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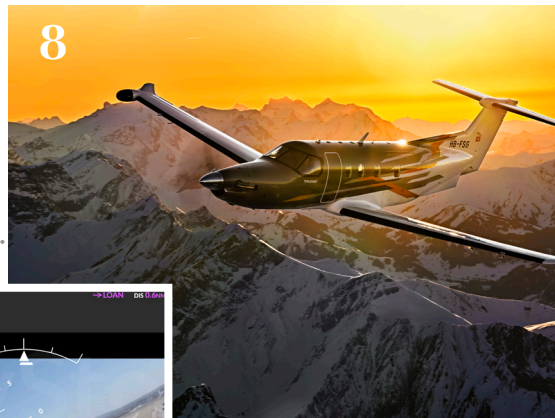
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Courtesy of Pilatus

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Editor's Briefing

by Lance Phillips



A Gathering of King Airs

This year's King Air Gathering in Phoenix, Arizona, co-hosted by King Air Nation and BLR Performance Innovation, brought operators, manufacturers, and suppliers together again to celebrate this venerable platform. Since 1964, almost 8,000 various King Air models have been delivered to customers, and over 6,000 of those are still flying all over the world. If you look at the platinum, gold, and silver-level sponsors of the 2025 Gathering, you'll find an active and robust industry designed and still growing around the King Air.

On display at Cutter Aviation's Sky Harbor FBO was Blackhawk Aerospace's newest offering, MT's seven-blade composite Whisper Prop, to go with Blackhawk's XP67A Engine+ upgrade for the King Air 350. Blackhawk claims that this certification milestone sets a new standard for performance, efficiency and comfort in turboprop aviation. The seven-blade MT propeller, certified in unison with BLR Aerospace, enhances climb rate, cruise speed, and fuel efficiency while reducing cabin noise and vibration fatigue, according to the upgrade specialist.

Edwin Black, president at Blackhawk Aerospace, says, "At Blackhawk, we're always looking for ways to help our operators get more performance, efficiency, and value out of their aircraft. The certification of the seven-blade Whisper Prop with our XP67A Engine+ upgrade is a huge win; it's quieter, smoother, and makes an already incredible upgrade even better. We're proud to offer this upgrade alongside MT Propeller and BLR Aerospace to bring this innovation to the King Air community."

According to the engineers at Blackhawk, the new propeller enhances the aircraft by providing

- A quieter King Air: Certified for low takeoff noise, delivering a noticeably quieter cockpit and cabin.
- Superior aerodynamics: Reduces vibration fatigue with a 45% higher damping coefficient, enhancing longevity of aircraft systems.
- Fuel savings and smooth taxiing: No RPM restrictions during ground operations, minimizing brake wear and optimizing fuel efficiency.
- Enhanced durability: Nickel-cobalt leading-edge blade protection for superior resistance to erosion and damage.
- Simplified maintenance: On-aircraft repairs and in-field blade replacements without hub changes.

In the accompanying photo taken at Cutter Aviation in Phoenix, you'll see the Blackhawk seven-blader second from left. I have to say, this new engine-prop configuration is starting to look like a super high-bypass turbofan, and I guess it kind of is. Just be sure to feather that big beast if an engine decides to go south for any reason. Otherwise, that's a big disk of drag out there.

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UPGRADES**

**AVIONICS
UPGRADES**

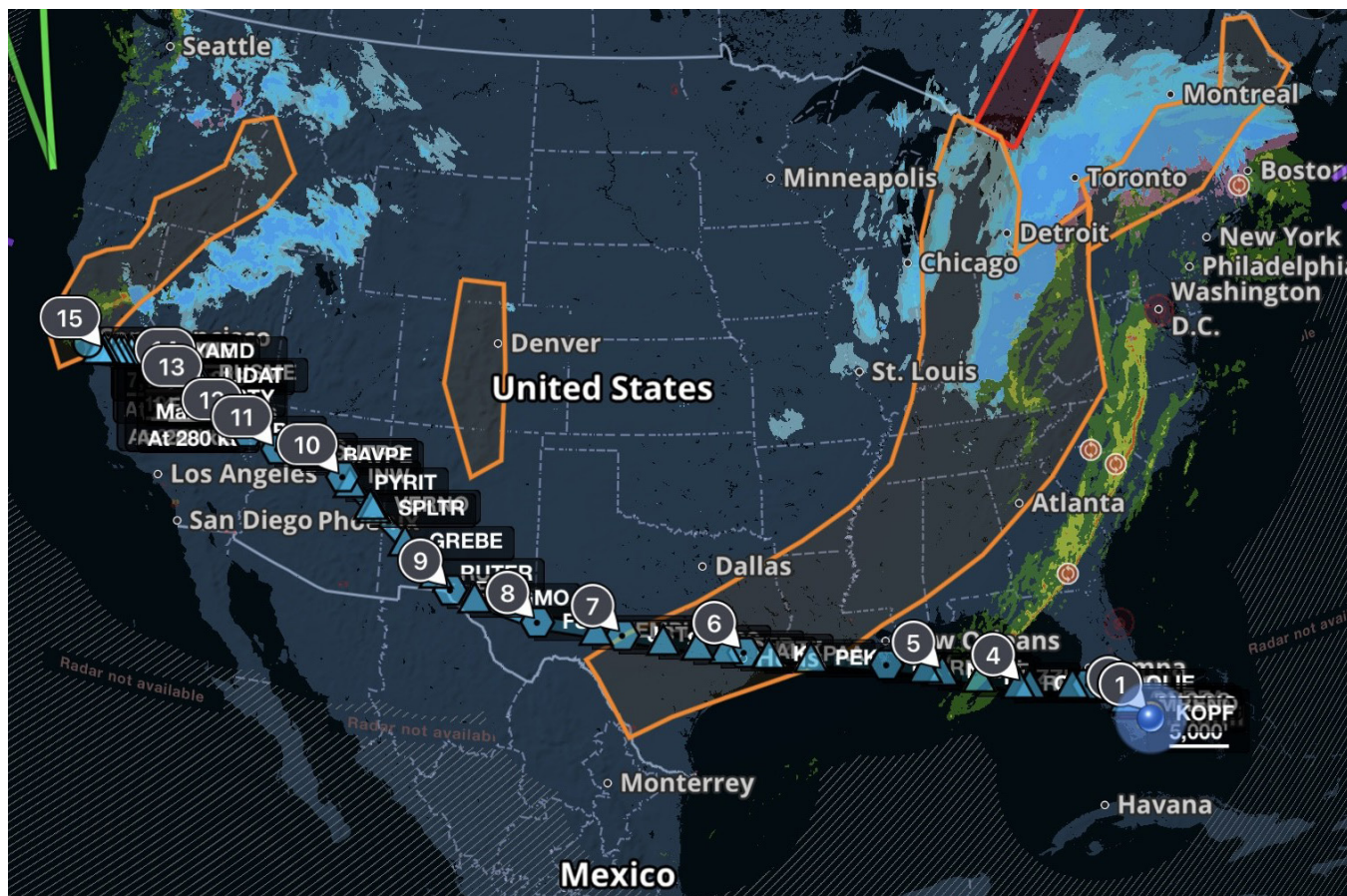
**PROPELLER
UPGRADES**

**AIRFRAME
MODIFICATIONS**

**MAINTENANCE
& SUPPORT**

Emergencies

by Ed Verville

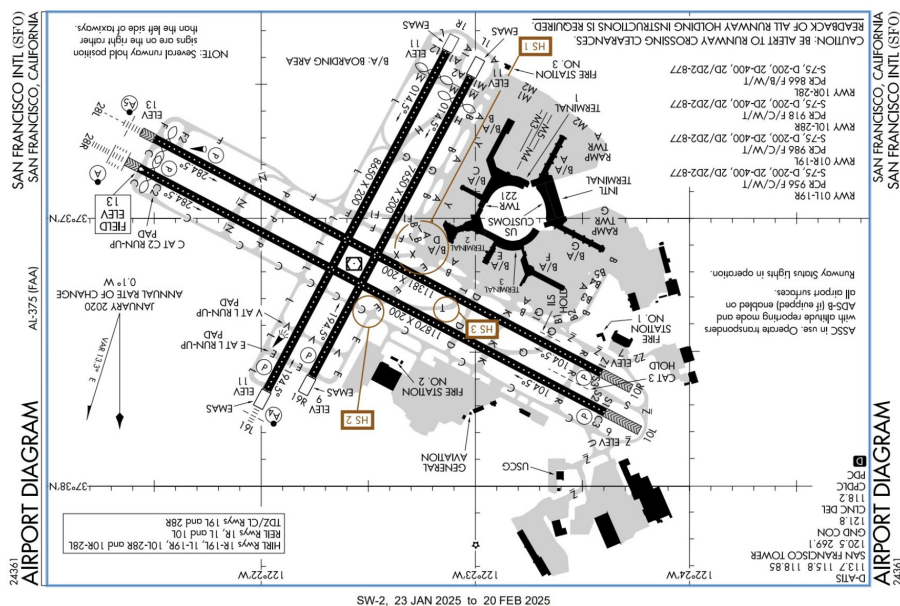


OPF to SFO

Yesterday, on a flight from Miami, FL, to San Francisco, CA, we received a FLAPS FAIL yellow caution message as we attempted to deploy the flaps from the cruise setting of zero flaps to 20 degrees while on the initial approach to ILS Runway 28R at San Francisco (KSFO). The flight was a fairly long one, even cruising at Mach .80 with the nearly 100-knot headwind we encountered most of the way. I had a great first officer and flight attendant who helped the situation transition smoothly and safely. Ironically, this was our second yellow caution message during this flight. At our cruise altitude of Flight Level 380 (about 38,000 feet), we received a Stall Fail yellow caution message. The QRH (Quick Reference Handbook) directed us to turn off the airplane's stick pusher device and add ten knots to our final approach speed. There is nothing "quick" about the manufacturer's Quick Reference Handbook. It is a tabbed book three inches thick that does not read smoothly. It provides the aircraft manufac-

turer's guidance for emergencies and abnormalities in a checklist format that reads, "If this, then do this." It can direct you to other sections without a reminder to come back and finish the one you were on. It may say things nearly as imprudent as a bomb technician's manual that says, "Cut the blue wire, but first cut the green wire." Ok, maybe not that bad. Fortunately, we spend hours in flight simulators working through these QRH checklists with simulated emergencies.

Now, while on the initial approach for the Instrument Landing System (ILS) at SFO we received the FLAPS FAIL caution message. I was the pilot flying, so I also took the radio duties from the first officer and directed him to "run the QRC procedure for the FLAPS FAIL caution message." The QRH directed us to turn on all the hydraulic B pumps. An interesting note as the flaps on our airplane are electrically powered. Based on "systems knowledge"



Final Runway 28R SFO

from ground school and simulator training, we know that turning on the B pumps is required because the B pumps normally activate when the flaps are extended (technically beyond 4 degrees), and with a FLAPS FAIL situation, they were not going to extend, and the backup pumps would not come on automatically. The QRH then had us do some performance calculations for a no-flap or zero-flap landing. The QRH indicated that we had to add 30 knots to the final approach speed to land with the smaller wing. This increased our landing speed from 125 knots to 155 knots

or 178.25 MPH. The additions to the landing speed are not cumulative so we did not have to add 10 knots for the STALL FAIL and 30 knots for the FLAPS FAIL for a 40-knot additive. We just had to use the largest penalty. This is a pretty fast speed over the runway threshold and is going to require a lot more runway to land and safely come to a stop. We did the performance computations for the additional landing distance and noted that it would not be a problem. Fortunately, Runway 28R at KSFO is 11,870 feet long so we had plenty of room for our long landing and could make a right turn near the end of the runway and roll into Signature Aviation Flight Support, the FBO. The airplane wanted to float

along the runway just as it had always done in the flight simulator. We had a smooth touchdown and a long rollout while bleeding off the excess speed. If this had occurred at one of the smaller airports we frequent, such as Van Nuys, CA or Teterboro, NJ we would have had to divert to LAX or JFK for longer runways.

This was my first FLAP FAIL at zero flaps. I have had two previous flap failures at partial flaps that did not require as large of an airspeed additive. I still felt comfortable during the approach and landing as I had done it a hundred times before in the flight simulator. And, I had just practiced this simulation during my recurrent training the week before at FlightSafety International. (Thanks, FSI, and to my passengers and crew).

We have certainly seen a rash of airline and corporate airplane accidents in the past few weeks. Recently, Delta Connection, Endeavor Airlines had a horrific landing accident in Toronto, Canada flipping the airplane over. Just before that accident, we had the midair collision between a CRJ-700 and an Army Blackhawk Helicopter over the Potomac River at Washington's DCA Airport. A few days later a Learjet landing at Scottsdale, AZ had the landing gear collapse and ran off the runway striking another airplane.

All this has caused me to reflect on some of my own inflight emergencies. I have five overweight landings in airliners. Note that we can only land overweight in an airplane for an emergency. Two of them were for smoke in the cockpit, a very scary thing on airplanes, submarines, and boats. The first was just after takeoff when the flight attendant chimed the cockpit and said, "I have smoke back here." I responded with what were not likely the most comforting words "I have smoke up here." The Captain and I (the first officer) donned our oxygen masks and began running the emergency QRH for "Smoke and Fire." We returned to the airport for an overweight landing at CVG Airport with crash, fire, and rescue equipment following us down the runway. We ordered an emergency

evacuation and got everyone off the airplane safely albeit very cold as it was winter in Northern Kentucky just across the river from Cincinnati. We later learned that the airplane's auxiliary power unit (a small jet engine in the aft equipment bay) had catastrophically died and dumped oil into the PACKs, the air-conditioning units, filling the airplane with smoke. We had switched the high-pressure bleed air from the APU to the engines per the QRH. This decreased the amount of smoke on the flight deck and made the landing easier, although still challenging wearing smoke and oxygen masks.

The crew received a follow-up phone call from a chief pilot (our boss). After learning all the passengers and crew were safe, he asked if we were good to continue with our

daily flight schedule. After a critical incident, the crew can take the rest of the day off to process the event. As pilots, we felt we should “press on” and continued with our scheduled flights. As I reflect on this, I am not sure that was the wisest decision.

My second Smoke and Fire was again right after takeoff. This one exhibited a strong electrical odor immediately after takeoff. We did not have visual smoke or fire, but the fumes were enough for us to immediately return for an overweight emergency landing. Large airplanes have a heavier takeoff weight approval, than for landing. The crews account for this by the fuel they will burn while enroute to their destination. After landing, with crash, fire, and rescue (CFR) again behind and alongside us, we

made the decision to taxi back to the gate rather than order an emergency evacuation. This decision was made because the odor was decreasing, there was no sign of actual smoke or fire, and for passenger safety as injuries such as broken ankles often occur during an evacuation. We did have the fire department's CFR following and monitoring us on both sides of the airplane. Upon investigation, maintenance discovered that some avionics wiring had shorted out.

My third overweight/emergency landing was due to an engine failure. We were in a brand-new Bombardier CRJ-700 Regional Jet. It still had that “new jet smell.” I enjoyed the new CRJ-700 jets. They had a higher thrust-to-weight ratio, more range, and carried more passengers. (A CRJ-200 has a max ramp weight of 53,000 lbs. with 8,729 lbs. of thrust on each engine, while a CRJ-700 has a max ramp weight of 76,000 lbs. with 12,670 lbs. of thrust on each engine). As we were flying over Northern New York to Atlanta Hartsfield Airport, there was roughness on the right engine. The VIB Gauge (engine vibration detector) alerted us, but we were already feeling it. The flight attendants in the back also called us and advised that they had an unusual vibration. While troubleshooting, yes, using the QRH again, it directed us to retard the thrust lever to idle. When we did this, the VIB gauge went to full deviation and the felt vibration increased. We next shut down the engine (per the QRH of course) and declared an emergency. You get great service when you use that word. ATC (FAA Air Traffic Control) directed us to the nearest large airport, Pittsburgh, for the end of our descent where I flew the engine-out-approach into visual meteorological conditions, backing up the visual approach with the ILS. It was both a little startling as this rarely happens with modern jet engines, but was also a bit exciting, as not many people get to do this! The approach and landing were uneventful, and again, flew just like the sim. We later learned that some of the Fan Blades on the engine “were out of spec,” and never received any further information.



Runways 28L/R SFO



Author in SFO

Another immediate return after takeoff that was not an overweight landing occurred at Atlanta Hartsfield Airport in Georgia, the busiest airport in the world. At 400 feet AGL we received a Hydraulic Low Pressure yellow caution message. All the fluid had leaked out under the 3,000 lbs. of pressure in the system due to a tiny hole in the hydraulic tubing. Fortunately, we only lost fluid on one of our three hydraulic systems. After requesting an immediate return to the airport and advising ATC of the urgent situation but not necessarily an emergency, ATC gave us priority service. ATC stated something like: What runway would you like, would you like us to roll the equipment, and what else can I do for you, sir?" Again, great service, and from the busiest airport in the world. (Thanks, ATC). I wound up overnighing in Atlanta and catching a Cheryl Crow concert.

My General Aviation (GA) emergencies in propellor airplanes far exceed my jet emergencies. The reliability and redundancies are just not there. In addition to my one jet engine failure or shutdown, I have had three engine failures in GA airplanes. One was a turbo-charger failure in a Twin Cessna 414. But when it happens at 21,000 feet the engine indications are the same. My other two were in a PA-44 Piper Seminole and a C-172 Cessna.

These four engine failures do not count the five engine "failures" I have had while conducting check rides in multi-engine airplanes. Checkride pilot candidates generally do not display or at least hide the hazardous attitudes described by the FAA, such as anti-authority and macho. But the one they do not hide is impulsivity (Those who feel the need to do something, anything, immediately). During FAA multiengine check rides, the examiner must observe the candidate fully shut down an engine and maneuver the airplane with the engine shut down and the propellor feathered. I have had five pilots shut down the wrong engine after I have induced a failure on the other engine. I may do something like move the mixture to idle-cutoff to simulate an engine failure. The inappropriate responses have included feathering the wrong propellor, turning off the wrong fuel selector, and turning off both magnetos to the operating engine. All done so quickly that I could not stop them.

These impulsive "double engine failures" also happen to my instructor and examiner colleagues. However, after comparing notes with hundreds of pilot friends, I can't help but think that I may have had more than my fair share of abnormal and emergency situations while flying the friendly skies. **T&T**



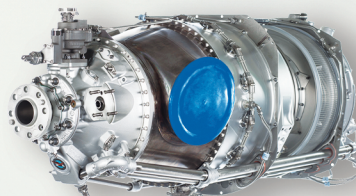
Ed Verville is an experienced FAA instructor and examiner for business jet pilots and aircrew programs. He has 15,000 flight hours in more than 100 different makes and models and holds type ratings in the Bombardier CL-65, CL-30, CL-604, and Boeing 747. You can see Ed speak about "Loss of Control" and "Instrument Departures" at EAA Oshkosh and Sun 'n Fun at their FAA Forums.



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Pilatus has shown once again they can offer a significant upgrade to one of their aircraft. The inclusion of the new Garmin [G3000 Prime] avionics and the other enhancements bodes well for this airplane.”



PHOTOS COURTESY OF PILATUS

The Pilatus PC-12 PRO

The Latest Swiss Aircraft Innovation

by **Rich Pickett**

Over one hundred engineers, interior designers, pilots, and other professionals worked in secrecy for three years to produce the latest iteration of Pilatus' flagship aircraft—the PC-12 PRO. I knew they were migrating to the Garmin platform; however, in typical Swiss fashion, the full details were difficult to obtain. Unveiled on March 14th, it represents a significant update to the popular aircraft, with 2,000 of all versions of this airplane produced since its inception.

While many innovations have been incorporated into the PC-12 PRO, perhaps the most important is the upgrade of their Advanced Crew Environment (ACE) from the Honeywell Apex avionics suite to the Garmin G3000 Prime. My son Tigre and I had a chance to spend time with the G3000 Prime before its public release last year, and details are in the January 2025 issue of *Twin & Turbine*. The initial launch aircraft announcement was Textron's Cessna Citation CJ4 Gen 3, announced at NBAA BACE this past fall. It was natural to expect other major general aviation aircraft manufacturers would follow suit. Obviously, the next one is Pilatus Aircraft.

Pilatus's first market announcement of the G3000 Prime is actually featured in their military turboprop trainer—the PC-7 MDX, announced just a few days before the PC-12 PRO. The new PC-7 MDX features a specialized version of the G3000 Prime, complete with HUD capabilities. This aircraft will be in production by 2026. The PC-12 PRO will be the first certified aircraft with the G3000 Prime avionics, with certification already approved by the FAA and EASA.

I have enjoyed flying the Honeywell Apex in the PC-12 and the PC-24. It is a powerful and capable avionics suite; however, it is clear the market prefers Garmin avionics. With the advent of the Garmin G3000 Prime, the PC-12 has launched to the next level of technology and safety.

Our experience with the Garmin G3000 Prime proves the system provides outstanding features, many of which originated in the G3000/5000 series. Pilatus initially installed the G3000 Prime in an NGX test bed and followed with the first production version of the PC-12 PRO with serial number 3001. Utilizing three 14-inch primary display units (PDU) and two 7-inch secondary display units (SDU)—all touch-screen enabled—the flight deck takes on a different feel. The SDUs, while providing some of the functionality of the G3000 GTCs, are 40% larger and substantially more capable.

One of the salient features of the G3000 Prime platform is its extensive customization capability for a particular platform. Pilatus Aircraft

has done just that in the PC-12 PRO. Since a number of PRO operators will most likely migrate from their existing PC-12s, the ability to facilitate the avionics transition is paramount.

Among the modifications, perhaps the most significant change, is the integration of a trackball cursor control device (CCD), similar in design and function to the Honeywell Apex avionics in the NG and NGX. This is the first integration of a CCD with Prime, and it provides the pilots with the ability to access a number of the major functions which would normally be accessible only by touch.

The choice of implementing a CCD is interesting. I've flown a number of touch-screen avionics in various jet platforms, and while it is possible to anchor your hand in turbulence using



the side bars or Garmin's multi-touch interface, I've found the use of a CCD to be very useful. Also, sometimes it is easier to simply use a cursor device to navigate a primary display, select a function, and then execute that function. Another issue with solely relying on a touch-screen is you have to reach the display to select the function. It works great if the panels are within arm's reach, but sometimes that can be a challenge, especially in larger flight decks.

Autopilot mode controller designs vary widely, which can be a significant issue for transitioning pilots. I fly a number of different platforms each week, and I have to 'reset' my processes with each one. Pilatus decided to customize the Prime autopilot mode controller to match the button placement in their previous models, which is another factor to help pilots upgrading to the new model.

Some additional design features from the previous PC-12 models have also made their way to the PRO. One area is the color palettes, for both data display as well as the Crew Alerting and Warning System (CAWS). For pilots flying their first PC-12, some of the design elements may be confusing at first and require some additional attention to detail during their transition.

It is a very interesting time in aviation, when we almost expect all new Garmin installations to include their incredible Autonomi suite of functions, including Electronic Stability and Pro-

tection (ESP), Emergency Descent Mode (EDM), Surface Watch, and, of course, Autothrottle and Autoland.

With the introduction of the automated Pratt & Whitney Canada PT6E-67XP, complete with electronic engine and propeller control (EPECS), Pilatus was able to introduce autothrottle capability in the NGX. In the PRO model, autothrottle and the EIS are intrinsic components of the Prime avionics and key for implementing Garmin's Autoland as well.

I've flown Garmin's Autoland in other aircraft, through its full execution from pushing the button to a complete stop on the runway. The Pilatus PC-12 PRO will be the sixth turboprop aircraft to have this capability, featuring the Autoland button prominently in the overhead panel. Since a substantial percentage of PC-12s are operated single-pilot, this additional safety feature by itself will sell additional airplanes.

Another feature we have been accustomed to with Garmin avionics is their Electronic Stability Protection (ESP), and it is included with the PC-12 PRO. I've tested ESP many times in various aircraft, and the stability enhancement is very worthwhile and operates even without the autopilot engaged. You can imagine how many accidents which have been the result of a pilot losing control of their aircraft where this feature could have saved many lives and reduced injuries.

When we previously evaluated the G3000 Prime, one feature that was of particular interest is the Emergency Return. The pilot can program parameters before departure that include their preferred plan to safely return to the airport immediately after departure, including speeds. In the event it is needed, activation is simple and quick.

If you look closely at a PC-12 PRO next to an NGX, you may notice that the radar pod on the wing is slightly larger on the PRO. This is required for the larger 12-inch GWX 75 Weather Radar, with an option for the GWX 8000. With weather radars, the larger the antenna, the more data can be acquired. Coupled with

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a 120-degree view, it is another safety feature that will be helpful to pilots.

Will Myers, Advertising and Communications Specialist at Pilatus, and I were discussing another feature implemented in the PC-12 PRO. Traditional synthetic vision representation is heading-up, which makes sense most of the time. However, as pilots know, where the nose is pointing is not necessarily where we are actually going! I was remembering when I've flown through the Swiss mountains and navigated VFR around the peaks. Consider if you have a strong crosswind and your synthetic vision display is based upon heading only. Your synthetic vision view would be



centered on your heading, not your track—a potential safety hazard that will be minimized in the PC-12 PRO.

Advanced Flight Planning and Communications

Not only does the PC-12 PRO incorporate advanced flight planning during the preflight process, and of course, wireless upload from a PED, it also can incorporate forecast weather conditions from datalink or manual input. This latter feature is very useful during flight to incorporate updated weather along your route to optimize your options. Using the Modified Flight Plan tool, PC-12 PRO pilots will be able to check an alternative flight plan prior to deciding to modify their current route.

The G3000 Prime also incorporates a number of data communication options in the PC-12 PRO, supporting Data Comm such as En Route mes-

sages, departure clearances, and other information with the optional GDR 66.

Flight Deck Enhancements

Certifying a new avionics suite for a production aircraft takes considerable time and effort, and Pilatus used the opportunity to also improve their PC-12. The avionics upgrade of the flight deck was not the only change up front. Pilatus has gained a lot of experience with their PC-24 and recently has incorporated some of those design aspects into the PC-12, notably in the NGX. They have continued that upgrade process by installing PC-24 'style' control yokes. They not only look very cool but also provide advanced access to the avionics through multiple switches on the yokes. The Direct View (DV) small side window on the PC-12, while useful in the rare case where the windshield visibility is limited due to uncleared ice, is a holdover

from the past. The PRO removes that window, which also eliminates one more maintenance item.

Cabin Comfort Improvements

As Bruno Cervia, VP of Research and Development and Deputy CEO of Pilatus Aircraft, mentioned during their public release, the cabin has 'more pizzazz'. From what I've seen so far, that is a correct statement! Pilatus has collaborated with BMW Design Works for years on the interior design of their aircraft and continued that association with the PC-12 PRO. They have also extended the PC-24 interior style, complete with similar seats, into the cabin. They have also added myriad custom cabinet options, including new finishes and materials.

Customer Impressions

I reached out to Jim Blotsky, pilot and a co-owner at Butler Machinery

in Fargo, ND. Jim's wife Twylah is the 4th president of Butler, which is a 3rd generation Caterpillar equipment dealer. Butler Machinery's sales and support span multiple states in the Midwest U.S. One unique fact is they have operated seven PC-12s since the 1990s, starting with Model 45, Serial Number 106, and up to the latest model—the NGX. Some time ago, Jim and the other flight department members were evaluating options for their next airplane purchase. While they had operated numerous PC-12s, it wasn't a given. Pilatus's choice to implement Garmin avionics was a key factor in staying within the PC-12 family. Jim told me they currently have two PC-12s (NG and NGX), and each plane flies 400-550 hours per year, and they view the new capabilities of the G3000 Prime as far more advanced than their current avionics, with options to grow in the future. Although they operate with two-pilot crews as standard, the added safety

of Garmin's Autoland will also be welcome. Jim and Twylah are certainly looking forward to their PC-12 PRO later in 2025.

Summary

With all of these changes, the PC-12 still gains an additional 100 lbs. (45 kg) of payload, impressive when you look at the aggregate changes. What will it cost? The standard list price, which includes a number of capabilities that are sometimes listed as options with other manufacturers, has been established currently at \$6.8M. Since operators will most likely select the GWX 8000 and various data and weather communication options, I would expect an average price will be closer to \$7.3M.

Pilatus has shown once again they can offer a significant upgrade to one of their aircraft. The inclusion of the new Garmin avionics and the other enhancements bodes well for this airplane. With the upcoming production release of the Textron Beechcraft

Denali. I believe it will grow the market, and manufacturers and the community will benefit. Who knows what the next generation of avionics, engines, and other technology will bring to aviation? I do know that all facets of aviation will benefit from these advancements. **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.



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Editor's Pics

Photos & Story
by Lance Phillips





I had to go pretty wide to get the whole King Air 350 along with its new seven-blade composite MT Whisper Prop, designed in conjunction with BLR Aerospace and put together with the Blackhawk XP67A Engine+ upgrade. This was the perfect occasion for Nikkor's newish 40 mm f2 kit lens that goes along with the Nikon Zf retro-inspired mirrorless camera. I am more and more impressed with this unassuming and small lens the more I use it. The way the subject pops, even at f8, is surreal. The color and contrast right out of the camera, without post-editing, makes this a great camera platform to aid in efficiency for photographers.

TWIN & TURBINE

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

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



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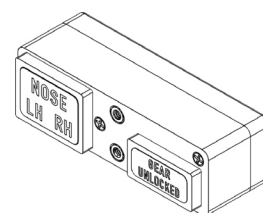
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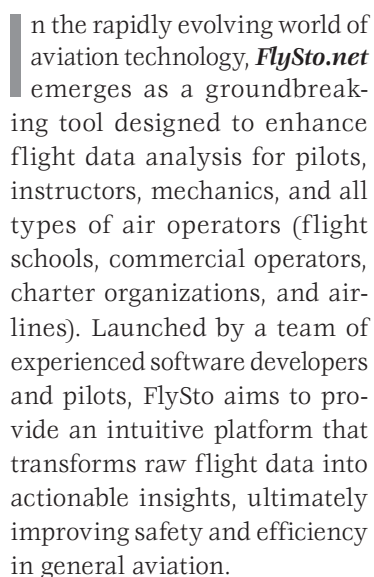


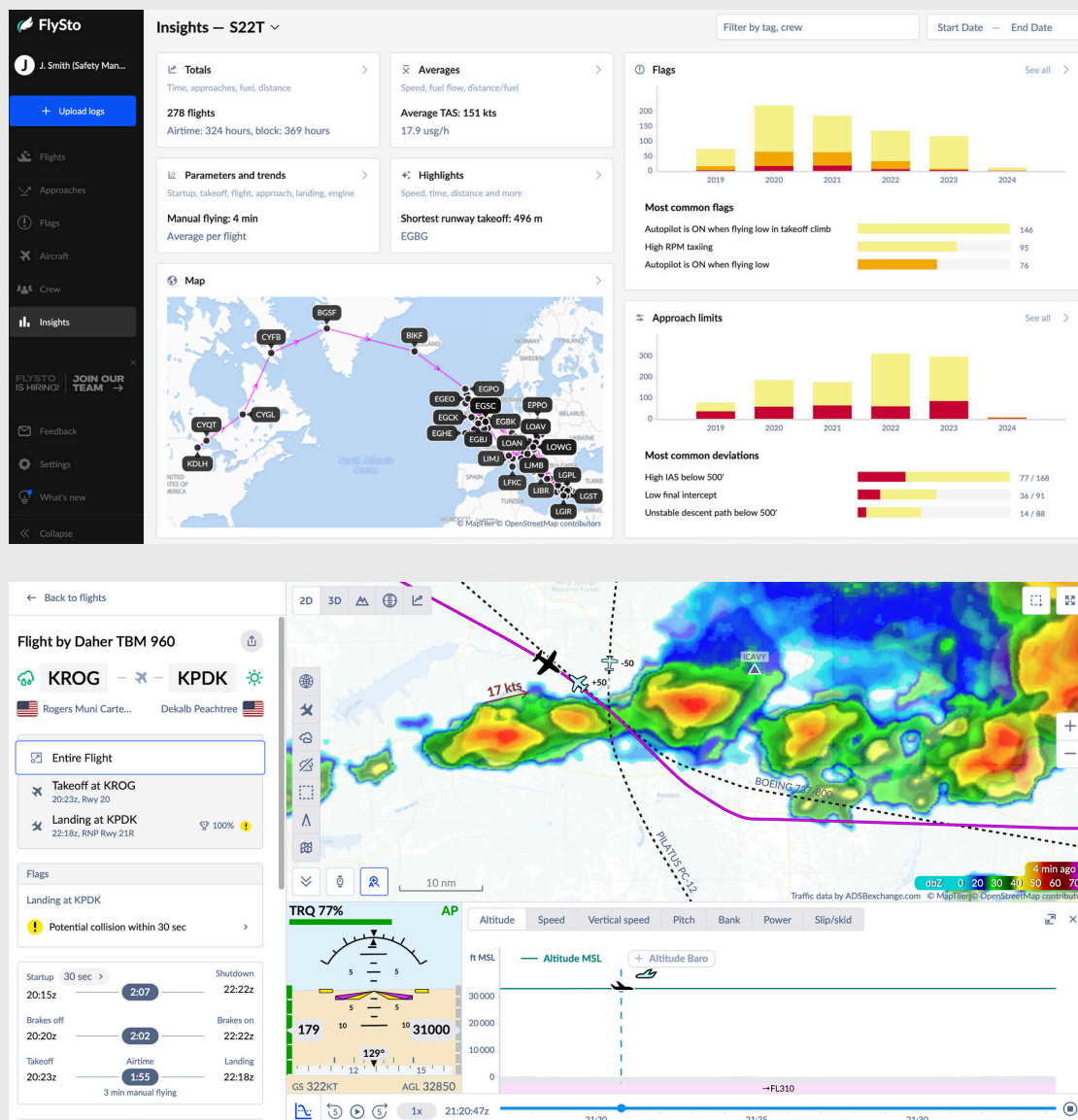
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by **Martin Flock**



Key Features of FlySto

1. **Comprehensive Data Processing:** FlySto supports a wide range of avionics systems, including popular models like Garmin G3X, G1000, and G500. This compatibility allows pilots to upload their avionics log files seamlessly for instant processing and analysis.
2. **Advanced Visualization Tools:** The platform offers advanced visual perspectives, including 2D and 3D maps, cockpit view replays, and detailed graphs. These features enable pilots to review their flights with realistic overlays of flight instruments, waypoints, and weather reports.
3. **Performance Analysis:** FlySto allows for detailed performance comparisons against Pilot Operating Handbook (POH) values. This includes takeoff, cruise, and landing performance metrics adjusted for ambient conditions. Such insights are crucial for identifying trends and ensuring compliance with operational standards.
4. **Customizable Alerts:** Users can set up custom warning rules to flag excessive parameter values or deviations during flights. This feature enhances situational awareness and helps pilots proactively manage potential issues.
5. **Video Synchronization:** A standout feature is the ability to upload flight videos that synchronize with flight data, providing an immersive debriefing experience. This functionality allows pilots to visually analyze their maneuvers alongside performance metrics.
6. **Mobile Accessibility:** With dedicated iOS and Android apps, FlySto ensures that pilots can access their flight data on the go. The mobile interface is user-friendly, allowing easy uploads and reviews of flight logs anytime, anywhere.



Benefits for Pilots and Flight Schools

FlySto's innovative approach to flight data analytics presents numerous advantages:

Enhanced Learning: The platform serves as a powerful self-critique tool for pilots, enabling them to learn from each flight at their own pace. By reviewing detailed performance metrics and visualizations, pilots can master their craft more effectively.

Operational Insights: For flight schools and aircraft managers, FlySto provides unique insights into operational trends across fleets. This data-driven approach aids in making informed decisions regarding training programs and aircraft maintenance.

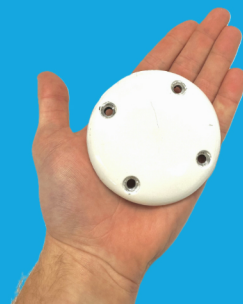
“By offering sophisticated tools that are easy to use and understand, FlySto not only enhances individual pilot performance but also contributes to the overall safety and efficiency of general aviation operations.”



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Community Engagement: FlySto fosters a community where users can share insights and experiences. The ability to share logs with fellow pilots enhances collaborative learning opportunities within the aviation community.

Actual feedback from FlySto users:

FlySto is amazing. I love it and use it all the time. It makes me a better pilot, and it's even fun. It helps me monitor my plane's performance and see things I didn't even know. I absolutely love it!

As a user of a different de-briefing software system for years, I have now tried FlySto on several of my recent flights. I am excited about it, and it will replace the software I used previously.

Just wanted to say I love FlySto. I've been a software professional for a long time and the service is a wonderful

example of a product that solves the expected problems in unexpectedly delightful ways. And on top of that it is fast, stable, and reliable. Seriously, well done to the team.

Many thanks, and congratulations on a great product!

I learn more from analyzing the data with FlySto than I typically learn from flying with an instructor.

I just wanted to reach out and compliment you on your product. I've been reviewing the data after uploading a lot of flight history, and I have to say that you have done a lot of amazing things with your data, and the emphasis on how the plane is being flown is awesome. I love your takeoff performance charts.

Conclusion

As aviation continues to embrace digital transformation, **FlySto.net** stands out as a leader in flight data analytics. By offering sophisticated tools that are easy to use and understand, FlySto not only enhances individual pilot performance but also contributes to the overall safety and efficiency of general aviation operations. With its commitment to continuous improvement and innovation, FlySto is poised to shape the future of aviation training and operational excellence.

For more information or to experience FlySto firsthand, visit <http://www.flysto.net> 



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Signature Bravo

Another Option for Jet A Burners

by Rich Pickett

BRAVO BY SIGNATURE



With hourly fuel costs a substantial portion of our overall operating expense, optimizing fuel purchases can directly affect our total costs. For me, it represents 30-50 percent of the direct operating costs in the various jets I fly, depending upon fuel prices - perhaps our most variable component.

If you are like me, you probably have a wallet full of contract fuel cards for Jet A. The savings using contract fuel or associations such as C.A.A. can be substantial. I've also utilized fuel agreements when flying charter fleet aircraft, which typically are only available for those operators.

Another option for non-charter or fractional turboprop and turbine operators to obtain is the new Signature Aviation Bravo offering—a card-less fuel and services discount program.

I initially signed up for the program two years ago when it was limited access, while Signature tested and tweaked the program. During this time, they have made some improvements as they rolled it out to their 125 locations in the US. I've now used it multiple times with a cost savings of up to 20% from retail, which varies up to several dollars per gallon.

I've discussed the program with David Burtica, Director of Global Sales Programs and Grant Boyd, Manager of Global Sales Excellence at NBAA BACE in Las Vegas. They wanted to offer a novel program for smaller turbine operators at Signature, something that had never been done before. Their goal has been to deliver more than just fuel discounts; instead, they aim to offer a holistic offering that includes other benefits as well.

The registration for the Bravo program, which is free, is simple. Operators can enroll at <https://www.signatureaviation.com/programs/signature-bravo/>. Once enrolled, you will be sent a weekly CSV file with the pricing for the following week, which is similar to other programs. Signature can also send the data to various fuel pricing apps, including Foreflight.

What are the additional benefits of Bravo? When you sign up with the program, you also receive complimentary enrollment in Signature's Gold program. I just used one of



these benefits at their Salt Lake City (KSLC) location, free GPU with fuel uplift. Others include 10 percent of maintenance and at their TECHNICAir MRO, higher crew car and hangar priority, and rental car discounts with Go Rental. Additional offerings include a discount on Lavazza coffee and, I suspect, expanded partner agreements in the future.

As we all know, fuel costs are only one factor in the total cost when selecting an FBO at a fuel stop or destination. The new Signature Bravo program, which includes additional benefits and an extensive network, offers turboprop and turbine operators a great option that I believe will only get better! **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.



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Mark Patey

by Grant Boyd



Mark Patey requires no introduction to the aviation world. The engineering-minded entrepreneur is one of the most prolific aircraft homebuilders and owns a 2001 Pilatus PC-12/45, which he is continually making refinements to.

The journey to owning one of the highest-performing PC-12s on the planet began several decades ago. Patey recalls that he and his twin brother

randomly found themselves dreaming about aviation at the same time.

"Twenty-five years ago, Mike went to an air show in California with his father-in-law, and I found myself wandering around an airport in Provo, Utah. Neither of us knew the other was doing anything aviation-related that day," he said.

"I found an airplane for sale on the ramp and thought that I should call

my brother to tell him that we're going to buy it. Then he told me that he was at an airshow and was going to call and tell me that we should find an airplane. That twin moment was the start of it. We bought an airplane, found an instructor, and started building airplanes. We've built fifteen in the last 25 years and I'm lucky enough to hold several national and world records in aviation."

The two brothers have owned nearly 50 aircraft between the two of them since learning to fly. The PC-12 is the capstone of a cabin-class journey which includes a collection of turbo-props and jets.

"This particular Pilatus was bought by a friend of ours in 2001. It has been on our field and within our close circle of influence, so we thought that it could be the aircraft that threads the needle on everything," Patey said, advising that he had co-owned the aircraft for a while after determining it would be a good fit for his mission.

"The Premier didn't have the range to come back to Utah with a full load of people from Galveston Island, where we have a home. You could either have range or payload with that jet and you struggled with both. It also had real trouble with short fields. Then the Eclipse jet was too small. The Meridian didn't have the range or payload. We had always kind of said, 'You know, one of these days we just need to stop playing and go to something like the Pilatus.'"

Once Patey acquired full ownership of the aircraft four years ago, there was a laundry list of things he aimed to accomplish in the name of efficiency and performance enhancement.

"We bought [our former partner] out and then that's when we went all out and decided to strip weight, update avionics, increase horsepower, and do everything humanly possible within the law to get a PC-12 to get more performance," noting that an engine swap came first.

"Some of the things we did to the aircraft didn't require STCs, and some did. One was the Finnoff engine conversion, where we went from the PT6A-67B engine to the -67P engine. On the Bravo motor, you're limited to torque for five minutes, and then you have to pull it back to 36.9, whereas on the Papa motor, you can go to max torque, which I want to say is around 42, and carry it all the way through climb. So, your primary limitation becomes temp," he said.

"I typically like to fly a little more conservative, about 40 degrees back of max temp which would be 720 degrees



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on the Bravo motor and 780 on the Papa. The ability to run continuous temp higher, especially at altitude, made such a difference. Instead of climbing at a gross weight up at 24,000 feet and doing 350 feet per minute, where you decide to stop because it's not worth climbing anymore, now you are still doing 800 or 900 feet per minute. Now day-to-day you're flying at 27,000 to 28,000 feet, above the weather and with a much higher true airspeed with a similar fuel flow because you're higher."

Another one of the forward-facing improvements in the head-to-toe makeover was the propeller. Patey's choice reduced weight, as well as increased performance.

"We went to the five-blade composite propeller from Hartzell. I believe that it pulled about 50 pounds off the airplane, and it gave better takeoff performance during our flight testing. We were able to see a ten-percent shorter takeoff roll, which is a big deal because we fly our airplane into short

runways in the backcountry. Between the new prop and engine, it was a net weight loss."

With two projects completed, the PC-12 had grown stronger and slimmed down a little. It really started shedding weight during the following shop visits.

"The next thing we did was pull the Honeywell avionics out and added an entire Garmin panel. People would be shocked to see the kind of weight that comes out with all of the old computers and boxes that fill up the floor underneath the passenger cabin area. Not only did all of those boxes





completely disappear and weren't replaced with anything, but we also pulled the two massive wire bundles that went from the avionics all the way to the back of the airplane. We said to the shop that every single wire had to go instead of cutting and terminating them. I believe that just in the wires that were pulled, it was like 78 pounds. The whole project was responsible for around a 200-pound net loss."

Weight savings aside, Patey appreciates the newer avionics suite for other reasons as well. There are several features that he feels are superior to other platforms and help ensure his family's safety when in the air.

"And of course, now we have things like Smart Glide and a much more reliable autopilot. Our old autopilot was like many PC-12s where every time you hit really bad turbulence, it would give up and hand the plane

back to you. A pilot should be able to fly the airplane in IMC while in bad turbulence without an autopilot, but unfortunately, we've seen accidents where the autopilot kicked off. And it always seems to stop at the time you need it most," he said.

"I've now got almost 800 hours on the new panel, and it's never once kicked off on me. When you're flying a bumpy, windy, and rainy approach, I no longer have anxiety that any second the airplane's going to hand the controls to me halfway through a turn or after a wing has dropped. The autopilot disconnect anxiety has been removed and I think that's a big safety factor."






"Perry," as the aircraft has been nicknamed, sports a newer paint job as well. The distinct blue, black, and white livery travels down to the aircraft's tail, which is adorned with the logo for Patey's company, Best Aviation Products.

"When we build out Cubs, we always say that every gram counts. And when we built our race planes, we'd say that every ounce counts. The bigger the plane gets; it seems people tend to care less and less about weight. But when you come from racing airplanes, you

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understand that every pound you take out of the airplane is a pound that's gone forever," he said.

With this fact in mind, Patey stripped the airplane down to bare metal and formulated a game plan.

"We had all the paint stripped off the airplane. Usually, what people do is two to three coats of the base and then two to three coats of a clear to protect it. The Pilatus arguably has one of the

largest wings out there, so on that surface we went with a single stage paint with two coats. By doing that on the wing and the main white areas of the airplane, we figure we saved probably 130 to 140 pounds of weight in paint by going to a single stage."

But wait, there's more! Patey figured there was a way to optimize the cabin of the aircraft as well. He removed a considerable amount of weight

without trading the passenger seats in for lawn chairs.

"It's so easy to get caught up looking for just a color and not thinking about the material. We found an artificial leather that is really thin, flexible, and as durable as the thick stuff and wrapped all ten seats in it. This cut the weight in half, and then we pulled the original carpet out. The roll was so heavy that I thought I was

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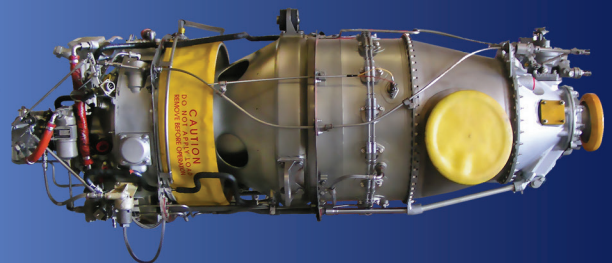
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going to hurt my back picking it up,” Patey recalled.

“There’s an argument to be made for carpets being part of your soundproofing. But for me, it was performance over soundproofing, and I also knew there was soundproofing within the floor and the walls. So, we took the gamble and went with the thinnest, lightest-weight carpet we could find and saved another significant amount of weight. Then, there was a table in the back that was never used because a seat was in the way. So, we took that out completely and then had the side panels done with really thin, light-weight materials. In the end, we can measure no notable difference in the decibels in the cabin during flight with the lighter weight materials.”

Patey explained that just about everything that can be completed on the aircraft has been incorporated. The final result is an improved legacy PC-12 costing a fraction of a new NGX model.

“We now have a Pilatus with the more powerful Papa motor that comes in at 6,020 pounds. I’d argue this is the lightest Pilatus on the planet with seats in it. It takes a freight dog to get that light,” he said.

“The newer Pilatus has gotten heavier and heavier. There are improvements and things they’ve done, but for me, none that make up the extra weight. I’m sitting at 800 pounds lighter than another Pilatus on the field, and I have a 300-pound higher payload, even though he has a gross weight that is 500 pounds higher. Weight is speed. Weight is time to climb. Weight is short field takeoff and landing performance.”

The aircraft comfortably meets most of Patey’s demands, especially the frequent route taken with the seats and baggage area full to the brim. Many times throughout the year, 10 family members will fly aboard Perry enroute to Galveston, which is about a 1,050 nautical mile flight. Stopping

for fuel on the way back when fighting westerly headwinds is an extremely rare occurrence.

“We have a range of around 1,650 nautical miles with an IFR reserve. This is not a whole lot different from other PC-12s, except if we are comparing it to the legacy Pilatus – we are doing that at a true airspeed of about 12 to 14 knots higher.” **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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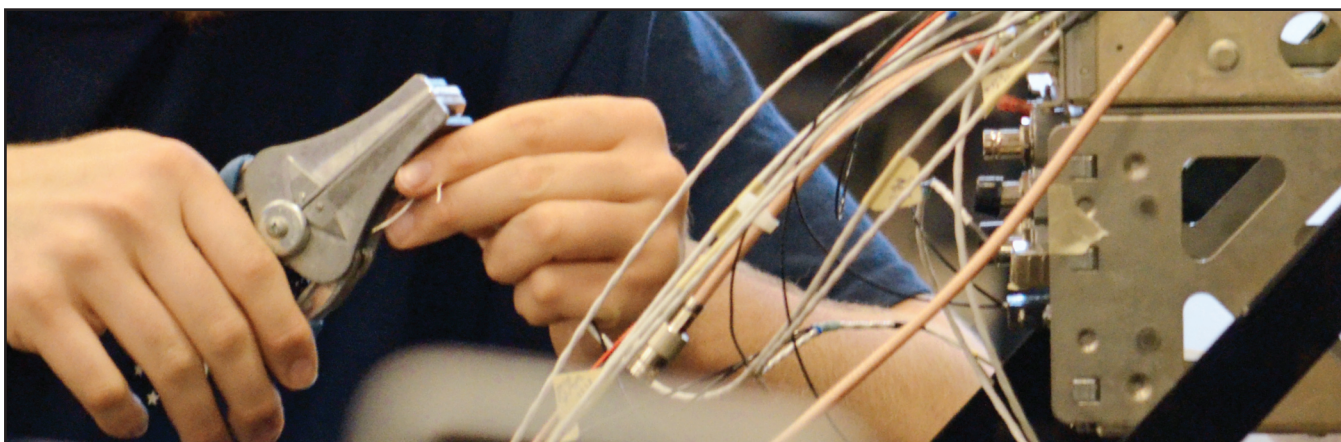
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Back in the Saddle

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At least I think that's what he said. I hadn't heard these words in years. And it wasn't like riding a bicycle. You don't remember this stuff forever.

Flying a jet is easy compared to the PBaron. Not being precise after an engine loss during a Citation takeoff is often just embarrassing. Screw up in a piston twin, and it's another story. I was soon to find out that the seconds from rotation in the PBaron (VR 81kts.) to single-engine climb speed (VYSE 115kts.) is a kind of "no man's land."

In the jet, we calculate every takeoff runway requirement with the expectation that one engine will fail. And we practice this event several times each year in the

simulator. We hold heading with rudder, raise the gear, and don't touch anything else. Successful completion of this drill is usually pretty easy.

It's not that way at all in a piston twin. Loss of an engine on takeoff in a PBaron is an exercise in hands and feet and brains that must be accomplished with memorized precision. And if the engine fails during "no man's land," the decision may be to land straight ahead and off the runway.

Practicing all these scenarios in the Baron is just too risky twenty feet off the ground. Because we do them at safe altitudes, it's hard to replicate as much of the stress induced near the ground. That's where a good simulator is so valuable.

Doug peppered my brain with "what ifs" during five days of initial training. "The most important thing is to have a plan developed prior to every takeoff," he said. "You were probably used to taking off in your jet with full fuel most of the time. But reduced weight in the PBaron is much more important to providing you with just enough extra climb performance to make it back to the runway. Think lighter weights and shorter legs."

"Even the timing of gear retraction may save your bacon."

He showed me his technique of keeping his hand on the gear selector until the aircraft had accelerated closer to blue line. Especially with longer runways, it might be possible to land on the remaining available if an engine decides to quit.

In flight, he showed me tricks he learned flying his PBaron. Like how to lean the engines while keeping the CHTs (cylinder head temperatures) happy. I likened the process to tuning a violin in a rainstorm.

"See that nut on the trim tab, said Doug. It's not supposed to rotate. And that heat plate on the engine. If it's loose, it needs to be welded." I would never have known to ask.


And that's where finding the best mentor or instructor is so important. Too often, we look for the cheapest or easiest way out. Whether it's in a full-motion jet simulator or your own airplane, you should leave every flight saying, "I did not know that."

Fly safe. **T&T**



Mentor/Instructor Doug Moss

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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to save
a life.

Corporate Angel Network (CAN) provides cancer patients free seats on jet and turboprop business aircraft to treatment throughout the United States.

Thanks to the generous support of our partners, CAN has coordinated more than 69,000 patient flights. Can you spare an empty seat or donate to our mission? The space you fill may well be in your heart.





STEVENS AEROSPACE AND DEFENSE SYSTEMS

EST. 1950

What Sets Us Apart?

Our people. Walk into any of our three service centers, and you'll immediately feel the difference. Our team brings more than just expertise—they bring heart, passion, and a love for aviation that's impossible to miss. Whether it's solving complex maintenance challenges or sharing stories about favorite airframes, our people are the lifeblood of everything we do.

- **Engagement:** We believe in partnerships, not just projects. Your aircraft is always accessible, and we're always here to walk you through every detail.
- **Expertise:** From seasoned industry veterans to fresh, innovative minds, our team combines decades of experience with forward-thinking solutions.
- **Passion:** It's not just about fixing planes—it's about helping our customers achieve their goals and reach their next destination.

Our Commitment to You

As we celebrate 75 incredible years, we want to reaffirm our gratitude and dedication to you—our customers, partners, and team members. Your trust and support have been the foundation of our success. Together, we've not only maintained aircraft but also built relationships that stand the test of time. Here's to 75 years of innovation, passion, and taking flight—and to many more as we continue honoring our commitment to you!

Looking to the Future

While we take pride in our history, our focus is always forward. Today, Stevens Aerospace offers comprehensive MRO capabilities, including maintenance, AOG support, avionics, interiors, paint, and government services—all delivered with the same personal touch that started it all.

STEVENS AEROSPACE.COM

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