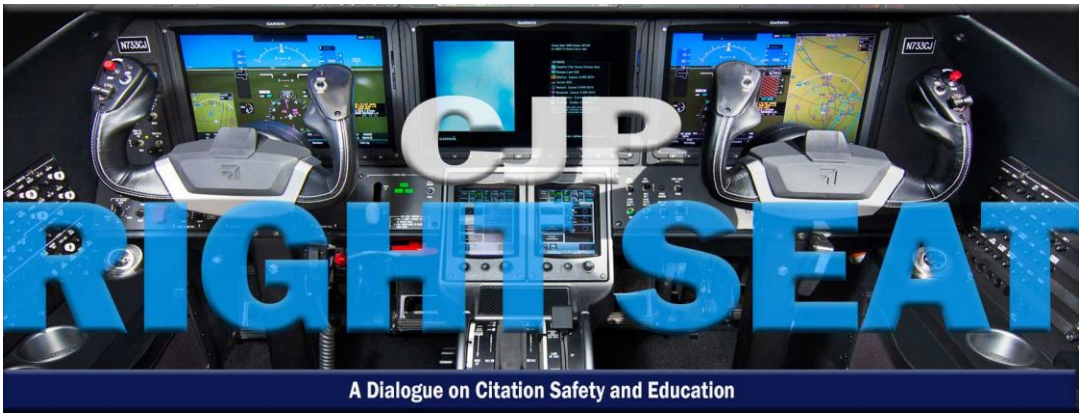
January 2024



— LATEST BRIEFING —

Extending CJP's Safety Streak into 2024

by Charlie Precourt, CJP Safety Committee Chairman

The recent runway surface collision at Houston Hobby between a Hawker taking off and a Citation Mustang landing marks the first serious incident for CJP in over three years. But this one is pretty strange. The collision occurred because the Hawker took off on an intersecting runway without clearance, while the Mustang was on landing roll.

The left wingtip of the Hawker clipped the tail of the Mustang as the two met at the intersection of Runways 22 and 13R. The Mustang was operating correctly per his landing clearance and thankfully no one was hurt. This could have been much worse, had the timing of the two aircraft entering the intersection been only a fraction of a second earlier. In this edition of *Right Seat*, we'll cover more of what we know to date of this incident as well as some interesting updates on several other topics:

- We'll share an interesting Q&A between David Miller and Jonathan Bailey on Safe to Land(sm) program details. Jonathan is a member of your board of directors and also leads our safety subcommittee on Safe to Land(sm).
- William Elliott provides a recap of Collins Aerospace's Gold Standard Safety Award Dinner
- We share the report from the NTSB on a Gulfstream G150 Overrun accident that was precipitated by the crew's "race" to land ahead of converging traffic at the airport.
- We also link here to a pair of good reads from Twin and Turbine and Aviation International News highlighting our Nashville Safety Standdown, particularly the content on FOQA and Safe to Land(sm).
- Finally, we share a link to a recent NBAA publication on avoiding Runway Excursions

The NTSB Preliminary Report on the Mustang and Hawker surface collision can be found here. The incident occurred on October 24th just after 3 pm local time at the Houston Hobby Airport (KHOU).

Weather was VFR, and the airport was conducting simultaneous operations to Runways 13 R and 22. The Mustang was cleared to land on 13R, and the Hawker was cleared to "line up and wait" on 22.

Without clearance the crew of the Hawker began their takeoff roll and ignored calls from the control tower to stop their takeoff. The two aircraft met in the intersection with Hawker's left wingtip striking the tail cone of the Mustang.

The Hawker continued its takeoff and subsequently returned to land at Hobby. There were no injuries… thanks only to some incredible luck. Given the speeds of the two aircraft at impact, a mere 1/20th of a second earlier intercept would have resulted in the cockpit of the Hawker striking the center of the Mustang airframe.

This incident comes on the heels of a number of other close calls involving intersecting runway operations (Boston Logan, for example) which have attracted the FAAs full attention. There are sure to be a number of recommendations and perhaps some rule changes to come out of the Hobby incident now that there has been a collision and not just a near miss.

Beyond the mistake of failing to lineup and wait, it appears the Hawker crew was distracted with the V-speeds being deselected from their PFD displays and they also had both a rudder bias and pitch trim bias alert during their takeoff roll… but elected to continue (uncleared) their takeoff.

What we can learn from this accident ahead of the final NTSB investigation report is informed by a review of how simultaneous runway operations are supposed to work. There were three parties involved here, the two aircraft crews and the tower controllers. Per FAAs Joint Order 7110.65, which is the book controllers go by, there are several requirements to meet when conducting simultaneous runway operations.

The first of these requirements is the calls tower must make. From 7110.65: *"When aircraft are authorized to line up and wait on runways that intersect, traffic (calls) must be exchanged between that (LUAW) aircraft and the (other) aircraft that is authorized ... to land at the intersecting runway(s)"*

EXAMPLE -

"Delta One, Runway Four, line up and wait, traffic landing Runway Three-One."
"United Five, Runway Three-One, cleared to land. Traffic holding in position Runway Four."

In the Hobby scenario, according to the NTSB preliminary report, when the controller cleared the Hawker onto the runway to Lineup and Wait, there was not a call made informing of the landing traffic on the intersecting runway.

From the preliminary report:

"At 1518:01 the local controller instructed the crew of N269AA to LUAW on runway 22, to which the crew acknowledged. The local controller did not give a traffic advisory to N269AA."

For our own operations in the future, we should be alert for ATIS information advising of simultaneous runway operations and be attentive to tower calls to aircraft to both runways. If landing, if the tower fails to make this required call, query the controller whether there is traffic on the intersecting runway. Similarly, if cleared to takeoff in this situation, be alert for an advisory from tower about traffic arriving to the intersecting runway. If they don't provide it, ask.

It also goes without saying that the Hawker crew appears to have made a number of serious errors starting with acknowledging the "lineup and wait" clearance... but then allowing a V-speed posting anomaly to distract them into thinking they were cleared for takeoff. They also apparently continued takeoff even though they had control system warning lights early in the takeoff roll, which per CJP SOPs would have called for an abort.

Asking to hold to address the V-speeds, rather than rush into position, or aborting early for the control bias alerts, would have been better decisions, and either delay would have broken the chain of events in this incident.

Some other considerations for you when there are simultaneous operations to intersecting runways.

- Determine ahead of time if your landing performance data would enable stopping short of the intersection. If this is the case, planning to be at taxi speed or below prior to the intersection gives you options to avoid traffic conflicts.
- Don't plan on being able to see the other aircraft. At Hobby, the airline terminal blocks views to/from either runway and the aircraft were within a few seconds of impact before either had a remote chance of seeing the other.
- Ensure tower makes the calls expected (examples above). If they fail to call, query them by the 200-foot STL gate for any LUAW on the intersecting runway: "Tower, Citation 234W, reconfirm cleared to land Rwy 13R with traffic holding on Rwy22." Remain vigilant/visually scan for traffic conflict departing from intersecting runway and plan a go around if necessary.

If you have some thoughts of your own regarding this scenario, we'd like to hear from you. We have been contemplating some additions (like the above) to our CJP SOPs that can mitigate our risks. We also are engaging through NBAA on inputs to the FAAs operating procedures. We hope they will reconsider their use of Line Up and Wait. We all know it can feel uncomfortable holding for an extended period on the runway while unable to see aircraft that might be arriving behind us. A better option might be a call from the tower to "hold short and be prepared for an immediate." The extra time required over lineup and wait may be insignificant.

Figure 1- Houston Hobby Runway 13R Blue Track (Mustang) and 22 Red Track (Hawker) NTSB images

Fig 2 - Mustang Tail Section Damage *Fig. 3. Hawker Left Wingtip - Winglet...Gone*

Fly Safe!

Charlie

Five Questions with CJP's Jonathan Bailey

by David Miller, CJP co-founder and past Director of Programs and Safety Education for the CJP Safety and Education Foundation

Editor's Note: Capt. Dave sat down last Fall with CJP member and Safe to Land(sm) subcommittee chair Jonathan Bailey to discuss CJP's industry-respected initiative to curb runway excursions.

1. You have taken a keen interest in the Safe to Land(sm) initiative. How did you get involved?

I was asked to join the first STL working group session in 2021, where we met with Presage Group, Textron, Flight Safety, Garmin and Neil Singer to analyze the CJP pilot survey data and develop new approach and Go-Around SOPs.

I found myself in a room with some very smart and experienced people who looked at the data with open minds and listened to one another; it was an amazing experience. We had an opportunity to address fundamental gaps in aviation training and flight procedures and create a pilot-centric approach playbook with seamless guidance all the way to a safe landing or Go-Around decision. We first dove into aircraft performance and approach design criteria. Then, using the data from our own pilot group, we developed the STL procedures to fit with a pilot's natural workflow. What really grabbed me was the human factors component - if everyone is trained and tested to such high standards, why are GA jets still going off the runway? Why are pilots choosing to operate well outside the known performance envelope? Presage's guidance through this process was key - their work targets behavioral risk, helping aviators to avoid invisible human errors. Analyzing and improving how we think about our flying, trying to be better and safer pilots, is fascinating to me.

2. What's your flying background?

My Dad is a GA pilot, but I didn't get the bug until my late 30's when we moved our office next to an airport. I owned several Cirrus's, then a 421C, and finally set my sights on a jet. Our CJ2 was purchased in 2017 and I now have about 750 hours. I fly about 130 hours a year. I just attended upset recovery training for the first time and discovered that I do, in fact, enjoy unusual attitudes. I will have to find a way to 'go inverted' more often (in the proper aircraft, of course!)

3. How has the STL effort changed the way you fly your Citation?

First, I have slowed down on approach, especially in the last 1000'. Second, by using the STL TOLD Card with TPL, Cue Card, and other available tools I now have a plan for every phase of an approach and landing. There is no point where I am guessing about the correct action or outcome, so STL helps me operate on a higher level. My flight planning, including fuel reserves and alternate airport selection, has also improved. One very unexpected benefit relates to handling abnormal situations. I have had two in-flight mechanical issues this year, both on short final at my busy home airport: 1) R engine would not go to idle power, and 2) an Anti-Skid inop annunciation. Because I had done my TPL runway analysis, I knew exactly how much runway distance I had in reserve and could make an informed decision to continue instead of going around in a busy VFR training environment. STL simply makes flying more enjoyable since most of those previously nagging 'what-if's' are already addressed. It's a great risk management tool with broader applications than I had originally envisioned.

4. Was it hard to incorporate the callouts and cue card information in your daily flying? How should others make the STL initiative work for them?

I found the cue card callouts easy to incorporate, because they are designed to work in harmony with a pilot's workflows. An STL approach is like flying down the inside of a funnel - if you can stay inside the tapering limits, you continue. If not, you go around. I've been advocating that every pilot should try 10 approaches targeting a stable Vref from 1000' agl. Not because every approach needs to be flown this way (I don't fly every approach this way), but to recalibrate one's senses and internalize Vref as safe and comfortable. I talk with pilots and instructors having 10x my experience who still tell me it is unsafe to fly at Vref. There is a lot of myth-busting to be done. Practicing Vref-1000' approaches helped me break my own bad habit of coming in hot. And because I am not so busy slowing down on short final, I am also better primed to Go-Around if needed.

For others looking to incorporate STL, my advice is to just try using the STL TOLD Card with TPL along with the STL Cue Card on the next few flights. STL will quickly become second nature, and I truly believe the benefits are so obvious that no one will stop. A pilot may find that certain components of STL have more importance for their operations. That's fine, they should just use what works for them provided they take the time to understand everything first. Also, pilots should take part in STL ground and sim training regularly; we all know aviation skills are perishable. We are pushing for more STL sim training availability, so we can all practice the STL 'Limit' situations. In the meantime, CJP is producing lots of useful videos to keep STL front of mind.

5. Where do you see CJP's safety efforts headed in the next few years?

We are already thinking about STL 2.0. Other than member input, our key STL feedback loop is the CJP FOQA program. FOQA data will tell us if the gates and limits we originally selected are appropriate, and if STL is improving how we operate. We will take deeper dives into related topics such as instrument vs visual glide path misalignment, and discontinued landings in VMC. We are working on expanding sim training availability, and eventually incorporating STL scenarios

in 61.58 training too. Bigger picture, we want to promote the STL concept outside CJP to help reduce runway excursions across all GA jet operations. Other ownership groups are reaching out for support; Charlie and David are helping to spread the message by speaking with these groups and other aviation associations regularly.

Scenes from CJP Gold Standard Safety Award Day

by William Elliott, SE Regional Sales Manager, Collins Aerospace

On Thursday, August 3rd of last year, five CJP members convened at Duncan Aviation in Provo, UT for the Collins Aerospace-led Gold Standard Safety Award Day. Members included Ron & Kristy Fedrick, Phil Milroy, John Forsythe, Blake Spry, & Ryan Stringer. The event kicked off with dinner at a local favorite, Communal.

The event was tailored around safety with three prominent expert speakers in the field of safety. Presenters were Erik Eliel, Kodey Bogart, and Bob Van Riper; with a wonderful Duncan Aviation tour by Chad Doehring, Provo General Manager.

Erik Eliel topics were Better Good than Lucky & Task Saturation & Spatial Disorientation. Erik uses his vast experience from many years of USAF training & teaching culminating in flying the Lockheed U2.

Kodey Bogart (above) brings many years of passion for safety while serving in the US Army as a Blackhawk pilot, and a career serving the public with a Florida County Sherriff's Dept. Now on her own has created KB Solutions LLC specializing in SMS consultation and presentations. And, as a new venture, a line of children's books coming out very soon, highlighting female hero characters. (See picture of first cartoon character.)

Bob Van Riper with Collins Aerospace, Winslow Life Raft brought an informative presentation about life rafts, how to check compliance, how to know dates of certification, what should be inside the raft for survival, and finally conducted a full demo inflation of a 6-man raft, right in Duncan's foyer!

Chad Doehring, Duncan Aviation, GM at Provo took the group on an extensive and impressive tour of the Duncan facility. Here they learned how an MRO like Duncan protects its personnel, aircraft, and the environment.

This facility is certified Green and has two large paint hangars, where the air and water coming out is cleaner than when it entered. Duncan's greatest assets are its people, and this is evidenced by the thoughtfulness in its facilities, such as windows throughout showing off all the Utah mountains surrounding airport, a full gym, and full medical facility on site.

NTSB Determines G150 Crew's 'Race' to Land Led to Overrun

by Charlie Precourt, CJP Safety Committee Chairman

Our focus on runway overruns remains well justified. According to a couple of recent AIN articles, runway excursions remain the nemesis of business jet operators. In their January 15 issue, AIN published a 2023 summary of business jet accidents. There were unfortunately some steep increases in fatalities, with six US-registered aircraft suffering 23 fatalities, compared to zero in 2022.

Figure 2 - NTSB Photo

Runway excursions continue to be the most common non-fatal accident, with a total of 39 for business jets last year. The good news for CJP is we continue our streak into 2024 with zero fatalities and zero excursions in over three years. We credit our Safe to Land(sm) program (STL) for providing the SOPs that help us avoid runway excursions. If you haven't been exposed to STL yet check it out at our website Safety page.

A particularly eye-opening business jet excursion last year involved a Gulfstream G150 (above) whose crew made some critical errors rushing to get to the airport ahead of other traffic. Here is the summary from the NTSB's Probable Cause report on the May 5, 2021 accident, with the full report and docket available.

> The pilot in command (PIC) and second-in-command (SIC) completed an uneventful positioning flight to pick up passengers and then continued to the destination airport. Cockpit voice recorder (CVR) information revealed that, while en route, the PIC expressed a desire to complete the flight as quickly as possible and arrive at the destination before another airplane that was also enroute to the destination airport, presumably to please the passengers. The PIC compared the flight with an automobile race, and the airplane's overspeed warning annunciated multiple times during the descent. The flight crew elected to conduct a straight-in visual approach to land. Throughout the final approach, the airplane was high and fast, as evidenced by the SIC's airspeed callouts. When the SIC asked whether s-turns should be made, and the PIC responded that such turns were not necessary. An electronic voice recorded by the CVR repeatedly provided "sink rate" and "pull up" warnings while the airplane was on final approach, providing indications to the crewmembers that the approach was unstable, but they continued the landing. The airplane touched down about 1,000 ft down the 4,200-ft-long runway. The PIC described that the airplane's wheel brakes, thrust reversers, and ground air brakes did not function after touchdown, but witness and video evidence showed that the thrust reversers deployed shortly after touchdown. In addition, tire skid marks indicated that wheel braking occurred throughout the ground roll and increased heavily during the final 1,500 ft of the runway when the antiskid system activated. The ground air brakes did not deploy. The airplane overran the runway and came to rest about 400 ft past the departure end of the runway in marshy terrain. The fuselage and wings sustained substantial damage.

The switch that controlled the automatic deployment of the ground air brake system was found in a position that should have allowed for their automatic deployment upon landing. There was no evidence to indicate a preaccident mechanical malfunction or failure with the hydraulic system, wheel brakes, thrust reversers, and weight-on-wheel switches, or electrical issues with either air brake switches. The airplane's ground air brake deployment system logic required that both throttle levers be below 18° (throttle lever angle) in order to activate. The accident airplane's throttle lever position microswitches were tested after the accident. The left throttle microswitch tested normal, but the right throttle microswitch produced an abnormal electrical current/resistance during initial testing. When the throttle was touched and then further manipulated by hand, the electrical resistance tested normal. The investigation was unable to determine whether the intermittent right throttle microswitch resistance prevented the ground air brakes from deploying because the testing was inconclusive. Landing performance calculations showed that, without ground air brakes, the landing ground roll exceeded the runway that was available from the airplane's touchdown point about 1,000 ft down the runway. Mobile phone video evidence revealed that a quartering tailwind of about 10 to 15 knots persisted during the landing, which exceeded the manufacturer's tailwind landing limitation of 10 knots for the airplane, and thus would have further increased the actual ground roll distance beyond that calculated. Throughout the final approach, the flight crew received several indications that the approach was unstable. The flight crew was aware that the airplane was approaching the runway high, fast, and at an abnormal sink rate. Both pilots had an opportunity to call for a go-around, which would have been the appropriate action. However, it is likely that the external pressures that the PIC and SIC accepted to complete the flight as quickly as possible influenced their decision-making in continuing the approach.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The flight crew's continuation of an unstable approach and the failure of the ground air brakes to deploy upon touchdown, both of which resulted in the runway overrun. Contributing was the crew's motivation and response to external pressures to complete the flight as quickly as possible to accommodate passenger wishes and the crew's decision to land with a quartering tailwind that exceeded the airplane's limitations.

Navigating the Skies with Confidence: CJP's Commitment to Safety

by Tigre Pickett, *Twin & Turbine Magazine*

Editor's Note: Tigre Pickett is the son of CJP member and mentor pilot Rich Pickett. Tigre did an excellent job covering the salient points of our safety standdown at Nashville. Particularly if you missed it this year, his summary is a great way to catch the important stuff. His article appeared in a recent edition of Twin and Turbine *and is reprinted with their permission. Thanks, Tigre!*

As pilots, we navigate a world of inherent risks, constantly seeking ways to minimize them and ensure the safe return of our precious cargo: our passengers and ourselves. During my first Citation Jet Pilots Association (CJP) annual meeting in Nashville, Tennessee, I witnessed firsthand the organization's unwavering commitment to safety through its engaging safety stand-downs and presentations.

Figure 3 - "What Good Looks Like" panel. Stratton Imaging photo

I was familiar with CJP's Safe to Land (STL) efforts. Still, I had a lot to learn about the history of the program and the efforts to use data collected from Flight Data Monitoring (FDM) to reduce approach and landing accidents (ALAs) in their membership and for Citation pilots at large.

As a newer professional pilot and student CFI, I wanted to learn more about CJP's safety efforts. So, I spoke with Charlie Precourt, a former U.S. Air Force pilot and NASA astronaut. Charlie also chairs the CJP Safety Committee and co-founded Safe to Land. He described their data-driven approaches to reduce flight risk during aircraft approaches and landings.

CJP's Safe to Land and data monitoring initiatives were inspired by Flight Safety Foundation's (FSF) 2017 safety report, which explored psychological factors impacting pilots' "intentional noncompliance with critical safety policy" and reticence to go around during unstable approaches or landings.

The FSF study shows that approach and landing account for roughly 65% of all accidents, and over a 16-year period, 83% of runway excursions could've been avoided by choosing to go around. Moreover, go-arounds were executed only 3% of the time for unstable approaches.

Even data from the National Transportation Safety Board (NTSB) underscores that 43% of all General Aviation (GA) mishaps from 2012 to 2021 were associated with the approach and landing phases of flight.

So, given all the hours of training and check rides that high-performance and professional-level pilots go through, why are pilots still having mostly preventable accidents on approach and landing? According to the FSF study, training, experience, and culture regarding the go-around are major contributing factors.

The go-around, an essential and standard maneuver when an approach or landing is unsafe, is often forgotten after the check ride. Speaking from my own experience, I busted my first type rating after a bungled VOR approach. I bugged an incorrect localizer frequency and struggled to troubleshoot the issue. At the same time, in the simulated soup and at MDA - instead of recognizing the go-around as my get-out-of-jail-card option - it took my DPE to remind me, "Perhaps you want to go around?"

The FSF's findings echoed my mentality - stable or unstable, pilots and crews wanted to land the plane. Crew's noncompliance with go-around procedures, get-there-itis, and industry culture accepting or tolerating noncompliance reinforced those habits and patterns. Sprinkle in minimal real- world go-around experience, fear of go-around risks, and challenging ATC instructions in a high workload environment, and all of this adds up to pilots making ALAs instead of go-arounds.

Charlie and the CJP Safety Committee were concerned about the high rate of runway excursions - 50% of all accidents - among all Citation aircraft operators, including CJP members. They began to wonder what habits Citation pilots had developed that contributed to these runway excursions and how they could help pilots be better.

Recognizing that approaches and landings were the predominant causes of accidents or incidents, the CJP Safety and Education Foundation hired the Presage Group in 2021 to survey CJP members and explore what may be contributing to this alarming statistic.

Following the survey, two parallel initiatives were born: Safe to Land (STL) and Flight Data Monitoring (FDM).

STL's primary goal is not to dictate how pilots should operate their aircraft but to provide them with insights that encourage thoughtful and safe flying. Recognizing the psychological hurdles for pilots, STL added a new "yellow zone" to the traditional approach standards of stable (green) and go- around (red). Pilots can acknowledge the unstable approach issue, attempt to fix it, and then have a commitment point to execute a go-around.

Recognizing that some approaches go unstable below the 200-foot gate and even as late as in the touchdown zone, the STL procedures add to the traditional Stable Approach criteria by including Touchdown Zone Gates for landing factors like floating or drifting and go-around decision points where continuing to attempt to touchdown could result in an overrun. These points are called touchdown point limits, and reference markers on the runway used as visual cues (intersecting taxiways, runway remaining markers, etc.).

In a testament to CJP's members and STL efforts, while Citation pilots still have ALAs and excursions, CJP members have had zero incidents or accidents since STL's inception.

STL's sister initiative, FDM, was created to apply Flight Operations Quality Assurance (FOQA) practices that charter operations and airlines were using and bring them to the GA level. By collecting voluntary flight data and aggregating it with data from similar airframes and operating conditions, CJP hoped to identify trends and provide educational insights to its members.

Excitement and early adoption of the FDM program were sluggish compared to STL. Many pilots were apprehensive about the notion of 'Big Brother' having access to their flight data, fearing potential repercussions.

Figure 4 - CJP FDM STL illustration. Tigre Pickett/T&T image

Recognizing the valid concerns surrounding data privacy, Precourt reassured, "We've taken the precaution of anonymizing data from the very inception of this initiative and have implemented stringent mechanisms to safeguard the anonymity of all contributors."

"Neither I nor any other CJP personnel can access your individual flight data. We've entrusted this responsibility to a designated entity that meticulously upholds the privacy of our system."

This data's entrusted guardian is CloudAhoy (now operating as ForeFlight Flight Data Analysis). Their selection was predicated on their data-centric approach to flight analysis and debriefing tools, ensuring that all shared data remains encrypted and securely relayed for comprehensive aggregation and trend analysis.

Another challenge for CJP's FDM was gathering data across a fleet spanning decades and numerous software and technology iterations. Conventional airlines spend significant sums, well into six figures per aircraft, on capturing and analyzing flight data. Thankfully, one of CJP's sponsors, AirSync, was able to save significant sums by providing hardware for automatically capturing and securely transmitting flight data through AirSync Web Services to the user's account and the various third-party analysis services the user has selected, such as Cloud Ahoy.

Previously, CJP tapped Garmin's MFD data card and newer Citation's maintenance logging Aircraft Recording System (AReS) recorders to help document how its pilots were flying. Newer AReS II recorders even allowed CJP's FDM to capture and analyze an extensive array of parameters and data, including speed, computer errors, weight on wheels, flaps, gear position, and throttle position.

A primary objective for CJP's Safety Committee was to ensure that both programs assist its pilot members in better anticipating flight risks and dealing with them safely. STL is geared towards reducing approach and landing accidents. At the same time, their FDM initiative hopes to inform pilots of areas where they could be bumping up against limits set by their Airplane Flight Manual (AFM), the Federal Aviation Regulations (FARs), and CJP's Standard Operating Procedures (SOPs).

Exceeding limits such as VMO/MMO during descent, receiving warnings of flap or gear overspeed, G-limit transgressions, and autopilot activations beyond prescribed limits are all data points that FDM captures. This data is then sent near-instantaneously to anonymized databases for review and compared directly to similar airframes and even to FARs to see improvement and risk reduction areas.

"What we've learned, both as pilots and through our work with the CJP Safety Committee, is that accidents or incidents typically result from a confluence of factors," Precourt emphasized. "By scrutinizing our flight performance and exploring this data across various metrics, we are embracing a trend already prevalent among the newest generation of student pilots. They can compare their flight performance to their peers, receive constructive debriefs, and evolve into safer, more skilled aviators."

FlightSafety has collaborated with CJP to introduce a Safe to Land Course, and Gulfstream is now working with FlightSafety to set up its version of Safe to Land. Additionally, Honda has launched a version of Safe to Land.

The FlightSafety course comprises a one-day simulation training program, encompassing two hours of classroom instruction and two hours in the simulator. It includes 11 scenarios designed to simulate "insidious instabilities" and real-life borderline cases where the choice between "Continue" and "Go Around" is critical.

"The FlightSafety course underscores the imperative of monitoring the gates," Precourt emphasized. "Many of these scenarios are geared towards ensuring that the pilot is cognizant of the gate limits and respects them."

"While not every scenario yields a straightforward 'black or white' answer, there will be cases where either a 'Go Around' or a landing would have been acceptable. However, our aim is to inculcate the awareness that both options exist and the potential need for a 'Go Around.' Rather than persisting blindly and realizing later that 'I barely managed to stop this thing!'", Precourt added.

Precourt anticipates the rich insights and possible insurance savings the accumulated data will unveil in the years ahead. CJP is already identifying areas where awareness and training can be further enhanced for Citation pilots.

With comprehensive and statistically robust data, the team has discerned a trend. While straight-in approaches for CJP pilots have improved due to three years of Safe to Land training, VFR traffic patterns are often executed too tightly and without stabilization, contravening the SOPs.

Data analysis and mapping show that pilots can achieve stabilization above the 500-foot decision gate if they adopt a less constricted base turn. At the annual convention, Precourt was educating pilots to ensure a minimum 2.5-mile radius for the base turn, which positions them to roll out at 600' AGL and allows them to fly stabilized for two gates for the final approach.

With Citation Jet Pilots embracing more disciplined approaches to safer flying, they are paving the way for other owner-pilot associations to utilize flight performance data to protect lives and aircraft and maybe - just maybe - lower insurance premiums for being safe to land.

Focus on FOQA at Citation Jet Pilots Convention

CJP members have an enviable safety record

by Matt Thurber, Editor-in-Chief, *Aviation International News*

Editor's Note: We're pleased to also include this coverage of the 2023 CJP Annual Convention's safety focus by AIN E-I-C Matt Thurber. This article is reprinted with permission by Aviation International News.

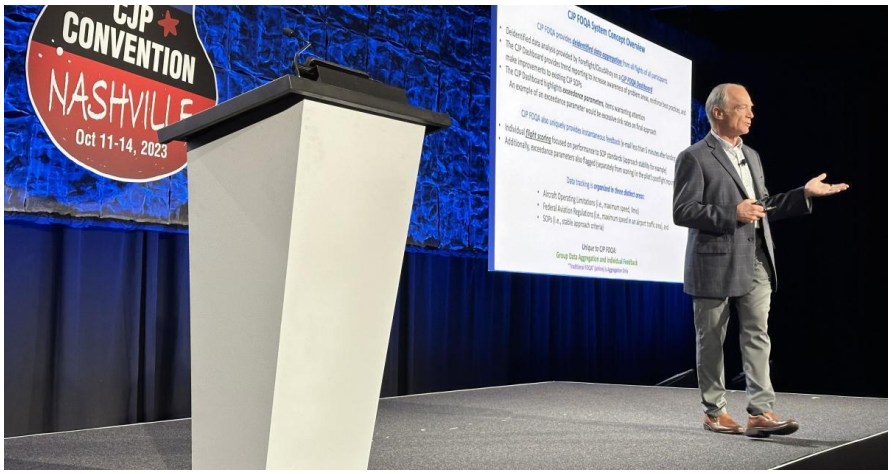


Figure 5 - Citation CJ1+ owner and safety expert Charlie Precourt congratulated Citation Jet Pilots on their excellent safety record. Matt Thurber/AIN photo

Members of the Citation Jet Pilots (CJP) association gathered in Nashville in early October to celebrate their safety record and continue learning how to improve and share CJP safety information with the Citation pilot community.

For the third year in a row, CJP members have not had any incidents or accidents, a remarkable record for the 1,358 members who fly 954 Citations. “We have very good fliers,” said Charlie Precourt, former Space Shuttle commander, chairman of the CJP safety committee, and owner of a CJ1+.

Precourt shared some initial results of the CJP flight operations quality assurance (FOQA) program, which uses the ForeFlight Data Analysis system (formerly CloudAhoy) for post-flight analysis. The FOQA system has already recorded 5,000 flights by CJP members, and a few “items are warranting attention,” he said. For the most part, CJP members are flying better than average industry standards on unstable approaches.

“In less than 2 percent [of approaches] would we trigger the unstable approach criteria,” he said, “while the industry standard is 3 percent instability at a gate.”

A gate is a point where a pilot has to determine either if the approach is stable or if a correction needs to be made or a go-around initiated. While most stable approach criteria use gates at 1,000 feet (IFR) and 500 feet (VFR), the CJP's Safe to Land initiative has selected a more flexible final gate of 200 feet where pilots must go around if stable approach criteria aren't met. This gives pilots more flexibility to make corrections, within certain parameters, from 500 feet to 200 feet. “We implemented the lower gate to 200 feet,” Precourt explained. “If we included that, we'd be much less than 2 percent. There are a lot of unstable approaches being fixed between 500 and 200 feet.”

Interestingly, the data show that exceedances are occurring 10 times more on visual approaches compared to IFR approaches, and visuals are flown 50 percent of the time. These include occasional high sink rates below 1,000 and 500 feet during visual approaches, including some as high as 2,500 fpm for more than six seconds below 1,000 feet. “What is pushing people into that corner, and can we do something?” he asked.

Some of this may be due to air traffic control (ATC) instructions, but CJP is planning to launch a project to study these anomalies. To mitigate these situations, Precourt recommended, “The use of the word ‘unable' [with ATC] is the most powerful tool you have. They can't fly your airplane.”

Other parameters are showing good results—for example, the Safe to Land goal of not exceeding a 15-degree bank below 200 feet. “We are doing well with this,” he said. Pilots are maintaining the proper landing reference speed (Vref) at the runway threshold, and touchdown point is “most densely packed at [the correct] 1,000 feet.”

Figure 6 - Citation models at Smyrna, TN. Citation Jet Pilots Owner Pilot Association 2023 convention. Matt Thurber/AIN photo

Owner-pilots flew a variety of Citation models to Smyrna, Tennessee, to attend the Citation Jet Pilots Owner Pilot Association convention in nearby Nashville. (Photo: Matt Thurber)
That said, the CJP FOQA parameters are still a work in progress, and some items aren't being used because the parameters aren't yet trustworthy. “We're working towards getting all of them turned on,” he said. “We want to get you accurate information.”

Some of the parameters that haven't been switched on and need further research include runway remaining, but the trend at meeting the parameter of slowing to 70 knots by 1,000 feet runway remaining is a “good trend,” according to Precourt. N1 rpm on final is another parameter that likely will be switched on, and this measures whether the power setting is stable during the approach. “If you're at idle for 25 or 30 seconds [on approach], you're struggling,” he said.

Precourt outlined an ongoing discussion about traffic pattern operations for Citation pilots. FAA best practices say to avoid straight-in approaches unless flying an IFR approach. But when in visual conditions, the best way to enter the traffic pattern is over the airport, then turn on downwind leg but 500 feet above the light airplane traffic pattern altitude. Speed on downwind should be Vref+20, and below 2,000 feet, the maximum descent rate should be 1,000 fpm.

At an airport with parallel runways, use an instrument approach or the avionics' visual approach feature to set up guidance to the correct runway. Two mid-air collision accidents, at North Las Vegas (2022) and Centennial, Colorado (2021), were due to one of the aircraft not properly lining up with the assigned runway. "Having a backup approach in your FMS is really advised,” he said.

Another critical element for visual approaches that aren't straight-in is to maintain the correct distance from the runway while flying the traffic pattern in a jet. The downwind leg is best flown at 1.5 to 2 nm from the runway, and base leg should be no closer than 2.5 nm from the runway threshold, Precourt advised, but 3 nm is best. After stabilizing at 160 knots on downwind, pilots should set landing configuration (landing gear down and full flaps) before turning base and then slow to Vref+10.

An ongoing debate is about whether pilots should follow vertical glide path guidance from an ILS or LPV approach when the visual glide path indicator (PAPI or VASI) becomes visible or transition to the glide path indicator. “Some PAPIs or VASIs are not coincident with the ILS,” he said. But pilots should transition to following the PAPI or VASI at decision altitude because they provide obstacle clearance, while the ILS or LPV vertical guidance provides obstacle clearance only to the end of the approach, the decision altitude point. “Get off the PFD [primary flight display] glide path and transition to VASI/PAPI,” he recommended.

Summarizing his discussion of the CJP FOQA program, Precourt said, “We're being given a gift with this data. We are three years running where nobody else in general aviation can touch our record. This is a big part of our success in our future.”

NBAA's New Guide on Runway Excursions

To close out this issue of Right Seat, we want to bring your attention to a new resource from NBAA. They recently published their guide to Reducing Runway Excursions in Business Aviation.

This 25-page little jewel, available to download here, is worth adding to your aviation library. It is a nice summary of much of the information we've covered in our Convention Safety Standdowns and serves as a good reference for your future use. Enjoy... and thanks to our friends at NBAA.

Citation Jet Pilots is the world's premier Cessna Citation aircraft owner-pilot organization. If you are a Citation owner-pilot who wants to operate your aircraft more safely, professionally, and economically, this is the place to be.