Garmin G3000 PRIME / AI and the Future / Post-Maintenance Pre-Flight

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JANUARY 2025 $3.95 US
VOLUME 29 NUMBER 1

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Bob Fiscella
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Bob Fiscella and friend.
Courtesy of Cary Friedman

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Learning from the Past & Looking to the Future

"Open the pod bay doors, HAL." Dr. Dave Bowman's famous line in the movie *2001: A Space Odyssey* opened our imaginations to the extent to which AI could influence our lives, for both good and bad. Interestingly, in humankind's case, at least for us Gen Xers and older, the bad influence was our introduction to this new frontier through that movie.

Arthur C. Clarke and Stanley Kubrick wrote the novel and screenplay simultaneously in the late 1960s. Although AI entered our collective Western consciousness that long ago, it's only now occurring to us that it will undoubtedly play an imminent role in our lives.

Maybe younger people don't have that built-in negative context prejudicing them against AI. Maybe they haven't seen *2001*. It left a deep impression on me. So have Kubrick's other movies. To me, *2001* could almost be classified as a horror movie. There just seemed to be a dread building in each scene. As beautiful as the movie is and as compelling as the visual effects still are, the story warns of a dark future. Is that future just being realized for us?

I push myself to accept that we will move forward positively toward AI and other technologies. Every time I learn about what Garmin and the other avionics OEMs are doing with aviation computing, it makes me feel good. This month, the dynamic duo of Rich Pickett and Tigre Pickett discuss Garmin's new G3000 PRIME system (not AI) and aviation's future with AI, respectively. I can feel (even if I don't actually have any real information) that the future of some, if not all, aviation operations will have AI components sooner rather than later, especially in Part 121 ops.

Some of us know that the designation of Dr. Bowman's sentient onboard computer HAL was a type of Caeser Cipher or ROT-N (rotational cipher) for the acronym IBM (International Business Machines). It was 1928 when IBM started making punch cards for data memory in the U.S. for massive projects like the national census. A few years earlier, the Wright brothers flew their flyer in Kitty Hawk. Welcome to 2025. AI is on the horizon, and innovations are going to come often and fast, I anticipate.

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Garmin PRIME – A Cut Above

by **Rich Pickett**

PHOTOS COURTESY OF GARMIN

Building on the success of more than 30,000 integrated flight decks—including the G1000, G1000NXi, G3X, G3000, and G5000—Garmin has now introduced its latest avionics suite, the G3000 PRIME. The G3000 PRIME incorporates Garmin's latest technology, including Autoland and Runway Occupancy Awareness (ROA), which we featured in the October 2024 issue of Twin & Turbine.

Earlier this year, I previewed the G3000 PRIME avionics at Garmin's Olathe facility before its public debut. Having used a wide variety of avionics platforms over the years, I can say this new offering is a significant leap forward—comparable to the upgrade from the G1000 to the G3000/G5000. They have leveraged the best design elements of these integrated flight decks and their individual units, such as the G3X, G500/600TXi, and the popular GTN series. Garmin has gone beyond all of them in integrating a suite of touch-sensitive units that are well integrated.

The flight deck consists of multiple 14-inch Primary Display Units (PDUs), with two serving as traditional primary flight displays (PFDs) but offering more capability and flexibility than any previous PFD. The third PDU functions as a Multi-Function Display (MFD), introducing new terminology to Garmin's avionics suite.

The PDUs are coupled with two 7-inch Secondary Display Units (SDUs) that are essentially multi-function displays. The SDUs are designed to be the primary data entry and system control units. However, the flexibility of the PDU design allowed me to use them as well for virtually all of the same functions.

These displays are extremely bright, with virtually edge-to-edge, very high-resolution screens. High-resolution displays are nice; however, you need processor power, memory, and high bandwidth to drive them. Garmin achieves this with updated multi-core processors, quadrupled memory from previous systems, and a 1GB high-speed data bus, providing the fastest and smoothest data rendering I've seen.

You can't directly compare the original G3000/5000 Garmin Touch Controller (GTC) to the new SDU. While the SDUs can provide all the functions of the GTCs, they can also accomplish a number of other functions in addition to being 40% larger than their GTC predecessors.

In the Cirrus Vision Jet, Cirrus worked with Garmin to utilize a GTC as the standby flight display instead of implementing a dedicated unit. With G3000 PRIME, Garmin also has included that capability by automatically using one of the SDUs as a standby display in certain aircraft applications.

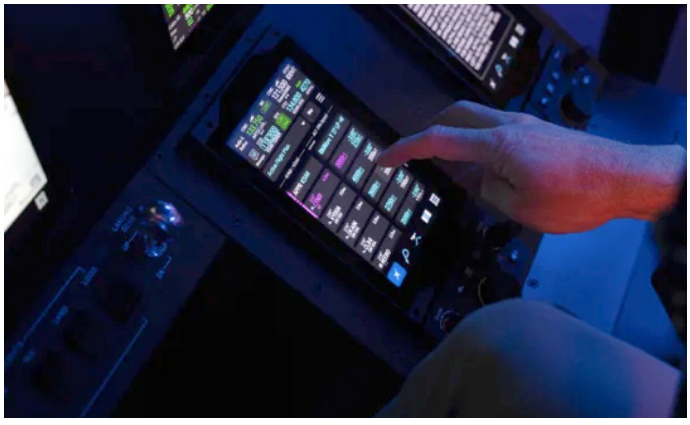
Jason Hewes, a team leader in Human Factors at Garmin, guided me through a two-hour experience with the G3000 PRIME in a flight training device featuring an expansive, curvilinear video wall.

I remember using my first G1000 avionics suite and how impressive it was; twenty years later, I was sitting in a flight deck surrounded by high-resolution, touch-sensitive, finger-resistant displays with incredible features. I fly a variety of aircraft avionics regularly, in pistons, turboprops, and jets. When Garmin developed the G3000/5000 series, they embarked on a new design paradigm with the GTCs. The main displays were not touch-sensitive but groundbreaking at the time, with considerable flexibility.

Garmin has integrated multi-touch capabilities; this allows you to not only use one finger but also pinch and zoom across the various displays. Pilots and co-pilots could also touch the screen at the same time, performing multiple actions. At first, it appears that the multi-input would be confusing; however, it is very useful in practice. With a focus on touch actions, the oleophobic screen helps keep the fingerprints to a minimum.

Touch-sensitive avionics have had their detractors, especially in turbulence. I've used them in a number of aircraft, including a few with Rockwell Collins' Pro Line Fusion. While sometimes it can be more of a challenge than traditional inputs, operationally, the advantages outweigh any issues. Garmin has taken its design a step further with on-screen stabilization, which is more beneficial as the display sizes increase.

For those applications that necessitate physical control devices, the Garmin G3000 PRIME provides support. I can envision their usage in larger cockpits where the distance from the pilot to the PDU precludes solely touch operations. Perhaps in those environments, the PDU functions are controlled primarily by physical controls (e.g., throttle, flight control yoke or stick, control head) and the SDUs by touch. This is similar to the hybrid model in Pro Line Fusion, a philosophy I've found very useful in those aircraft.



Garmin has also coined a new term – Primary Flight Window (PFW) and Multi-Function Window (MFW). This refers to the displayed information within a PDU. For example, when a pilot splits the view in the PFD, they now have two or more PFWs, one remaining as their ADI/HSI and the other(s) containing additional situational awareness capabilities.

Pilots can also edit the flight plan on the displays themselves, a feature I've found useful in other installations. It is in closer alignment with the EFB apps that most pilots utilize. Of course, you can also sync your flight plans with many EFB apps. On-screen flight plan editing is not the only cool feature on the displays. Garmin also incorporated the selector-wheel radial menu that is styled after their Garmin Pilot app. Using this menu, you can also access airport and airspace information, weather, and other options. With so many display options available, Garmin has also incorporated storage of multiple configurations, allowing pilots to quickly retrieve these presets through their Window Manager.

Flying the G3000 PRIME

After powering up the avionics, the pilot is surrounded with options. With Jason's help, I was able to plan our flight quickly. I used the SDU to initialize the aircraft, similar to the G3000 process, but much easier – and more powerful. Unless uploaded via Connext, entering the flight plan is

very intuitive, with progressive prompts for procedures, waypoints, and airways. In keeping with the design of the Garmin Pilot app, you can also see the progressive selection of various terminal procedures on the MFD PDU, which provides an excellent preview. I use this feature with Garmin Pilot to evaluate potential procedures, and incorporating this capability with PRIME is valuable.

A unique feature in flight planning is the capability for an emergency return after takeoff. Pilots should always brief takeoff and after-takeoff alternatives. Garmin's PRIME goes a giant leap beyond that by providing return-to-airport speeds and allowing the pilot to enter a procedure. A highly visible SDU button to activate the return is active for takeoff.

PRIME also incorporates context-sensitive checklists associated with a CAS message; simply acknowledging the CAS message will also enable the pilot to bring up the appropriate checklist – no more fumbling trying to find the checklist. Further features that can help with an abnormal event include system synoptics integration and electronic circuit breakers (ECB), allowing the pilot to isolate systems quickly, if necessary. The Eclipse Jet was one of the first GA aircraft to incorporate ECBs, and after flying with them for 16 years, they are much more capable than traditional circuit breakers. Garmin is now bringing this advanced capability to other airframes.

After initialization and loading the flight plan, it was time to taxi. The avionics can propose a taxi route to your selected runway, and of course, the pilot can edit it when the taxi clearance is received. I will draw my taxi route on the taxi chart on my iPad at busy airports. PRIME does this for you, showing you the route to the departure runway. I selected Auto Route, and the proposed route was displayed, including runway hold short notations.

With everything ready and cleared to taxi, we headed to the runway with the incredible situational awareness provided by 3-D graphics on our displays – complete with proposed routes overlaid on the Safe-Taxi chart, highlighted taxi signs, highlighted departure runway and hold short indications. Coupled with Garmin's ROA, runway incursions should never be an issue.

Lining up on runway 5 at Morristown, NJ (KMMU) for our flight to Boston, MA (KBOS) in the sim, the Safe Taxi transitioned to synthetic vision matching the external visuals, as expected. My takeoff roll was not my best showing; the simulator's nose steering did not always match where I wanted to go! After smoothing that out, we were off into the skies towards Boston. The Garmin simulator also featured a live SiriusXM weather feed, enhancing the flight's realism. We also used the onboard Garmin GWX 8000 radar with volumetric and threat assessment capabilities. Using both weather detection systems, which can be displayed on multiple windows, adds another safety tool for pilots. Pilots flying G1000 and G3000/5000 aircraft know the flight path profile view. PRIME has also incorporated a weather overlay on that profile so that you can see winds aloft and current weather returns from the GWX 8000 radar. I usually use the radar tilt control to determine the safest route descending from the flight levels. Now that is simplified and safer.

Enroute, we wanted to change the flight plan to bypass the weather. You can edit using the displays or simply touch the on-screen route and 'rubber-band' the routing by moving the route. When satisfied with the new routing, the pilot confirms the change. One feature that I've used with other avionics is a secondary flight plan; Garmin improves upon this by providing a side-by-side comparative display of your primary and secondary flight plan, which is very useful when evaluating options.

Our descent into Boston went smoothly since we could navigate around the weather. We used the procedure profiles on the MFD PDU to better understand the arrival, then loaded it into the FMS and displayed the chart on my PDU. We verified the weather and landing data, including runway condition values. PRIME provides you with landing performance values and displays a graphic of the runway with markings along the side to guide the pilot on required distances.

We were distracted, so I was a bit late slowing the jet down for a stabilized approach. In real life, I would have aborted the approach. In the sim, I

extended speed brakes, then flaps and gear to reduce the speed to Vref just past the threshold. After landing, when we started taxiing, the PDU switched from synthetic vision to Safe Taxi with its enlarged taxi guidance signs. The resulting view was excellent in providing situational awareness. I recently completed one of my turbine 61.58s, and one of the tasks was taxiing in very low visibility at night. Garmin's taxi visualization would have improved my safety margin by far.

For those aircraft owners with Garmin's G3000 avionics, it doesn't appear that a direct upgrade to PRIME will be possible. However, some of the capabilities, such as Runway Occupancy Awareness (ROA), may be available depending on the hardware versions of those systems.

First OEM Platform

The initial deployment goal is for Part 23 aircraft, with other platforms planned for the future. The first aircraft to use the new avionics will be the Textron Cessna Citation CJ4 Gen 3. Unveiled at NBAA's BACE in Las Vegas in October, the CJ4 is a perfect fit to incorporate the Garmin 3000 PRIME. The CJ4 made its inaugural test flight just a few weeks before BACE, with production slated for 2026.

The Citation CJ4 Gen 3 will also feature Garmin's auto throttles and Emergency Autoland capability, the first in its class to incorporate these enhancements. Having flown the Beechcraft King Air with these features to a full stop, it will be a game-changer for single-pilot-flown aircraft. This will also help in many other ways, including insurance coverage for single-pilot operations.

Textron Aviation's incorporation of G3000 PRIME shows its confidence in this platform. Other aircraft manufacturers will undoubtedly follow suit. As demand dictates, I expect they will expand this offering to the Part 25 market.

Summary

Garmin has once again excelled, providing aviation with an innovative avionics suite that few could have imagined. It was evident that the Garmin team is excited about their new product and the future as they continue to expand the technology envelope. T&T

With 14,000+ hours of piloting more than 100 aircraft models, **Rich Pickett** *is still passionate about flying. Rich holds an ATP, CFII SME, SES, glider license, and type ratings in the following aircraft: L29, L39, Citation 500/510/525, Eclipse 500S, Beechcraft Premier and Dassault Falcon 10. He runs his company, Personal Wings, with his son Tigre. Personal Wings provides training, mentoring and aircraft services. You may contact Rich at* **rich@personalwings.com.**

The Stack at Stanfield VOR

by **Ed Verville**

Final approach to Runway 5

During my career as a commercial pilot, I have flown the VOR approach to runway 06 at Mazar-E Sharif, Afghanistan, in the Hindu Kush Mountains at night, the ILS 10 approach over the beach with spectators at St. Maarten Island, and even flew the VOR/GPS circling approach in a Boeing 747 to runway 13L at John F. Kennedy International Airport after flying across the pond, aka the Atlantic Ocean. But the approach to runway 05 at Casa Grande, Arizona, must be the craziest of them all.

While conducting an instrument checkride at Deer Valley Airport in Phoenix, AZ, a flight instructor briefed me that I needed to depart Deer Valley Airport using the Deer Valley 3 Departure, obtain a clearance to fly through the Bravo Airspace at Phoenix Sky Harbor Airport, make a radio call to request the "Top of Stack" on the Casa Grande Airport Unicom frequency, enter the holding pattern procedure turn at the "Top of the Stack" and more.

I was dumbfounded and advised the instructor that I just needed to do an ILS as part of the checkride test and that I certainly did not need to do what he suggested. Well, I quickly learned that Phoenix, with its sunshine weather, does not need an ILS approach at every airport, and in fact, there are very few ILS approaches outside of Phoenix Sky Harbor Airport in the area.

Case Grande Airport (KCGZ) offers three approaches commencing at Stanfield (TFD) VOR, including an ILS, VOR, and RNAV (GPS) approaches. The approaches include a holding pattern procedure turn to line up with the runway. The kicker is that you are never the only one who wants to shoot this approach. All the airplanes enter the holding pattern and stack upwards at five-hundred-foot intervals. You make radio calls on Casa Grande Airport Unicom frequency, but you address the radio calls in the VOR stack to "Stanfield Traffic" (the name of the VOR).

An aqueduct inbound

Inbound on the stack

To start, you call "Stanfield Traffic" when you are about 5 minutes out and request the "Top of Stack" while stating your position, distance, altitude and time from the Stanfield VOR. It sounds something like this: "Stanfield Traffic, Cirrus 123 is 5 minutes North of Stanfield, 4,500 feet, request top of stack." A response might be: "Stanfield Traffic, Skyhawk 234 is at top of stack, 5,000, 5,500 open." You respond: "Stanfield Traffic, Cirrus 123, 5 minutes North of Stanfield, 10 DME, taking top of stack at 5,500."

The lowest airplane in the stack will report the "procedure turn inbound" on their final turn in the stack, report crossing the Stanfield VOR inbound, and state that the "approach altitudes are open." Yesterday, my checkride candidate and I were approaching the Stanfield VOR to conduct an ILS approach to Runway 05. We made the requisite radio call to "Stanfield Traffic," and the response came back from an airplane at 6,000 feet. She stated, "Top of Stack is 6,000 feet, 6,500 feet open." We advised that we would be taking the new top of stack at 6,500 feet and entered the stack.

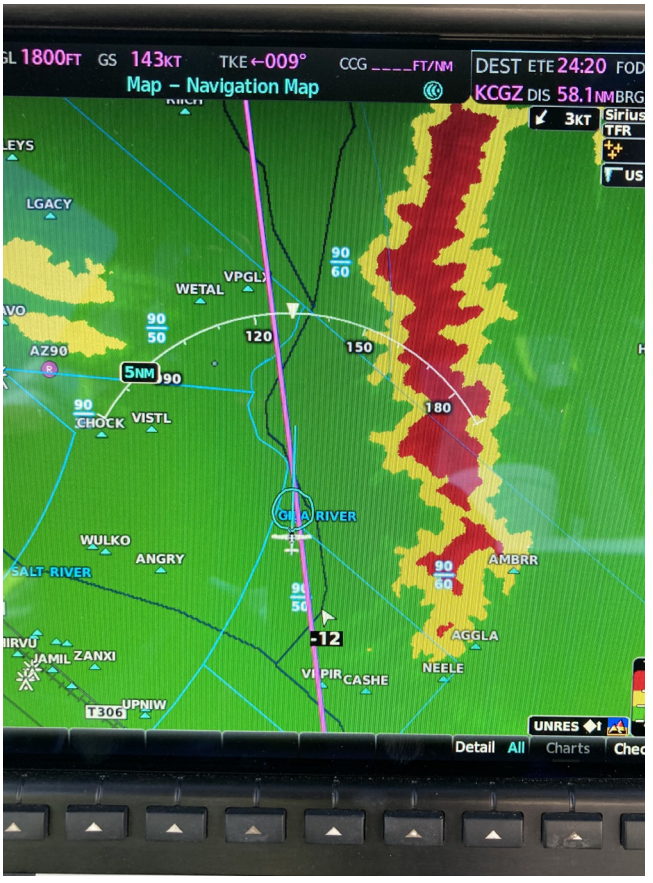
When the bottom airplane crossed the Stanfield VOR inbound and reported "approach altitudes open," the next airplane up in altitude at 4,500 feet announced it was leaving that altitude for the approach altitude. (This call is intentionally different than stating a specific altitude as the approach altitude could be 3,800 feet or 3,200 feet depending on the instrument approach you are conducting. The next airplane announced, "Stanfield Traffic, Seminole 357 is 5,000 feet descending 4,500 feet, 5,000 open, Stanfield Traffic." Every airplane in the stack does this in sequence. We eventually worked our way down from 6,500

feet, to 6,000, 5,500, 4,500, approach altitude at 3,200, and then were able to shoot the ILS approach to runway 05.

After the approach, we flew the first portion of the published missed approach procedure. If we had wanted to conduct another "30+ minute" approach at this venue, we would need to start over, request the "Top of Stack," and follow the same procedure. Rather than put my checkride applicant and me through this adventure again, I usually head over to Coolidge Airport (P08). Coolidge offers its own peculiarities, such as a non-standard traffic pattern, a VOR approach that does not line up with the runway, parachute jumping from very high altitudes, and what is often referred to as "the other stack." I still find it less busy than Casa Grande (although a lot more pilots have discovered my secret place); it offers a variety of instrument approaches, and I can always get in a circling approach.

The Arizona Flight Training Workgroup (AFTW) www.aftw.org is an active group that provides helpful guidance for the peculiarities of this extremely busy training environment. Here is an excerpt from what I found on their website:

"Practice Instrument Approach Procedures at Casa Grande. This document is available online at www.aftw.org. The following procedures are recommended in an attempt to develop standardization among all pilots that use the Stanfield VOR and the Casa Grande instrument approaches. This letter is not intended as a directive. It is intended to serve as a tool to communicate the training industry's desires. Any questions or concerns about these procedures are welcome by contacting the Arizona Flight Training Workgroup (see website address above).



Terrain display northwest of Casa Grande


An old mine southwest of Casa Grande Airport

Pilots should carefully monitor the Casa Grande AWOS before making their initial call 8 to 12 nautical miles from Stanfield VOR (TFD) on 122.7 to request "top of stack." The aircraft occupying the "top of stack" will respond with their altitude to inform the approaching aircraft. The approaching aircraft will then respond by giving their position in miles, direction from the VOR and altitude, estimated time of arrival at TFD, as well as announcing that they will occupy the "top of the stack," even though they are not yet at TFD. Altitude separation will be 500 feet between aircraft. Courtesy, consideration, and vigilance are what make this system work. Please abide by the altitude separation. It is understood that instructors need to instruct. However, they must also monitor and work their position in the stack."

If you ever get a chance to visit "The Stack," I hope you enjoy the experience. But if you've never been there and are flying overhead at flight levels, dial up the Casa Grande Unicom frequency just to see what's going on. T&T

Ed Verville *is an exper-ienced FAA instructor and examiner for business jet pilots and aircrew programs. He has 15,000 flight hours in more than 100 different makes and models and holds type ratings in the Bombardier CL-65, CL-30, CL-604, and Boeing 747. Ed has been instructing RNP-AR Approaches for the past three years.*

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Simisms and the JFK Profile

by **Joe Casey**

I hate the approaches to JFK.

There, I said it. If you are one of the unfortunate pilots required to attend simulator training every year, you know exactly what I mean. I can almost hear a loud "Amen!" followed by laughter. You hate JFK approaches, too, right?

I have no idea why, but every single simulator operator seems to use the approaches for John F. Kennedy Airport (KJFK) for every training event - every. single. time. The training never changes. There must be some kind of rule. Perhaps it's a secret handshake given to pilots who lose their medical certificates and become flight simulator instructors. Maybe there's a simulator mafia that will punish you if you dare to do something different. I'm convinced there's a financial retirement fund available only to simulator instructors who use the JFK approaches. It simply never changes.

Training always begins with a hot start on one of the engines (which gets quickly repaired), followed by a blind taxi on an empty, unmarked ramp to an unmarked runway (really? Why even include taxi training in a simulator?). Then, there's a normal takeoff on RWY 13R with vectors to the "practice area" (whatever that is - we all know it doesn't exist anywhere near JFK) to perform stalls and steep turns. Next, you magically appear on a long downwind for the ILS RWY 4R approach, which always ends with a complicated missed approach to a hold. The weather mystically improves, and suddenly, the ILS RWY 4R circle to RWY 31R seems appropriate, but this time you'll make a full-stop landing. The takeoff on RWY 31R will conclude with an engine failure after V1, leading to a turn back to the JFK VOR to fly the full VOR 4R approach. Of course, the weather unfortunately deteriorates, and you must execute a single-engine missed approach to return for the ILS, which mercifully ends in a full-stop landing – although the flaps didn't work on the approach.

That's it. That's what you do every year, with every instructor, in every simulator that has ever existed. They always have a "pre-brief" in the briefing room, but there's really no need for it. We all know what to expect. I first encountered the "JFK approaches" in 1999 when I began training at American Eagle Airlines as a Saab 340 First Officer. I flew that profile back then, wondering if I'd ever see those approaches in real life since American Eagle operates from JFK.

My time with American Eagle lasted only two years before I could no longer survive on the $17,000/year salary (yes, you read that right). I resorted to stealing oatmeal from hotel breakfast offerings and literally ate oatmeal for two meals a day for two years while trying to support a

family of five as a regional airline pilot. September 11th, 2001, changed the world for everyone, myself included. I resigned my airline aspirations and began a career as a flying salesman, using a Piper Mirage (PA46). I flew that airplane for eight years, logging about 500 hours each year and accumulating 4,000 hours of Mirage flight time, which connected me to one of the coolest communities ever - the Piper M-Class community.

However, a local businessman purchased a King Air and requested that I fly his airplane as a part-time corporate pilot. I agreed and attended King Air flight training in what was arguably the worst flight simulator ever built. To be honest, it wasn't even a "real simulator," but an Advanced Aviation Training Device (AATD) - the lowest tier of training device that qualifies for training - and this one was on its last legs. It broke down at least five times in each training session. Of course, it came with a packet of well-worn, Xeroxed JFK approaches stapled together and carelessly tossed in the "window sill" by the unfortunate soul who endured the previous training session. Those notes from the last 5-10 pilots contained scribbled reminders about the nuances of the approaches that could be tricky during the checkride portion of training.

Another local businessman bought a Cessna Citation II, allowing me to attend a six-day simulator training event in Dallas, TX, at CAE. That simulator was aequally challenged. It only had a non-WAAS Universal GPS for navigation, their upgrade to the old turn-dial VORs. The avionics in this simulator were ancient, with no relation to modern systems found in current airplanes. And the only approaches that could be downloaded to the outdated Universal GPS were…you guessed it…approaches to JFK.

The simulator instructor had to pause the simulator to download the approach because half of the GPS buttons no longer worked, requiring a workaround to program an approach (which didn't function like it does in the real world). We had to unpause the simulator only when the unreliable Universal GPS could be petted enough to work adequately. Somehow, I managed to get through that training event with a new type rating.

I remember taking off with a load of passengers in the actual jet after training, despite having never flown a jet before in my life. I had to teach myself how to operate the avionics installed in the jet I was flying. The training event was atrocious, irrelevant to "real world" jet flying, and a complete waste of time—it was only worthwhile for gaining credentialing. However, I definitely knew how to fly those approaches to JFK.

I think simulator instructors prefer using JFK because it has four runways: two parallel to each other and two perpendicular to the first two. This configuration makes it easy to conduct a circling approach in a simulator. There's only a 90-degree turn required (instead of

operate the simulator in ways that only apply to that environment and have no basis in real-world flying. It's when a pilot is taught to fly the simulator differently than in a real-world scenario to pass the checkride by adhering to these "Simisms." For example, "The fuel flow meter doesn't work, and we don't intend to fix it, so just ignore that" is a Simism. Another would be if the simulator freezes even though you executed the approach perfectly, forcing you to restart—that's a Simism. Or, "When landing, the simulator isn't very realistic, so just pull the power to idle, hold the rudder pedals perfectly still, and don't worry about being on centerline"—that's also a Simism.

> "A Simism refers to the method a pilot learns to operate the simulator in ways that only apply to that environment and have no basis in real-world flying."

a more challenging 180-degree turn back to the opposite runway), and there's a clear cue to start the turn. In a simulator, a smart pilot will begin the turn to final approach when the first perpendicular runway disappears from the left side of the TV screen. It's an excellent cue to initiate the turn. While this may not reflect realism elsewhere in the real world, it simplifies landing from a circling approach during a checkride, which is ultimately the goal of a simulator company. They essentially operate as a pilot mill, aiming for pilots to pass their checkrides, provided they favor the pilot during training. Conversely, if an instructor is not fond of a trainee, they are unlikely to share helpful "simisms" for flying the circling approach. It's much easier for a trainer to fail a pilot who struggles to locate the runway in a subpar nighttime simulator at JFK. In other words, "the simulator can be taught."

This brings us to the term "Simism." While this word may not be found in any dictionary, any pilot who has undergone simulator training as a professional will recognize it. A Simism refers to the method a pilot learns to

And the simulator with the most Simisms? The Embraer 120 simulator in Atlanta. I initially felt excited to become an Embraer 120 pilot, but first, I had to endure a two-week simulator course in what was likely the most outdated still-operational simulator. In the world of simulators, this one was a dinosaur. Yet it continued to operate 24/7. I wouldn't be surprised if there was a dedicated maintenance team just to keep it functional, given how often it broke down. I'm not sure how we finished training with so many inadvertent screen freezes.

To keep the training on track through the frequent breakdowns, the instructors relied on their familiarity with the "JFK profile." Thus, yet again, I found myself flying around JFK. I couldn't help but laugh out loud when I sat in the briefing room to discuss the JFK approaches we were about to practice.

Do I have a chip on my shoulder? Yes! As I write this on the final day of my 22nd annual King Air recurrent training, I just flew the approaches to JFK once again. I trained in a Redbird AATD that malfunctioned four times during a two-hour session. We couldn't operate the simulator with "motion on" because, as the instructor put it, "it would only make you sick, not a better pilot, because it is so unrealistic." I flew those same approaches to JFK. The whole time, I felt like I was simply "going through the motions" (pun intended), not learning anything new, and merely "checking the box." I genuinely think I would be a worse pilot after that simulator training experience if I followed the "Simisms" taught in that simulator.

We've established a "cooperate and graduate" culture in simulator training, where the same procedures are followed consistently across all airframe types each year. Instructors train using JFK approaches because that is

how they were taught. Simulator instructors must also "cooperate and graduate" to keep their jobs. Unfortunately, many simulator instructors haven't flown a real airplane in decades and have lost the tactile understanding of what actual flying is like. They tend to stick rigidly to the profiles they've learned, often hesitant to deviate even slightly. I doubt anyone has flown the "VOR approach to RWY 4R, Circle to Land 31R at JFK" in a real airplane in years. Yet, I would wager that 60% of the professional pilot population has executed that approach multiple times during check rides in the past year. It's time for a change.

While I don't expect this article to revolutionize the simulator industry, and I believe insurance underwriters will continue to mandate simulator training, it falls on pilots to supplement their training with additional credentials and experiences that enhance their skills and resumes. Do you have a glider license? A CFI rating? An ATP? A helicopter license? In my experience training pilots in PA46s, TBMs, and King Airs, those who are cross-trained, especially in helicopters, generally demonstrate better flying skills. The point is to broaden your horizons by engaging in training that diverges from your usual focus. Consider attending a mountain flying course, becoming a powered paraglider pilot, or learning to sail. Do something aeronautical that is different from your routine.

I hope to never see the "VOR approach to RWY 4R, Circle to Land 31R at JFK" again—I've been there, done that, at least I've simulated being there, simulated doing that.

Fortunately, graciously, the EMB-120 simulator in Atlanta was shut down in December 2023. As an experienced DPE, I was invited to become a DPE with credentials to administer the EMB-120 Type Rating. Now, EMB-120 operators conduct all their training in real airplanes. I've administered around 20 type-rating rides so far, and I'm truly impressed by how pilots have mastered that overly complicated aircraft. There are no longer any "Simisms" in the EMB-120, nor will we see the "VOR approach to RWY 4R, Circle to Land 31R at JFK" in the simulator. The EMB-120 community has been compelled to embrace change in training, and they have adapted remarkably. The EMB-120 continues to fly cargo boxes all over the world, but there will never be another EMB-120 flying box (simulator).

Please let me know if you know of a King Air trainer that does not operate a simulator utilizing JFK approaches. I'm looking to do something different during my annual recurrent training in the King Air next year. I'm tired of JFK approaches. 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 instructor/examiner. An active instructor in the PA46 and King Air markets, he has accumulated 16,000-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.*

Editor's Pics

Photos & Story
by Lance Phillips

I was walking around the Beechcraft display at Oshkosh last year, talking about photography and airplanes with my friend Peter Herr. As we strolled past the King Air 360, which was front and center, I knew I needed to get this shot. The camera I used was new to me then: the Nikon Zf retro-yet-ultra-modern mirrorless. I took only two prime lenses to Osh, the 40 mm f2 and the 135 mm f1.8. Both of these lenses are phenomenally sharp and bring lots of character. As you probably already figured, this shot was taken up close with the 40.

Pressure Points

by **Stan Dunn**

The fatal crash of N928JP occurred following the second consecutive RNAV approach to runway 20 at Burley Municipal Airport (KBYI) in Idaho. The aircraft impacted the top of a 100-foot-tall agglomerate stack over a potato processing plant. It was a Part 135 cargo run out of Salt Lake City under a UPS contract. The Cessna Caravan had a full load and was taking off at max gross weight. Spring snow showers were prevalent along the route. An AIRMET had been issued for moderate icing up to 16,000 feet. The pilot was the sole occupant. Earlier this year, the NTSB published the final report of the accident: "The pilot's failure to maintain altitude during an instrument approach, which resulted in a descent below the approach path and impact with a vent stack. Also causal was the failure of the processing plant to correctly paint the vent stacks, which the FAA had determined to be a hazard to navigation due to their proximity to the landing approach path."

Six years before the accident, the airport manager at Burley observed the Gem State Processing plant adding a row of six exhaust stacks directly along the final approach path to runway 20. The manager notified the FAA, who issued a 'Notice of Presumed Hazard' due to the obstructions penetrating the clearance surface to runway 20. The VASI for the runway was decommissioned as a result. Not long after this, Gem State had to increase the height of the stacks to comply with EPA standards. In what can only be described as the odd logic of bureaucracy, when Gem State refiled with the taller structures, the FAA improved its findings to a 'Determination of No Hazard to Air Navigation.'

The FAA's clarification to the NTSB regarding the downgraded risk assessment was muddy. While they found the structures to be obstructions, they nevertheless determined that it did not adversely affect operations to runway 20. There were a few caveats: the removal of the previously decommissioned VASI; painting the stacks high visibility orange and white; new takeoff minimums for runway 2; and an RNAV procedure with a rather steep 3.75-degree final glidepath (published with LNAV only minimums, the glidepath was advisory). A close-in fix (JAMID), only 1.6 NM from the runway, protected against early descent into the obstructions. The FAA stated: "As a condition of the No Hazard Determination…the stacks were required to be painted…and lit with red obstruction lights." Though Gem State had, in compliance with FAA instructions, installed aircraft warning lights on each of the six structures, the NTSB was unable to inspect the beacon from the agglomerate stack. A YouTube personality had trespassed on Gem State property to investigate the crash. He filmed his exploits, which included handling the light. Later, he posted a second video from Georgia featuring a strikingly similar light. He denied to investigators that it was the light from the agglomerate stack. This

resulted in the unusual inclusion of a Sheriff's report in the accident docket. The trespass and stolen property case was ultimately dismissed due to the exceedance of the statute of limitations.

Given that the accident occurred during daylight, the status of the light was mostly irrelevant. More concerning was the fact that none of the six structures had been painted the prescribed aviation orange and white in the five-year period that separated the FAA instruction to do so and the crash. the day of the fatal accident, grey stacks loomed across the Snake River.

When flown properly, the 3.75-degree glidepath to the runway provided 98 feet of clearance to the agglomerate stack. ADS-B data memorialized Brittney's two approaches to the airport. The first adhered to the published vertical path. Airspeed fluctuated between 128 and 132 knots before peaking at 156 knots following capture of the glide path. The approach ended in a flyby that was captured on an airport surveillance video. The low pass was in line with company policy to accomplish a runway inspection prior to landing in such conditions. The tarmac was covered in a thin, white blanket. ASOS was reporting 1-mile visibility in light snow.

Initially, airspeed on the second approach varied between 114 and 134 knots. The aircraft leveled momentarily at 6,000', approaching HIKLO (the final approach fix). This resulted in the aircraft being high on the glidepath (though an LNAV-only approach, the G1000 displayed an advisory glidepath that the flight director and autopilot could capture for a stable descent). The Caravan made a steep descent to recapture the glidepath, which was accomplished prior to JAMID waypoint. The rate of descent decreased, and airspeed deteriorated. The aircraft continued decelerating until the final ADS-B datapoint (0.6 nm from the runway) which depicted an airspeed of 85 KCAS. With flaps up, the minimum speed in icing conditions for the Caravan is 95 knots. Cessna's Low Speed Awareness System (LAA) was designed to alert if airspeed decreased below 97.5 knots in icing conditions.

Mission-Oriented Risk

On a winter operations review worksheet for Gem Air (the Part 135 operator was unaffiliated with Gem State Processing plant), question 22 was tragically prophetic. "You are flying from Salt Lake to Burley. What course of action if Burley is snowing at the time of your arrival?" The pilot handwrote the answer. "Divert Twin Falls." The day before the accident flight, the pilot had done just this. The reason for the diversion was not related to the steep RNAV approach but rather the lack of ground deicing equipment at the airport. The operations manager for Gem Air, clarified to the NTSB: "If it is snowing, the pilots will go to Twin Falls Airport [since they have] de-ice."

The Caravan had an early reputation for being a handful in icing conditions. Cessna employed three items to rehabilitate the workhorse's image. TKS weeping wings replaced the inflatable boots of early models (TKS was installed on the accident aircraft). Aircraft-specific cold weather training was developed to emphasize to pilots the absolute need to maintain airspeed margins while in icing conditions (Brittney had a certificate of completion for the program). The LAA system was developed to provide aural and visual cues when airspeed degraded. The efforts have yielded positive results. The early rash of Caravan crashes in the snow has trickled in line with the winter performance of other fleets.

Operationally speaking, a diversion to Twin Falls was no big deal. The UPS contract with Gem Air had a provision for just such an event. If it were snowing in Burley, the drivers would hoof it to Twin Falls to unload the Caravan. If it delayed the offload by an hour, so be it. Investigators had asked during interviews with Gem State personnel if there was any reason why the pilot would have felt pressure to complete the mission. The response among the pilots and managers was uniform. If it was snowing in Burley, you were supposed to go to Twin Falls. If there was any pressure, it was to divert. An hour's delay was far better than stranding a turbine asset in the snow. With very few exceptions, deicing is required prior to operating a contaminated aircraft. During interviews with the NTSB, Gem Air personnel noted that the pilot had an important appointment in Salt Lake immediately following her scheduled roundtrip. There was concern that Brittney had felt pressure to land in Burley to expedite the return to Salt Lake City.

The Gem Air pilot would not be the first to succumb to such a compulsion. Two other accidents provide examples. The first, like the Caravan crash, occurred in the snow. A Part 91 flight in a Pilatus PC-12 out of Chamberlain, South Dakota, terminated in a low-altitude aerodynamic stall that resulted in a fatal crash that claimed the lives of 9 of the 12 occupants. If you know the PC-12, that last figure will make you blink. Though the aircraft can technically


PC-12 taxiing prior to accident flight

be configured with 12 seats, it rarely is (the accident aircraft was equipped with 9). The three excess occupants created problems for the NTSB when calculating weight and balance for the accident flight. Likely, they were sitting somewhere along the length of the aisle, a rather imprecise datum reference to determine the center of gravity. The aircraft was photographed and videotaped via cell phone both before and after it began taxiing. It displayed a noticeable slope front to back, which indicated a C.G. that was significantly aft of certification limits.

Not helping was the snow on top of the horizontal stabilizer. The pilot had arrived before the passengers to remove contaminants from the aircraft wings manually. A ladder was not readily available, so he was unable to clear the t-tail. The NTSB had this to say: "Performance analysis indicated that the accumulated snow and ice on the empennage did not significantly degrade…performance after takeoff. However, the effect of the snow and ice on the airplane center-of-gravity… could not be determined." Pitch oscillations associated with instability due to the aft center of gravity ultimately resulted in a fatal loss of control.

A pilot of a Beechcraft Baron some years ago failed a similar test. When he filed a post-Memorial Day flight plan, he reported eight passengers. He confessed that his enroute cruise speed would be abnormally low due to landing gear that would not retract. The FSS specialist responded, "I thought the Baron only had six seats?" The response was, "Some extra kids showed up." Calculations following the fatal crash determined that, despite having more passengers than seats, the aircraft was likely below max weight at takeoff. During the initial climb, the right engine failed. The Baron was unable to maintain altitude with the

gear extended. The pilot did his job and maintained airspeed, but the airport was surrounded by forest. There were no survivors. Experienced pilots often succumb to risk creep due to a mission-oriented focus. We have a hard time accepting that throwing in the towel often represents the peak of professionalism.

The Chaotic Effect of Errors

During the fatal second approach into Burley, the Caravan inadvertently leveled off at 6,000 feet. A steep descent to recapture the glide path ensued. On both approaches, the pilot failed to reduce torque during initial descent, resulting in an acceleration well above normal approach speed. The resulting correction produced a continual deceleration for the remainder of both approaches. On the first approach, peak airspeed was 30 knots above the normal approach speed. The peak on the second approach was better controlled, but the deceleration curve occurred with the same intensity. The final recorded speed was 35 knots below normal approach speed and ten knots below minimum icing speed. Had there been a moderate or greater accumulation of icing, the aircraft would have likely stalled and spun. On this day, the abnormally slow speed produced an angle of attack that resulted in the agglomerate stack being below the glare shield. The grey exhaust stacks were out of sight until mere seconds prior to impact.

A significant percentage of aircraft mishaps begin with the intentional decision to be procedurally non-compliant. This is a tough one because inflexible compliance with procedures can itself be dangerous. And even when it is not, regulatory fundamentalism can elevate trivial discrepancies into obscene inconveniences. In an early job interview, I was asked whether I would cancel a Christmas Eve flight with a dozen passengers onboard for an inoperative navigation light. Answers in interviews are often dishonest things. I went with the regulations. The interviewer was unimpressed. The real question is, where exactly is the line? It is a short answer if it involves snow or seatbelts. In other instances, it is more complex. One striking difference between an average and a great pilot is converting a marginal approach into a go-around. The average pilot plods along and considers the salvaged landing a success. The expert mutters disappointment while firewalling the throttles. There are many things in aviation that you'll get away with until you don't. It takes great discipline to come to peace with "no." It might even save a life. T&T

Stan Dunn *is an airline captain and check airman. He has 7,000 hours in turbine powered aircraft, with type ratings in the BE-1900, EMB-120, EMB-145, ERJ-170, and ERJ-190. Stan has been a professional pilot for 14 years, and has been flying for two decades. You can contact Stan at tdunns@hotmail.com.*

The Future of Aviation:
Harnessing AI for Efficiency, Safety, and Innovation

by **Tigre Pickett**

Artificial intelligence (AI) is revolutionizing industries worldwide, and aviation is no exception. Imagine an aviation world where flight paths are optimized in real-time, and passenger experiences are personalized before they even board the plane. AI is turning these possibilities into reality, reshaping every aspect of how we fly. With its immense potential, AI promises to improve efficiency, safety, and innovation in aviation, but this powerful tool also brings great responsibility and nuanced challenges in ensuring its safe and effective implementation.

Before diving into the exciting world of AI in aviation, it's important to understand what makes AI different from traditional computing. As the University of Illinois Chicago explains, "Unlike traditional computer programs that follow predetermined instructions, AI systems can learn and adapt from data, allowing them to improve their performance over time."

Aviation has harnessed traditional computing power for decades—with remarkable success. Think of computerized autopilots and auto-landing capabilities, which were introduced in the 1960s, as well as flight management systems from the 1980s—all of which utilize advanced algorithms and computational power. With the help of computers, we've expanded the capacity of our airspace, improved reliability, and enhanced safety.

Now, with AI entering the picture, we're poised for an evolutionary leap that will likely shape aviation in ways we never imagined—expanding the possibilities of safety, efficiency, and innovation even further.

AI in Flight Operations: Enhancing Efficiency and Reducing Stress

AI is becoming an essential partner for pilots and flight operations, one that helps them navigate increasingly complex airspace with greater ease. Picture a system that analyzes weather, air traffic, and fuel consumption to recommend the optimal flight path—in real time. Alaska Airlines has embraced this idea by partnering with

Air Space Intelligence to implement Flyways AI, a system that reduces emissions and saves fuel by continuously recommending better routes, and just partnered with UP.Labs to enhance scheduling optimization. This technological teammate gives dispatchers and pilots a little extra breathing room, knowing they have data-backed insights helping them make the best decisions for efficiency and safety—as well as improving efficiency for sustainability and financial goals.

Another AI-enhanced arena is predictive maintenance. Instead of waiting for parts to fail, advanced AI algorithms detect issues before they metastasize, causing delays and operational disruptions. Air France-KLM, for instance, uses AI to anticipate maintenance needs, reducing unplanned groundings and making life easier for everyone from passengers to maintenance crews. By proactively tackling potential issues, AI helps to reduce the stress, frustrations, and unpredictability that can weigh on pilots and operational teams alike.

During a recent Honeywell panel at NBAA BACE in Las Vegas, experts discussed how AI is reshaping flight deck automation. Imagine a system that not only monitors the aircraft's condition but also "games out" possible responses to emergency situations, helping pilots choose the safest course of action. Matt George, CEO of Merlin Labs, highlighted this vision of "responsible autonomy," where AI acts as an ever-vigilant backup. It's like having an extra pair of eyes—ones that never get tired, distracted, or overwhelmed—much like our already present autopilot systems. These AI systems are paving the way for a future where pilots can focus more on strategy and less on micromanaging the cockpit.

A New Kind of Passenger Experience

AI isn't just revolutionizing the cockpit; it's transforming the passenger journey as well. Think of AI-powered chatbots and virtual assistants—the friendly, always-available, never flustered helpers that answer your questions about your flight status or rebooking during a delay. United Airlines, for example, uses AI to provide instant customer service, helping passengers get answers when they need them most.

But it doesn't stop there. AI is also personalizing travel itself—tailoring everything from meal preferences to in-flight entertainment. By learning what passengers like, AI makes air travel feel less like a chore and more like a customized experience. During a panel discussion, Honeywell executives even suggested AI could one day adjust the in-cabin environment—temperature, lighting, and even seat comfort—based on real-time feedback from passengers. It's about making air travel not just bearable, but genuinely comfortable and responsive to individual needs.

Safety First: AI as a Partner in the Cockpit

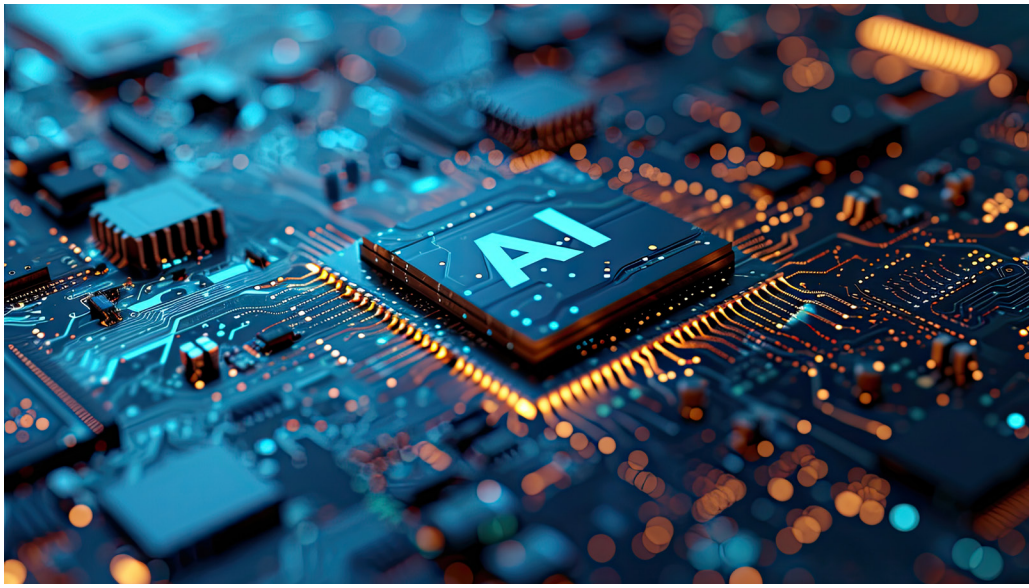
Safety is the cornerstone of aviation, and AI is making it stronger. Pilots can face incredible pressures, and human factors like stress and fatigue contribute to most aviation accidents. AI is promising to reduce errors by automating routine tasks and enhancing situational awareness, letting pilots focus on what really matters—flying safely. Picture an AI system that acts as a copilot, offering data-driven suggestions during critical phases of flight. This, currently, doesn't mean replacing the human touch but enhancing it—helping pilots make more informed decisions without the mental burden of processing mountains of input, data, and possible outcomes alone.

NASA is currently researching AI to improve air traffic management, aiming to reduce congestion and make better use of busy airspace. The goal is reducing the likelihood of human error and ensuring that all of us—whether we're in the cockpit or the cabin—get to our destination safely. Honeywell is also advancing collision avoidance systems by integrating data from multiple sensors to create a real-time, 360-degree view of the sky. These innovations offer an extra layer of safety, particularly as our airspace becomes more crowded.

Optimizing Ground Operations and Airport Efficiency

On the ground, AI is making airports more efficient and less hectic. Heathrow Airport, for instance, uses AI to accelerate baggage handling, reducing the chances of lost luggage and getting passengers reunited with their bags more reliably. And it's not just about baggage. AI-driven systems are optimizing everything from gate assignments to turnaround times, making the entire process smoother for everyone involved—passengers, crews, and ground staff.

Predictive analytics also extend to fleet management. By ensuring



that maintenance schedules are optimized, AI keeps planes ready for action while reducing unnecessary downtime. Pervinder Johar of Avathon noted that this kind of optimization aligns with large-scale efforts like those of the Department of Defense to improve fleet readiness, but it also directly benefits commercial operators by lowering costs and enhancing reliability.

Challenges and Ethical Considerations

Despite its potential and upside, AI in aviation brings unique challenges. The collection of passenger data for personalization can raise privacy concerns, requiring airlines to be vigilant about data security. Striking the right balance between improving passenger convenience and safeguarding personal data remains a crucial challenge.

One significant concern is the risk of cyber threats, such as hackers or bad actors gaining access to AI systems and causing disruptions. To mitigate these risks, secure communication links—whether for voice or data—are essential. AI systems must also have levels of built-in intelligence to evaluate the safety and validity of inputs. For example, in the case of ATC commands over the radio, Merlin Labs' AI situational awareness can prevent unsafe actions by identifying suspicious or incorrect instructions to flag and ignore them.

Additionally, a practice known as 'red teaming' is used to identify vulnerabilities within an AI-managed system. Red teaming involves simulating attacks on AI systems to uncover weaknesses before they can be exploited by malicious actors. By actively challenging the system's defenses in a controlled environment, developers can strengthen its resilience to real-world threats, ensuring robust security for both fully automated and semi-automated aviation systems.

There is also the issue of over-reliance on automation. While AI can improve operational efficiency, human oversight currently remains indispensable. Pilots need to be trained to use AI effectively while retaining their ability to take over manual control when necessary. Regulatory bodies must also grapple with the complexities of certifying AI-based systems and addressing liability in case of malfunctions.

Lastly, there is the reality that corporations and those profiting from aviation would like to see pilots removed from the cockpit altogether. Matt George shared a very informative picture of how Merlin Labs sees the evolution of AI and the pilot: "We think that that's where [AI] gets pretty interesting… being able to take the human from in the loop, to on the loop, to—in some very far future—off loop."

Companies like Airbus and others have successfully tested single-pilot extended Minimum Crew Operation (eMCO) flights where the pilot is more of a babysitter than aviator, and they most certainly have designs or even prototypes of zero pilot flight decks.

Whether or not the current power of unions—or public opinion and approval—will allow a reduction to one or no pilots is yet to be fully tested. But, given the history of winnowing down the number of crew in a flight dec from four to three to now two, th writing may already be on the wall

Regulating the New AI Frontier

While exciting and filled with expansive possibilities, when it comes to broadened implementation AI is still in uncharted territory. It also must come up against the various regulators worldwide that vet and anoint technology for personal and commercial use.

The FAA recently hired Dr. Traung T. Pham as Chief Scientist and Technical Advisor for Artificial Intelligence - Machine Learning to help regulate the nascent field of AI. Dr. Pham was a panelist for the Honeywell event and was both optimistic and sober regarding the pace of regulatory approval AI will likely see.

Thoroughly vetting and certifying AI technology must strike a balance between safety and maintaining leadership in the aviation industry. If US regulatory bodies fail to keep pace, there is a risk of losing competitive advantage to international counterparts, such as China or Europe (with the former accelerating AI and machine learning with less restrictions in the

automotive EV sector). Collaborations between traditional and non-traditional players, along with regulators, are crucial in building trust and achieving effective outcomes.

The Horizon of AI in Aviation

AI is here to stay, already driving the next evolution of aviation by making flights safer, more efficient, and more personalized. As AI advances, we can expect even smarter, more connected systems that will redefine the aviation landscape. The key lies in striking the right balance—harnessing AI as a tool that enhances human expertise, not replaces it.

The path toward complete cockpit automation is well underway, but its success will depend on more than just technological advancement. Regulatory standards, public trust, and an unwavering focus on safety will all play critical roles. While AI may someday replace human pilots, ensuring that such systems meet or surpass current safety benchmarks is non-negotiable. Ultimately, whether pilots remain in the cockpit will be shaped by how effectively the aviation community manages this transition. T&T

Tigre Pickett *is an ATP-rated pilot flying for a regional airline, as well as a commercial single- and multi-engine pilot type-rated in Citation 525-series jets. He brings his passion for aviation to managing multiple CitationJets in Southern California alongside his father and Co-Captain, Rich Pickett. Tigre also enjoys exploring new destinations with his family in their Cessna Turbo 206. Follow Tigre's professional aviation journey and discover more content on* **PersonalWings.com** *and their YouTube channel, where he shares insights and adventures from the skies.*

Robert "Bob" Fiscella

Bob Fiscella (left)

PHOTO COURTESY OF BOB FISCELLA

Robert "Bob" Fiscella of Williamsburg, Virginia, purchased his first aircraft in 1961. Fiscella is the current owner of a Cessna Citation CJ2+, which he has been flying since it rolled off Cessna's line in 2006.

"I started flying in 1960 because I hadn't completed flying during the war years. And I've bought 11 airplanes in my span of flying and am a commercial, multi-engine, instrument-rated pilot who's typed in the Cessna Citation 500 and 525 series," he began.

"I purchased my first plane in 1961 – a Piper Apache. A year later, I purchased an Apache 235, and then several years later, I got a Piper Aztec. In 1972, I switched to Cessna with the purchase of a 340, then got a Conquest 425 in 1982. It was a nice flying plane, but in 1989, I went to the jets and never looked back."

> "In 1989, I went into the jets. That was the first year, I think, they had allowed single-pilot operation of a jet, so I was one of the early ones, and I flew a 501SP. "

Bob Fiscella (left) with his CJ2+

PHOTO COURTESY OF BOB FISCELLA

Bob Fiscella is the oldest Citation jet pilot

PHOTO COURTESY OF CARY FRIEDMAN

For fifty years of safe flying, Fiscella was awarded the Wright Brothers Master Pilot Award by the FAA in 2001. To date, he has logged nearly 10,000 hours in the cockpit, most of which have been in the flight levels.

Fiscella's first jet was a 501SP, followed by one of the first delivered Citation Jets.

"In 1989, I went into the jets. That was the first year, I think, they had allowed single-pilot operation of a jet, so I was one of the early ones, and I flew a 501SP," he explained. "In 1993, I bought a new CJ. Cessna had just come out with the CJs, and I was number 25 on the list there. Then, in 1998, I bought a CJ1, and in 2006, I bought a CJ2+, which I own today and currently fly," Fiscella stated.

"I think the CJ2+ is one of the best airplanes there is. It's got plenty of power and speed, with a good payload. We're a thousand pounds less than the CJ3, and it does an excellent job [in comparison]."

Most of Fiscella's flights are on the East Coast, but he has previously flown the Citation all over the country, throughout most of The Caribbean, and into Europe.

"We are going to Columbia, South Carolina tomorrow, and that's a 300-mile run. We'll fly it in the mid-thirties with a good fuel burn, and it'll take us just over an hour. Interestingly enough, we will pick up another five minutes going eastbound, maybe. From time to time, it's a really fast airplane," he said.

Quick legs aren't the only thing this aircraft has going for it. It's a complete package.

Robert "Bob" Fiscella's 2006 Cessna Citation CJ2+

PHOTO COURTESY OF CARY FRIEDMAN

"I have Tamarack winglets on the plane also, and my airplane was one of the early planes with them. The CJ2 line was certified on my airplane, and I have great confidence in the winglets"

"The CJ2+ has plenty of space for passengers. The navigational system, the Rockwell Collins Pro Line 21, is sensational, and I've really enjoyed flying with it. My pilot is retired from Delta and told me that they didn't even have this equipment on some of their 747s that are on this aircraft. It's an ideal aircraft, and I don't know why Cessna stopped building it."

The CJ2+ is a natural performer at altitude, but this serial has had some added equipment that Fiscella feels has positively impacted its performance.

"I have Tamarack winglets on the plane also, and my airplane was one of the early planes with them. The CJ2 line was certified on my airplane, and I have great confidence in the winglets," he said.

"The airplane climbs out beautifully and climbs up to altitude real fast. I would say that we have [seen] an increase in speed and range also. [After installation] Tamarack flew the airplane back to me non-stop, which was about 1,800 nautical miles. I'm satisfied with the purchase I made years ago."

Relationships have remained constant through Fiscella's aviation journey. Two are of special note, one being with the manufacturer. He predominately takes his jet to the Greensboro Citation Service Center for maintenance. Another longtime bond is with Cary Friedman of Eagle Aviation in Columbia, South Carolina. These connections, and others, have enabled him to better execute his aviation efforts.

Fiscella's mission is varied, although the Wichita-built jet isn't exercised as much as it had been in the past. The nonagenarian currently flies about fifty hours a year and has done so with a copilot for the last few years.

"No, I think I am pretty satisfied," Fiscella replied when asked whether he would change anything different about his six-decade-long aviation journey. "I am going to be 99 here in a month [in December 2024]. In fact, if I wasn't as old as I am, I would buy another airplane. Well, I couldn't think of buying another airplane better than the CJ2+ for the dollar." T&T

Grant Boyd *is a private pilot with eight years of experience in aviation business, including marketing, writing, customer service, and sales. Boyd holds a Bachelor's and a Master's of Business Administration degree, both from Wichita State University, and a Doctor of Education degree from Oklahoma State University. He was chosen as a NBAA Business Aviation "Top 40 Under 40" award recipient in 2020.*

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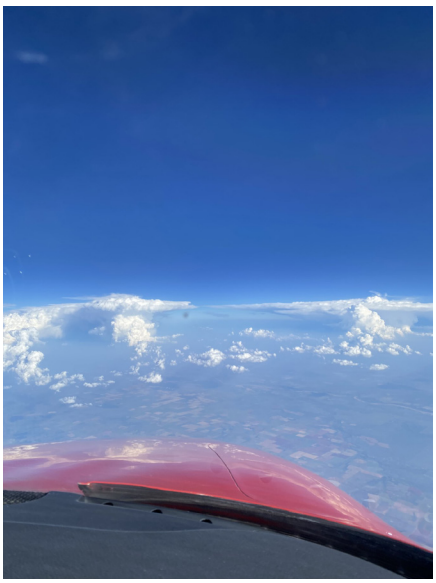
I've Looked at Clouds From Both Sides Now



"Good afternoon, Fort Worth Center. November nine two one x-ray tango is with you, flight level four one zero and smooth."

Larry King and I were returning to Dallas in his Citation M2 on a late April afternoon from Heber City, Utah. We departed Dallas at 0730 that same day for a quick out and back. The skies were severe clear on the leg to Heber City and the forecast for our return was identical. A quick review of the weather before our takeoff from Utah confirmed it.

"X-ray tango, there is an extensive line of weather, with moderate to extreme precipitation at your twelve o'clock and one hundred miles, extending north and south. Say intentions."

Only moments prior, we had extended the range on the Garmin displays and saw something totally unexpected. A line of thunderstorms with tops to FL 430.

"Where did this come from," said Larry. "No idea, I shot back. It wasn't even on the map when we departed," I said. We both sat up a little straighter in our seats and began to discuss the situation.

"Center, there appears to be a gap between two cells that we can get through," I transmitted.

"You are cleared to deviate south, but no one has gotten through what I am showing along your filed route," came the reply. After that comment, Larry and I became fully engaged in the discussion.

Using the G3000 animated Nexrad feature, we could see the cells moving slowly at 15 knots from south to north. We both agreed there was a gap in excess of the 20-mile recommended avoidance distance. But the controller's comment concerned us.

What followed was a twenty-minute discussion. We talked about the possibility of hail from the overhang of the southerly cell and general movement of the line. About our lack of fuel reserves for a 150-mile deviation around the weather. And the possibility that the two cells could merge or reduce our safety margin distance.

The on-board radar and Nexrad were continuously consulted, but we found that our two sets of "Mark V eyeballs" were equally valuable. It was incredibly beneficial to have two pilots in the cockpit and also to agree that we were comfortable with our plan.

As we approached the line, we made a series of small turns to stay between cells.

"X-ray tango, maintain present heading for traffic." The controller had just thrown a wrench into our plan. He had us headed for the cell on our right. We quickly negotiated a lower altitude and continued threading the needle.

An airliner passed by to our right. "Well, at least someone else has the same idea," I said.

After what seemed like an eternity, we passed through the line with a completely smooth ride. Looking back over our shoulders, the view from the other side was totally opaque, and it was impossible to see the cells.

"Nice job of crew resource management," I said.

Larry just smiled.

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, speaks nationally and writes on a variety of aviation safety topics. You can contact David at* **davidmiller1@sbcglobal.net**.

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