Corrosion Prevention / Owner's Corner: Kodiak 100 / Nighttime Thunderstorm

TWIN & TURBINE

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

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"Don't Miss" Safety Event

This month's briefing is provided by Editor-at-Large Dianne White.

In a few short days, the aviation industry will be converging on Orlando for the 2022 NBAA-BACE convention, arguably the largest gathering of leaders, companies and professionals working in or serving business aviation. The show, which celebrates its 75th anniversary this year, takes place October 18-20 at Orlando's Orange County Convention Center and nearby Orlando Executive Airport (ORL).

For the twin-and-turbine owner-pilot, the show is one-stop shopping for new and preowned aircraft, avionics, gear, services, training, insurance and much more. NBAA also offers the unique opportunity to expand your knowledge on virtually any topic related to owning, operating and maintaining your aircraft.

For the past two years, I've served on the single-pilot working group within NBAA's Safety Committee. Led by Rosa Lee Argotsinger, director of flight safety and security at Textron Aviation, the committee is comprised of safety experts across the spectrum of business aviation who also have specific expertise in single-pilot operations. As a committee, we are focused on not only addressing the top safety issues facing single-pilot operators but what best practices and ideas from larger aviation organizations and flight departments could be scaled and applied to the one-aircraft owner or small flight department.

The culmination of our work is the NBAA Single-Pilot Safety Standdown scheduled for Monday, October 17, the day before the official start. This year the focus of Standdown is focusing on the prevention of runway excursions. Addressing preventable accidents is a top safety focus for the NBAA Safety Committee. Runway excursions certainly fall into that category. Further, the incidence of runway excursions has been a continuing issue plaguing all levels of general aviation. While the majority of excursions don't result in loss of life, they do cause significant injuries, the loss of aircraft and drive insurance rates up.

Why is this event one you shouldn't miss? Committee chair Rosa Lee Argotsinger responded, "We worked hard to bring runway excursions into focus in a meaningful way for the operators. We'll begin by reviewing a case study that illustrates this risk thoroughly – highlighting contributing factors that could easily go unnoticed until you have that perfect storm of circumstances. Then, throughout the remainder of the sessions, our speakers will detail a variety of practical strategies that can be used to avoid an excursion. We have a fantastic lineup that will offer a variety of perspectives. I think the content is going to resonate with anyone that occupies the left seat of an airplane."

Speakers scheduled to present include the following:

- **Peter Basile**, senior air safety investigator at Textron Aviation, will discuss how a Cessna Citation 551 flight progressed from approach to a runway excursion that ultimately ended in an accident. You will see the accident video, hear ATC communications, and see investigation photographs and performance calculations. From this, Peter will share key takeaways to avoid a runway excursion accident.
- **Daher's Raphael Maitre** will present how data collected on the MyTBM app helps TBM pilots gain immediate feedback on key flight parameters. He'll also talk about how even simple flight data monitoring programs can result in improved performance.
- **Dan Moore**, a top in-aircraft instructor and safety expert, will discuss how you can achieve consistency in your landings.
- **Charlie Precourt**, with the Citation Jet Pilots Association, will unveil the results of a comprehensive research study aimed at addressing runway excursions and how the findings are now providing usable, realistic procedures and guidance for pilots.

What outcome do we hope to achieve from the Single-Pilot Safety Standdown? Rosa Lee summarized it best: "We want to prevent accidents within the aviation community – plain and simple. We want to build awareness around this particular hazard, have attendees walk away talking about the content, and thinking about how they might incorporate these concepts into their flying habit patterns. For some, the content may offer new information; for others, it will serve as important reminders. And we want attendees to have the added benefit of building connections – sitting down with other safety-minded pilots and sharing ideas. Business aviation is an amazing community. We want to look out for one another, and that's what's great about NBAA-BACE. It gives us this space to connect in this way."

You can read more about the Safety Standdown at nbaa.org by searching "2022 Standdown."

Hope to see you there! T&T

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Pilot Confessions
Caught In a Nighttime Thunderstorm

by **Joe Casey**

There are 30,000-plus thunderstorms on the face of the earth every day. That is a shockingly large but factual number. Thunderstorms are easy to find on most of our planet. So, if you are a pilot, you'll get to make some decisions about circumnavigating and avoiding them. If it hasn't happened already, you will have to decide how close to get to a thunderstorm in the future.

Alarmingly, accident records show that pilots choose to fly into thunderstorms with far too much frequency, and many of those airplanes don't come out the other side in one piece. A thunderstorm is a deadly cocktail with all the nasty ingredients required for a fatality, and any one of those ingredients can take you out of the sky. Lightning, hail, wind shear, icing and convection exist in every thunderstorm.

So, how did I find myself in the throes of a large thunderstorm complex at night? How did a (then) 12,000-plus hour aviator, CFI, and examiner make such a decision? Well, I didn't wake up that morning with suicidal thoughts, but I did wake up with a strong desire to get home. Usually, that is all that is needed to start the accident chain in aviation.

Get-Home-Itis

I woke up in Louisville, Kentucky, and started the day training with a client in his Piper Mirage. This was the last day of a five-day trip and I was ready to go home. So, when the proverbial quit-work whistle blew at 5 p.m., I already had the tie-down ropes off and the chocks removed from my Cessna 310. The problem was a huge weather system that stretched from the Great Lakes deep into the Gulf of Mexico. This was a cold front with a line of thunderstorms at the frontal boundary and a bunch of disorganized cells further ahead on the warm (east) side of the front.

I planned to fly as far southwest as possible, choose an airport to land, let the storm pass, and hope the front moved quickly so I could resume my flight back home that evening after the frontal passage. I flew around a bunch of unorganized and small storms on my first leg, landing in Memphis for fuel. Nighttime was beginning to overtake the day, and the vast storms out

PHOTO COURTESY OF CLINT GOFF

west blocked the setting sun.

I had no onboard radar, but I did have ADSB radar images on my iPad with a Garmin 345R transponder providing the Bluetooth signal. I continued southwest bound but began to be pushed further south by another line of thunderstorms. Here's where my judgment failed me. The main line of storms associated with the cold front was well to my west, but several lines of cells formed all around. At this point, I should have landed at the next viable airport.

But I didn't. I thought, "If I can just round that next cell, I'll have a clear shot for another 200 nm." So, I descended to 4,500 feet to ensure sight of the rain shafts and avoid any big cells. The gathering darkness was my enemy, but I still had enough light to avoid the convection. I felt safe, but that feeling was an illusion created by my best hopes. We all need hope, but hope is a poor plan.

Developing Problems

As I rounded the cell, the way west looked convection free on my iPad, but the darkness was growing. Soon, I was in total darkness and flying at 4,500 feet to stay clear of the clouds. The clouds at my altitude began to increase, and I descended further to remain VFR. I dared not go IFR because I could not risk an embedded thunderstorm, but now it was dark. Everything was effectively "embedded" because I could not see the rain shafts. I was talking with ATC, and they were doing their best to guide me to a rain-free area, but the storms were growing and rain-free areas were not present. I diverted right then left. I wanted to make it to Shreveport but soon determined that I could not make it there due to the growing cells.

Then, I lost the ability to talk with ATC. I was simply too low in too remote of an area. So, I made the only choice that I could after looking at ADSB weather images on my iPad. I guessed as to where the thunderstorms were the weakest. All I could do was guess.

In the old days, we would turn on the ADF to a low frequency and the needle would divert towards a lightning strike. I tried that, but it worked about as well as you would think. The needle was just jumping all over the place. Not able to talk to ATC, not able to see the weather, not able to do anything other than hope, I hit direct-to in the GPS to Many, Louisiana (3R4).

Now, I had done no prior planning and knew nothing about Many before diverting there. I did not know if they had a courtesy car, hotels, maintenance availability, or if I could even get in the front door of the FBO. I just knew there was a long hunk of asphalt and some runway lights, and that was good enough.

I turned the Cessna 310 to Many, held as close to 2,500 feet as I could, and flew as straight a line as possible. Rain pelted the airplane and lightning struck all around me. It was remarkably smooth, but I had no doubts that incredible turbulence awaited me if I were to bumble into a column of convection that surely lurked in the darkness. I felt like the only fool in the zoo, with all the cages left open and all the animals present. I slowed to about 10 knots below V_a and said the "prayer of resignation."

I've heard it said, "There are no atheists in a foxhole," and I was certainly no atheist at this point. I had made a complete mess of things and gotten to the point of resignation. The prayer of resignation is the nondescript prayer made by the fool who finds himself in a situation that could be deadly but for which they have no control. Fate, luck or divine intervention is the decider of the outcome, not skill or experience. Resignation comes when you decide you got where you are because of your own decisions, and you simply cannot do anything else to steer your fate. You turn over everything to someone else.

If I flew into convection, I'd probably perish. If I flew into a microburst

or downdraft, I'd probably not be able to outclimb the downdraft. The night was pitch-dark except for the house lights and occasional road light. This was rural Louisiana. Below me was assuredly nothing but super tall pine trees. I'd lost control of the situation. Whether I hit convection or not was out of my control. I could only keep the nose pointed at Many and hope.

Glorious Lights

I was hunkering in the cockpit; my core muscles were tight, and my grasp on the yoke was tighter. I was bracing for the worst. But, the worst did not happen. After about 10 minutes of flying through the driving rain, I saw the rain-dimmed, blurry and glorious lights of the city of Many and hoped the runway lights would soon come into view. The runway lights did come into view, and I made one of the happiest landings I've ever made. I was on the ground with no bent metal.

I taxied to the tie-down spots and paused for a short while before opening the door to sideways, heavy rain. Within seconds I was completely drenched. The tie-down ropes were gone (of course), and no chocks to be found. So, I jumped back in the Cessna 310 and set the parking brake. I grabbed my suitcase and ran to the FBO. Lightning flashed all around, and I used the light from the lightning to find my way to the FBO door across the pitch-dark ramp.

Thankfully, the door was unlocked, and I began the process of realizing how wet I was in a dry place. I called hotels, rental car options and taxi services. There were no hotels with availability, no rental car options and no taxi services. And, you guessed it, Uber was not available. So, I looked to the couch against the wall and realized that would be my "home" for the night.

I watched the radar app on my phone throughout the evening, and there was no break in the weather. It rained hard for the next six hours with no letup at all. I bet Many got 4 to 6 inches of rain that night, and the lightning show was incredible. I sat on the couch, laid on it, and then tossed and turned all night with broken springs and lumps galore.

But, I had survived the flight and survived the night. While the amenities of the airport are few, the simple fact that they have an airport and an unlocked building was marvelous. I have much appreciation for the Many Airport.

The Takeaways

We have a law in the military called "the law of the 6 P's." It is no actual law but rather a guideline, strong advice or just wisdom. But, it is totally applicable to my situation. The Law of the 6 P's is "Piss Poor Planning Produces Poor Performance." My planning on this trip qualified. Not only was my planning poor, but my decision-making was too. I should have stopped for the night in Memphis and gone to see the ducks at the Peabody Hotel. But, no – I had to get home. I had to push the limits. I had to fly until I had "no outs." No outs is what flying in an area of convection will provide you.

The FAA has produced really good wisdom concerning flying near thunderstorms. The FAA's advice is "avoid a thunderstorm by 20 miles." That's about as succint advice as could be given. You can avoid a thunderstorm by 20 miles if you simply decide you'll never get closer. If you are a pilot with a regular case of "get-home-itis," you have to set limits.

Decide today that you will not fly within 20 miles of a thunderstorm. Decide today that you will not get to a place where you have no outs nor where you are not the master of your airplane. I hope my confession helps you decide NOT to choose the path I chose. I dodged a bullet. Not because I was a good pilot, but because I was a lucky and blessed one. T&T

Joe Casey *is an FAA-DPE and an ATP, CFI, CFII (A/H), MEI, CFIG, CFIH, as well as a retired U.S. Army UH60 standardization instruc-tor/ examiner. An active instructor in the PA46 and King Air markets, he has accumulated 14,300-plus hours of flight time, with more than 5,200 dual-given as a flight instructor. Contact Joe at* **joe@flycasey.com** *or 903.721.9549.*

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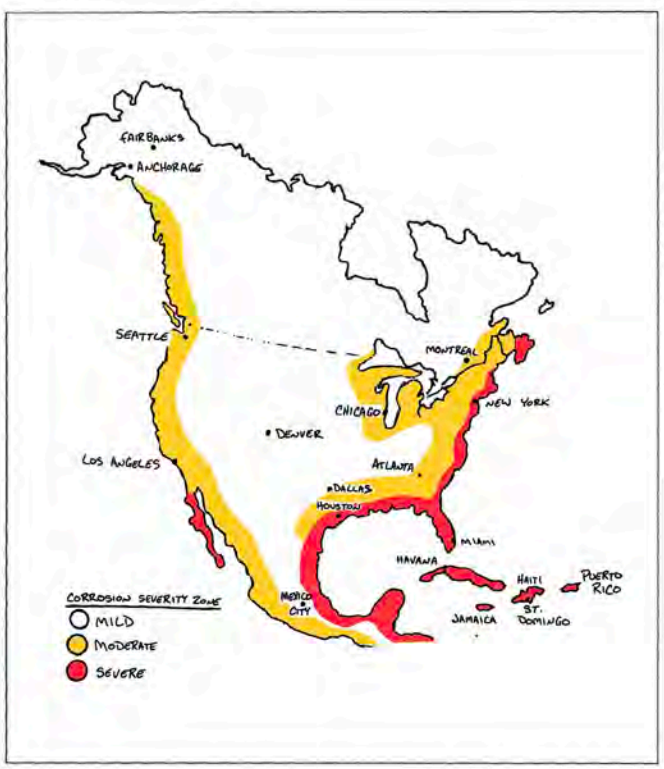
An Ounce of Prevention

by **Elliott Cox**

Walk around nearly any airplane, and you'll see a few spots of corrosion here and there if you look closely enough. If you're willing to spend a little bit of time and money on corrosion prevention, you'll save loads of time and money on corrosion repair.

One of the most significant factors in the corrosion equation is the environment where your airplane lives. An airplane tied down on an open ramp in Baton Rouge, Louisiana, will develop corrosion much faster than an airplane stored in a hangar in St. George, Utah. Unfortunately, a hangar isn't always an option, but even if your airplane spends the majority of its life tied down on the ramp, there are some things you can do to minimize the potential for corrosion.

AC 43-4B (available as a free PDF download from the FAA's website) recommends that a "crew familiar with corrosion problems and treatment" perform corrosion checks every 15 days for an aircraft operating in a severe environment (see map), 45 days in a moderate environment, and 90 days in a mild environment. Frequent inspections, emphasizing a few corrosion-prone areas, will go a long way toward keeping your airplane squeaky clean.



The entire underside of an airplane takes a real beating and should be cleaned on a regular basis. Exhaust, oils, fuel, and whatever was scattered, spilled or spewed onto the runways and taxiways is thrown at a high velocity in the direction of the belly, and much of it stays there. Engine exhaust, whether it's from a turbine or reciprocating engine, quite literally creates corrosion hot spots. Because hot air holds more moisture than cold air, exhaust gas provides a steady stream of moist, hot air combined with all the contaminants of the outgas and byproducts of combustion directly onto everything behind it.

All of that nasty stuff streaks down the belly and sticks to the paint, supplying an adhesive coating that keeps corrosive elements lovingly sandwiched between a layer of scum and your aluminum. Thankfully, all it takes to get rid of all that crud is a little bit of quality time wiping the belly down with a good aluminum-safe degreaser from your favorite aviation supply store. Keeping a good quality paint job clean and dry is the next best thing you can do for your airplane to storing it in a climate-controlled hangar. If moisture and air can't get to bare metal, there's no chance of corrosion.

The only part of an airplane that takes a bigger beating than the belly is the landing gear, especially if it's retractable. The gear is exposed to the same abuse as the belly, but there are more cracks, crevices, moving parts, hydraulic fluid, and grease that make the undercarriage more difficult to keep clean and protected from corrosion. It takes more time to clean the gear than it does the belly, but time spent degreasing, cleaning and thoroughly re-greasing all those moving parts will help ensure that you'll have three reliable legs under you every time you move the gear lever.

Some other areas that deserve a good look are under and around batteries and lavatories. Batteries are literally

buckets full of corrosive material in the form of electrolyte that allow the chemical process of electricity to occur any time you turn your master switch on. Lead acid batteries contain sulfuric acid, and Nickel-Cadmium (NiCad) batteries contain Potassium Chloride, both of which make quick work of eating metal.

Lead acid batteries are typically sealed, so there's a lower chance of a leak, but that chance is never zero unless the battery is empty. NiCad batteries, more commonly found in turbine airplanes, require maintenance, so they're not sealed and are more prone to spillage. It doesn't take a lot of electrolyte to eat away primer or corrosion inhibitor on its way to bare aluminum. Spills should be taken care of as soon as they're spotted. Baking soda and water will neutralize lead acid spills, and a 10:1 mixture of water to boric acid will neutralize NiCad spills. In both cases, you should flush the area diligently with clean water to ensure all the contamination is gone.

If you're operating an airplane with a chemical lavatory, special care should be taken. Keep an eye on the skin, cables, wire bundles, etc. under the lav because blue juice, while it doesn't contain corrosive salts, does contain moisture and other contaminants that will promote corrosion over time. The lav sits over a portion of the airplane that only gets looked at during periodic inspections, typically every 12 to 18 months. If an inspector was less than thorough for even one inspection cycle, you could be sitting on a festering pile of neon blue-colored corrosion. Any shop worth their salt (no pun intended), will be happy to provide you with photos of the area under the lav since all the interior and floor panels must be removed for the shop to get a completely unobstructed view of every square millimeter of the belly.

There are quite a few inexpensive but very effective borescopes on the market now, and there's really no downside to owning one. For a few hundred dollars, I bought a borescope from Depstech that connects via Bluetooth to my iPad or iPhone and provides a clear picture from which I'm able to record video and take still photos. If you suspect you have a leak, it's much easier to gain enough access to get

A NiCad battery with Cadmium plated hardware isn't immune to the effects of corrosion.

a borescope under the floor panels than it is to be able to take a firsthand look.

If you're walking around your Baron for the hundredth time and you happen to notice some paint bubbling on the RH wingtip around a fastener, do you ground the airplane? Of course not. You've looked at this place a hundred times before, and the paint has only just started bubbling up. Your best move is to make a mental note or better yet take a photo to document the anomaly. If you really want to make your mechanic happy, take the picture with a ruler lying on the skin beside the bubbling to show its exact size, orientation, and shape. Make a note to add the trouble spot to your work order when your airplane goes down for its next annual or progressive inspection, and you can rest easy knowing that it'll be taken care of. It's far better to spend a little bit of money now to take care of a small spot than it is to "just keep an eye on it" and spend a whole lot more down the road replacing ribs and skin after the corrosion has eaten away enough of the

Whether the exhaust is from a reciprocating engine or a turbine, it provides a perfect environment for corrosion.

material thickness to make it unairworthy. An ounce of prevention and all that.

Treating corrosion can be a tricky task and shouldn't be taken lightly. You can easily turn a "quick fix" into a major repair. If you grew up helping your grandparents work on tractors, your first instinct might be to grab a wire brush and rattle-can primer from the National Aviation Parts Association – or, as non-aviation types like to call it, NAPA – and get to work. But that's not the best way to go about it. You can perform some corrosion repairs yourself, but unless you have technical guidance from either AC 43-4B or your airplane's structural repair manual, and experience performing such repairs, you're probably better off leaving it up to your mechanic or repair shop. If you're cleaning your airplane and see a spot that gets your attention, clean it and get some photos, preferably with a ruler beside the damage – again, us maintenance folks love pictures with rulers – and get in touch with your favorite mechanic or shop. Many manufacturers have a structures department that will help you and your mechanic assess the damage and formulate a plan to take care of it if there's any uncertainty about its severity.

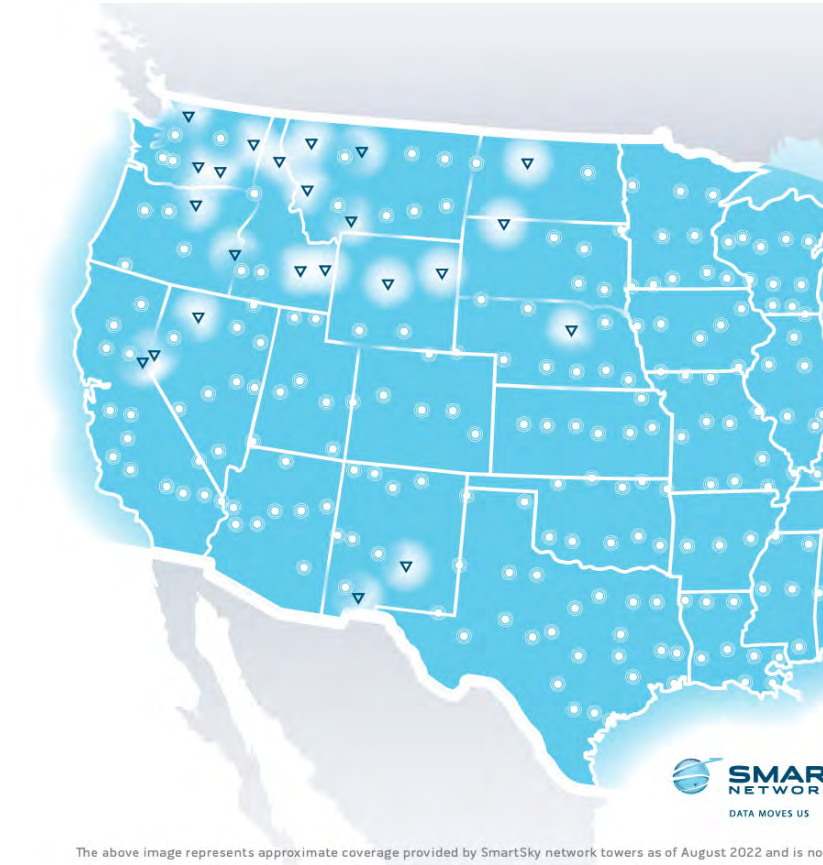
If you decide to take care of a few spots yourself, make sure you know what kind of material you're dealing with. If you're working on a piece of sheet aluminum, there's a good chance that it's a sandwiched, corrosion-resistant material called Alclad. Alclad is an aluminum alloy with very thin sheets – about 5 percent of the total thickness – of pure aluminum on the outer surfaces. If you're using Scotchbrite or sandpaper to remove corrosion, it won't take more than a couple of swipes to dig down through that protective surface sheet and into the unprotected alloy, which is far more susceptible to corrosion.

It isn't always easy to identify what kind of metal you're working on, either. Unless you can see the interior portion of the sheet you're working on – and if it's not primed and still has the identifying markings visible – I'd leave it up to the pros. You don't want a little surface corrosion to turn into a skin repair.

Corrosion is one of the biggest challenges to keeping an airplane airworthy. Gone undetected, it can reduce an airplane to a pile of dust. The good news is that with proper care and a little bit of attention, corrosion can be, at most, an occasional inconvenience instead of a major show-stopper. T&T

Elliott Cox *is a pilot and the Director of Maintenance for a Part 91 Corporate Flight Department in the Southeast. You can reach him at his website TheWritingFlyer.com or by email at* **elliott@thewritingflyer.com**.

Current STCs held for SmartSky's ATG include the Citation XL/ XLS/X, as well as Bombardier, Embraer, and Gulfstream aircraft.



The above image represents approximate coverage provided by SmartSky network towers as of August 2022 and is no

SMART CABIN

BROADENING BROADBAND SOLUTIONS FOR GA AIRCRAFT

by **Dale Smith**

SmartSky Networks' high-speed, air-to-ground (ATG) broadband network is now available across the entire continental U.S.

Access to reliable Internet on business aircraft is no longer considered a luxury; it is an expected feature that passengers rely on to maximize their productivity. To meet that need, operators are increasing their search for cost-effective connectivity solutions.

Saying we live in a "totally connected world" is probably one of the biggest understatements you'll hear. From the device in your pocket to our offices, homes, and now our cars, it seems that everything we interact with is wirelessly connected to something.

And now, as private and business aviation is experiencing its post-COVID renaissance, even your aircraft is expected to provide high-speed connectivity to you and your passengers.

"The expectation today is when you get on any cabin-class airplane, you can do the same things [wirelessly] as you can in your home or office," explained Britton Wanick, Vice President, Marketing and Partnerships for SmartSky Networks, LLC. "It's the same whether you are on a King Air or a Gulfstream; people take it for granted that they will be connected in the air like they are everywhere else. If they're not, it can be a problem."

Of course, today's "connectivity" means much more than just streaming, texting, voice, email, and web surfing.

"Cabin connectivity is about one-third of the total capabilities operators expect from their system today," Wanick said. "The rest is made up of real-time information for pilots, like flight-planning, en-route weather including turbulence detection, and the apps on your iPad or EFB (electronic flight bag) that help you communicate with ground operations."

"Plus, you have the growing need for real-time aircraft health monitoring – the connected aircraft," he continued. "There are a growing array of connected capabilities, and they all need a high-speed, low-latency connection to work."

Survey Says...

In fact, the growing desire to have many of these capabilities in the cockpit and cabin was why Twin & Turbine recently completed surveying its diverse subscriber base on connectivity. The results were most enlightening. For example, when asked the question, "If you have/would like to have Internet access on your aircraft, what functions do you need?" The top five answers were:

1. *Text/Messaging at 90%*
2. *Email/Business Applications at 48%*
3. *Electronic Flight Bag at 43%*
4. *Voice at 32%*
5. *Streaming at 17%*

That's pretty impressive data considering that nearly 80 percent of the survey respondents do not currently have Internet connectivity on their aircraft. But, wait, you ask,

PHOTO COURTESY OF MACH POINT ONE AVIATION

> "If connectivity is so great, why don't more aircraft have it?"

That's a great question, so we asked, "If you do not have Internet connectivity on your aircraft, why not?" The top three answers were:

1. *Too expensive at 44%*
2. *Don't want/need at 20%*
3. *No good options/nothing fits my aircraft at 14%*

While those are all very valid points, it would have been interesting to ask the respondents a follow-up question, "When was the last time they shopped for a connectivity solution for your aircraft?"

One Size Doesn't Fit All

Not long ago, a satellite system was the only game in town with its complex installation, big antenna, and even bigger purchase and access price. So, when owners think of cabin connectivity, they often think of all the reasons why they can't get it or don't want it.

Fortunately, though, while the variety of uses pilots and passengers have for cabin connectivity has grown exponentially over the past few years, so have the options available for the types of services available to mid-cabin and smaller turbine and turbojet aircraft.

Of course, I'm referring to air-to-ground (ATG) connectivity options. Instead of needing a big antenna to send a signal to a satellite and back again, air-to-ground systems use smaller, belly-mounted antennas to connect to a terrestrial network of receivers/transmitters, just like your cellular service.

That means these ATG systems can be smaller, lighter, easier to install, and considerably less expensive than their satellite-based ancestors. But, again, I don't get the

impression that air-to-ground is ideal for every situation. Because their terrestrial coverage areas are confined to the Continental U.S, ATG solutions obviously can't deliver the global connectivity offered by satellites.

"We know that air-to-ground is not a stand-alone solution for many operators and as more and more midsize and large-cabin business jets travel internationally, they need satellite services," Wanick said. "We see satellite and ATG systems as being complementary. Satellite services can keep those movies streaming while making the occasional overseas trip. And ATG provides the low latency needed to move data to, and importantly, from the aircraft. That's a key functionality for today's cloud-based office applications and video conference calls."

The Tech Behind the Network

Wanick explained that from SmartSky Networks' multi-patented LRUs, antennas, and terrestrial R/T network to its software-defined operational architecture, the company's entire offering had been created to provide "responsive, dependable, and secure connectivity" to more aircraft and deliver it at reasonable prices.

"We started in 2011 and have spent the past 11 years obtaining patents, creating the right components, and assembling the network that connects it all together," he said. "With our nationwide network now live, we are seeing great results. We recently did some demonstration flights in Wichita, and the passengers were amazed by what SmartSky can deliver."

Wanick explained that one of SmartSky Networks' differentiators is its unique use of the untapped spectrum band in the "unlicensed" 2.4 gigahertz range.

"This gives us 20-times more operating spectrum to use for connectivity than the legacy ATG provider," he said. "We've also been very innovative in our use of the 4G and 5G technologies to optimize overall performance and deliver a consistently high experience."

"Most people don't realize it, but getting high-speed data off the airplane is a big part of delivering the right experience," Wanick continued. "That's how you get the responsiveness that users require when you have multiple people with multiple devices streaming multiple gigabytes on and off the aircraft."

He also described SmartSky Networks' technology that provides a dedicated bi-directional beam to each aircraft. This patented "beamforming" technology means data is not jumbled in with anyone else who happens to be on the network at that second.

"Because the beam is dedicated to that one aircraft's connection, you get faster speeds, lower latency, and greater security," he said. "That's key to SmartSky being able to deliver unique in-flight benefits like our SmoothSky turbulence awareness capability."

As Wanick explained, SmoothSky compiles real-time turbulence information from IATA's Global Turbulence Aware Platform and delivers it to a web app on your WiFi-connected iPad or EFB.

Size and Installation

As mentioned earlier, one of the significant drawbacks to satellite systems is their physical size and weight. Even if an owner of any number of turboprops or mid-sized cabin jets wanted one, there just isn't room on or in the airplane to mount all the hardware. SmartSky Networks' air-to-ground solution fits most six-place, cabin-class aircraft.

"We have installed our flagship system on our King Air B200 and in our Citation," Wanick said. "From the beginning, we wanted to make sure the equipment was easy to install as possible. So, during the development of our LRUs and antennas, we worked closely with leading MROs and aircraft OEMs to get the key insights we needed."

"The compact LRUs can be installed in unpressurized bays, so they don't take up valuable space in the cabin. The dual antennas are mounted on the bottom of the fuselage, and their location is optimized for each aircraft type," Wanick added. "And at only 40 pounds, the complete system is a fraction the weight of a satellite installation."

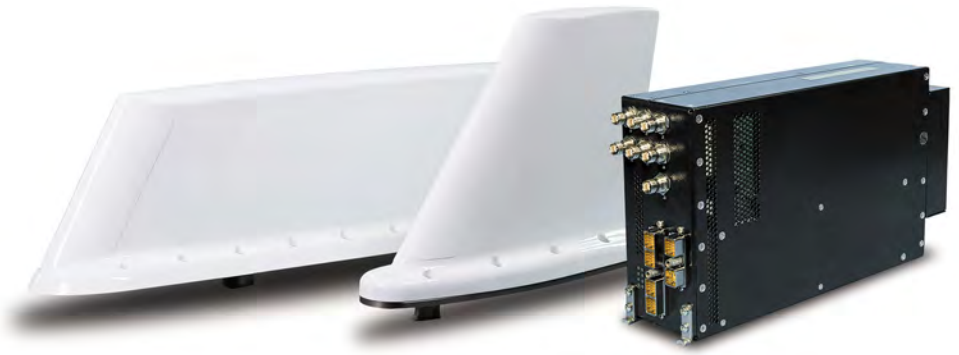
Bringing the Cost Down to Earth

We've covered many of the benefits of in-flight connectivity but not the cost. It was the number one reason why Twin & Turbine readers don't have it.

Well, there's no getting around the fact that high-quality, low-latency connectivity is not inexpensive. Unlike your personal wireless bill, you're not paying for one device; you're paying to connect multiple devices onto and off the aircraft.

"On a midsize cabin aircraft, you have six premium passengers

PHOTO COURTESY OF MACH POINT ONE AVIATION



The core components of SmartSky's flagship system.

streaming Netflix or doing Zoom meetings and the pilot checking the weather or emailing the FBO to confirm rental cars simultaneously with no drop in performance," Wanick said. "There's a lot of capability being delivered to that specific aircraft."

"To meet the needs of most of our customers, we offer a variety of connection packages through our service provider Honeywell. Right now, we have data packages ranging from five gigabytes up to unlimited gigabytes per month," he added.

"Another thing to consider is that the lifespan of today's aircraft is much longer than it was just five years ago," he continued. "There is a growing demand for connectivity in aircraft, and adding the capability is a great way to extend the life of your aircraft while making it much more valuable."

Whether it's for personal use or to help expand your aircraft's charter use, no matter why you want/need connectivity in your aircraft, Wanick stressed the importance of understanding your goals and then clearly defining them to an experienced MRO.

"The best overall solution for any customer may be our air-to-ground network, or it may be our system working alongside a satellite package," he said. "If the customer sets their expectations and then sticks to that plan, they will end up with a system that best meets their needs now and in the future." T&T

Dale Smith *has been a commercial, private and business aviation marketing and media communications specialist for nearly 40 years. He is an award-wining aviation journalist and aviation artist. Dale has been a licensed pilot since 1974 and has flown more than 40 different types of aircraft. Contact Dale at* **dalesmith206@comcast.net.**

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Banyan Air Service

by **Lance Phillips**

Banyan Air Service leadership team (left to right): Lynn Juengel, VP MRO services; Michael O'Keeffe SVP; Don Campion, President; James Barcel, CFO.

"People are more important than profits."

The above is just one of the phrases deemed important by the founder of Banyan Air Service, Don Campion. However, rather than just a nice sounding saying to go in the values section of his company's website, that phrase has been something instilled in Don Campion his whole life by none other than his parents, George and Esther.

The senior Campions met as teenagers and both attended college in Toronto, Canada. George became a medical doctor and interned at St. Michael's Hospital while Esther earned a degree in nursing from the Toronto General Hospital School of Nursing. They married in 1949 and joined the Sudan Interior Mission (SIM) group of medical missionaries traveling by ship to Nigeria after months of specialized training. Most of the remainder of their lives would be spent serving the people of Egbe, Nigeria, a small town inland from Lagos to the northeast, across the Niger River. Their faith, drive to help people, and desire to work in a team environment would inform their son, Don, one of four kids, on how to live his life and pursue success.

Don got his first taste of private aviation while attending a boarding school in Nigeria as his parents toiled in their small medical village, building from scratch the

infrastructure needed to serve and support the people of Egbe. The little Cessnas and Pipers used to get Don back and forth between home and school lit a passion for aviation that would later steer his decisions in life and career. Don told TwoTen Magazine in 2016, "I loved watching the missionary planes fly in and land in the grass airstrip next to the hospital. They would pick up a group of us missionary kids and fly us to the school. That's where my love of aviation and my desire to make it a career started."

After primary school in Nigeria, Don attended Seneca College in Toronto, Canada, earning a pilot's license and a degree in aviation. On school breaks, Don spent lots of time in Florida with school friends and began to see opportunities for servicing and supporting aircraft. He moved to Fort Lauderdale after graduation and flew charter customers between Florida and the Bahamas. There, too, he saw an opportunity to provide excellent maintenance support to the little charter company.

It was in Fort Lauderdale that Don and his friend, an aircraft broker, leased a hangar together and started up a service and sales business. Soon after, in 1979, Banyan Air Service was founded and began operations. It is said that if you build it, they will come, and come they did. Others in the area started requesting service and support from his small company. Don soon took over sole ownership of Banyan and in 1985, it grew its footprint at FXE and started selling fuel and providing logistics support to transient and based customers. Now anyone could land in Fort Lauderdale, hangar their airplane overnight, get fuel, get maintenance, reserve a hotel and car, and even find their next airplane – all in one place.

Don further explained to TwoTen: "We took advantage of the surrounding hangar space at the airport and started attracting other peripheral businesses as tenants to provide services that we didn't provide, including aerial photography, flight schools, helicopter repair, air ambulance, legal assistance for aviation law, cargo, etc. We can now go to the people in our industry and say, 'If you come to Banyan, you have access to more services offered to meet your needs than perhaps anywhere else in the world.' That approach has been working very well."

Selecting the team to help Don provide world-class service is one of the most important aspects of running Banyan. "We employ close to 200 teammates, and I have always referred to our employees in that manner because we are all a team. We have a very stringent hiring process consisting of at least four interviews. [Once given] the thumbs up, we proceed with the hiring process."

As the team and its footprint has grown, it has become increasingly important for Don to have a second-in-command with the experience and right fit to lead with him. In 1996, Michael O'Keeffe joined Banyan and has served in a variety of managerial positions since, including vice president of aircraft maintenance, general manager and director of operations. Michael is now the company's senior vice president and is also responsible

Don Campion and his wife, Sueanne, are project leaders in the revitalization of his father's hospital in Egbe, Nigeria.

for all aircraft sales and management. He serves on the executive committee for the Pinnacle Air Network, and in 2009 he was elected chairman of the National Aircraft Resale Association (NARA). Previously he held roles as secretary, treasurer and vice-chairman at NARA. He is an active pilot and holds an Airline Transport Pilot license (ATP), instrument, multi-engine land and seaplane ratings, and type ratings in King Air 300/350 Turboprops and Citation 500 series jets. He holds an undergraduate degree in finance and a Master's of Business Administration from Embry Riddle University.

I asked Michael during a visit in 2021 how the business had adjusted and found success through the pandemic. He said, "It has been unbelievable. Historically, we had a large portion of our business from south of the border. During the pandemic, we saw that change to mostly all North American business due to travel restrictions. Even with the restrictions and our customer profile changing, we have experienced our biggest months in terms of fuel sales and aircraft maintenance and sales ever."

They credit the success to their unrelenting adherence to the principles of service and focus on customer needs. Serving customers' needs means that Banyan Air Service needed to provide the best in new aircraft acquisition. They are the southeast's premier HondaJet dealer. It is a perfect fit for Banyan's business of providing best-in-class products and services.

Selling and servicing airplanes do not make up all that Don Campion does in life these days. He and his wife, Sueanne, are now project leaders in the revitalization of his father's hospital in Egbe, Nigeria. Often traveling to Nigeria, they recruit personnel, raise financial support, ship medical equipment and supplies and provide oversight to establish medical care to this needy region. The hospital also is a training center for nurses and doctors. They work closely with 4KIDS of South Florida, a child welfare agency dedicated to foster care and His Caring Place, which provides a safe harbor for teenagers.

Some of Don's awards and recognition include:

- Serving on the National Aviation Transportation Association Board and Awarded Distinguished Service Award
- Served on Everglades University Aviation's Program Advisory Committee
- Received International Business Award from the Greater Fort Lauderdale Chamber of Commerce
- Inducted into FATA Entrepreneurial Excellence Hall of Fame 2009
- Junior Achievement South Florida Business Hall of Fame Laureate 2011
- Received Excalibur Award 2011
- FXE Achievements in Community Excellence Award 2018
- FXE Distinguished Service Award and City of Fort Lauderdale Proclamation for 40 Years at FXE 2019

These days when you visit Banyan Air Services, the lineup of services has greatly expanded since its early times. Visitors can take advantage of the world's largest pilot shop (according to Banyan's website), grab a burger at the Jet Runway Cafe, relax in the terminal lounge, or schedule various services for your aircraft from the airframe to engine to interior or exterior work. T&T

Lance Phillips *is an aviation professional, writer, pilot and photographer. He is executive director for the Pinnacle Air Network and owns Phillips Aero Services, an aviation marketing services provider. You can contact Lance at* **lance@phillipsaeroservices.com.**

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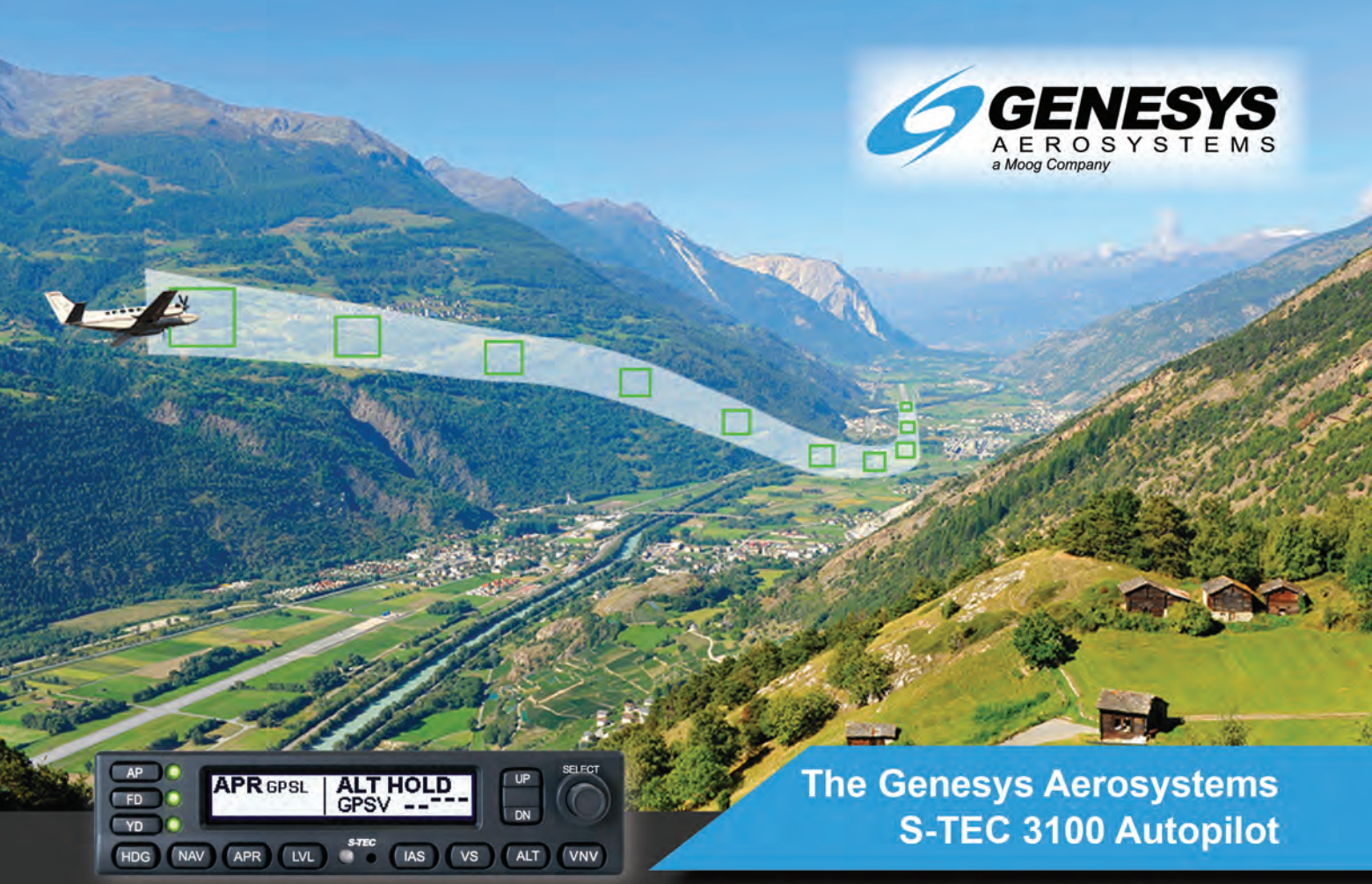

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Diagnosis: A Dichotomy
Afraid of Flying?

di·chot·o·my
noun. *Division into two usually contradictory parts or opinions, especially when they are sharply distinguished or opposed.*

"Tis the season in which we are expected to scare and be scared. Second only to Christmas in dollars spent, the festival of All Hallows Eve, the eve of All Saints' Day, is the most enthusiastically celebrated of Catholic holidays commemorating Christian saints and martyrs. Even so, October 31 now blends numerous different traditions and religious holidays into one amalgam of costumes, pumpkin-carving, treat-giving, trick-playing and assaults on our pancreas. Participants don costumes ranging from the angelic to the demonic. Pranks and devilish deeds are not only anticipated but encouraged, and behavior normally considered unhealthy or moderately risqué is toleraed. Despite this dichotomy, with its associated decadence, ghoulishness, fears and dread, we await the holiday with both anticipation and trepidation – like watching a ghoul sneaking up behind the horror-movie hero. Since Halloween approaches, let's confess among ourselves in the private brotherhood of these pages that we sometimes have trepidation about flying.

Many of us love to fly. It's a lifelong passion infused with structure, rules, regulations and mental and physical challenges – cumulating in a wonderful sense of joy, accomplishment and freedom. And this is the first part of our dichotomy. Flying can also be peppered with monsters, ghouls and demons. The list of fiendish threats is extensive: the weather, the rocks, our health, our proficiency, our money, our machine, the airspace system, and even the night. And our judicator is the boogeyman himself. And don't forget the "bride-of-the-boogeyman" – the FAA. This is but a short list of the real and imagined menaces we overcome to fly – which would be the second contradictory part of our dichotomy.

Both Definitions of Anxious

Despite the times we scared ourselves, made bad decisions, ran a bit too low on fuel, stretched the weight and balance envelope, lost an engine again (the Duke

swallowed an intake valve in June) or convinced ourselves that we had sufficiently learned a new rule, procedure or equipment (but had not), we keep flying. Such is the dichotomy of piloting airplanes. We often experience both definitions of anxious. We are anxious (wanting very much) to go flying, but we are also anxious (worry, unease, nervousness) because we don't want to forget something important or mess up.

The second anxious happens more often when we lack recent flight experience, lack practice with new avionics, it's nighttime, we have challenging weather, complex or busy arrival/approach procedures, or a short, slippery, or narrow runway. The first "wanting very much" definition is the one that may cause us to fly when we shouldn't (mechanical, weather or any IMSAFE component). The second version of anxious is the one we must manage through training, experience and professional piloty-perseverance.

> By the pricking of my thumbs,
> something wicked this way comes.
>
> – William Shakespeare (Macbeth)

Manifestation: an event, action, or object that clearly shows or embodies something, especially a theory or abstract idea. Apprehension: anxiety or fear that something bad or unpleasant will happen. Scary, frightening and unnerving thoughts displayed mentally and/or physically.

Manifestation of apprehension is a state of psychological anxiety, apprehension or physical impairment – often exhibited by students toward their training environment. MOA symptoms may include passive or active airsickness, insomnia, appetite loss, anxiety, or tension related to the flying or controlling environment. Performance deterioration or airsickness is more common and occurs over a long period. Military pilot training instructors document MOA events because they are a potentially disqualifying trait in pilot wannabes. We confront our challenging environment and MOA with training, discipline, recent experience, confidence and our love of flying.

> Be afraid…be very afraid.
>
> – The Fly (1986)

Air conditioning, humidity control, autopilots, auto brakes, LNAV, VNAV, airborne texting or internet, coffee makers, drink chillers and butt warmers – all make our airplane feel just like home, a low-threat environment. These niceties permit our attention to be focused on the safe, efficient and enjoyable operation of the vehicle. But they also make it easy to forget how harsh the environment is a scant window thickness away, and we may take for granted the often complex and delicate mechanical systems needed to fly the airplane and create a livable environment.

I used to drive from Phoenix to the North rim of the Grand Canyon each year to go hunting. The final leg before ascending the Kaibab plateau is a section of desert with an environment similar to that of Death Valley. It's

dangerously toasty, sometimes in the 120 to 130 Fahrenheit range. When exiting my air-conditioned, Def Leppard-saturated truck to get fuel, the contrast was shocking. On another trip to retrieve new motors for the Duke, I journeyed through the Idaho and Montana winter where sections of the route were negative 20 Fahrenheit – another shock when exiting the vehicle.

Through the window at 41,000, the contrasts described above serve to remind us how harsh the environment is just an inch away. Outside of your jet, the air is -50 Celsius, the partial pressure of oxygen will not sustain human life, and it's blowing at 500 mph. If you lose pressurization or heating, that environment will be the one in which you must survive. It will be a life-or-death situation, and it will be shocking – especially with no coffee or butt warmer.

> You've never been lost until you've been lost at Mach 3.
>
> – SR-71 pilot Paul Crickmore

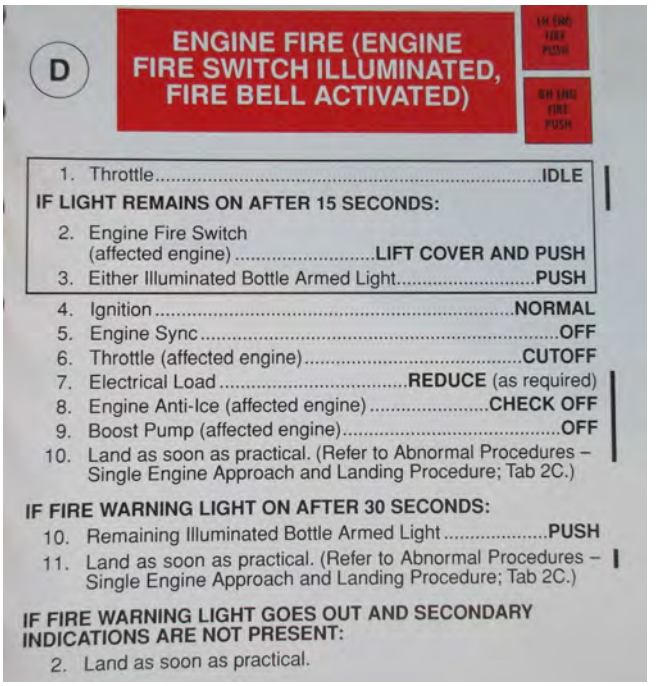
Mach (from Austrian physicist Ernst Mach) is a measure of speed relative to the speed of sound. Subsonic is a Mach below .75. Transonic is from .75 to 1.20, supersonic is 1.2 to 5.0 and hypersonic is above 5.0. Low altitude pilots that do not use Mach as a measure imagine that jet speeds are something that certainly must push you into your seat and cause visual distortions. Just as we know this to be untrue, that you don't perceive the speed, those who have been supersonic or hypersonic will also tell you there are little perceptual differences at those velocities. So, what's all the hoopla about going really fast? Physics, my dear Watson. There are dangers where the Mach demon lives.

Mach tuck, Mach buzz (aileron buzz) or flutter, Mach Crit (critical), boundary layer separation and coffin corner are among the high-speed demons. Mach Crit is the lowest Mach number at which the airflow over some point of the aircraft reaches the speed of sound but does not exceed it. Mach tuck is the result of the CG shifting aft due to transonic flight which results in a nose down moment. As the Mach number increases further, the resultant nose down attitude causes Mach tuck to increase. Excursions past Mmo may also cause flow separation of boundary layer air over control surfaces. This can create an effect known as aileron buzz and may result in loss of control effectiveness. Your jet likely has an overspeed warning system to warn of Mach Crit as well as an automatic system (if the autopilot is engaged) to prevent Mach tuck.

What Am I Forgetting?

I'm sure you have heard the adage that certain aircraft sounds can only be heard at night, and some only when you are alone. The intensity of apprehension is

Delicate mechanical systems are needed to fly the airplane and create a livable environment.



Good checklist discipline can help with anxiety.

directly related to our level of knowledge, training and, most markedly, recent experience. Students are usually apprehensive about every flight. The competent private pilot is next in line and seems to be apprehensive mostly when venturing into new territory – figuratively and geographically. Experience, knowledge and training levels take a quantum leap as we move to the instrument and ATP pilots, especially those flying 70 to 90 hours each month across multiple time zones and into challenging weather. It's difficult to raise the hairs on the necks of these folks, but it happens.

However, a fascinating thing occurs as the flight gets underway for all of these aviators. Once we strap into the seat, get going on the checklist, and start throwing switches, we begin to relax and feel an emotional satisfaction. Checklists, procedures and discipline will do that. They all help to rid us of that "what am I forgetting" and "I hope I don't mess up" feeling. The apprehension is, almost unknowingly, replaced by a sense of confidence, purpose, pride and accomplishment.

Passion: Eyes-Open Flying

Like partially covering your eyes while watching a suspenseful movie, yet continuing to watch anyway, what makes flying so pleasurable that we tolerate that span of nervousness before we fly? We all had that moment when we knew we were hooked on flying. Do you remember when you felt that way? It's still there in all of us, buried perhaps by the realities of day-to-day life that make us too busy to smell the roses or airplane exhaust. That feeling is just under the surface, though, and once we start throwing switches, hear the sounds and smell the smells, we are reminded. Like the dichotomy of Halloween, so are the two definitions of anxiousness when we fly.

> I'm so glad I live in a world where there are Octobers.
>
> – L.M. Montgomery

As we manage both types of anxious this Halloween, let's not play any tricks, pranks or devilish deeds in the airplane. The physical, virtual and regulatory environment in which we operate is challenging. Don't partially cover your eyes and allow a ghoul to sneak up behind you. The aviation boogeyman is not new, and he's not found only at 41,000 and transonic speeds. He has lived with us all along. We are old companions, us pilots and him. Don't fret; you've met some of his demons before and conquered them. Your training and experience will help you to deal with the ones yet to come – and they will come.

And let's agree (once again in the private brotherhood of these pages) that when we reach that "certain level" of anxious trepidation, we will modify the plan or cancel the flight. But in the meantime, wear the mask or costume of your choice, angelic to demonic. But please make sure that it covers most of your airframe – no wardrobe malfunctions. We don't want to display behavior so risqué as to scare the FBO folks with our flabby fuselage or lily-white landing gear. T&T

Kevin Dingman *has been flying for more than 40 years. He's an ATP typed in the B737, DC9 and CE-650 with 25,000 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 retired from a major airline, flies the Cessna Citation for RAI Jets, and owns and operates a Beechcraft Duke.Contact Kevin at* **dinger10d@gmail.com**.

Kodiak of the Keys

The multi-mission utility turboprop Kodiak 100.

Allen Wood of Islamorada, Florida, has been a pilot for nearly five decades. He currently owns a Daher (formally Quest) Kodiak 100 he flies for personal and business use predominantly within the United States, occasionally venturing to the Caribbean and Central America. We recently spoke to Wood after he arrived home from an 8,000-nautical mile trip from Florida to Alaska. He explained what initially drew him to the adventure-enabling utility turboprop.

"Between the safety features, exceptional short field capabilities and reliability of the PT6[A-34], purchasing the aircraft seemed like a great choice," he said. "Garmin G1000 was an experience for me coming from steam gauges at first, but once it clicked, it was all good."

Wood had his eyes on the Kodiak for several years before purchasing one from the dealer nearest him in 2018.

He was totally sold after visiting the factory in Sandpoint, Idaho.

"I casually looked at Caravans, but I was really impressed with the reliability and stoutness of the Kodiak. For example, the gear is just massive and has what they call a 'nine-inch stump capability' – meaning it can hit a nine-inch stump without damaging the nose gear. It's a modern-day bush plane and luxury SUV capable of performing humanitarian missions, which I've completed a number of after hurricanes."

Allen Wood with three of his six grandchildren.

In addition to providing a platform for impactful relief trips, aircraft ownership has benefitted Wood personally and professionally.

"I have always flown as a hobby, though occasionally flew to attend meetings. I was in the lumber and building material business for 40 years, and through friendships and professional associations, I started exporting building materials to the Caribbean, primarily The Bahamas."

Throughout his 50 years of flying, Wood owned two aircraft prior to the 2016 Kodiak. "I first owned a Cessna 182Q and flew that for 18 years. I then wanted to get my multi-engine rating and started flying a Piper Aztec. Coincidentally, I also flew the Aztec for 18 years until I sold my businesses and bought the Kodiak."

Wood's flying is the byproduct of an introductory flight lesson from when he was a teenager. "I got into aviation when my mother got me an introductory flight when I was probably 15. I soloed as soon as I legally could, shortly after my sixteenth birthday, and I've been flying ever since. I think next year will be 50 years of flying. That introductory flight sparked something for me."

Just as a parent stoked his interest in flying, the same has occurred to both of his children. "My daughters are both interested in flying, and my oldest daughter has her private pilot license. They grew up flying to The Bahamas for weekends and vacations. I now fly with my six grandkids, and it's a planeload with only half the family onboard."

In addition to the sweeping views from the eight cabin windows, Wood is confident that the cabin experience in his aircraft is first class for all his passengers. "My aircraft has the 'Summit' interior, which is the executive interior package. The airplane has big, comfortable leather seats in a club configuration plus another two. The seats recline and the cabin is roomy. Everybody has a USB plug, cup holder and a little pocket to store stuff in on the cabin sidewall, so it's extremely comfortable with a full plane."

He also mentioned that he has yet to be forced to utilize the cabin's full utility. "I've hauled freight and cargo in the cabin after taking all of the seats out. But I don't think I've ever put luggage in the plane. The exterior cargo pod has 750 pounds of payload capability."

Between work and leisure, the family has flown to The Bahamas hundreds of times over the years. Ever quick to talk about the islands, Wood explained a few of his favorites.

"I love the Abacos and have a lot of history there. Staniel Cay is another really good one. Those are a couple of my favorites, but there are a lot of good islands down there. It's an easy trip, and it's a very aviation friendly


Humanitarian relief mission following a hurricane.

country," he said. He then provided some tips for those who have never flown to any of the country's islands.

"Like any flight, just be prepared. I would recommend to anybody flying there to visit AOPA's website. They have good tips about the basics, like needing a life raft and the required paperwork. YouTube is also a good source for first time trips to The Bahamas. Aside from that, I would say being courteous to immigration officials is really important. Sometimes people get frustrated if they forgot something or did something incorrectly. The officials are usually agreeable and are interested in having tourism. So, if you are courteous to them, they will be courteous to you."

Wood's travels have taken him to other international areas as well. "I've been to Mexico a couple of times this year. I also have a trip to Costa Rica, which I have previously flown to in my Aztec but not the Kodiak. The Dominican Republic is another frequent destination, which is pretty much the non-stop radius of the plane."

Regardless of where Wood's adventures take him, his point of origin is a residential airpark in the town he was born and raised. "I live in the Florida Keys on a private airfield called TavernAero (FA81) in Islamorada. It's a 2,000-foot grass field with an elevation of about 10 feet above sea level. My house is on the water and the runway on an inlet called Tavernier Creek."

With both a dock and runway just steps away, enjoying two of his passions could not be more convenient. "It's a tremendous spot to live. There's probably a couple dozen houses or so, everybody is a pilot, and all the kids grow up flying."

Although the grass strip is essentially at sea level, its shorter length is a potential concern for some aircraft – but not the Kodiak.

"The runway here is no problem at all. I take off in a thousand feet and land in less than that. I've had four big guys in the plane, a refrigerator,

groceries, air tanks and a boat motor, and it still can take off in much less than the runway. With the 750-horsepower PT6, you have plenty of power and can load the thing up. It's a beast."

Equally at home on the water as he is in the sky, it's no surprise that Wood is rated to fly seaplanes. And while the Kodiak is routinely outfitted with Aerocet composite floats, he doesn't anticipate ever operating his aircraft from the water.

"Every Kodiak that is built is aerodynamically ready to go on floats. There are no structural changes that have to be made, whereas a lot of planes have to undergo quite a bit of work to put them on floats," Wood explained.

But he has reservations about configuring his aircraft for water operations as the corrosive environment he lives in demands extra attention from the high-wing turboprop. But being that he lives alongside his Kodiak, preventative tasks are relatively hassle-free to perform as needed.

"I have a compressor wash cart and do a rinse after any extended flight over the water. Then I have a scheduled wash with the soap that I also do right here at my house. With the salt air down here in The Keys, I like to wash the plane often. I like to wash it once a week, but really it probably gets washed two or three times a month just to keep the salt off."

When asked about hopeful destinations for future Kodiak adventures, he elaborated on a few. "I'm very interested in making a trip to South America. I don't know how far, but I want to fly there and have begun studying that. Also, after recent travel to Italy, I've become pretty intrigued with the possibility of a Europe trip." T&T

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Jessica Haughn, Controller

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Written **By** Pilots **For** Pilots

Safe to Land

In 1974, I traveled to the scene of the fatal crash of my father's business partner. My dad and I drove to a wet, dreary field near Merkel, Texas, where the Beech Bonanza had spun out of control, instantly killing the pilot. I was twenty-two years old. Seeing a few tiny body fragments still scattered in the debris made an indelible impression on me.

I have been keenly interested in aviation accidents ever since.

Over the last 50 years, the airline industry's safety record has been truly remarkable. Imagine thousands of flights daily all over the world in all sorts of weather. And yet a fatal crash is a rarity. How do they do this?

They made flying boring.

By boring, I mean routine. The airline industry created a vast support system, from weather analysts to simulator training facilities and dispatch centers that provide instant information to assist the crew's decision-making process.

Boring is safe. Extremely safe.

But pilots like you and me don't fly because it's boring. We fly because it's exciting. There is an inherent thrill of adventure every time we launch into the unknown. But we are nowhere near as safe.

So, how can we adopt some of the hugely successful procedures the airline crews use and still retain the "thrill" we seek?

Charlie Precourt, Chairman of the Citation Jet Pilot's safety committee, has a suggestion. Working with the Presage Group of Canada, he organized a team of CJP members to study the increasing number of runway overruns in owner-flown jets. Why is it that too often we refuse to go around in unstable situations and slide off the runway, causing millions of dollars in damage every year?

It turns out that the folks from Presage, led by CEO Dr. Martin Smith, have worked with airlines around the world to change behavior in the cockpit on this very issue. This is a pretty big deal because pilots don't like to change how we do things. Presage developed new, easy callouts for use during the approach phase to increase awareness of unstable situations like excessive airspeed and bank angle. They developed simple standards to determine when a go-around is necessary. Most importantly, they persuaded curmudgeons like me to adopt simple verbalizations of the situations.

Their research was validated using 20 volunteer CJP pilots flying over 200 approaches in simulators donated by FlightSafety International in Wichita. Now, instead of just being complacent about flying too fast on the approach, I have specific verbal callouts at 1,000 feet, 500 feet, minimums and over the threshold. And if I am not correcting for drift caused by crosswinds or floating down the runway due to excessive airspeed, I have specific callouts to initiate a go around.

The CJP Safety Foundation then produced a briefing card I keep in the cockpit to remind me how it all flows together. And over the next year or so, CJP will roll out a new training initiative called Safe To Land *(citationjetpilots.com/safetoland)*.

The darn stuff works. And while the program is designed specifically for single pilot Citations, many of the procedures are applicable to all general aviation aircraft.

It really is possible to up my game while still enjoying the freedom of flying.

Fly safe. T&T

David Miller *has owned and flown a variety of aircraft from light twins to midsize jets for more than 50 years. With 6,000 plus hours in his logbook, David is the Director of Programs and Safety Education for the Citation Jet Pilot's Safety Foundation. You can contact David at* **davidmiller1@sbcglobal.net**.

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