TWIN & TURBINE

FOR THE PILOTS OF OWNER-FLOWN, CABIN-CLASS AIRCRAFT

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Tamarack's Active Winglets Extend to CJ3

Managed Co-Ownership

New Tax Bill's Impact on Aircraft Values

Kevin Dingman: License to Learn

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by **Rebecca Groom Jacobs**

A New Chapter

It is with great honor and pleasure that I write my first editorial briefing.

First, I want to thank Dianne White for this incredible opportunity. I have been writing for *Twin & Turbine* since early 2017 and she has quickly become one of my greatest mentors and inspirations. Her creativity, professionalism and drive are of levels I hope to match as I accept the *T & T* baton. I'm sure we would all agree that I have big shoes to fill, but I am thankful that we will continue to see her writings and support going forward.

In the May issue, you may have caught Dianne's overview of my background. To summarize, I am a private pilot and marketing graduate; over the past six years I've been fortunate to work on projects with several renowned aviation companies, primarily aircraft OEMs, including Textron Aviation, Piper Aircraft, Quest Aircraft and Mooney International. The people, aircraft, events (this year will be my eighth straight Oshkosh) and work have absolutely had me hooked. And as life would have it, I married a professional pilot. My husband is just about as excited for this opportunity as I am!

But general aviation's presence in my life goes back even further than my career. For as long as I can remember, I have been in and around small aircraft and airports, growing up in the back of our family's Bonanza. My father is a pilot and 35+ year veteran in the business aviation industry. He is assuredly the reason my older sister decided to pursue her pilot's license and aviation degree. And as younger siblings often do, I ultimately followed my sister and entered the aviation industry upon graduating Oklahoma State University just as she did (even starting out at the same company, Piper Aircraft). My flight training, however, was certainly unconventional and unique...but I'll save that story for another time. I look forward to sharing more about my upbringing, aviation experiences and industry observations as the months go on.

Let's Talk Twin & Turbine

Today, *Twin & Turbine* continues to be the only monthly aviation magazine that speaks directly to the turbine owner-pilot. It is delivered to nearly 40,000 owners around the world and put simply, is true "pilot talk."

It is my mission to ensure this publication remains a valuable resource for owner-pilots with topics surrounding the safe, efficient and enjoyable operation and ownership of high-performance twins, turboprops and jets. Building upon its foundation, I look to re-invigorate the magazine with fresh perspectives, design and insightful editorial. *T & T* already has a fantastic group of regular contributors and I hope to soon add a few more.

But first, I would like to hear from you, the reader. One of my immediate initiatives as editor is to conduct a readership survey – a *T & T* first. This survey feedback will help ensure we are delivering exactly what

today's turbine owner-pilot (and future turbine owner-pilot) wishes to read. So, please keep an eye out for that survey arriving in your inboxes this month. It is my hope that many of you will take the time to share your feedback and insights, in support of our mission to keep *Twin & Turbine* an instrumental magazine for pilots of owner-flown, cabin-class aircraft.

Thanks to many of you for an already warm welcome. Cheers to an exciting new chapter! T&T

Airmail

In Response to Kevin Ware's "Higher Minimums"

I always read your articles with interest however, the April article truly hit home. Very well written and thought out. I, like you, am a high time retired AF and airline pilot. I now fly King Airs and personally own a 340 that I love. You hit the "minimums" on the head. I couldn't believe you said you started looking at the weather a week out; that is exactly what I do when I fly the family and grandkids, often cancelling trips that would be a no brainer in my other world – even in the same airplane.

As a 40,000-hour pilot in virtually all types, I think you and Kevin Dingman hit it on every issue. Even after all this time, it is still fun. Like you say, if you are getting paid, then you are doing a job and it's actually easier, huh? And we are definitely more "picky" about our fun!

Thanks for writing such great articles.
Jeff H.
Cessna 340 Owner
Retired Air Force and Airline Pilot

In Response to David Miller's "More or Less"

Nice article, and I thank you for all the great articles you have provided us with. I have a small problem with the last part of, "More or Less" that we are owner operators and not professional pilots. While I agree that we may not be commercial pilots, I believe some of us are professional owner-operators.

My background is former airline (captain) for a major carrier and I now manage and own several healthcare-related businesses. I train every year at SIMCOM and while nothing is close to what and how I trained before, I still consider myself a professional pilot. While my personal and aircraft limits are different now, that's what keeps me pro!

Just my opinion. I would consider you to be a pro as well considering what you fly and how often you train. Thank you for hearing me out.

Your fellow friend and aviator,
Jose L.
Captain 737-200
A320

Sp
and Ran

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eed, Stability nge Converge

A test flight in Tamarack's active winglet-equipped Citation CJ3.

by **Rich Pickett**

Tamarack Aerospace Group has been developing and installing winglets on members of the Cessna Citation 525 series for several years now. They began with the CJ1 (525) in 2013 and received FAA certification in December 2016, followed by EASA approval a year later (Dianne White wrote about that particular installation in the February 2017 issue).

After declaring success with the CJ1, Tamarack proceeded with the certification on the Citation CJ2 (525A) and Citation CJ3 (525B), which was received in April 2018 and February 2018, respectively. Now, with over 50 Citations flying with Tamarack winglets, it is gaining wide acceptance among the fleet. Lucky for me, I was recently invited to fly their Citation CJ3 equipped with the company's latest design and see what the commotion is all about.

Expectations

I have been flying the CJ3 for six years, both for business and pleasure as well as instructing in the airplane. Cessna (and Williams International) truly produced a great business jet in the CJ3. It has speed, range and economy that is hard to beat. And going into this, I had seen performance gains due to installing winglets on other business jets, but questioned whether it would really make a difference in the CJ3. My Tamarack test flight would ultimately change those assumptions. I enjoyed the first flight so much, I requested another one in California to confirm my observations (or at least that was my excuse).

From the Ground

My first flight in the Tamarack-equipped CJ3, which served as their test bed for this installation, took place at Phoenix's Sky Harbor Airport. The first thing you notice when you approach the aircraft is its impressive ramp appeal. The winglets add approximately seven feet of wingspan and sweep up approximately four feet above the wing. At a distance, they might look similar to other winglets but once you come closer, there are obvious differences.

Rather than being a passive wing extension, the winglets are "active" flying surfaces similar in appearance to large trim tabs, on the aft portion of the extension. These movable surfaces make up the Tamarack Active Camber System (TACS) and are controlled by a system of electronic devices, which receive various inputs, including accelerometers. There is also the Atlas Control Unit (ACU) located behind the fairing on the right wing root. The ACU communicates with the TACS Control Units (TCU) located in each wing near the extension. It is these TCUs that actually move the movable surface, or TACS on the extension in response to aerodynamic loads.

When the aerodynamic load on the aircraft increases beyond 1.5Gs, the system will then move the TACS up to relieve the load not only on the winglet, but the entire wing and thus the airplane. Using this ingenious technology, the stress on the airplane is even reduced in turbulence or normal flight maneuvers. It is this system that actually manages the load and is why the entire installation is termed Active Technology Load Alleviation System or ATLAS. In addition to providing performance gains, this design also allows the CJ3 to have an increased Maximum Zero Fuel Weight (MZFW) of an additional 400 pounds, which equates to two more passengers you can carry before adding fuel.

On to the Flight

With Nick Guida, founder of Tamarack in the right seat, and John McCann in the side "jump seat," it was time to fly.

After engine start, we entered the fight plan into the Rockwell Collins Proline 21 Flight Management System (FMS). Our flight would consist of a simple, roundtrip back to Phoenix Sky Harbor (KPHX). The controllers were extremely helpful giving us the TFD4 OLIN transition from Runway 25L, then SSO VOR and return.

One of the first things you notice from the cockpit is the wingspan. I didn't want to be the first test flight pilot to run into something on the ramp! But with the aid of the Cutter FBO line staff watching the wings, I carefully taxied to our departure runway. Upon takeoff, the CJ3 quickly accelerated to V1 (decision speed) and Vr (rotation) which were the same today at 102 (with full tanks).

I hand-flew the aircraft the entire one-and-half hour flight, with the exception of 10 minutes to test the winglets with the autopilot. I tried different climb profiles – Angle of Attack (AOA), IAS and pitch. In each profile, the aircraft climbed slightly better than a "straight" CJ3 with perhaps a 300-400 FPM increase in climb rate. I couldn't calculate an exact number since I only spent a few minutes in each profile and the rest of the time testing the active nature of the winglets.

Tamarack Aerospace Group achieved FAA and EASA approvals for installation of its Atlas Active Winglets on the Cessna C525B CitationJet series in February.

The Atlas winglets use a load-alleviation device called Tamarack Active Camber Surface (TACS).

The winglets add approximately seven feet of wingspan and sweep up approximately four feet above the wing.

It was amazing to put increased load on the wing then watch the rear control surface of the winglet move as the ATLAS computer responds to the increased aerodynamic load. I thought it was so cool that I kept doing it – increasing the load more each time to see the change in deflection of the tab. This is exactly what you want it to do! Similar to how our wings flex in flight (which you see very dramatically in aircraft such as the Boeing 787 and B-52), this relieves the loading. Watching this technology in action made me wonder why no one thought of this before.

I completed numerous rudder deflections at various altitudes, keeping the aileron control neutral, removing my hands then pushing the rudder until I obtained 20-30 degrees of bank. I would then take my feet off the rudder and see if the bank angle would diverge and increase each cycle or oscillate around the bank I initiated. In every case, up to FL430, the aircraft oscillated a few times then stabilized. Of course, I did all of these with Yaw damper off, feet on the floor.

Typically, when I fly a CJ3 to FL450, I use a high-speed climb with a low pitch angle to minimize the time accelerating to VMMO at cruise. But during this test flight, we climbed at a higher angle requiring me to pick up speed once level at FL450 (which we made in 28 minutes and burned approximately 700 lbs of fuel). It was a very hot day, with several levelling requests by ATC and a gross weight in excess of 13,000 lbs.

Once level at FL450 (ISA -3 degrees), we accelerated from our climb speed to just a knot or two below MMO in about 8 minutes. This allowed me time to review performance numbers.

During his test flight, Pickett reached FL45 in 28 minutes and approximately 700 lbs of fuel.

After accelerating to VMO, I had to reduce power. Of course, in the CJ3 you always have to reduce power at FL450 to avoid exceeding VMO. What I was surprised to see with the winglets however, is how much. In the CJ3 I normally fly, I reduce the power to about 95 percent N1 which gives me 405-410 ktas and a fuel burn of 370 pph per engine, or 740 pph total. Next came the acid test: what were the engine parameters with the winglets? I slowly reduced the throttles a fraction of a percent at a time as the airspeed tape trend monitor showed I would exceed VMO. When it finally settled down, we had an N1 of 94.6 percent, slightly below our usual N1, with a fuel burn of 340 pph per side, travelling at 407 ktas/0.732m at ISA temperatures. This difference of 60 pph might not seem like a lot, however it represents 300 pounds of Jet A on a five-hour flight.

One of the nicest features of the CJ3 is its long-range capability. With NBAA reserves, the Citation CJ3 has a range of 1,760 nm. Going into this flight, I expected the winglet-equipped CJ3 to maybe add another 100 nm. I certainly was not expecting the numbers we actually saw.

After stabilizing at FL45, and within a knot or so of VMO, we turned to the Rockwell Proline 21 performance computer (which is extremely useful). With our current engine parameters of 94.6 percent N1 and fuel burn of 680 pph, our total range equated to 2,090 nm with an 80-pound reserve, 10-knot headwind and included the 220 nm we had already flown in the climb.

Rich Pickett stands next to the Tamarack-equipped CJ3, which served as their test bed for this installation.

If someone really wanted to stretch their fuel, further reductions in power yield could improve the range further. As with any extended range calculations, the pilot needs to balance increased flight time and the associated costs with saving fuel. In some situations, slowing the airplane down costs more since the airframe and engine times increase at a higher amount than the fuel you might consume. In other cases, it makes perfect sense to slow down a bit and extend your range, especially with the Tamarack winglets, since it can help you avoid a fuel stop or provide an increased safety margin – especially over extended water operations.

As mentioned previously, I completed a second test flight in California to confirm all of the above observations. I flew with Gary Heaven in his CJ3, a Tamarack development aircraft. Sure enough, I saw similar results. As a side note, Gary even made the news previously by flying from Paris, Texas to Paris, France in his CJ3-equipped with the ATLAS winglet system. His longest leg stretched slightly over 2,200 nm and he still landed with an adequate reserve. Pretty impressive for a CJ3.

What's Next for Tamarack

Tamarack is growing with a recent expansion of its installation and service network. While owners can opt for installation at Tamarack's headquarters in Sandpoint, Idaho, the company has also partnered with Eagle Aviation, Duncan Aviation, Western Aircraft and Northeast Air. Owners can expect the installation to take approximately one week. The $299,000 cost is a significant investment. However, recent Vref values indicate that owners can expect to receive a significant amount of that investment in the increased value of their airplanes.

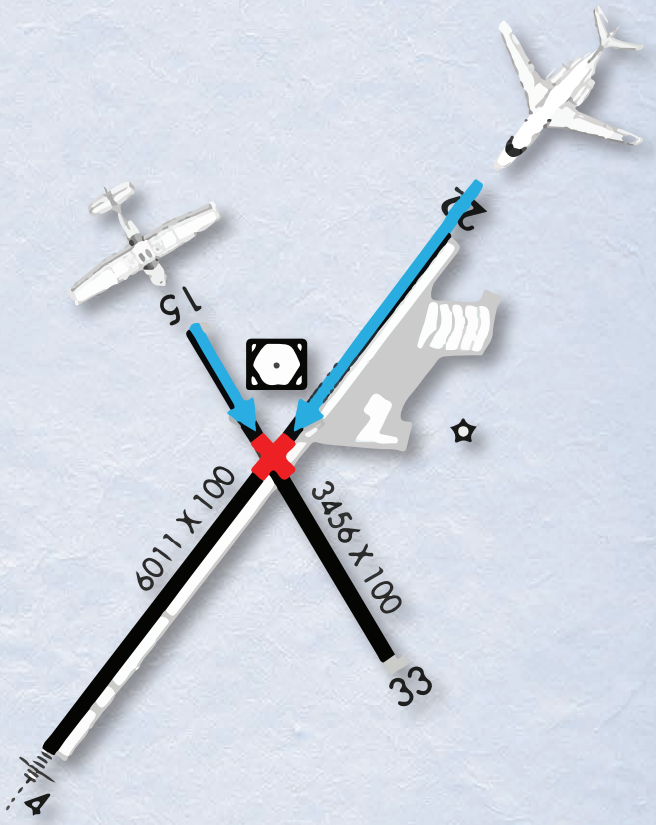
Tamarack has no plans to stop with the Cessna jet series. The company is actively expanding to other aircraft, including larger commercial aircraft. During NBAA 2017, they announced their Commercial Active Winglet program. They are also evaluating additional business aircraft for their next STC project.

Perhaps one of the greatest aspects of Tamarack is they have brought some very innovative technology to aviation which benefits not only their customers, but the industry as a whole. T&T

Since receiving his private pilot's license in 1977, Rich Pickett's passion for flight has only intensified. President of Personal Wings, Inc., Rich is the former chief information officer for San Diego State University. With more than 10,000 hours in the logbook he holds ATP, CFII SMEL, AIGI, commercial SES and glider ratings. His type ratings include Citation 500, 510S, 525S, Eclipse 500S, the Aero Vodochody L-39 and L-29, and SIC on the DA-10. He serves on the NBAA Citation Technical Advisory Committee.

On a Swivel

by **Thomas P. Turner**



Recently, two aboard a Cessna 150 died when the trainer collided with a Cessna 525 Citation jet on the runway at Marion Municipal Airport in Marion, Indiana. The C150 was attempting to take off to the southeast on Runway 15 when it struck the tail of the Citation, which had just landed from the north on Runway 22. The tail of the jet was torn off while the C150 crashed and caught fire. Five people were on board the jet and escaped unhurt. The airport, about 50 miles north of Indianapolis, has no control tower and pilots coordinate via CTAF (Common Traffic Advisory Frequency).

What are the odds the two airplanes arrived at the intersection of the runways at the precise, simultaneous time? I can't imagine them doing it on *purpose* without significant planning and practice, and active communication between airplanes during the attempt. Yet, they *did* collide. The timing was exactly *wrong*.

This makes me wonder: since actually arriving at the same point at the same time is challenging at best when attempted intentionally, and completely random at any other time, how many times is more than one airplane using conflicting runway and traffic pattern space, but a collision does *not* occur solely because the timing was *not* wrong? In other words, how often does the unsafe *condition* of traffic pattern and runway conflict at non-towered airports occur, but we never hear about it because the aircraft do not collide?

It's not all or nothing, a collision or five miles of separation. Scary thought, huh? At the same time, every time a pilot holds short or goes around because he or she detects a possible conflict, the system worked. It's obvious, however, that we need to remain vigilant.

Top-of-Mind

The FAA and industry were concerned about collision avoidance at non-towered airports even before this collision. Two recent publications address collision avoidance at non-towered airports:

NBAA: The National Business Aviation Association (NBAA) has published, "Operating into a Non-Towered Airport?" The document is aimed primarily on the issue of closing contract control towers, turning Class D airspace into Class E and often Class G close to the surface. The guide states:

When approaching the airport, crews should also make a point to keep their eyes outside the cockpit in order to see and avoid other traffic and monitor the radio to help ascertain the positions of other aircraft in the vicinity. Pilots should also communicate their position and cooperate with other pilots in the area to establish the safest approach to the field, with the least potential for conflict with other traffic.

This is fairly basic guidance, and is prefaced by this statement:

...pilots operating under an IFR flight plan to a newly non-towered field will need to be prepared for the transition from the positive control environment of instrument flight when approaching their destination. These are skills that all business aircraft pilots should be familiar with, but now will have to be applied at locations with newly closed control towers....

Well, yes, business pilots not only should, but must follow the rules of visual flight in non-towered and uncontrolled airspace. See and avoid is the first and last defense, regardless of the aircraft type or performance. The NBAA guide does not specifically address the issue of non-towered operations at airports with intersecting runways.

FAA: In March 2018, the FAA issued Advisory Circular 90-66B, "Non-towered Airport Flight Operations." Also basic in its guidance, it states:

The pilot in command's (PIC) primary responsibility is to see and avoid other aircraft and to help them see and avoid his or her aircraft. Keep lights and strobes on. The use of any traffic pattern procedure does not alter the responsibility of each pilot to see and avoid other aircraft. Pilots are encouraged to participate in "Operation Lights On," a voluntary pilot safety program described in the AIM, paragraph 4-3-23, that is designed to improve the "see - and - avoid" capabilities.

Pilots should clearly communicate on the CTAF and coordinate maneuvering for and execution of the landing with other traffic so as not to disrupt the flow of other aircraft. Therefore, pilots operating in the traffic pattern should be alert at all times to aircraft executing straight-in landings.... Instrument approaches should be particularly alert for other aircraft in the pattern so as to avoid interrupting the flow of traffic, and should bear in mind they do not have priority over other VFR traffic. Pilots are reminded that circling approaches require left-hand

turns unless the approach procedure explicitly states otherwise. This has been upheld by prior FAA legal interpretations of § 91.126(b).

The AC goes on to describe radio communications and traffic pattern entries in detail. But it doesn't provide any specific guidance for non-towered operations with intersecting runways. In fact, even the Aeronautical Information Manual fails to mention this directly.

Technological Aids

There are several technological aids to collision avoidance, but they have their limitations. The first and by far most common aid is **radio communication**. The NTSB's preliminary report, while subject to additional findings before it becomes final, states:

There were three witnesses to the accident, located in the airport lounge, within hearing distance of the UNICOM radio. Each witness reported seeing the Cessna 150 just airborne when it struck the empennage of the Cessna 525. Two of the witnesses stated that they heard the Cessna 150 pilot on runway 15 UNICOM frequency. The pilot of the Cessna 525 stated that he did not see the departing Cessna 150 while he was on a straight-in approach to runway 22, nor did he see the 150 during the landing roll. He stated that he did not recall making a radio call on UNICOM….

Landing at a non-towered airport under Instrument Flight Rules can be a high-workload event, even if weather is VMC and you are flying a visual approach. It's easy to let vital tasks like making position and altitude calls on the CTAF when you are on Center or Approach and need to cancel your IFR flight plan. All too often, instrument pilots ignore these vital CTAF calls – making it less likely other pilots will see and avoid their aircraft. Of course, in most cases there is no requirement for aircraft at non-towered airports to have a radio at all, so looking outside is still the primary means of collision avoidance.

Most turbine aircraft have an onboard Traffic Collision Avoidance System (TCAS). TCAS calls out the relative location of aircraft on a possible collision course and in some cases, suggests an avoidance strategy. According to the NTSB, the pilot of the Citation stated that while he did not make a radio call on CTAF, he did utilize his on-board Traffic Collision Avoidance System (TCAS) system while on approach. He stated that the TCAS did not show any traffic on the airport.

Unfortunately, this statement suggests a lack of familiarity about how TCAS works. TCAS relies upon receiving transponder information from other aircraft. Here's why we can't rely upon TCAS while landing at a non-towered airport:

1. Not all aircraft are transponder-equipped. There is not requirement for an airplane like a Cessna 150 to have a transponder at all.
2. Transponders emit replies to interrogations triggers when the transponder receiver is hit by an Air Traffic Control radar beam. An aircraft close to the ground, such as the Cessna 150 during its takeoff roll, is almost certainly too low to be in radar contact with ATC. Even if the aircraft had a transponder, the transponder would not have been emitting a signal to be picked up by the Citation's TCAS.
3. Unless an aircraft has a TCAS or lower-technology TCAD (Traffic Collision Alerting Device, which warns of nearby aircraft but may not provide relative position information and does not give specific instructions for collision avoidance), transponder antennas are mounted on the bottom of the aircraft. This makes sense, because transponders rely on line-of-sight transmission, and they are designed to communicate with stations on the ground. Because transponder antennas are on the belly of the aircraft, however, that aircraft's fuselage and wings blank out the transponder signal to nearby aircraft that are higher up. Even if a departing aircraft had a transponder and was somehow being interrogated by ATC radar, it's almost certain that a nearby landing aircraft would not receive its transponder

transmission, and the departing aircraft would not appear on the landing aircraft's TCAS.

What about ADS-B? Even after the January 1, 2020 installation deadline, ADS-B probably would not have made a difference. The Cessna 150 almost certainly operates in airspace where ADS-B will not be required. If the C150's operation does require ADS-B, its owner may well elect to equip with ADS-B Out only. The Citation pilot might have "seen" the C150 on ADS-B, but the C150's occupants would not have seen an ADS-B plot on the jet. Even if both aircraft had in-cockpit traffic display, and both crews could see the other aircraft on their screens, one or both pilots would have to act to avoid the collision before it was too late.

Shared Responsibility

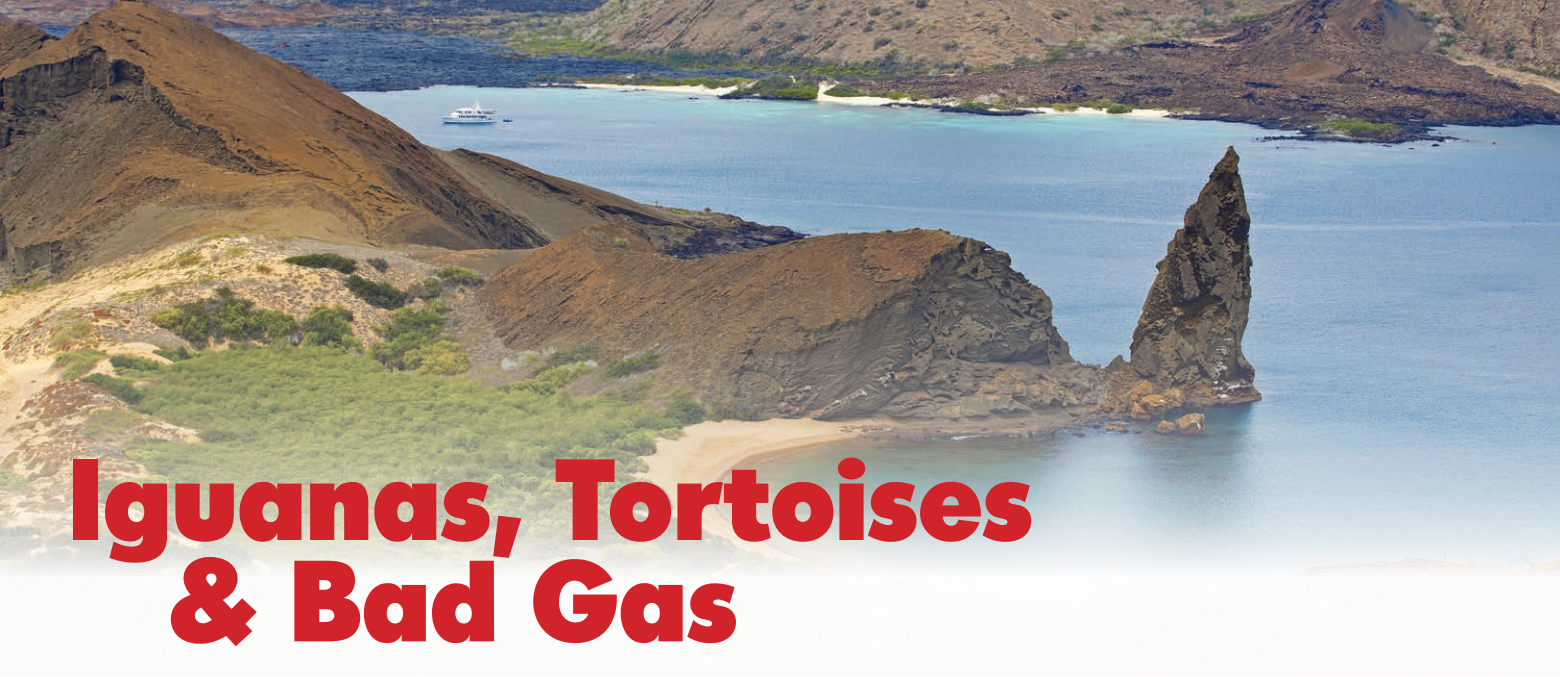
This article may seem to focus on what the crew of the Citation did or did not do. But the pilot of the Cessna 150 was just as responsible for seeing and avoiding the landing jet. The reported weather at the time of the accident was VMC with four miles of visibility due to haze. The NTSB notes that at the departure and arrival ends of runway 15/33 (the C150 was using Runway 15) there is a sign stating, "Traffic Using Runway 4/22 Cannot Be Seen, Monitor Unicom 122.7." There are similar signs at the ends of runways 4 and 22. Although monitoring the CTAF would not have helped if the Citation crew in fact did not report its position, and there's no reason to believe the Cessna pilot was not listening to the CTAF, seeing such a sign should also alert a pilot to very carefully scan the approaches to the crossing runway just prior to (and if possible, even during) the landing roll.

Whether departing or arriving at a non-towered airport, especially one with multiple runways:

1. Report your position and intentions on the CTAF.
2. Monitor CTAF for the reports of others.
3. Use, but do not rely solely upon, collision avoidance technologies.
4. Know how collision technologies work, and the limitations of their operation.
5. Look *all around* the airport before you begin your takeoff roll, and also as you're coming in to land.

As the old fighter pilots said, keep your eyes out the windows and your head on a swivel. See and avoid is the first and last means of collision avoidance. T&T

Thomas P. Turner is an ATP CFII/MEI, holds a master's Degree in Aviation Safety, and was the 2010 National FAA Safety Team Representative of the Year. Subscribe to Tom's free FLYING LESSONS Weekly e-newsletter at www.mastery-flight-training.com.



Iguanas, Tortoises & Bad Gas

by **Kevin Ware**

Several years ago, we decided to fly our Cessna 340 from its home base in Washington State (KBVS) down through Mexico and Central America to Ecuador, and then 600 nm across the Pacific to the Galapagos. Well-maintained airplane; two high-time ATP pilots; veteran passenger wives; two airplanes in loose company (a Baron and Cirrus) and a supposedly very experienced U.S. based handler to organize everything.

It seemed like a good idea. At least at the time.

And so, in a burst of innocence and enthusiasm, we started the trip with an 1800 nm flight to Brownsville, Texas, spent a night, then made the easy trip down the Gulf Coast to Vera Cruz, Mexico. We eased through Mexican Customs and Immigration and had the airplane topped off (with fuel at *half* the price of that in Brownsville). We then crossed the relatively low mountain range separating the Gulf Coast of Mexico from the Pacific to land at Tapachula.

Following a 10-mile hazardous, seatbelt-free cab ride into town, we arrived at a very modest motel for the night as arranged by the handler. The next morning, we were back in the precarious cab headed to the airport. What followed thankfully, was a pleasant trip in CAVU conditions down the coast of Central America to Liberia, Costa Rica where we made a problem-free fuel stop and departed for Panama.

It was VFR conditions when we arrived to the Marcos A. Gelabert Airport near Balboa, Panama and they were landing airplanes to the north. So, we approached from over the Gulf of Panama, passed over a small hill just before the runway and landed without difficulty. The customs folks met us at the FBO and were very friendly. We then took a van to the Hotel Gamboa, a very nice facility about halfway up the canal where we spent the next couple of days exploring the waterway and its surrounding jungle.

After that relaxing interlude, we returned to find the handler did not fully process our flight plans and clearances to Ecuador. A personal trip to the tower controller's cab was required to resolve the problem during which I found that my ability to speak Spanish was very helpful.

The weather at our destination of Guayaquil, Ecuador was marginal VFR with an occluded front over the area and rain showers reducing visibility and ceilings down to 2-3 miles and 1500 feet. While still over the Gulf of Panama, we found ourselves at FL200 on top of the system. It worsened as we made landfall near Tumaco and began dealing with an old-fashioned, radar vector controlled IFR arrival into Guayaquil. The controllers all spoke a broken form of English and worked to space us between inbound airliners. There was a localizer approach however, and we broke out well in time to see the airport and land in light rain. This time, our handler actually arranged for a rather nice hotel close to the airport. And even better yet, had a traditional Brazilian steakhouse right next door.

Touring the Galapagos Islands.

The next morning, we topped off the tanks with just over 200 gallons (or about 4 hours of flight at 200 knots) with some reserve. The distance from Guayaquil to our first stop, the island of Baltra in the Galapagoes, was about 600 miles so we felt very comfortable about range. In addition, we brought with us all the required emergency equipment for overwater flight including a raft and life preservers. We departed in the same conditions we landed previously, but after an hour or so we were west of the front and at FL200 in sunny skies surrounded by seemingly endless ocean.

Another two hours passed, and we began to see building cumulous on the horizon, suggesting land must be out there somewhere. So, we contacted the local controller and were informed he had an airline Boeing 727 inbound with priority. After some circling, we landed and parked in the small general aviation area, well removed from the airline terminal. The amount of paperwork upon our arrival was minimal, and we were soon in a mini-bus bound for a strange, Japanese style motel on the other side of the island.

The next day, we returned to the airport to refuel the aircraft and take care of some administrative details before boarding a small expedition ship anchored in a nearby cove, on which we were to spend the next week exploring the islands. Despite a few of the accommodations, everything to this point in time had gone fairly well. Unfortunately, that soon changed.

For some reason (that subsequently proved to be due simply to lack of experience and correct information), our Florida based handler had arranged for us to make our initial landing at Baltra – an airline airport void of 100LL gas. The handler then promised clean fuel would be made available at $10/gallon by having it barged over from the Ecuadorian mainland in 50 gallon drums specifically for our use…something we were assured was common.

Now, I have operated 100LL burning aircraft from Alaska to Africa, and one of the things I have learned is to be very careful about fuel coming out of drums. For this very reason, I brought with me a large plastic funnel with a chamois cloth through which fuel could be filtered and examined before it entered the aircraft's tanks. So, as the five fuel guys backed their ancient, rusty pick-up truck containing a stack of blue, plastic and unlabeled 50-gallon drums toward my airplane, I started rucking through the airplane's lockers to find my funnel.

They were obviously anxious to get the task over however, so started pumping directly into the right tip tank while I was still looking for my funnel, causing me to shout over, "Espera, espera, el gasolina esta limpia?" (Wait, wait, is that gas clean?). As they continued to cycle the hand pump, they shouted back, "Si Capitan, muy limpia" (Yes Captain, very clean). Finally, I located my funnel and chamois cloth and over their complaints, interrupted the pumping while I put the funnel in the tank. I then asked them to start pumping again. Within two or three strokes of the hand pump, the cloth was covered by some white flakey material, small pieces of rust and some dark, brown ominous looking globules of what looked like water. Exactly what I was afraid of. But what was even worse was an unknown quantity had already been pumped into my airplane.

I proceeded to have a small and unseemly 'hissy fit,' yelling at them to stop all pumping. Once they did, I sampled the tanks low point. In the glass, I found the same material as in the funnel. I tasted the brown liquid and found it was salt water. The white stuff was sand and the rust, well was just plain rust. By now, a significant commotion had developed in typical Latin style. A few of the five fuel guys shouted loudly in Spanish that the fuel is indeed clean, and the dirt is from my funnel, while the other cohorts excitedly shouted that they have no idea what the fuel problem is, but it is not their fault.

Having operated aircraft from Alaska to Africa, one of the things Ware has learned is to be very careful about fuel coming out of drums.

In the middle of this Spanish cacophony, over wandered a uniformed Ecuadorian air taxi pilot from a recently landed Aztec. He pulled me aside and in fairly good English asked what the problem was. I explained it to him and he replied, "Ah yes, this happens all the time. They siphon fuel from the barrels somewhere between the barge and here, put it in their cars, then bring up the level in the barrel with sea water. We never use this fuel. There are sharks in the water here, and it is too dangerous. But, we have our own 1000 gallon 100LL tank at our base on San Cristobal (a nearby island). If you can get over there, we will sell you what you need." Nice guy.

However, I still had a badly contaminated right main tank, with a total of about 20 gallons in it. As a rule, all takeoffs and landings in a tip tank-equipped Cessna are supposed to be completed using the tip tanks (due to fuel porting concerns with the inboard wing tanks). At this point, the right wing tank had around 15 gallons of uncontaminated fuel brought over from the mainland, with the left side holding about 20 gallons in the tip and 15 in its adjacent wing tank (all clean). The trip to San Cristobal was about 30 nm, or about 20 minutes. So thankfully, there was enough clean fuel on board to get there safely without touching the contaminated right tip tank at all.

I considered this for a while, and decided the only option was to take off using the left tip tank while cross feeding from the left side to the right engine. Then shortly after, switch the right engine back to its nearby wing tank. With some considerable caution, I carried this out and we soon found ourselves arriving at my new pilot friend's welcoming hangar in San Cristobal. We were greeted by a huge tank of clean 100 LL, and also a mechanic well-versed in the issues of fuel tank contamination. He agreed to flush the right main tank on the 340 while we spent the night at a local hotel then had the expedition ship pick us up in the nearby harbor.

We proceeded to have a nice time cruising around the Galapagos for the rest of the week and returned to find the mechanic had indeed cleaned the tank. It required pulling all the filters and drains and pumping $2000 worth of 100 LL fuel at $11/gallon. He proudly showed me all the wasted fuel along with all the nasty looking stuff he scraped off the filters.

The next day, after paying extra careful attention to all the tank drains, we departed for Guayaquil then Panama. Having had enough of our handlers "handling," and being a bit alarmed by the fuel fiasco, the other couple with us (a retired airline pilot and his wife), bailed from the trip immediately after landing in Panama and flew United back to the States. But my wife Kari and I flew north (with the Baron still as company), wandered around central Mexico for a while and wound up spending two very pleasant days at the ancient ruin of Palenque.

Thereafter, we departed Mexico, breezed through U.S. Customs in Tucson and landed back home at KBVS the next day (with the airplane running well the whole way).

Many years have now passed since this misadventure, however, I still pay close attention to the sump on the right tip tank in that 340. It may be my imagination, but occasionally I see some white stuff that looks like sand. T&T

Kevin Ware is an ATP who also holds CFI, MEII and helicopter ratings, has more than 10,000 hours and is typed in several different business jets. He has been flying for a living on and off since he was 20, and currently works as a contract pilot for various corporations in the Seattle area. When not working as a pilot he is employed part time as an emergency and urgent care physician. He can be reached at **kevin.ware2@aol.com**.

Managed Co-Ownership

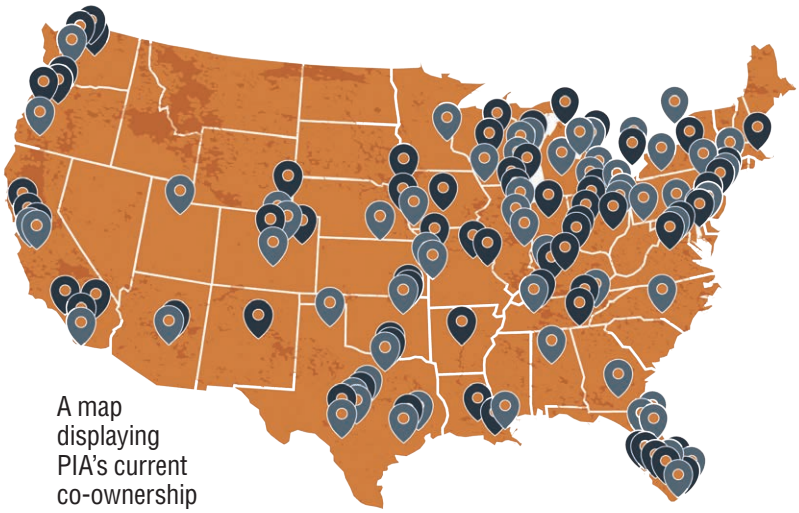
Innovative ownership model goes from concept to reality, receiving a positive market response.

by **Jordan Sok**

Since the Wright Brothers, operators have fought to leverage the benefits of aviation at a sensible cost. Over a century late, aircraft users flying less than 200 hours per year are engaging in the same battle.

Last year, a new company Partners in Aviation (PIA) introduced a unique path to ownership that delivers many of the benefits of whole aircraft access while simplifying the risks and costs. Today, their "managed co-ownership" concept, which pairs two regionally based operators under a structured agreement, has become a reality with customers now engaged and in the air.

"We are still a young company, but the strong market response is what we were hoping for," said Mark Molloy, PIA co-founder and president. "We have clients in the air, aircraft on order with OEMs, multiple co-owner matches complete, contracts in hand to deliver on and a map of over 175 genuine opportunities. It's clear the program has hit a nerve with owners and operators in this space."



A map displaying PIA's current co-ownership opportunities throughout the United States.

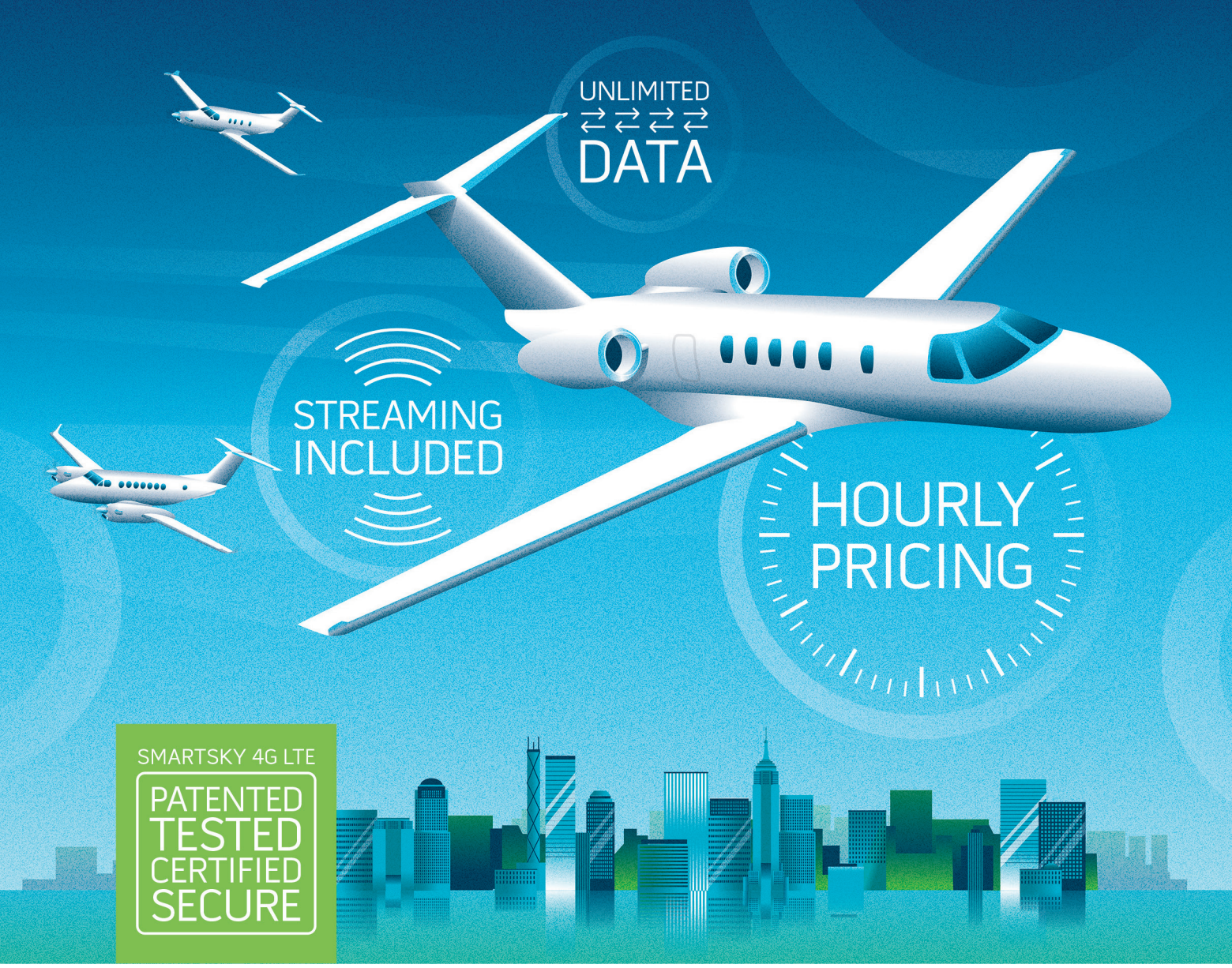
Removing Barriers: An Owner's Story

Former business owner and investor Chris Scatliff understands the struggle of justifying aircraft cost with low-time usage. After retiring, Scatliff and his wife began traveling frequently between homes in Florida and the Bahamas as well as other destinations throughout the United States and Europe.

"Much of our travel involves complex connections," said Scatliff. "We were using a combination of commercial flights and a jet-card, but it was becoming an expensive arrangement. I decided to look into sole-ownership, but our usage was simply too low to justify the jump."

Scatliff began considering a partnership but was hesitant to enter one due to the risk involved.

"That's when I found Partners in Aviation," said Scatliff. "When I read more about the structure and purpose to eliminate common partnership dangers and increase aircraft access, I was intrigued and wanted to learn more."



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Previous Options for Low-Time Users

Like Scatliff, many low-time users are drawn to the idea of owning their own aircraft but find cost-per-flight-hour to be unjustifiably large. Apart from sole-ownership, operators flying less than 200 hours per year have a handful of options to consider: chartering out their airplane, fractional ownership, jet-card membership or a traditional partnership.

A match in progress – the PIA team assists the partners at a service center.

While splitting the acquisition and fixed costs of aircraft ownership in a traditional partnership makes more financial sense, operators are understandably intimidated by the inherent risks and entanglements that cause many traditional partnerships to end poorly. Pitfalls could include scheduling conflicts, lack of protection against partner default and no clear exit plan.

According to PIA, the program was created with the help of industry professionals to redefine partnerships so customers can experience the financial benefits without the dangers. The result: managed co-ownership.

Phase 1: Finding Chris a Match

Traditional partnerships often begin with people who already have a relationship. In this model, PIA researches and analyzes potential partners based solely on geographical area and needs.

"It's a tall order to find a person willing to pony up half for the airplane you've chosen," said Molloy. "This is PIA's specialty. We've built a company to do just that."

Considering themselves "Match.com" for business aviation, PIA begins their services by building a profile of the customer that defines their mission, location, budget and desired aircraft. They then run a campaign, engaging a network of industry experts to help find a co-owner B.

"It was only a matter of time before I was contacted with a potential match – a business owner in South Florida looking for a similar aircraft," said Scatliff. "PIA arranged for us to meet over lunch where we found out we shared similar frustrations over the cost of chartering. He mentioned he had been part of a traditional partnership that ended poorly. Needless to say, both of us were ready for a new solution and this seemed to be it."

Phase 2: Acquiring the Aircraft

With letters of intent signed by both parties, PIA began the process of assisting in the purchase of the aircraft.

"We have specialists in each category of business aircraft, from single-engine turboprops to heavy jets. They track

their respective markets and bring industry insight to our clients," said Molloy. "We provide an analysis of aircraft on the market and recent transactions while concurrently running a campaign to identify off-market aircraft that fit the parameters."

Considering PIA's recommendations, Scatliff and his partner agreed upon their airplane of choice: an Embraer Phenom 100.

"PIA negotiated on our behalf under terms we approved," said Scatliff. "They also coordinated the pre-purchase inspection to be completed at the service facility we chose, to confirm the aircraft we selected was indeed the one we wanted."

Phase 3: Finalizing the Agreement

PIA's Managed Co-Ownership agreement is designed to create a worry-free arrangement by maximizing aircraft availability and protecting co-owners from the typical downfalls of a partnership.

"It encompasses the entire relationship in detail, from program entry to exit and everything in-between," said Molloy. "A key piece is putting aircraft management at the center of operations so that communication flows through a manager."

Under the PIA agreement, the management company handles all aspects of scheduling, maintenance and invoicing.

"Our management company is a provisionary asset, allowing us to rest easy knowing our aircraft is being taken care of and schedules handled," said Scatliff. "One of the greatest advantages to working with PIA is that they are not married to any particular supplier. PIA makes recommendations but ultimately we had the power to choose who managed our aircraft."

Tax and Title Autonomy

The PIA Managed Co-Ownership model allows each co-owner to be an autonomous purchaser, meaning they can purchase with whatever entity they choose – LLC, Trust, C-corp, etc. – just as if they were buying the whole airplane. It's identical to the fractional model for purposes of tax and title autonomy, as well as liability protection between owners.

The final product. PIA customers Chris and Ian selected a new Embraer Phenom 100.

"Your entity won't make a difference to your partner and your partner's entity won't make a difference to you," said Molloy. "You'll own an undivided interest in 50 percent of the plane. Tax benefits and consequences of each co-owner are specific to that co-owner, and independent of the other."

Airplane Access

While owners may be paying for half of the airplane, customers we spoke to claim the model allows them the access they need.

"It's important that each owner feels they have virtually the same access as would a sole-owner," said Molloy. "By limiting each match to only two operators, both with relatively low usage, this is doable. We changed scheduling from the typical 'first-come, first-serve' format that often results in tension between partners, to a model of preset control-weeks combined with incentivized-access, which has been key."

According to Scatliff, the duo has yet to have a scheduling conflict.

"Any time I've needed the aircraft it's been there," said Scatliff. "Not to mention, my hourly operating costs are well below what I was paying before."

Like Scatliff, previous CEO and board member of several global companies, Bill Varner was also using a jet-card for his travel needs before discovering PIA.

"I was a satisfied jet-card user for many years but still wasn't able to fly as much as I wanted due to cost and time constraints," said Varner. "After divesting the company I had been leading, I was left with more time to visit our geographically dispersed family. The PIA model of co-ownership was a perfect fit. We now have access to our own plane at our chosen time, and at a much lower cost."

Expanding Customer Base

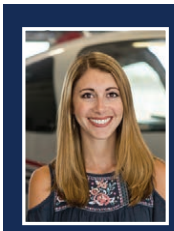
PIA customers now include first-time buyers, regular charter users, fractional and jet-card members and owner-pilots.

"As an owner-pilot of a Mustang, my 'stretch goal' was the CJ3 or CJ3+, but it was difficult to justify based on my usage," said Don Gulbrandsen, Founder of Gulbrandsen Manufacturing. "PIA was able to match me with someone to make that goal justifiable. We've now ordered a new CJ3+ which I would never have done as a sole-owner. Cutting the acquisition and fixed costs in half allowed me to step up to my ultimate choice."

According to Molloy, new dots are being added to the map regularly, with opportunities for matches throughout the nation. While PIA Managed Co-ownership is designed for turbine-powered aircraft, the company is also rolling out a new managed co-ownership model specifically for pilots in the piston world, "*coupled approach.*"

"It's wise to involve a company like PIA that has the structure in place and brings the experts to your side of the table," said Scatliff. "I have my dream plane at half the cost. What can beat that?"

For more information, visit partnersinaviation.com. T&T



Jordan Sok is founder and CEO of OneTeam Marketing Solutions, a marketing agency dedicated to small businesses. She specializes in aviation marketing, beginning her experience with Lone Mountain Aircraft – experts in advanced, high-performance, owner-flown aircraft. Jordan can be contacted at **Jordan@OneTeamMarketing.com** *or through OneTeamMarketing.com.*

The Worldwide General Aviatio

owner/operators and chief pilots of these air

Jets – 15,630

Chief Pilots & Owners

Count	Aircraft
61	AIRBUS ACJ319
27	ASTRA 1125
30	ASTRA 1125SP
53	ASTRA 1125SPX
42	BEECHJET 400
244	BEECHJET 400A
126	BOEING BBJ
373	CHALLENGER 300
53	CHALLENGER 600
41	CHALLENGER 601-1A
112	CHALLENGER 601-3A
52	CHALLENGER 601-3R
295	CHALLENGER 604
9	CHALLENGER 800
183	CITATION 500
298	CITATION 525
269	CITATION BRAVO
155	CITATION CJ1
84	CITATION CJ1+
206	CITATION CJ2
169	CITATION CJ2+
360	CITATION CJ3
63	CITATION CJ3+
222	CITATION CJ4
146	CITATION ENCORE
46	CITATION ENCORE+
299	CITATION EXCEL
19	CITATION I
249	CITATION I/SP
463	CITATION II
60	CITATION II/SP
163	CITATION III
44	CITATION LATITUDE
140	CITATION M2
377	CITATION MUSTANG
126	CITATION S/II
256	CITATION SOVEREIGN
61	CITATION SOVEREIGN+
238	CITATION ULTRA
238	CITATION V
29	CITATION VI
94	CITATION VII
254	CITATION X
24	CITATION X+
210	CITATION XLS
205	CITATION XLS+
1	DIAMOND I
46	DIAMOND IA
3	DORNIER ENVOY 3
230	ECLIPSE EA500
41	EMBRAER LEGACY 500
133	EMBRAER LEGACY 600
60	EMBRAER LEGACY 650
235	EMBRAER PHENOM 100
239	EMBRAER PHENOM 300
84	FALCON 10
22	FALCON 100
21	FALCON 200
174	FALCON 2000
21	FALCON 2000EX
68	FALCON 20C
16	FALCON 20C-5
24	FALCON 20D
2	FALCON 20D-5
30	FALCON 20E
9	FALCON 20E-5
71	FALCON 20F
68	FALCON 20F-5
206	FALCON 50
7	FALCON 50-40
92	FALCON 50EX
150	FALCON 900
23	FALCON 900C
103	FALCON 900EX
180	GLOBAL 5000
128	GLOBAL EXPRESS
19	GULFSTREAM G-100
207	GULFSTREAM G-200
9	GULFSTREAM G-300
21	GULFSTREAM G-400
285	GULFSTREAM G-450
9	GULFSTREAM G-500
462	GULFSTREAM G-550
70	GULFSTREAM G-II
24	GULFSTREAM G-IIB
140	GULFSTREAM G-III
169	GULFSTREAM G-IV
282	GULFSTREAM G-IVSP
172	GULFSTREAM G-V
36	HAWKER 1000A
10	HAWKER 125-1A
5	HAWKER 125-1AS
6	HAWKER 125-3A/RA
11	HAWKER 125-400A
22	HAWKER 125-400AS
12	HAWKER 125-400B
12	HAWKER 125-600A
6	HAWKER 125-600AS
107	HAWKER 125-700A
56	HAWKER 4000
193	HAWKER 400XP
33	HAWKER 750
191	HAWKER 800A
34	HAWKER 800B
352	HAWKER 800XP
35	HAWKER 800XPI
80	HAWKER 850XP
148	HAWKER 900XP
7	JET COMMANDER 1121
4	JET COMMANDER 1121B
1	JETSTAR 6
6	JETSTAR 731
12	JETSTAR II
10	LEARJET 23
17	LEARJET 24
2	LEARJET 24A
14	LEARJET 24B
39	LEARJET 24D
10	LEARJET 24E
7	LEARJET 24F
16	LEARJET 25
39	LEARJET 25B
10	LEARJET 25C
100	LEARJET 25D
4	LEARJET 28
29	LEARJET 31
167	LEARJET 31A
33	LEARJET 35
380	LEARJET 35A
13	LEARJET 36
33	LEARJET 36A
29	LEARJET 40
194	LEARJET 45
174	LEARJET 45XR
99	LEARJET 55
4	LEARJET 55B
12	LEARJET 55C
261	LEARJET 60
478	PILATUS PC-12/45
111	PREMIER I
7	SABRELINER 40
19	SABRELINER 40A
2	SABRELINER 40EL
1	SABRELINER 40R
24	SABRELINER 60
1	SABRELINER 60AELXM
19	SABRELINER 60ELXM
3	SABRELINER 60EX
68	SABRELINER 65
15	SABRELINER 80
6	SABRELINER 80SC
75	WESTWIND 1
5	WESTWIND 1123
32	WESTWIND 1124
65	WESTWIND 2

Turboprops – 10,774

Chief Pilots & Owners

Count	Aircraft
7	ADAM A500
356	CARAVAN 208
1,202	CARAVAN 208B
2	CARAVAN II
32	CHEYENNE 400
132	CHEYENNE I
13	CHEYENNE IA
264	CHEYENNE II
58	CHEYENNE III
38	CHEYENNE IIIA
57	CHEYENNE IIXL
21	CHEYENNE IV
178	CONQUEST I

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20	KING AIR 200C
19	KING AIR 200T
146	KING AIR 250
181	KING AIR 300
11	KING AIR 300LW
564	KING AIR 350
57	KING AIR 350C
286	KING AIR 350I
19	KING AIR 90
11	KING AIR A/B90
70	KING AIR A100
214	KING AIR A200
58	KING AIR A90
106	KING AIR A90-1
94	KING AIR B100
885	KING AIR B200
95	KING AIR B200C
8	KING AIR B200CT
95	KING AIR B200GT
4	KING AIR B200SE
22	KING AIR B200T
81	KING AIR B90
347	KING AIR C90
34	KING AIR C90-1
194	KING AIR C90A
358	KING AIR C90B
82	KING AIR C90GT
96	KING AIR C90GTI
125	KING AIR C90GTX
14	KING AIR C90SE
245	KING AIR E90
156	KING AIR F90
25	KING AIR F90-1
7	MERLIN 300
25	MERLIN IIB
21	MERLIN III
28	MERLIN IIIA
45	MERLIN IIIB
18	MERLIN IIIC
5	MERLIN IV
9	MERLIN IV-A
9	MERLIN IV-C
66	MITSUBISHI MARQUISE
1	MITSUBISHI MU-2D
26	MITSUBISHI MU-2F
18	MITSUBISHI MU-2J
33	MITSUBISHI MU-2K
11	MITSUBISHI MU-2L
18	MITSUBISHI MU-2M
18	MITSUBISHI MU-2N
25	MITSUBISHI MU-2P
39	MITSUBISHI SOLITAIRE
519	PILATUS PC-12 NG
149	PILATUS PC-12/47
483	PIPER MERIDIAN
3	ROCKWELL 680T TURBO
5	ROCKWELL 680V TURBO II
5	ROCKWELL 680W TURBO II
6	ROCKWELL 681 HAWK
101	SOCATA TBM-700A
70	SOCATA TBM-700B
293	SOCATA TBM-850
101	SOCATA TBM-900
5	STARSHIP 2000A
73	TURBO COMMANDER 1000
37	TURBO COMMANDER 690
141	TURBO COMMANDER 690A
144	TURBO COMMANDER 690B
83	TURBO COMMANDER 840
26	TURBO COMMANDER 900
55	TURBO COMMANDER 980

Twin Piston – 6,961

Owners

Count	Aircraft
39	BARON 56 TC
1,459	BARON 58
3	BARON 58 PA
351	BARON 58P
112	BARON 58TC
3	BARON A56TC
301	BARON G58
197	BEECH DUKE B60
176	CESSNA 340
531	CESSNA 340A
90	CESSNA 402B BUSINESS LINER
140	CESSNA 402C
29	CESSNA 404 TITAN
266	CESSNA 414
363	CESSNA 414A CHANCELLOR
49	CESSNA 421
41	CESSNA 421A
362	CESSNA 421B
610	CESSNA 421C
53	CESSNA T303
116	PIPER 601P AEROSTAR
25	PIPER 602P AEROSTAR
488	PIPER CHIEFTAIN
24	PIPER MOJAVE
835	PIPER NAVAJO
16	ROCKWELL 500 SHRIKE
27	ROCKWELL 500A SHRIKE
82	ROCKWELL 500B SHRIKE
47	ROCKWELL 500S SHRIKE
5	ROCKWELL 500U SHRIKE
16	ROCKWELL 520 COMMANDER
7	ROCKWELL 560 COMMANDER
15	ROCKWELL 560A COMMANDER
13	ROCKWELL 560E COMMANDER
8	ROCKWELL 560F COMMANDER
17	ROCKWELL 680 SUPER
7	ROCKWELL 680E
13	ROCKWELL 680F COMMANDER
17	ROCKWELL 680FL GRAND COMMANDER
8	ROCKWELL 680FLP GRAND LINER

High Performance Move-Up Singles – 5,602

Owners

Count	Aircraft
228	BEECH BONANZA
462	CESSNA 182
59	CESSNA 206
412	CESSNA P210N
21	CESSNA P210R
54	CESSNA T182
1	CESSNA T206
751	CIRRUS SR20
2,905	CIRRUS SR22
241	PIPER MALIBU
468	PIPER MIRAGE

38,967 TOTAL AIRCRAFT

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Impact of New Tax Bill on Aircraft Values

by **Pablo Perez and John T. Van Geffen**

It is difficult, if not impossible, to isolate the exact impact of the new tax bill on aircraft values. There are many concurrent factors that may have an impact on aircraft values e.g. the economy, regulatory environment and inventory, to name a few. However, we can observe what has been going on in the market since the enactment of, "Tax Cuts and Jobs Act of 2017" (Pub.L.115-97).

How was the pre-owned business aviation market doing before the tax changes?

Excessive enthusiasm with the economy before the subprime crisis was certainly a factor in manufacturers flooding the market with new aircraft. Since the crisis, OEMs reduced the general production but the number of new models has increased. We also have new competitors such as Honda and Pilatus entering the business jet market. The accumulated oversupply is still present in the pre-owned aircraft market. These factors have driven down prices for the pre-owned market, permitting buyers to acquire quality aircraft at a considerably lower price.

This tendency may change given the new tax law. There is already some information about changes in aircraft values, but before we look at that, we want to summarize the tax changes affecting the industry.

What are the tax changes that will have an impact in business aviation?

As reported by the Congressional Budget Office (CBO), high net wealth individuals, pass-through entities and corporations should benefit immediately. While the current number of tax brackets has been retained, each has been reduced, and for those operating an entity with pass-through income, there is a new 20 percent deduction for business income.

For aircraft owners, the savings under the new law are even better. The current bonus depreciation has been amended to provide for 100 percent expensing of the cost of new and pre-owned aircraft (up from 50 percent) acquired and placed in service, provided it is the taxpayer's first use of the aircraft. Previously, bonus depreciation was only available on new equipment purchases.

Unfortunately, for those who previously used Rev. Code §1031 'like-kind' exchanges (usually for upgrading into larger or longer range aircraft) taxpayers will no longer have the ability to defer taxable gains on the sale of aircraft. In theory, the enhanced depreciation discussed above should offset the repeal of like-kind exchanges for aircraft.

Additionally, changes have been made to travel expense deductions and the Federal Transportation Excise Tax (FET) has finally been clarified (owner flights on managed aircraft are not subject to FET but are subject to non-commercial fuel tax).

Note, for those using aircraft for both business and pleasure, please ensure you speak with your CPA about maximizing the first-year bonus depreciation to ensure non-business guests do not result in disallowances.

What is going on with aircraft values in 2018?

AMSTAT, Aircraft Valuation Tool Report, released in early April 2018, indicates a recent uptick in business aircraft values. According to this report, the average estimated values for four of the five major business aircraft segments have risen since the start of Q4 2017.

Business aircraft values	Oct 17	Feb 18	Variation
Heavy jet segment	$14.1M	$15.2M	+7.8%
Medium jet segment	$3.1M	$3.1M	+0.4%
Super-mid jet segment	$5.7M	$7.0M	+23.7%
Light jet segment	$2.3M	$2.4M	+6.9%
Turboprop segment	$2.2M	$2.6M	+18.8%

Source: AMSTAT

According to Andrew Young, AMSTAT General Manager, "the increase in estimated values reflects recent increases in market demand and a tightening market with fewer options for buyers."

The National Aircraft Resale Association (NARA) believes that tax reform is driving aircraft values.

"While political and economic developments around the world can influence the market, now is a great time to buy an aircraft before prices increase," said NARA Chairman, Brian Proctor. He notes that used aircraft in excellent condition are selling at a faster pace than in years past.

"Our NARA-certified brokers have recognized a change in the marketplace just in the first few months of 2018 since the U.S. tax reform was enacted," Proctor said. "The market is generating more activity and demand and that is likely to increase as the economy continues to heat up, interest rates rise, and most indicators point to a general economic upturn."

What is the tendency for the rest of 2018?

The 100 percent expensing rule is an excellent incentive for aircraft owners to step up to a high-quality aircraft. Also, the decrease in the federal income tax rate should be a good incentive for companies and wealthy individuals to buy an aircraft for the first time because they can redirect money savings from taxes to buy an aircraft.

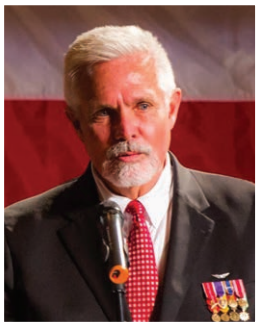
If buyers take advantage of the new tax benefits during the rest of the year by accelerating the purchase of pre-owned aircraft, very soon aircraft will start selling faster and the oversupply should start decreasing. As a consequence, pre-owned aircraft values should rise slowly in 2018 (given all other factors affecting aircraft values remain stable). T&T

Pablo Perez is an Accredited Senior Appraiser, ASA of the American Society of Appraisers. As owner of Antares Jet Appraisals, Pablo provides aircraft appraisal services and aircraft consulting in the business jet and turboprop markets. He also provides aircraft sales consulting through Aldebaran Aviation. Pablo is based in San Francisco, California.

John T. Van Geffen is a partner at the Avialex Law Group, LLP specializing in litigation, aircraft and commercial transactions and regulatory compliance matters. John is the Western Pacific Regional VP for the International Air & Transportation Safety Bar Association and sits on the Board of Trustees at the Oakland Aviation Museum.

FIVE on the FLY

by **Rebecca Groom Jacobs**



WHO:
Walt Fricke
Veterans Airlift Command

Airboss/Chairman/Founder

HOMEBASE:
Minneapolis, MN

RATINGS:
Commerical ASMEL, Instrument (airplane & helicopter), Glider

HOURS:
5,000

The Veterans Airlift Command provides free private air transportation to post 9/11 combat wounded and their families for medical and other compassionate purposes through a national network of volunteer aircraft owners and pilots.

1. What inspired you to form the Veterans Airlift Command (VAC)?

In early 2006, the military hospitals were filling up with wounded combat. I myself have a strong recollection of being hospitalized far away from home after being wounded as a combat helicopter pilot in Vietnam. It's an awful feeling to be separated from your family and support system. I had a twin-engine airplane at the time, and thought, "I can help solve that problem for somebody." So, I took early retirement and began thinking about how to accomplish this…the idea has since grown exponentially.

2. The VAC has now flown more than 15,000 passengers. Why is this transportation so beneficial to these veterans and their families?

Many of our veterans have served multiple combat tours and suffered from amputations, burn, shrapnel wounds and traumatic brain injuries (along with PTSD). It is very difficult for these warriors to fly commercially due to the crowded terminals, security limitations (which may mean removing prosthetics), travel delays, etc. Private transportation is sometimes the only viable option. In addition to the convenience provided, being flown and cared for by a like-minded patriot sends a strong message of appreciation which is often a good medicine. And it also touches the volunteer pilot who is essentially signing a "thank you note" by supplying their airplane and time.

3. What is a typical VAC mission?

Missions range from 250 miles to transcontinental, with the passenger load consisting of the veteran up to a family of 5 or 6. We publish the requests via email (including the personal backstory) to our volunteer network along with the proposed route. There is no pressure for pilots to respond unless interested. Volunteers can opt to fly the roundtrip, or just an individual leg…even a partial leg if the trip exceeds

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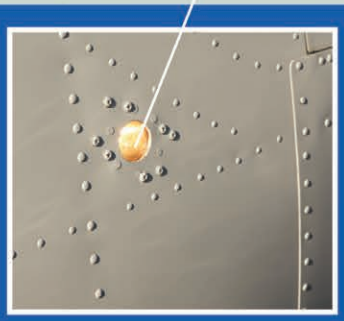

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The VAC staff (from left to right): Jen Salvati, Executive Director; Walt Fricke, Founder; Maria Miles, Senior Mission Coordinator; Jenna Diebel, Mission Coordinator.

the desired range. Nearly 90 percent of our trips are accomplished with jets or turboprops, but we do sometimes utilize high-performance singles for shorter legs. IFR flight plans are required.

4. How many pilots and aircraft are currently affiliated with the organization? What is the process for registering?

We have over 2,600 aircraft owners and pilots registered. Our goal is to grow that number to 5,000. We believe we would then be able to achieve close to 100 percent of requests by way of general aviation support. Currently, once we vet and approve the travel, we commit to getting them to the destination even if unable to find a volunteer (thus the purchase of airline tickets). To register, pilots can simply visit our website *www.veteransairlift.org* and click on the tab "register your aircraft." The process only take a few minutes and they will start receiving mission notices when appropriate. As I mentioned, there is no obligation to respond – each notice is just an opportunity.

5. Can you describe one of your most memorable moments with a VAC passenger?

Close to my heart is the story of a young Marine, double amputee (arm at the shoulder and lower opposite leg), who expressed a desire to learn to fly after his first VAC trip aboard a private aircraft. His goal was to fly missions for the VAC. I honestly didn't know how a person in his condition could manage to fly an airplane with one hand, but he has since (through a scholarship with ABLE Flight) earned a sport pilot's certificate, private pilot certificate and an instrument rating. He is now working on his multi-engine and already paying it forward by flying VAC missions from the right seat of a PC-12 along with VAC volunteer, Mike Bell. That Marine is Sgt. (ret.) Adam Kisielewski. Proud to know him! T&T

by **Kevin R. Dingman**

License to Learn

A Pilot's Learning Curve is Unending

Aviation in itself is not inherently dangerous. But to an even greater degree than the sea, it is terribly unforgiving of any carelessness, incapacity or neglect. - Captain A. G. Lamplugh

You have undoubtedly discovered along your hallowed, obstacle-strewn path to aviation enlightenment, that something is learned or re-learned in the course of every trip. If we're lucky, those lessons are rewarding, only occasionally embarrassing but seldom unforgiving.

As you read in last month's column, "Big Foot Flies Again," I awkwardly tripped over a couple of private-pilot-level obstacles in the Duke and embarrassingly re-learned that deliberate checklist discipline is required at all levels of experience and that during landing, careless foot placement can induce a Rogaine-resistant thin spot on the tires. Pilots are not alone in their exposure to errors in technique, episodes of enlightenment nor to thinning of various pieces-parts. Perhaps we can better appreciate our learning curve by reviewing and comparing the hallowed path of aviators to that of others.

There is no such thing as a natural-born pilot.
- Chuck Yeager

"Complications" by Dr. Atul Gawande is a book about the learning curve and mistakes made in the medical profession, particularly by surgeons as they progress from student, to intern, resident, attending, fellow and chief. He describes the critical and sometimes painful events that occur while gaining proficiency. Dr. Gawande asserts that in surgery, skill and confidence are learned (often humiliatingly, sometimes tragically) through experience. And that it's practice, not talent that is the primary determinant of a surgeon's ability. General Chuck Yeager once said that there are no natural born pilots. Athletes, welders, surgeons, pilots and a myriad of other skilled professions that require mental and physical dexterity, endurance, concentration, stamina, oftentimes inspiration and sometimes just plain-old grit, all share this developmental maxim because none are born with "natural ability." We all must continuously struggle, to one degree or another, along our obstacle-strewn path to proficiency.

From student pilot to ATP, the learning curve is unending due to changes in regulations, airframes, avionics, etc.

Pattern Recognition: Brain Cells to Spare

A defining trait of the proficient professional is that they move problem solving into an automatic mode, learning to supplement experience, intuition and judgement with behaviors more like those often attributed to a computer algorithm. Pattern recognition is developed through experience and allows us to more readily and intuitively recognize a departure from the norm. A surgeon that normally operates in automatic mode has a significant advantage. Because of pattern recognition, the surgeon that does only hernia repairs for example, has brain cells to spare when a novel situation happens or as a patient's condition destabilizes. But novel situations usually require conscious thought and a seat-of-the-pants workaround solution, which is often slower to develop, more difficult to execute and more prone to error.

Dr. Gawande's observations encouraged me to think about pilots and our own continuous, sometimes frustrating path to aviation enlightenment. The automatic-mode axiom can ring true in aviation if we have flown for many years or the same machine for many hours. Eventually, a novel situation is a certainty for pilots as well. Our safety net during any situation (whether previously encountered or during an event that they say could never happen), is pattern recognition, past training and habitual use of checklists.

"Complications" by Dr. Atul Gawande asserts that it's practice, not talent that is the primary determinant of a surgeon's ability.

Willingness to Engage in Sustained Training

Upon successful completion of a private pilot checkride, as the pilot is handed their temporary certificate, examiners will often say, "this is a license to learn." The inference being that even though you may now be legal to carry passengers, there remains vast amounts of knowledge, judgement and skill to acquire and retain. This is likely true in any endeavor that requires a combination of intelligence, judgement, physical dexterity and coordination. Especially when operating a complex machine in an environment that, like the sea, is unforgiving of any carelessness or neglect.

From student pilot to ATP, those of us that have flown for many hours can attest to the sometimes hair-raising truth and wisdom of that examiner's decree. Our learning curve is unending due to changes in regulations, configuration of airframes and powerplants (whether by choice or by AD), advancements in electronics and avionics. A pilot's learning goes well beyond the first few hundred or even first few thousand hours. Conscious learning becomes unconscious knowledge, then knowledge and practice becomes ability, skill, judgement, competence and talent. The most important talent we develop may in fact be having a tolerance for continuous and deliberate practice, or in other words, the willingness to engage in sustained training. We must acquiesce to being a lifelong student because once we have mastered the basic mechanics of flying an airplane, we are forever destined to experience many more learning curves in avionics, regulations, airspace management and aircraft operating systems.

Having been placed resolutely onto the modern technology learning curve myself, I often feel like the new kid at school or one of Dr. Gawande's surgical interns. It started with upgrading the Duke's 1970's-era Collins/King suite to a modern WAAS/ LPV GPS and touch-screen ADS-B transponder. Followed by a forced move from the MD-80's round-dial, wire and cable-driven pilot's-plane, to the all glass, LNAV/VNAV, data-linked and HUD equipped 737-800. And most recently, a change from my 98' bare-bones 4WD Ford Explorer (with 322,000 miles) to a brand-new, all-glass, Jeep Grand Cherokee Trailhawk.

All that I really needed was something with 4WD to move the Duke in and out of the hangar. But what I got communicates with my phone, tablet, the Jeep systems monitoring center (and prob-

If only we had a self-aware "HAL" in our vehicles and aircraft.

ably the IRS), has motion sensing, chassis raising and keyless, touch-screen everything – oh, and 4WD. With no self-aware HAL (2001: A Space Odyssey) to say, "I'm sorry Kevin, I'm afraid I can't do that," I'm often one touch-screen entry away from being lost, in the ditch or worse, locked onto a rap station on the satellite radio. At least in the 737, my FO can caution me against touchscreen errors. In the GA world, we don't have HAL or an FO to monitor and assist with our learning curve. And if the situation becomes unforgiving, this can become an issue. There is simply no way to fly a single engine Cat III on the HUD if you're locked onto a rap station.

Nine-tenths of wisdom is being wise in time.
-Theodore Roosevelt

Part 121 accidents occur at a rate of about four per one million flights. Part 135 accidents occur at a rate of about six per one million flights. And GA accidents see a slightly higher rate with around 19 accidents per million flights. Fatality rates are about six per million for both Part 121 and GA, and about one per million flights for Part 135. In 2017, of the 220,000 aircraft that are classified as GA, 347 people died in 209 accidents. We have all championed these statistics as compared to driving because the numbers are impressive and dramatic. Unfortunately, few things are as dramatic as an airplane crash and these hard earned and impressive crash statistics usually fall to an unreceptive audience.

Especially in the Part 121 world where passengers fixate not only on the rare accidents, but critical social maneuvers such as control of the center-seat armrest. Most non-pilots, nonetheless, remain in awe of aviation and the feat of piloting. But just as there is a first time for every surgical procedure, marble sculpture, vertical TIG weld, there is a first time for unsupervised flight in a complex airplane. As pilots, we must use every resource available both while learning and once proficient: checklists, FO's, ATC, risk assessment and self-assessment tools as well as thorough planning to ensure we are free of carelessness or neglect.

No matter the qualification, there is much available for us pilots to learn and remember along our path. There is always another airplane, a different avionics suite, and new policies and procedures to master. Aviation in itself may not be inherently dangerous. But similar to a surgeon who has accomplished thousands of hernia repairs, as they attempt their first gall bladder removal, awesome may not be the word to describe our first step onto the learning curve. When we read about challenging events encountered by other pilots, or about managing risk, when we face personal medical issues or learn new procedures, we begin the learning process anew – and we re-confirm that ours is indeed a license to learn.

The most important talent we as pilots develop may in fact be having a tolerance for continuous and deliberate practice.

Personally, I'm comfortably progressing in the 737-800 and with the new avionics in the Duke. For now, all that remains is to get up to speed in the Jeep. And this may take a while longer because according to Siri, my Jeep thinks I have still have that "new-owner" smell.

Author's Note:

This month, we say goodbye to our editor, Dianne White who published my first article in T & T titled "Issues" in which I tell the story of an engine failure at gear retraction in the MD-80. Throwing turbine blades through the cowling (sound familiar?), we ignited a grass fire at MIA but had no injuries. One hundred twenty articles later, I can't thank her enough for wading through 190,000 of my written words strewn with ceaseless contractions, parenthetical statements and occasionally, Shakespearean English. And we welcome to the magazine's left seat Rebecca Groom Jacobs, whose articles have appeared in T & T for over a year. May you find the editor's path to be not inherently dangerous but rewarding, only occasionally embarrassing and never unforgiving. T&T

Kevin Dingman *has been flying for more than 40 years. He's an ATP typed in the B737 and DC9 with 23,000 hours in his logbook. A retired Air Force major, he flew the F-16 and later performed as an USAF Civil Air Patrol Liaison Officer. He flies volunteer missions for the Christian organization Wings of Mercy, is employed by a major airline, and owns and operates a Beechcraft Duke. Contact Kevin at* **dinger10d@gmail.com**.

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by **David Miller**

Slightly LOST

As I mentioned in last month's column, both FlightSafety and TRU Simulation + Training are offering enhanced training scenarios for Citation operators. These two-hour courses are in addition to regular 61.58 annual requirements, and are designed to provide more in-depth knowledge about a specific operational topic. In March, I added one of these scenarios during my six-month Mustang recurrent event. The scenario was titled LOST.

First, some necessary discussion about Flight Safety's choice of acronyms. LOST stands for "Line Oriented Simulation Training." But who in their right mind would use the term LOST for pilot training?

I asked this question out loud to Randy Burke, Mustang Program Manager, as he began to brief me for our simulator session. He said something like, "I guess it is a little strange to use that term for you, David. But given your slower learning style, we have come up with some additional courses. Perhaps you would feel more comfortable with one of the following: TATA (Terrible Ability to Aviate) or TUTN (Totally Unable to Navigate), or perhaps UTFYWOTH (Unable to Find Your Way Out of the Hangar)."

I became more comfortable with the LOST idea.

The flight was from LaGuardia (KLGA) to East Hampton (KHTO). The idea behind these flights is not to load you up with multiple systems failures or fires, but instead present a single issue that may not initially seem important. In my case, we were to land on the 4,255-foot Runway 10 at KHTO. Weather was 600 overcast, winds from 160 degrees at 10 kts, temperature of 5C and visibility of 3 miles. All certainly doable during a night landing at an uncontrolled airport in the Mustang. I calculated the required runway as 2,447 feet.

I was fat, dumb, and happy as I flew the RNAV GPS Zulu approach for Runway 10. "Citation 416 Delta Mike, be advised that I am showing several rain showers along the final approach course tonight," came the comment from controller Burke. I didn't think much about it. As I touched down however, I realized that there was standing water on the runway. Braking action was significantly reduced. So much so, that I used almost every foot of the 4,255 available. It was an eye opener and totally unexpected.

In the debrief, we dove into the landing charts and discussed how landing distances can be effected by standing water, the depth of standing water, snow, slush etc. How snow is better than standing water. We came up with a general rule to double the dry landing distance for snow and triple it for standing water. If in doubt, visit the charts. These kinds of discussions are often not possible in a normal recurrent due to time limitations. And they are the kinds of discussions that can save a life or significant damage to your airframe. There have been several Citation accidents that could have been prevented with a pre-flight calculation of landing distance.

All-in-all, very worthwhile two hours spent in the simulator.

Fly safe. T&T

With 6,000-plus hours in his logbook, David Miller has been flying for business and pleasure for more than 40 years. Having owned and flown a variety of aircraft types, from turboprops to midsize jets, Patty and David currently own and fly a Citation Mustang. You can contact David at **davidmiller1@sbcglobal.net**.

IT'S TIME TO GIVE HALF A WHOLE LOT OF THOUGHT.

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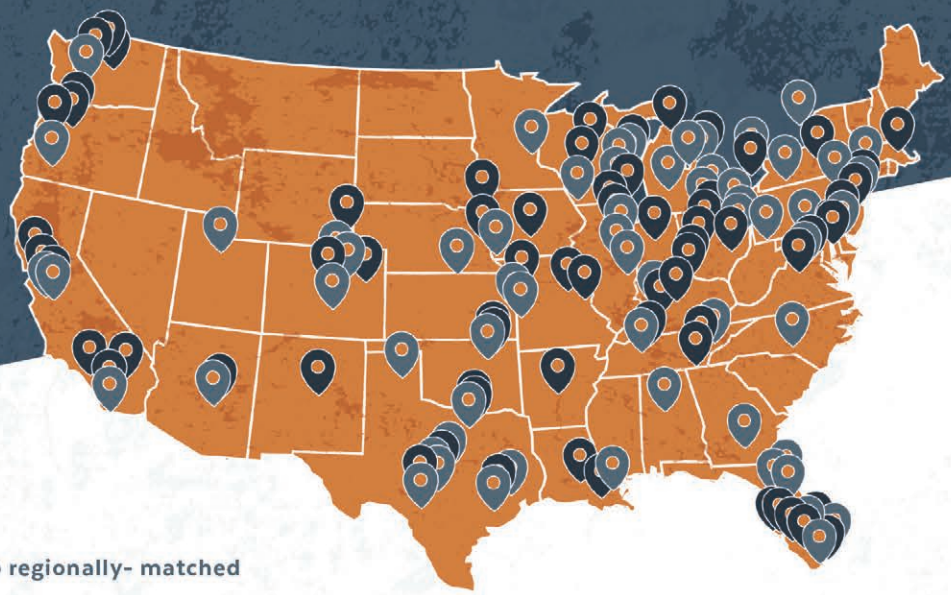

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Approximately how many hours do you expect to fly in a year?

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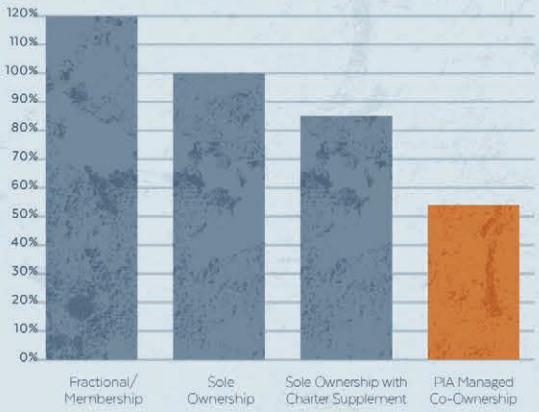

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