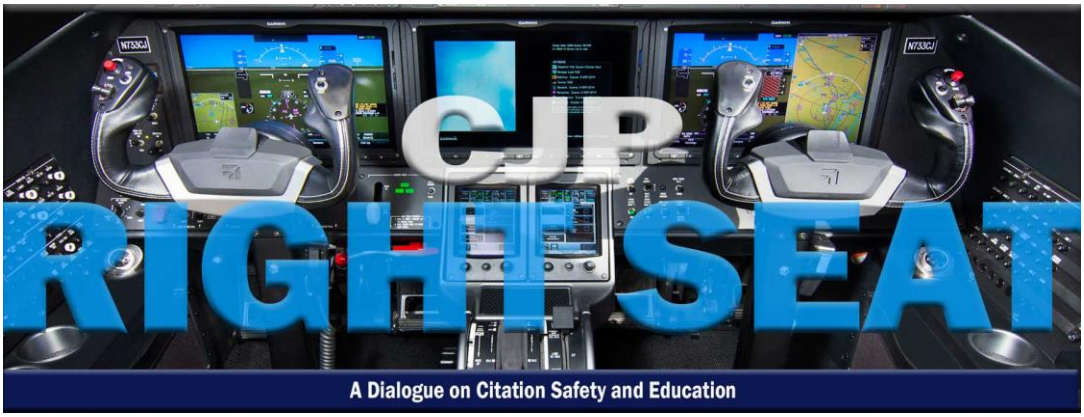
April 2021



— LATEST BRIEFING —

Ready to Roll? New CJP Safety Initiatives Kickoff this Spring

by Charlie Precourt, CJP Safety Committee Chairman

It's difficult to believe sometimes that it's been four years since the formation of the CJP Safety Committee, as we've accomplished a great deal in that time. In this issue of "Right Seat," we'll review CJP's work to-date in fostering an effective safety culture throughout our association, and then discuss "What Good Looks Like" with Neil Singer – but first, I'm excited to roll out a couple of new safety initiatives for our members that we think will really move the needle.

We've hinted for a while now at our efforts to develop Citation-specific criteria for go-arounds to address runway overruns in our community. We've also pursued FOQA, or Flight Operations Quality Assurance (flight data monitoring) to assist us in finding trends in our operations before they result in an accident. As we kickoff the second quarter of 2021, both of these initiatives are ready to roll, and we need your participation!

First, our CJP Go-Around study. We've commissioned the Presage Group to conduct this first-ever study of single pilot operations. We decided to pursue this after speaking with the chief pilots at Southwest Airlines and Air Canada (among a few others). They were so pleased by the results of having their pilots take part in the study, and the positive outcomes of their new SOPs that we felt we ought to take a deeper look. This initiative came about from our interface with the Flight Safety Foundation (FSF). Many years ago, FSF developed the stabilized approach criteria we are all familiar with, and that we use in our own SOPs.

There are seven items to watch for in a stabilized approach: gear down, flaps as required, speed brakes retracted, speed, throttle setting, glidepath, and course, all within targets. If you watched our presentation at last fall's CJP virtual convention where we debriefed the Dale Earnhardt Jr. Latitude overrun, you'll recall that the crew in that incident was actually

unstable on six of these seven parameters, but pressed on anyway. In fact statistics show that only 3% of unstable approaches result in a go-around. The reason? Pilots haven't bought into the stable approach criteria as absolutely necessitating a go-around... the mindset that "we can fix it." In fact, most of the time we can… if we're 25 knots fast at 1000 AGL, does that necessitate a go-around? Probably not… but then, what does? And, we can fix it until the day we can't, like for the Latitude crew.

So the Flight Safety Foundation performed another study recently that demonstrated we need distinct go-around criteria (that go hand-in-hand with the stabilized approach criteria) that are unique to triggering a "no questions asked" go-around. The stabilized approach criteria are still the goal, but the unique go-around criteria is what we learned Southwest, Air Canada and others had developed that drove their compliance rates way up. Pilots have bought into the new SOPs for go-around because they took part in developing the "triggers." The Presage study we're kicking off this month is how we will do that for CJP.

The Go-Around study will begin by asking all of our members to answer a series of scenario-based questions about your personal limits on approach. We will send you the study to complete in a mailing in May. It is extensive and will take some time to complete, but it is REALLY well done. Presage has done this with the airlines and are have developed an analysis system that will help us understand the "spectrum of tolerance" we Citation pilots have for being off-condition on approach. In short, the analysis will separate out the boundary conditions for when we are most likely to "press on" as compared to where we will "go-around."

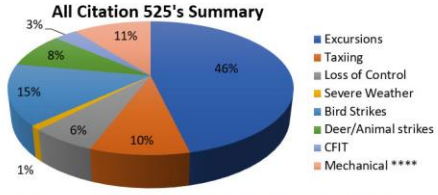
Once Presage analyzes all of our responses, by mid-summer we will form focus groups to brainstorm the kinds of SOPs that would best position us to go-around when we hit our limits... no questions asked. Here's where we heard from Southwest and Air Canada that lots of debate and discussion led to some pretty interesting new criteria. One example from one of the airlines was to add another "go-around" gate down at 100 feet. That works for them, but is it right for us?

To find out the answers, we'll then take proposed new go-around criteria from the focus groups into the simulator. Flight Safety Textron Aviation Training (FSTAT) has offered their simulator time for us to conduct this testing... and again, we'd like you to be a part of it.

Finally, after validation in the simulators, we will establish our first-ever Citation-specific SOPs for go-around. As Presage likes to say, the SOPs will be geared to "prime the psychological pump" in our minds that if we see those SOP limits, we go around – no questions, no regrets. Historical data show that SOPs like these could dramatically drop our rate of runway excursions. If you have any doubt about how significant excursions are to us in the Citation fleet, check out the graphs attached!

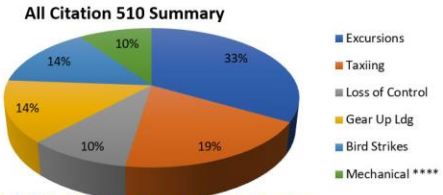
Accident/Incident Statistics

For the Period 2008 through third quarter 2020



25% of all 525's are member owned. Members account for **14%** of all accident/incidents in 12 yr. period

Total by Type	Members	Members % of Total
All = 99	14	14%
Excursions = 44	5	11%



44% of all Mustangs are member owned. Members account for **43%** of all accidents/incidents in 12 yr. period

**** not pilot error

Total by Type	Members	Members % of Total
All = 22	9	41%
Excursions = 9	4	44%

We have many partners to thank for enabling us to kick off this ground-breaking study: Textron, FSTAT, Garmin, NBAA, and the Air Charter Safety Foundation and your own CJP Safety and Education Foundation have all contributed both financially and in-kind to making this happen. They will also have subject matter experts participate along the way. As we

begin to use the new SOPs we develop for approach go-around criteria over the next year or two, we'll be able to track our progress through the our flight data monitoring initiative.

The flight data monitoring initiative is our other big initiative for 2021. First developed by the airlines and called FOQA, Flight Operations Quality Assurance uses flight data capture to track our performance against SOPs. The analysis of the data creates fleet aggregated results in a way that can spot safety issues before they result in an accident. We have just kicked off an expanded Beta test of the program with a number of our members participating already. We hope to hit 40 members in the test by the end of the second quarter of 2021. If you are interested in participating let us know... Here's what it's all about:

FOQA is a system of analyzing "big data" to discover trends that could be precursors to an accident. The airlines have successfully used FOQA for years and correctly attribute much of their incredibly low accident rate to FOQA. Until now, however, the price of entry has been prohibitive. Retrofitting equipment on general aviation aircraft has run in the tens of thousands of dollars. Of late, advances in computing capacity and lower cost electronics are putting very inexpensive flight data monitoring in reach. Our industry partners have been developing means to get the needed data parameters recorded in flight and then sent to a data analyst so we can see the results of our operations. The data analysts help us to see trends that as individuals we might miss. They de-identify the data for our privacy and show us the fleet averages for things like a particular instrument approach at a certain airport that might frequently result in higher than normal approach speeds. This "reveal" allows us to do some root cause analysis and inform our members what's causing this... and in some cases even go to the FAA and ask for changes in ATC local procedures to avoid the issue.

Beyond the aggregated data analysis, however, is the ability to show each of us how we flew our latest flight against the SOPs. A quick feedback tool that points out where we ought to spend more time focused on the next flight to improve the outcome. It's like Fitbit for pilots, and allows us to make "every flight a training flight" even if we're on our own. We've had good results with the early beta testing and are now looking to shake it out until it's mature enough to offer to all of our members; our target is to demonstrate a system in time for our fall convention in Palm Springs. By the end of the year we could have many of our members opting in to use an inexpensive recording system to track flights and help us with our underwriters. The big iron flight departments that use FOQA are the ones getting the nod for preferred premium rates. There's no reason our own CJP FOQA can't bring similar benefit. But the major reason for pursuing this is to see those accident and incident rates drop just like they did for the airlines many years ago.

We really believe FOQA and the Go-Around study could be game-changers to stop the trend in runway overruns, as well as other safety issues. We are now in a position to have you participate in the final development and roll out of these initiatives, so if you would like to participate, please let us know!

Fly Safe!

Charlie

Single Pilot Owner Operators Upping Their Safety Game

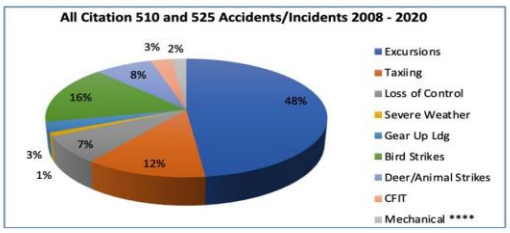
by Charlie Precourt, CJP Safety Committee Chairman & David Miller, Director, CJP Programs and Safety Education

Sometimes it takes a rude wakeup call to spur productive action. Such was the case for the Citation Jet Pilots Association (CJP) almost four years ago.

On January 18, 2016, a Citation CJ1 piloted by a CJP member, lost control on departure out of Salt Lake City resulting in a fatal accident, most likely due to disorientation after ambiguous instrument indications in the cockpit. Eleven months later a CJ4, also piloted by a CJP member, lost control during a night departure out of Cleveland resulting in another fatal accident, this time likely due to improper autopilot management and subsequent disorientation. Needless to say, 2016 was a tough year for CJP members. These were close friends we had lost, and the accidents caused a lot of soul searching about the direction of our Association. In fact, the Salt Lake City accident happened at the conclusion of a CJP "fly-in weekend" that included seminars on Citation flying techniques. Our wakeup calls became the launching point for a much more vigorous safety focus for the Association. Members of the Board of Directors met and committed to establishing a non-profit CJP Safety and Education Foundation. The foundation would stand up a Safety Committee focused on bringing safety benefits akin to those found in corporate flight departments, even though we were a largely dispersed group of independent operators – certainly a tall order. Today we're seeing the effort start to pay off, with some key learnings worth sharing.

Formed in 2008, the CJP today is composed of 1,300 members who operate nearly 900 Citation aircraft. The majority of the members are single pilot owner/operators, although some are involved in Part 91K and Part 135 operations. Two-thirds of the member aircraft are the popular Citation 525 and 510 series aircraft (CJ 1, 2, 3, 4 and Mustang), and the remaining one-third of the "fleet" are legacy Citations (SP, Bravo, Ultra, XLS, Sovereign, etc.). With this size of membership, we recognized the CJP safety initiative would largely be an effort in culture shift. We determined that if we could model safe behaviors, our members just might listen. But how do you change behaviors in a group of successful, driven jet pilots? We coined a phrase, "we don't tell you how to fly your airplane, we just give you some things to think about when you do." We were pleasantly surprised by how ready the members were for the initiatives we put in place to address safety in a big way.

All Citation 510 and 525 Accidents/Incidents 2008 - 2020



Total Accidents/Incidents		Members	Members % of Total
All	121	23	19%
Excursions	53	9	17%
LOC	8	3	38%
Fatalities	29	8	28%
Injuries	16	1	6%

As they say, if you can't measure it, you can't fix it. So, we collaborated with Textron Aviation to gather all the accident and incident data on Citation aircraft in operation (including non-member aircraft) to see what our track record had been since the inception of CJP in 2008. The pie charts summarize the data for all 525 and 510 aircraft produced. It is no surprise to those familiar with jet aircraft operations that runway excursions stand out as the dominant issue for our fleet. What may be surprising, however, is the relatively low percentage of the total accidents that were attributable to CJP members.

A positive trend since the formation of the CJP Safety Committee has been no further member fatal accidents and only one injury. But the number of excursions in the last four

years remains high (22 total, 6 involving members), which guided our focus on two key initiatives at CJP for 2020 and 2021.

The first of these initiatives involves a scientific study of go-around decision making. This idea came to us from the Flight Safety Foundation, who introduced us to the Presage Group out of Toronto, Canada. Presage performed a study of the airlines in 2017 that showed only 3% of unstable approaches resulted in a go-around.

They also determined that 83% of all approach and landing accidents could have been avoided with a go-around, leading to the obvious question of why the go-around compliance rate was so low. Presage discovered through interviews that a large number of pilots didn't view the stable approach criteria as being "credible" boundaries for requiring a go-around. Too often pilots judged, for example, that being 5 knots faster than the upper limit of "stable" at the 1,000-foot altitude gate was no reason to go around, as that was easily correctable. The study conclusion was that new criteria for go-arounds were needed to accompany the long-standing stable approach criteria. At CJP we consulted with the chief pilots and flight departments at Southwest Airlines, Air Canada, and several other regional carriers who performed a detailed study with Presage and developed new go-around criteria tailored to their operations. Their results have brought a dramatic increase in the go-around compliance rates, and proportionate decrease in landing incidents.

Given the positive results the airlines have seen, CJP has partnered with Presage to perform the first scientific study of go-around decision making for single pilot operations. The objective is to develop CJP Standard Operating Practice (SOP) changes that will yield a higher go-around compliance rate in our operations as well. The study begins with interviews of the member pilots, followed by convening focus groups to recommend go-around criteria pilots can "buy into." Then we will test the output of the focus groups in simulators. Finally, the best of the resulting criteria will become the new CJP SOPs. We have engaged several partners in this study, including Textron, Flight Safety International, and the Air Charter Safety Foundation. We also invite the Aviation Insurance Association underwriters' involvement in the program as well, since it is the first of its kind for the single pilot operator and promises to bring significant benefit to the broader, owner-operated, general aviation community.

The second initiative at CJP is Flight Operations Quality Assurance (FOQA). We were particularly pleased to read the Fall 2020 issue *Binder* article by Steve Bruneau and Madeline Sullivan, "Are Personalized Insurance Premiums Possible?" Some of the key takeaways: A lack of outcomes (accidents) doesn't mean you're safe. Additionally, hazard scoring systems and audits have shortcomings as do some data sharing programs for lack of consistency and access. But a different approach that measures data and then conducts a root cause analysis can in fact discover trends before an accident occurs. For CJP, a FOQA system will allow us to see the trends that exist in our operations that can include runway excursion "close calls," for example, not just those that actually happened. This will allow true root cause and

corrective action knowledge to flow to our members before they have an issue. We believe a combination of the go-around study initiative and root cause analysis through FOQA has the potential to dramatically reduce our CJP accident and incident rate.

The challenge with FOQA has been the difficulty equip-ping aircraft cost-effectively. Most Citation aircraft were not equipped with flight data recorders and retrofitting them is very expensive. However, the advances in computing and electronics have now enabled some after-market options that can be installed very cost effectively. CJP has already begun beta testing several of these options and is using the results to establish exceedance parameters for monitoring, as well as report formats for trend analysis. What will be unique about the CJP FOQA is it will not only provide trend analysis capability for the total membership, but it will also provide immediate feedback to the individual pilot within five minutes of landing, which will allow "every flight to be a training flight."¤ In our beta testing to date, it is noticeable how much individual pilots are changing their focus to achieve consistent good results in their flying. As Steve Bruneau noted, "If we can track the costs of a lack of outcomes (accidents) – which we can, given today's technology – then we're really not that far away from being able to achieve objective safety analysis."

These two new CJP safety initiatives for 2021 will accompany a number of others already in place. The Safety Committee established SOPs in 2017, and an accompanying Gold Standard Safety award for those who adopt the SOPs and also complete additional accredited training beyond the 61.58 minimum requirements. We also conduct a day-long Safety Stand Down at our annual convention that has been a key driver in increased membership in the Association. We have also produced a number of resources online available to anyone. You don't have to be a member to access them, a direction taken by the CJP Safety and Education Foundation to share anything safety related broadly with the flying community. We have created a series of "What Good Looks Like" videos on several safety topics, and we have also conducted a number of safety podcasts, all available free at the CJP web site. You can see and download the content here: citationjetpilots.com/safety. We look for-ward to reporting back to you on our 2021 initiative results... we think they could be game changers.

(The preceding article was featured in the Winter 2021 issue of the Aviation Insurance Association's The Binder *member publication and is reprinted with permission.)*

On Final: What Good Looks Like

by David Miller, Director of Programs and Safety Education

Several years ago, the Citation Jet Pilots Association's safety committee came up with the idea to produce a series of videos depicting challenges that pilots face in the cockpit. Things like engine failures on takeoff in mountainous terrain, circling approaches and landing on contaminated runways. We mused that if we could show less than admirable techniques followed by the "right way" to do things, we could model safer behavior.

For some unexplained reason, I was nominated to be the model for bad decision-making. The vote was unanimous. Go figure.

What was also unanimous was the name of the person to demonstrate "What Good Looks Like." Meet Neil Singer, CJP safety consultant, Master Instructor, corporate Bombardier Challenger captain, and designated examiner in the Phenom 100/300 and Citation 525 series. He is also a regular contributor to the "Turbine" section of AOPA Pilot magazine.

For the past three years, Neil and I, along with astronaut Charlie Precourt, have produced almost two dozen videos on various topics, all of which are available free of charge. Our goal is to put the average pilot (played by yours truly) in challenging situations followed by Neil, who calmly and professionally shows you a safer alternative, with Charlie relating his NASA experiences.

Neil is one of those pilots you want to be. He takes his profession incredibly seriously. He not only knows the answers to my most trivial questions; he researches the topic and prepares an in-depth analysis for review. I thought you might enjoy some of his wisdom with the interview below.

Tell us about your "for hire" experience.

Several flight schools, including one in Hawaii, which was also a VFR-only Part 135 tour company. Another Part 135 job co-flying Piper Cheyennes for charter, organ flights and air ambulance. Then I joined American Eagle. I flew a Saab 340 prop for two years, but 9/11 hit right when I was supposed to upgrade to Captain, so I switched to the Embraer RJ since I would be right seat for a while. I flew that for 2.5 years then left to teach full time in 2004 and never looked back!

In your role as an examiner and mentor, what are the most common shortcomings you see?

Airspeed management/flying deliberate airspeeds; automation management (especially checking the status bar); knowing all the little gotchas with avionics; having profiles memorized (probably the biggest!); checklist discipline/cutting corners.

For those transitioning to higher performance aircraft, what should they do to become a safer pilot?

Understand there's no one magic "hard" thing to master, but a thousand "easy" things that can get overwhelming in volume. There's no shortcutting brute force repetition and studying. Realize you should never stop learning. As one instructor says, "When you think you've finished learning, you have."

Also, be aware that the modern upgrade process is perhaps unrealistically compressed – a high-performance piston into a single-pilot light jet, for example. Twenty years ago, the path would be 172, 182, Bonanza, Baron, King Air, then with thousands of hours, finally a 501/CJ. Now it's Cirrus SR22 into Citation 510 or M2. While certainly doable with good training, this needs to be approached with caution steps forward in expanding the envelope. Embrace SOPs (like CJP's). Just because Part 91 says you can doesn't mean you should.

Any surprises in your training experience?

Yes, often. I tell everyone I cannot forecast how quickly someone will adapt to their first light jet until we've flown for a while. I've had former fighter pilots who were currently flying heavy biz jets struggle with single-pilot ops. I've had high-time commercial pilots struggle with glass cockpits. And on the opposite side, I've had 500-hour prodigies master everything on the first try – you just never know. But I am always surprised that no one ever believes me when I say you simply cannot overstudy profiles! No matter how much I emphasize it, pilots always say at the end, "I wish I'd studied profiles more."

Talk about your involvement with the "What Good Looks Like" video series.

I love the idea of taking lessons learned from my years of teaching, insights from the light jet accident record, and stories of our friends and members, and distilling them into short videos to pass that tribal knowledge along to more people. So much knowledge at the jet level isn't widely disseminated, and I'd like to change that.

Neil Singer is indeed "What Good Looks Like." For access to CJP's free safety content, visit citationjetpilots.com and click on the "Safety" tab.

Fly safe.

(The preceding article was featured in the January 2021 issue of Twin & Turbine *magazine and is reprinted with permission.)*
