out of each day, week, or month.

Those attributes are good . . . but can also be bad. No need to applaud the good; the results speak for themselves. Let's look at the aspects of those characteristics that can lead to problems when we're engaged in aviation. First, a busy schedule often leaves little time available to dedicate to studying and practicing aviation. Second, is the Halo Effect. After a brief look at these issues, we'll explore a few simple, time-efficient techniques we can all use to stay sharp.

CONTINUED ON PAGE 26 >>

Potential Pitfalls

Having little time left in a busy schedule is nothing new to successful people. It's easy to put aviation on the back burner while we focus on the multitude of other seemingly more time-critical issues. Unfortunately, the knowledge and skillset required to fly any aircraft, especially a multi-engine jet, are perishable. Without consistent study and practice, the knowledge, decision making, and psycho-motor skills deteriorate. It happens faster than we want to believe.

The Halo Effect is the tendency for positive impressions of a person, company, or product in one area to positively influence one's opinion or feelings in other areas. Advertisers use it in marketing to extract a higher price for a lesser product by grouping it with superior products (or at least those with a better image). It also applies to us pilots. The fact that we may be excellent in some other part of our life doesn't necessarily mean we are currently excellent pilots. It doesn't mean we're not good pilots, either. The two areas are simply not related, and we must avoid trying to link them. A great professional or business executive simply needs and uses different knowledge and skill than a pilot. That doesn't mean the professional or executive can't be a great pilot, they just need to dedicate the time and effort required to make it happen.

Aviation is quite diverse. It requires a good understanding of physics, aerodynamics, weather, aviation law, airspace, the specific plane's systems & avionics, instrument procedures, physiology, etc. Aggravating all this is the fact that aviation is rife with tribal knowledge that simply isn't accurate. Not too long ago, jet pilots were taught to "power through stalls" with minimal loss of altitude. Somewhere along the way, the basic concept of reducing the angle of attack first, then minimizing altitude loss second morphed into a less safe technique. Another concept taught in the past was carrying excess airspeed during an approach. "Add 10 knots for the wife and kids" was the mantra. It's no wonder why long/fast landings and runway excursions are still the most frequent way to damage a Citation. You can program a simulator to stop however you want it to. Unfortunately, we fly in the real world, where we simply can't cheat physics.



Techniques to Stay Sharp

Alright, enough of the doom & gloom. Let's look at some simple tools we can use to keep the edge:

On the Ground

We have 2 great ways to squeeze in some "study time" on the ground. In fact, you're already using one of them. Magazine articles offer bite-sized chunks of brain food. Naturally, it's best if you strategically position the magazine where you are most likely to pick it up and read an article or two at a time. Although the actual reading only takes a few minutes, the thoughts often stay with you much longer. It's even better if it's a controversial subject that you later discuss with friends. That naturally amplifies the time spent developing or maintaining your knowledge base. Aside from Contrails, several magazines directly relate to our struggle to stay sharp. Every issue of Professional Pilot has a short quiz called "Terminal Checklist" that covers different details of departure, arrival and approach procedures, as well as other technical material we can all learn from. Best yet, they provide detailed explanations for each quiz question with the source reference.

The other tool we can use on the ground is a slick iPhone app called Citation-ology. As the name implies, it's a tool to study Citations. The app is basically a set of flashcards covering systems, limitations, and memory items for all of the Citation airplanes. It can be custom-

ized for your particular airplane, so you only focus on the questions or systems you want to review. Very few people carry around paper study materials. At the same time, it's rare for someone to go anywhere without their cell phone. Citation-ology lets you squeeze in a little review into the otherwise wasted time waiting in line, or waiting for your turn getting your FAA medical examination. Download the free trial version from the App Store and see if it's something you want to use.

In Flight

Now let's look at two techniques that can help not only maintain but actually develop our knowledge and psycho-motor skills. The first takes zero extra time. The second requires dedicating a little time and jet fuel to the cause.

We'll call the first one "System of the Day." This one is used during the cruise portion of each flight. We'll assume there is at least 15 minutes of straight & level cruise. I would not consider doing this on a 25-minute flight where the departure phase is immediately followed by the arrival phase. It's a better fit for an otherwise boring cruise leg. Here's how it works: Once you're leveled off, the cruise checklist is complete, you've verified the flight and fuel plan, looked at the destination weather, and you're just waiting for the TOD (Top of Descent), simply pick a system. A good way to choose is to use the groupings in the Abbreviated checklist. Each flight, step to the next system. When you get to the end, go back and

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KEEPING THE EDGE

start again. For now, let's say we chose Hydraulics. Now we look at the annunciator panel and find all of the "hydraulic" lights. For each light, mentally test yourself. Do you remember what the HYD PRESS ON light means, what you'll do, what each step actually does and how it changes the airplane, why you're doing each step, and any associated limitations? Perhaps consider a 15-minute limit to avoid over-heating the hydraulic system? Once you've done that mentally, open the checklist and see how you did. If you discover any opportunities for improvement, make a plan to fix it. That may be simply breaking out the Airplane Flight Manual, Operations Manual or your Systems Study Guide and reviewing the system or procedure. Or, it may mean calling your favorite instructor and discussing it in detail.

Before we move on, let's answer this common rebuttal: Why do I need to know that if it's in the checklist? Simple – the checklist is decent guidance for any single

issue. It's not perfect. There is absolutely zero consideration given to the following variables: day or night, IMC or VMC, over an airport or over the ocean, fuel remaining, or other systems also malfunctioning. To be fair, there is no way to write a checklist that covers all the possible variables. That's why we get the big bucks sitting in the front seat. It's our responsibility to correlate all the variables and find the solution. In fact, 14 CFR 91.3 clearly states we, as Pilot in Command, are the only person with that responsibility. Over a few months, reviewing a System of the Day gives us the solid knowledge base we hopefully never need to employ in a dire situation.

Now let's look at the second technique we can use to stay sharp. This simply requires scheduling a short practice flight every 3 or 4 months. By short, I mean about 0.7 hours. It's best done with an experienced instructor. However, it can safely be done with another qualified pilot

in the right seat. It's also best done at either your home field or one you frequently fly to.

Here is the profile:

- Normal ground ops
- Normal takeoff
- Climb at L/D MAX to about 10,000' AGL

Clear the area then practice:

- Steep Turns
- Unusual Attitudes
- Emergency Descent (with the mask on)
- Vectors to a simulated single engine approach, hand flown
- Single engine missed approach from DH to published hold using the FMS for steering
- Holding, at least 1 turn
- Then a hand-flown (without the flight director) single engine approach to a full-stop

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FAA FAR 91.3:
Responsibility and authority of the pilot in command.

(a) The pilot in command of an aircraft is directly responsible for, and is the final authority as to, the operation of that aircraft.

(b) In an in-flight emergency requiring immediate action, the pilot in command may deviate from any rule of this part to the extent required to meet that emergency.

(c) Each pilot in command who deviates from a rule under paragraph (b) of this section shall, upon the request of the Administrator, send a written report of that deviation to the Administrator.

For each item, the other pilot is helping identify any "areas for improvement" while performing as a safety pilot (and SIC if the Captain doesn't usually fly as a single pilot). Ideally, the pilot not flying will also take some notes to help provide a thorough post-flight debrief. So, what areas would need improvement? Anything that isn't flown to the Airline Transport Pilot Airmen Certification Standards (ACS). The ACS recently replaced the Practical Test Standards. If any task needs further practice, work on it. If a little practice doesn't bring it up to standards, it's probably time to schedule some dedicated training with a professional instructor. Remember, the Certification Standards for our type ratings are the Minimum Acceptable Standards. We (not the autopilot) should be able to perform at that level on our worst day. Basically, 10 degrees of heading, 100' of altitude, 10 knots from target airspeed, and 1/4 scale deflection on the nav instruments.

Conclusion

These are some of the techniques I use to stay sharp. On the ground, try to find time to read a relevant magazine article once a day, and download the Citation-ology app to see if it's something you would use to review your plane's details during otherwise dead time. In flight, start reviewing a System of the Day on each cruise leg that has some drone time, and schedule a dedicated practice flight once every 3 or 4 months with a qualified safety pilot. As always, fly safe!

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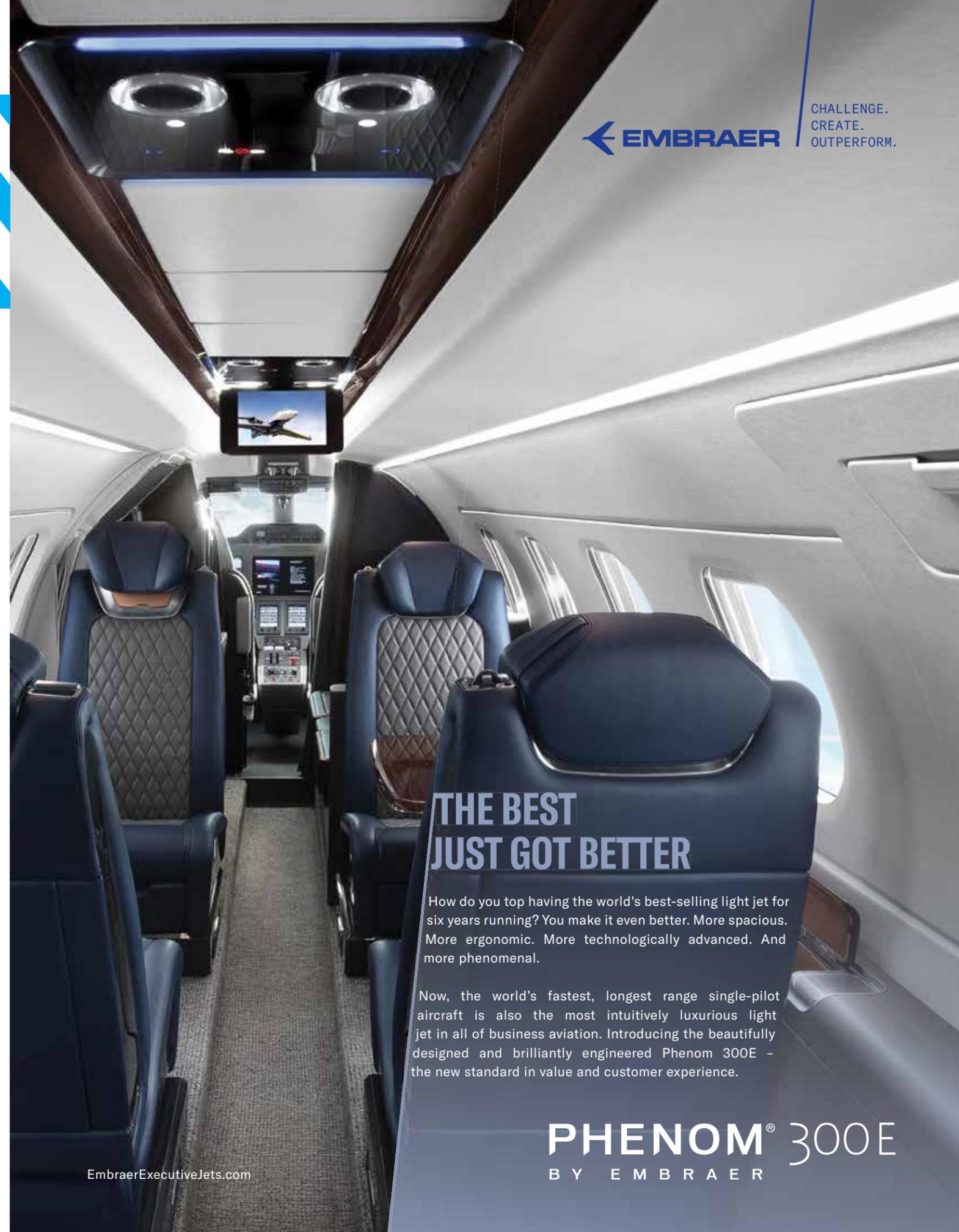
I hope you are excited for another addition of QR Codes for Citation Aircraft!

I have great videos to share that include a Diversion in a Citation XLS, a Citation CJ2 landing in Paris, G5000 and G3000 tutorials, and a CJ4 approach to minimums. Thank you for reading, and I hope you are looking forward to the next edition.

- 1 Citation XLS Diversion:** This video follows a Citation XLS during a flight from Phoenix to Minden, Nevada. On arrival into Minden, the jet was instructed to circle and land on another runway than originally assigned due to an aircraft that accidentally landed gear-up. Scan here to see the intense video!
- 2 CJ2 Le Bourget:** Watch this beautiful approach and landing into Paris Le Bourget Airport in a Citation CJ2! This over the wing video gives a great view of the magnificent landscape of the area.
- 3 G5000 Avionics Upgrade:** The Citation Excel and XLS jets are fitted with G5000 avionics with incredible capabilities. This video highlights the many features of the G5000 and how they help pilots operate these amazing aircraft.
- 4 CJ4 Approach to Minimums:** Watch this incredible IFR approach to minimums in a CJ4. This skilled pilot battles rain and a hefty crosswind but manages to get the job done with a smooth touchdown into Lebanon, Massachusetts.
- 5 Flight Fault Troubleshooting:** This video discusses the causes and solutions for several flight faults in the G3000 and G5000 avionics systems. Scan here to learn some helpful tips.



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GARMIN™ G5000 INTEGRATED FLIGHT DECK

By EMILY WHITAKER

Now available for
Cessna Citation Excel
and XLS

Cessna Citation Excel and Citation XLS have recently received certification to begin utilizing Garmin's new advanced flight deck. Garmin's G5000 integrated flight deck is now available and will modernize the cockpit, allowing a completely revolutionized way for pilots to access flight data.

CONTINUED ON PAGE 36 >>

Garmin's G5000 integrated flight deck to be utilized in the Citation XLS and Citation Excel features:

- Three high-resolution, landscape-oriented displays with split-screen capability to help display multiple sensors at once and integrated EICAS (engine-indicating and crew-alerting system)
- WAAS FMS integration
- Dual-channel digital flight control system
- Intuitive touchscreen controllers that eliminate visual clutter by replacing mechanical knobs, buttons and selector switches
- Georeferenced Garmin Safe-Taxi airport diagrams
- Optional equipment: SVT™, Change 7.1 TCAS II, Data Comm/Link 2000+/CPDLC, SurfaceWatch™ and Connext® cockpit connectivity

This all-new glass flight deck upgrade features 3 high-res 14-inch displays (one multifunction display, MFD, and dual primary flight displays, PFDs). Additionally, 2 touchscreen display/controllers serve as crew interface. The landscape-format displays can function in multipane mode, capable of displaying multiple pages side-by-side on the same screen.

With the G5000's Touch and Go features, icon-identified "touchkeys" create fewer hand and eye movements in the cockpit by making functions easier to locate. Controlling navigation and communication systems, traffic surveillance systems, flight management systems, electronic checklist entries and more are now controlled with only a few finger movements. Those mechanical knobs, buttons and switches have now been removed for a seamless flight.

The G5000 has PBN/RNP 0.3 with LPV/APV approach capability allowing flight operators access to more airports and lower approach minimums throughout the world, with an automatic flight control system (AFCS) that supports coupled LPV approaches, vertical navigation, Flight Level change (FLC) and other flight monitoring and performance criteria.

Integrated terrain with TAWS-A alerting system, georeferenced FlightCharts and SafeTaxi diagrams, comprehensive moving-map displays come preloaded, with ChartView as an option for Jeppesen charts.

The optional Garmin Synthetic Vision Technology (SVT) is also available for enhanced situational awareness, using graphics modeling to create a 3-D "virtual reality" landscape on the flight display. SVT can show traffic, terrain, obstacles, and runway environments in graphical perspective – simulating flight cues a pilot would see outside on a clear day, even when flying at night or in IMC.

This flight deck comes with the standard feature of emergency descent mode enabled by autopilot in the event of a loss in aircraft pressurization and

will be new to the Citation Excel upon installation. Underspeed protection (USP) is another safety-enhancing feature that allows the autopilot to assist with airspeed management and enables fully coupled go-arounds, if chosen for installation.

Kriya Shortt, Textron Aviation senior vice president, Global Customer Support has stated "The Citation Excel and Citation XLS continue to be two of the most popular business jets in the world. The G5000 will modernize the cockpit to offer customers additional situational awareness, lower cost of operation and an improved in-flight experience in the aircraft they already know and love."

The G5000 also solves parts obsolescence and addresses mandate requirements all while offering a lower cost of operations. This modern upgrade provides a wide range of customizable features to fit business and pilot needs.

Available immediately, the G5000 integrated flight deck upgrade can now be installed in Citation Excel and Citation XLS aircraft at Textron Aviation Service Centers and select Garmin dealers. 

"The Citation Excel and Citation XLS continue to be two of the most popular business jets in the world. The G5000 will modernize the cockpit to offer customers additional situational awareness, lower cost of operation and an improved in-flight experience in the aircraft they already know and love."

Kriya Shortt, Textron Aviation Senior VP, Global Customer Support



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THE ISA TRAP

By THIERRY POUILLE

165,000 FT

IDEAL ISA TEMPERATURE

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STRATOSPHERE

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As jet pilots, we always pay keen attention to the ISA temperature up at altitude.

With modern aircraft as the Citations, M2, and Mustang equipped with either the Collins Pro Line, the G1000 Garmin, or the G3000 Garmin, we have instant reading of the different important temperature related to the outside air: the SAT, the RAT, and the Δ ISA.

As a reminder, ISA (International Standard Atmosphere) represents the standard sea level pressure temperature which is 29.92" or 1,013.25 millibars and 59°F or 15°C. As atmospheric pressure will decrease with the height, the temperature will decrease at the standard lapse rate of 2°C by each 1,000'. Upon reaching

CONTINUED ON PAGE 39 >>

36,000', the temperature should remain at -59°C from 36,000 and higher. The Δ ISA is the difference between what the standard should be and what the actual situation is.

Over the years escorting journeys to many parts of the world, I have seen a number of large deviations from the standard ISA. My first encounter was back in late 2000 onboard a CJ1+ from Canada to Iceland where the Δ ISA at 41,000 was showing +11°C.

On several occasions flying my Mustang across the Atlantic, I have seen deviations as big as +12° but usually since I'm taking a route further north from Canada to Kangerlussuaq, Greenland, and Reykjavik, deviation might have been in the climb with reading of +12° and then settle back to +9° or below.

Over the years, the largest deviation I have seen was a +12°C ISA at FL410 over Borneo crossing the equator.

I kind of get used to these deviations since most of the time that deviation will start to decrease in the higher FL300 and will remain around +8° or maybe +10° at FL410.

Because of the FADEC installed in most of our airplanes, in order to protect the engine envelope, the computer will let the engine generate less power than anticipated. On another hand, that will bring us less fuel consumption, lesser speed, and so usually not much effect on the distance that can be flown by the airplane.

This year in late May 2019, I was escorting a journey across to Europe being right seat on a Citation CJ3+ equipped with the Garmin G3000. I have done the same route and similar CJ3+ for the past 4 years.

Our route that morning took us from Quebec City to Goose Bay

at FL450 in beautiful weather and after refueling the next leg is Goose Bay to Reykjavik at 1,370 nm, which is easily within the range of the Citation CJ3.

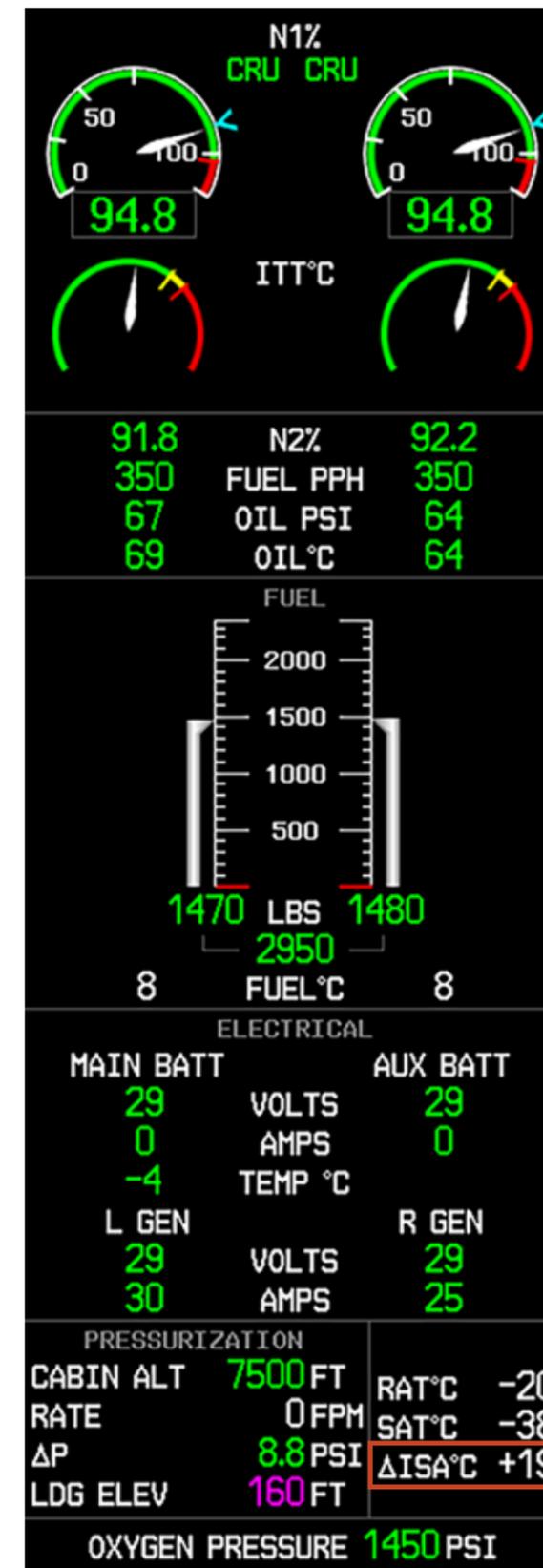
Takeoff from Goose was towards the west, and we had requested an oceanic clearance for FL450 and Mach speed of .70. Over the years, I've come to understand that the limitation we have for that particular route is to be at waypoint called HOIST, about 159 nautical miles north-east of Goose Bay to be at cruising altitude FL450 (and/or at least be above 410) and communicate with center the progress on reaching the altitude.

On that day, it looked pretty good right after takeoff. We were very close to standard temperature all the way to FL320 with a very fast climb. 80 nautical miles out of Goose Bay we were passing FL360, leaving us with another 80 nautical miles to reach HOIST at FL450.

ISA as we cross 360 is showing +5° - pretty close to standard in this part of the world. As the climb continued with a pretty good rate, the Δ ISA starts to increase, showing +6, +9, +11, +12 passing 410 but still a healthy rate of climb of 500' per minute.

As we get closer to 430 the ISA is now showing +14 and rate of climb is declining. We continue to climb up from 400' a minute, 200' a minute, 100' a minute. Very, very slowly we finally reach FL450 with our speed tape indicated speed slightly above the green doughnut (1.3 Vso).

As the plane leveled off, I was expecting to see the green doughnut going down and indicated airspeed going up. Instead, we see the opposite. The green doughnut starts to approach our speed, then passes our speed indication, and we are getting





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LOUISE

closer and closer to the yellow color of the speed tape: a situation you don't want to be in.

We came very fast to the decision that we cannot stay here. We asked center for a lower altitude, which was declined, and our oceanic clearance was restated to us. Our response was fast and clear: we cannot maintain altitude, we need to go down, we are going down now, and if we need to declare an emergency, we will.

That did the trick, and we were cleared to an unusual flight level of 440, assigned a different waypoint further south on our route, and requested to let us know if we could again later reach 450. Going to a lower altitude let the plane's speed increase, and then slowly we climbed back up to 450.

The ISA which previously went all the way +19°C ISA was now closer to the 16. We reached 450 but were only barely able to maintain Mach .60. Center came back

to us and gave us final altitude of FL430. We accepted and very, very slowly we finally reached a speed of Mach 0.66.

What could we have done better? ISA information is available to the pilot in many places. ForeFlight with its briefing package is certainly the easiest place to find the information and interpretation/ forecast of changes in temperature.

On this particular day, the briefing package from ForeFlight was indeed showing that we would have to do a step climb in order to reach our flight level of 450 and was also announcing an ISA differential of 12°C, nowhere close to the +19° we've seen. If you do see a step climb in ForeFlight, I'd say be prepared to have some interesting temperature readings.

A less conventional way of looking at these ISA deviations is to take a look at the track system used by the airlines on

the day of your flight. On our particular day, the track system was way south of Greenland - at least 300 nautical miles south. Most of the time, you will see a northern track closer to the tip of southern Greenland. The airlines may have access to better information, more detailed information, and can create a track in a way to avoid the trap in which we fell.

If you want to see the track information on your ForeFlight program, it is available. You need to go on the Map screen, into the Setting icon which is to the right of the FPL icon in the top left corner, scroll down to select Airways, and select the Organized Track option.

Let us know if you have any suggestions on how to avoid certain flight "traps," and I'm looking forward to providing more stories in our publication on advanced techniques, tips, and tricks. **C**

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By FRANK HARLOW

WHY YOU SHOULD

OVERINFLATE YOUR TIRES



I wasn't in the USA in 2008 when the now-somewhat famous crash occurred in a Lear 60 on takeoff due to underinflated tires. The Lear 60 now has an AD that requires the tires to be pressure checked no more than 72 hours prior to takeoff. The pressure is determined by takeoff weight, pressure altitude and temperature. I have been told by some Lear drivers that the air pressure can vary by up to 25 pounds. I sometimes wonder how they stop the plane because the wheels are so small; just imagine the number of revolutions they spin up to when landing.

Adding more air to a tire than the recommended pressure is a new tactic to me. I know some people add more air to their car tires to get better gas mileage, as the tires are harder and offer less friction to the road. But officially recommending an increase of 5% in tire pressure sounds interesting. According to the Michelin Tire Company, they want to see 105% of the recommended tires pressure in the tire during preflight. Tires under 90% of the recommended pressure are to be removed from service and checked. Please see the chart below.

It should be common knowledge that

one cannot tell the pressure in a tire by just looking at the tire. You must use a tire gauge to find the pressure.

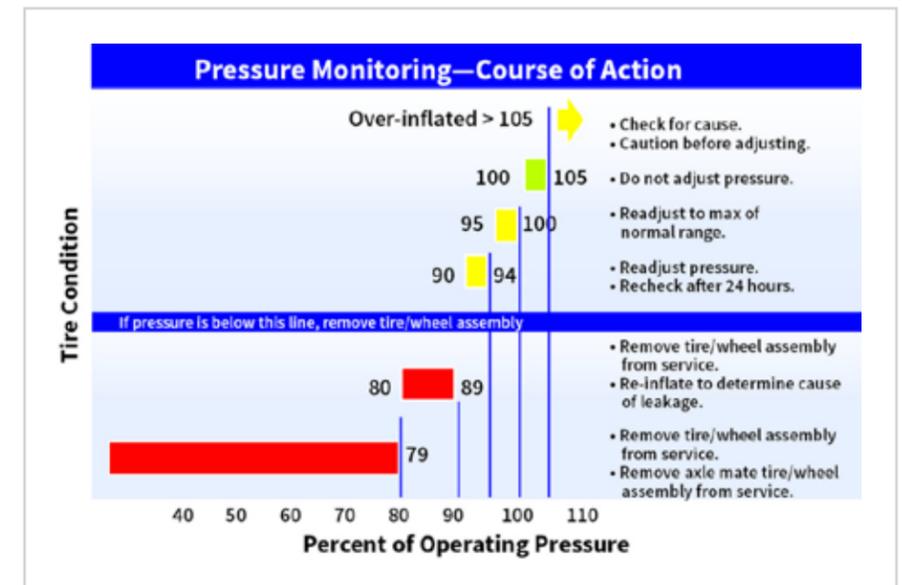
Because aircraft tires operate at such high extremes of pressure, load, and speed, their care and service is critically important. The most important action a pilot can take to prevent tire-related events is to maintain proper tire inflation pressure to 105% of the recommended pressure. So, if your airplane requires 100 pounds of air pressure you should put in 105 pounds.

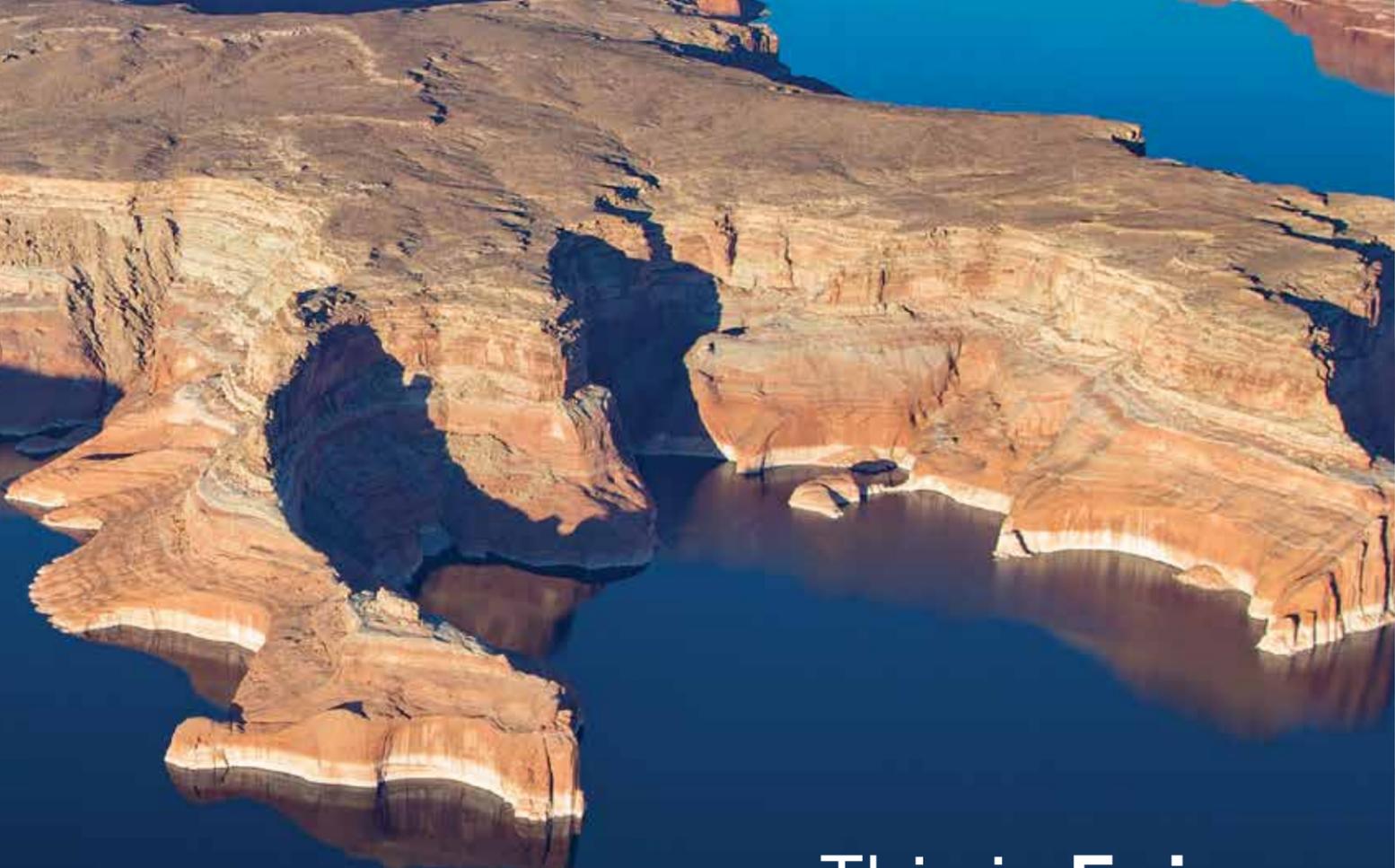
Why is it important to check the pressure every day prior to flight? Because of the high pressures and extreme temperatures at which aircraft tires operate, they do not hold air perfectly. In fact, an aircraft tire can lose up to 5 percent of its pressure in 24 hours and still be perfectly serviceable.

In order to ensure that an aircraft's tires are properly inflated, Michelin recommends checking the inflation pressure with a calibrated gauge before the first flight of the day or before each flight if not flown daily.

BF. Goodrich advises you to move your airplane so the wheels turn 180 degrees to keep from getting flat spots.

Failure to keep aircraft tires properly inflated can lead to very serious consequenc-





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WHY YOU SHOULD OVERINFLATE YOUR TIRES



es. The most serious of these is the structural failure of the tire. If the tire operates underinflated or over deflected/overloaded, the nylon cords which form the structure of the tire go in and out of compression as the tire rotates. This weakens the cords – much like a paperclip which is bent back and forth – until eventually the cords break. If enough cords break, the entire structure will eventually fail.

Tires must be initially inflated only with nitrogen. However, air can be used to top off a low-pressure tire if the airplane is in a location where nitrogen is not readily available, provided that the oxygen content does not exceed 5 percent by volume.

Aircraft tires are filled with nitrogen because nitrogen gas is mostly inert, meaning that it requires more energy to react with other substances. This is important because at elevated temperatures, oxygen can react with rubber.

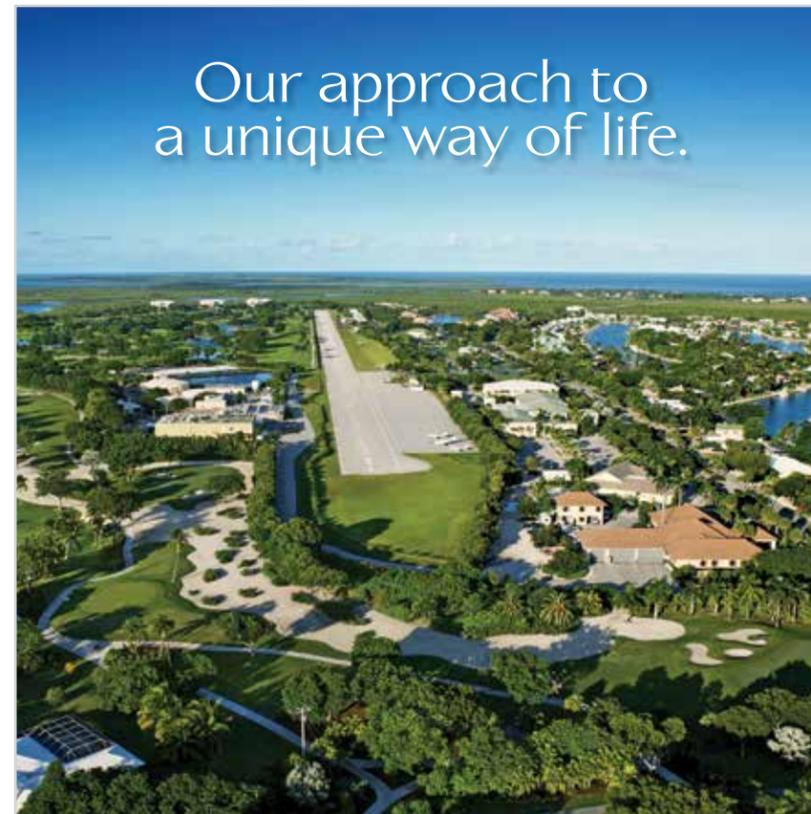
Aircraft tires are replaced on condition, but main gear tires usually last about 250 cycles. 

Tire Wear:

- It is normal to lose 5% tire pressure in 24 hours.
- Inaccurate gauges are a major source of improper inflation pressure.
- Check when cool.
- Never bleed off excess pressure from hot tires

Source: Gulfstream Presentation, "Tire Wear," John Salamankas

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5 TCJA TIPS

FOR YEAR-END CLOSINGS IN 2019

By SUZANNE MEINERS-LEVY

As we are well into the last quarter of 2019, market indicators support the possibility of a very strong year-end in aircraft transactions. If you have not purchased or sold an aircraft since the passage of the Tax Cuts and Jobs Act (TCJA) of late 2017, a review of how changes in the tax law may impact transactions for the balance of the year is in order. Similarly, if you are contemplating selling your aircraft, upgrading, bringing in a partner, or acquiring a new aircraft, knowledge of the tax law and its impact on your business can help you make an informed decision about the economic impact of the business decision on your bottom line. In this article, I explore five opportunities and concerns related to the tax reform that are certain to impact the quarter ahead:

1 Pre-owned Aircraft Inventory for Equipped Aircraft is Low

The TCJA altered the tax environment of aircraft purchases by making 100% bonus depreciation available not only for new but also for pre-owned aircraft. As anticipated, this significant purchase incentive increased demand for ADS-B compliant pre-owned aircraft in desirable makes and models. Buyers that had previously delayed purchases moved back into the market, leaving inventory in many makes and models at an all-time low. If you are a potential seller, this may make the 4th quarter an excellent time to sell your aircraft. Given the current backlog of aircraft rushing to secure 2020 ADS-B compliance, it might be wise to move forward with listing any aircraft for sale as early as possible to allow sufficient time for pre-buy inspections before year-end.

2 The Lack of 1031 Exchanges for Tangible Personal Property Changes Transaction-Dynamics

The TCJA eliminated the use of 1031 exchanges for tangible personal property beyond a limited window of now-completed transactions. The 1031 exchange provisions were commonly used to avoid depreciation recapture for business aircraft owners planning to upgrade their aircraft while disposing of an aircraft. Without 1031 exchanges, timing of selling and replacing an aircraft has become even more critical, given that taxpayers can no longer span across tax years without creating a recapture event. This truth makes aircraft owners more concerned about timing the disposition and acquisition within the same tax year. Understanding both your own business needs as it relates to recapture, as well as the motiva-

tions of your potential seller or buyer is essential in maximizing the value of the deal. Some aircraft owners are very sensitive to the recapture timing while others are not. This sensitivity depends on a number of factors, including, but not limited to: 1. The desire and ability of the buyer to take bonus depreciation and/or Section 179 expensing on the new purchase; 2. Possible limitations on deductibility created by the excess business loss rule limitations in the TCJA; and 3. economic realities of their primary operating business, including any unusual income events in the years at issue.

3 4th Quarter Deliveries May Still Qualify for Bonus Depreciation and Section 179

I speak with hundreds of aircraft owners each year alongside their economic advisors and CPAs and find that many tax advisors are made nervous by the “risk” of taking bonus depreciation or significant 179 expensing elections for transactions completed in the last few months or weeks of the year. I believe this approach is misplaced. It is worth noting that under the TCJA, bonus depreciation is the default position, requiring taxpayers to opt out of bonus by written election.

Short-year use profiles provide an excellent opportunity to ensure that the aircraft stays fully dedicated to its business mission in the year of significant depreciation deductions. Taxpayers should be guided by knowledgeable professionals on how to keep the highly specific flight logs required for compliance with the personal use regulations governing aircraft, Section 274-10, and get a clear understanding of the impact of various flight and passenger profiles.

Additionally, short year or end-of-the-year transactions also provide business owners to make a large equipment investment during a moment of peak knowledge about the tax year in which

they seek to take the deduction. This reduces the uncertainty about any loss limitations or income events that may greatly impact the value of the deduction. Finally, if an aircraft owner has disposed of an aircraft during the tax year at issue, bonus depreciation can usually be used to offset any recapture that the taxpayer may incur as a result of that disposition.

It is important to remember that in order to take depreciation or 179 expensing the aircraft (or avionics suite or other depreciable asset) must be acquired and placed in service for “qualified” business use before year end in order to qualify. Talking to an aviation tax advisor about the meaning of “qualified” business use, as well as proper structuring of the transaction to avoid any inadvertent tax traps is essential in determining the allowability of the deduction.

4 Excess Business Loss Limitations and Pass-Through Income Deductions are Still Just Beginning to Shape Business Behavior

As I have detailed in past articles, the Tax Cuts and Jobs Act impacts extend well beyond the general aviation context, leading to a wide variety of corporate restructuring and other business planning. The rules are very complex and regulatory clarification has been slow to arrive and murky to navigate. Accordingly, many business owners are only now receiving their first understanding of the effect of the tax reform as they finalize their 2018 returns, a process which will continue for some taxpayers through October 15, 2019. I believe that this deeper understanding is likely to drive tax-friendly transactions before year end.

5 Political Uncertainty May Push Transactions Earlier

Finally, lack of certainty about U.S political priorities has traditionally had a significant impact on the strength of both U.S. and foreign markets. With an election year ahead, many business owners are concerned that a change in the Administration may lead to new tax or environmental policy that would disfavor the general aviation community. While the TCJA retains 100% bonus depreciation through the tax year 2022, with a 20% phase out per year thereafter, new leadership in Washington could lead to new laws with potentially less favorable tax treatment.

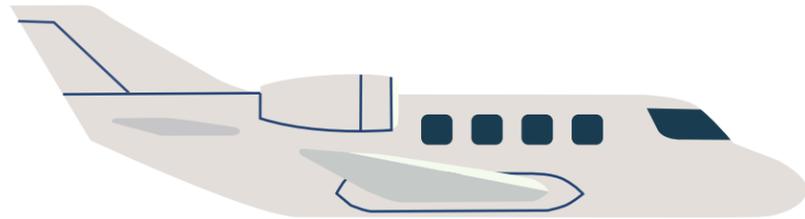
While I am certainly not capable of predicting the future of tax or other policy decisions, I do understand the value of certainty in business planning. Many business owners with known aviation needs are likely to take advantage of the certainty of 2019 tax policy to move forward with transactions that make good business sense.

2019 is, for many business owners, a great time to acquire new business tools to maximize the profitability of their business operations efficiently. General aviation aircraft can be an essential piece of many types of businesses, but understanding the rules governing general aviation acquisitions and operations is essential in maximizing the utility and value of your aircraft. This article has highlighted just a few of the concepts that will govern my thinking in the months ahead. There is no time like now to begin planning for how you will make the fourth quarter work best for you. Happy flying! 

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SINGLE PILOT

By SKY SMITH

OPERATIONS AND INSURANCE



When I was growing up, the celebrities had “made it” when they got a jet. Although Frank Sinatra might have been the first to have a Lear 23 back in 1965, it wasn’t long before many of the other celebrities jumped on the “jet-wagon.”

At the time, the only real personal jet available would have been the Learjet (23, 24, and 25). None of which offered a real, single pilot/ owner-flown category.

In 1969, Cessna started flying the “Fanjet 500” prototype, which was their entry into the small jet market. The Fanjet was soon renamed “Citation,” and production was started around 1972, when the market was ready for an easy to fly, economical jet.

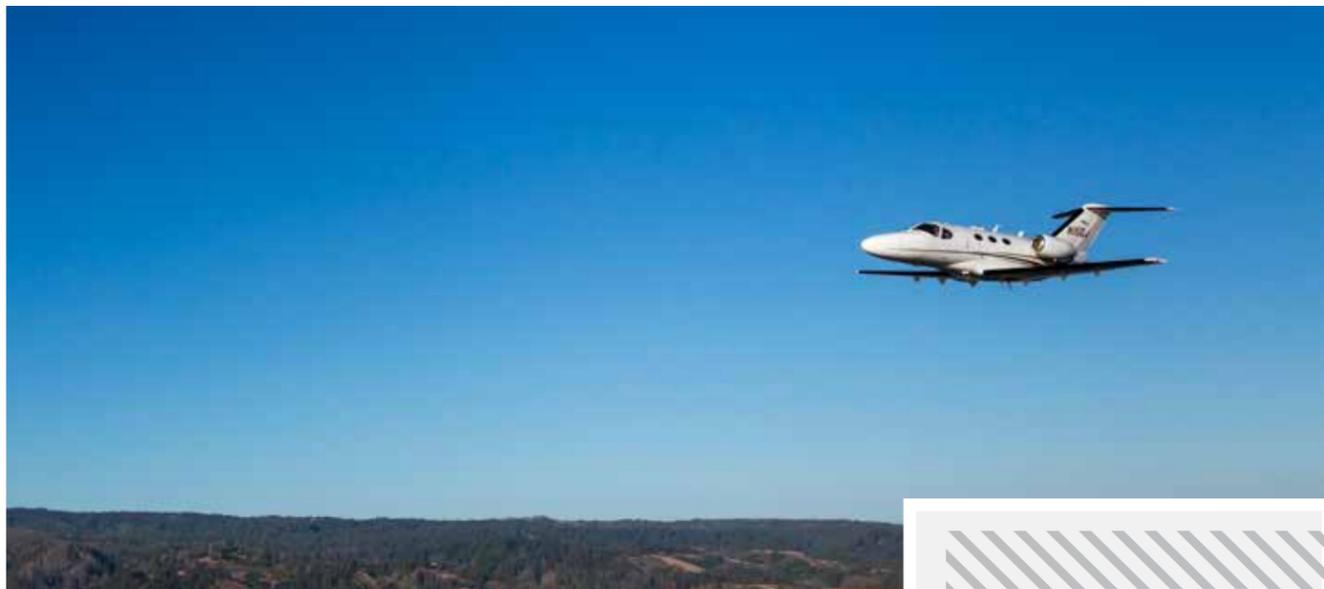
At that time, there was also interest in single-pilot operations by the owners wanting to fly their own jets or fly without

having to pay for two crew members. Cessna met that demand in early 1977 with the delivery of the 501 Citation I/SP, certificated for single-pilot operations. Before that, the FAA had required all jet powered aircraft to have two pilots.

Now that we’ve reviewed some basic history, let’s talk about how insurance and single-pilot operations work for a Citation:

First off, while it may be legal, and the manufacturer specifically built it to be able to accommodate single-pilot operations, the aviation insurance underwriters still like to see two pilots in the plane. It’s like a redundancy plan, and who doesn’t like redundancy in aviation? That brings us to the big question: if the underwriters don’t like single-pilot operations in Citations, can you even get insurance? Like everything else in aviation insurance (or any insurance for that matter), it’s a yes and no answer.

CONTINUED ON PAGE 50 >>



Checking around, I was able to glean a few ideas as to what you would need to be a single-pilot operator. By single pilot, I am talking about sole pilot in command operations. It didn't matter who I talked to, the consensus was that the hull value of the aircraft and the liability limits will be a factor in the ability to operate as single pilot. Those issues, tied with pilot's specific information, will determine if and when you can fly as the sole pilot of your Citation.

If you are a private, instrument, multi-engine pilot with a minimum of 500 total logged hours, you can probably get quoted to fly a small Citation aircraft in a dual-only situation with training.

To operate as a single pilot, you will be required to attend initial ground and flight school and get a type rating along with logging some minimum number of hours dual, plus additional hours of "Mentor Time." Mentor time is when you have a qualified pilot in the aircraft with you, not necessarily a CFI.

The numbers I heard were anywhere from 25 hours to 100 hours of dual. The variation in hours will mainly come down to what you were flying before you bought the Citation. If you spent most of your time in a Cessna 182, you'll get higher dual and mentor time. If you have a lot of hours in a Cessna 421, you'll probably get lower requirements.

Either way, your liability limits will be low. Standard liability on aircraft policies is \$1 million per occurrence and \$100,000 per passenger sublimit. Many of the transition companies will only provide that, or maybe...maybe...2 million. In general, as an owner-flown, single-pilot operation, it is difficult to get anything higher than one or two million in liability without a substantial amount of experience.

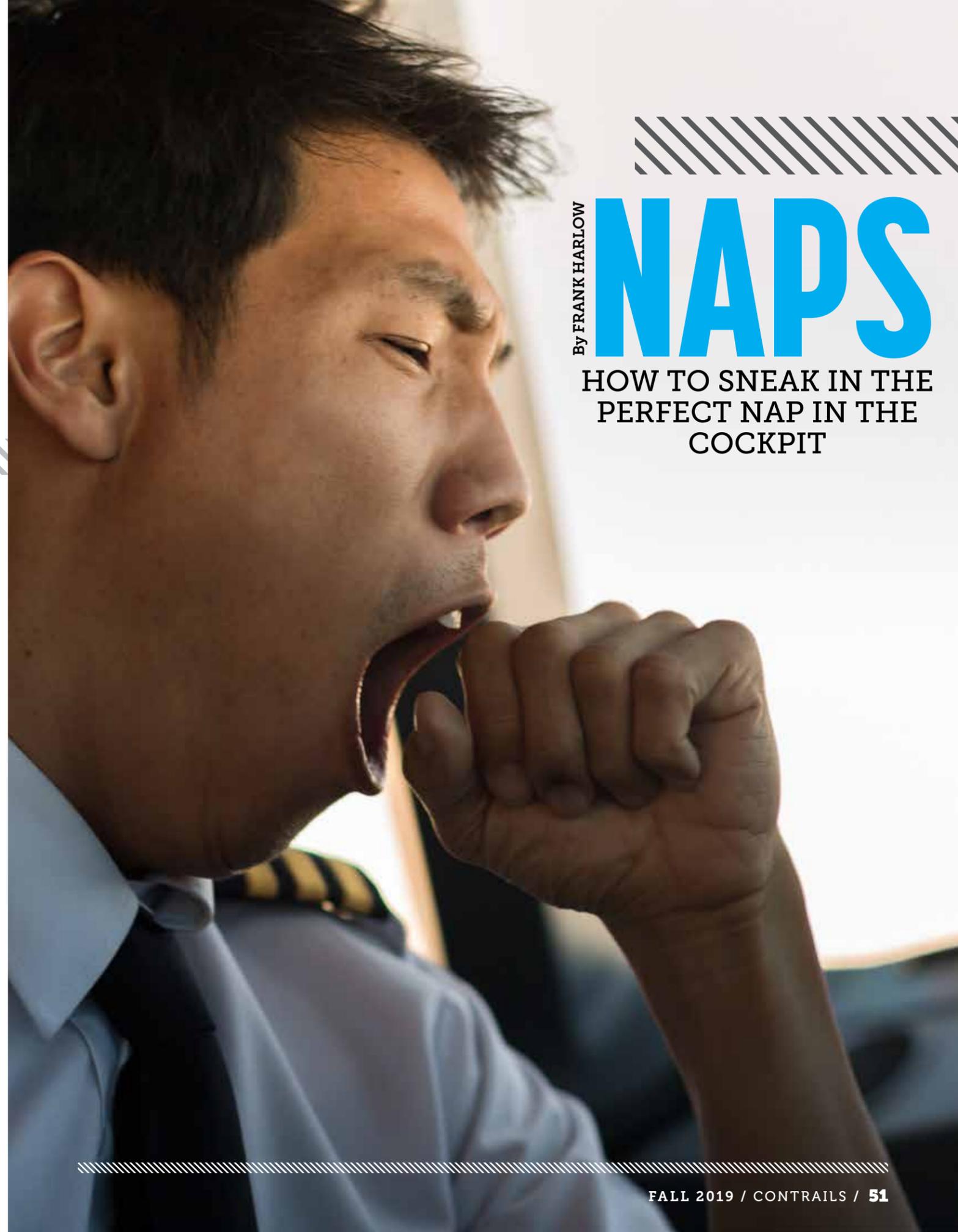
Additionally, I was told that a Citation that requires a 2-pilot crew can get a waiver from the FAA for single-pilot operations. In those cases, the FAA would only let a commercial pilot who has obtained a single-pilot waiver fly the aircraft as a single pilot. As you might expect, the insurance underwriters' requirements would be the same.

If you are looking at a Citation now, here's something to consider: the cost of an older Citation 1SP can be as low as \$280K. That's a great price considering a brand-new Cessna 172 will cost almost \$500K nowadays. It might be the perfect time to get one! In conclusion, while there are limitations, it is possible to fly as a single pilot in a Citation and get insurance. Specific requirements will change by the company, but consider the six basics listed in the sidebar when planning to fly single pilot in a Citation. **C**

When planning to fly single pilot in a Citation, consider the following:

- 1 Minimum ratings required: Private, instrument and multi engine
- 2 Minimum hours – 500+ total time and the more multi-engine and retractable gear time the better
- 3 You will need initial ground and flight training and type rating
- 4 Minimum dual requirements vary depending on prior experience (could be as low as 25 dual or up to 100+)
- 5 Mentor pilot time from zero to 100+ hours
- 6 Annual recurrent training

PHOTO: MIKE FIZER



By FRANK HARLOW

NAPS

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MAHERBE PA RIS - Photo Maxime Fourcade

My first day as a newly minted co-pilot in a Citation SII was exciting and not quite what I expected. The weather was clear and a million with calm winds. There was a positive vibe in the air, with the wind was right down the runway. A perfect day to fly! We boarded up the passengers and away we went. We were on our way to San Francisco from the Pacific Northwest. The airplane climbed like only a Citation SII could climb with full fuel and passengers; If you have ever flown one of them, you know it was slow. It felt as though took about an hour to get to FL340.

Once at flight level and headed south, we finished all the checks then settled in for a smooth ride. We had a two-hour flight and had just reached cruise. I made a radio call and then looked over at my captain. He was a nice guy, military background with many hours in the airplane. He had taken me under his wing and

trained me to be the upstanding right seat co-pilot of a mid-sized jet.

However, there was a slight problem. I couldn't believe what the captain was doing. He must be violating a rule, I thought. What was he doing? Well, he was taking a nap. A nap! What was I to do?

From the National Sleep Foundation, naps may be defined as, "Daytime sleeping that lasts between 15 and 90 minutes and can improve brain functions ranging from memory to focus and creativity. For some people, naps are as restorative as a whole night of sleep."

More than 85% of mammalian species are polyphasic sleepers, meaning they sleep for short periods throughout the day. Humans are part of the minority of monophasic sleepers, meaning that our days are divided into two distinct periods, one for sleep and one for wakefulness. It is not clear if this is the natural sleep pattern of humans. Young children and elderly persons commonly nap, for example, and napping is a very important aspect of many cultures. The older I get,

a nap seems to become a more important part of the day.

As a nation, the United States appears to be becoming more and more sleep deprived. It may be our busy lifestyle that keeps us from napping. While naps do not necessarily make up for inadequate or poor quality nighttime sleep, a short nap of 20-30 minutes can help to improve your mood, alertness and performance.

Nappers are in good company: Winston Churchill, John F. Kennedy, Ronald Reagan, Napoleon, Albert Einstein, Thomas Edison, George W. Bush, and my captain are known to have valued an afternoon nap.

NASA research found that a 40-minute siesta improved performance by 34% and alertness by 100% in the period following the nap and may extend alertness a few hours later in the day. In addition, napping also has psychological benefits, providing some relaxation and rejuvenation. I wonder if my captain knew that when he was in the land of snooze.

Sadly, napping is often frowned upon in our workaholic American culture. Espe-



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NAPS

cially in the front seat of an airplane. When we think of napping men, we think of Dagwood passed out on the couch after consuming a giant, delicious sandwich. Not a bad idea. I have never in 28 years of flying ever slept in the cockpit, still to this day just excited to be up front.

We think naps are for the lazy and unambitious, or for retirees with plenty of time on their hands. The man who falls asleep at his desk at work is laughed at. And when we doze off, we feel guilty. We need to ask ourselves for the betterment of our health, how do we take the perfect nap? Well...

- 1 Watch the time.** The most beneficial naps are during the day in the late afternoon when your body rhythms are down. According to the sleep experts, naps need to be relatively short. You don't need a two-hour nap; 15 to 30 minutes is right on the mark. Too long of a nap will mess with your normal sleep pattern at night.
- 2 Find a quiet and dark place.** The pilot's lounge is a perfect place for a nap. Usually the lights are low and there are others sleeping. By the way, if you are in the FBO pilot lounge, don't talk on the phone, others are trying to nap. Me especially.
- 3 Lie down.** Roll the chair back and get comfy, maybe even put a blanket over yourself. Grab a comfortable pillow if you happen to have one around.
- 4 Get in the napping zone.** Let your troubles float away. Put ear plugs in or find some soothing music to get to your happy place.
- 5 Coordinate your caffeine.** Try to not drink that Grande Mocha just before you begin to nap. You will have a devil of a time getting to sleep.
- 6 Plan to nap daily.** Remember many famous people napped on a daily basis, present company included. It helps to establish a habit.
- 7 Set an alarm.** Almost all of us are gizmo freaks or have a cell phone in hand. So set an alarm on your watch or phone to wake you. Again 15-30 minutes will do the job.
- 8 Cut out the guilt.** Take naps with pride. I know our little wee ones take daily naps, famous people take naps, and so should you.

Just a side note: as pilots, one of the prerequisites in professional flying is the ability to take a nap whenever and wherever. The motto for pilots has always been, "Sleep when you can, eat when you can, keep smiling, and enjoy the view." I think napping is part of the job application process for pilots. Waiting (oftentimes referred to as "Airport Appreciation Time") in airport FBOs is a large part of the corporate/airline pilot's job. Learning to nap is a function of waiting in this business. By the way, my wife will tell you I am an expert at taking naps. She says I can nap anywhere, any time. I take that with pride. **E**



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