

— LATEST BRIEFING —

CJP's Safety is on a Roll!

by Charlie Precourt, CJP Safety Committee Chairman



We really have a lot to be proud of with the continuing accident and incident-free run for the CJP membership. Our nearly 1,000 member's jets have now extended the streak to two and a half years! Congrats all!

There continue to be non-member Citations involved in incidents, and we have tracked a total of twelve in just the last 60 days... six of which were runway excursions. So, we're thrilled that our Safe to Land(sm) program is now taking hold with FlightSafety, as it is certain to be a big contributor to our future stretch of safe flying.

As we write this, the STL course is being deployed through the FSI training centers and the simulators have been programmed to present the training we introduced at our Austin convention.

We're also now regularly releasing Safe to Land(sm) videos in e-blasts to the membership so we can keep everyone informed of the best ways to implement the program in your flying.

A quick rundown of the dozen incidents involving Citations in the last two months reveals that six were flown by crews, four were single pilots and two were an unknown crew status based on the available preliminary information. One of the twelve was in Japan, the rest

occurred here in the US. Of the six runway excursions, one involved hydroplaning, and another was a wrong runway landing.

Among the remaining six incidents, one was yet another attempted takeoff with the parking brake engaged, resulting fortunately in no more than a flat tire on this occasion. As we briefed at the convention, many previous parking brake incidents on takeoff have resulted in loss of the aircraft and fatalities. Another on the list was a hard landing that damaged the right wheel, and another involved a brake failure. A bird strike and another cowling separation round out the list.

We continue to see the cowling separation issue, so be sure to check your cowl fasteners, particularly after maintenance... A cowl separation can cause significant damage to the horizontal and/or vertical tail.

In this edition of Right Seat, we have lots of great content to share. Randy Broiles "won" the Upset Recovery training course offered at the convention auction and writes about the tremendous experience he had out there at Mojave. You will want to consider this for your own flying program if you haven't yet and remember that it is part of the Gold Standard Safety Award-qualifying content.



David Miller contributes a great article on vigilance, something we need to keep in mind in particular as we extend our great safety streak in the face of several recent, high-profile incidents across our industry. There are essentially no organizations in business flying - outside of the airlines, and a very few of the major charter operators like NetJets - that can claim a clean safety record in the last two and a half years like we can. Vigilance is certainly key to extending that great record.

(CJP Vice Chair Blake Curd also pointed out this interesting article about the recent near misses that led to the FAA Safety Summit in March. Thanks, Blake!)

To reinforce the great content in the Safe to Land(sm) program, Neil Singer provided an article in *AOPA Pilot*, *Turbine Edition* magazine covering the Touchdown Point Limit concept and how you can apply it to all your landings. Using that tool, we should never touch down on a runway and suddenly wonder if we have enough runway to stop as the far end comes into view!

Jack Tessman recently retired from a great career with FlightSafety and gives an enlightening discussion in a Q&A that David Miller put together for us, to round out this edition of *Right Seat*.

Finally, in case you missed it, our CJP-FOQA program provider, CloudAhoy, was acquired this past month by Foreflight, which will provide another great integration into the Foreflight tool so many of us have come to appreciate.

As we closed out the convention last October, we rolled out enrollment options for the membership in our FOQA initiative, and CloudAhoy has since taken on a number of upgrades to their capability to tailor the program for our needs. Now that Foreflight has acquired them, we expect those to accelerate and improve the offering. The next drop of upgrades to the CloudAhoy software is due out at the end of this month, so we will dedicate our next Right Seat to the progress with that initiative.

We are already learning a tremendous amount from the aggregated data our members have contributed to the program, and we will integrate the best into improving our SOPs and tailored simulator training. Enjoy the content and be sure to give feedback about your experiences with our program initiatives.

Fly Safe!

Charlie

My UPRT - and UTAP! - Experience

by Randy Broiles, CJP Safety & Education Foundation Chair

In late March, three CJP owner members, including Fred Gibbons, Dan Coury and I, traveled to Mojave, CA in our Citations for two full days of upset recovery training (UPRT) with the talented professionals at Flight Research. Our key upset recovery learning mnemonic? UTAP: UNLOAD-THROTTLES-AILERONS-PITCH!



All three of us wished that we had completed the specialized training much sooner in our flying careers. Our instructors included Billy Oefelein, Flight Research's Chief Pilot who flew F-18s as a Test Pilot and Top Gun Graduate in the US Navy, then joined NASA to fly the Space Shuttle Discovery; Eric Brye, a US Naval Academy grad who flew F-18s in the US Marines and regularly flies F-5s in the Reserve; and, Mark Scarf, a US Air Force Academy grad who flew F-16s while in the US Air Force and now flies Boeings as a Captain for a major US air carrier.

I wanted to share a few other details with you, hoping that you seriously consider adding one of Flight Research's world class flight training programs to your upcoming training plans. Also, as a reminder, their upset recovery training qualifies for credit toward your CJP Gold Standard Safety Award.

After an uneventful VFR-only arrival within an active MOA, our airplanes were greeted and properly cared for by Flight Research's very fine ground crew. Rental cars were waiting for us to travel between the airport and our hotels in Lancaster and Palmdale. We had a glimpse of the enormous twin fuselage, six engine StratoLaunch aircraft visible on the temporarily closed Runway 12/30.

Another, unexpected treat on arrival day was getting an early look at the tri-engined, approximate 30% scale Boom XB-1 supersonic prototype. No photos allowed! On arrival, the aircraft was wrapped, without tail, perhaps disguised as a large, speedy boat for road travel on a tractor/trailer in the hangar. By the time we left, the prototype wrapping and trailer were gone and the Boom crew was rigging-up to attach the tail. The Baby Boom looks as if it's doing Mach 1+ sitting in the hangar. There's clearly very cool aviation & aerospace work going on in Mojave so check arrival and departure NOTAMs often!

Day 1 began at 0700 with breakfast, then to the classroom for a bit of upset recovery theory discussion, diagrams and videos of what we'd later practice in the air. The instructors and materials were consistently clear, accommodating and engaging. After lunch, we each paired up with our world class flight instructors to do upset recovery air work in our CJs.

After a very thorough scripted, preflight briefing, we were airborne and above our 10000 ft hard deck but below the CJ's 18000 ft ceiling limitation for intentional stalls. We also limited the CJs to 60 degrees roll and 30 degrees pitch. In fact, all maneuvers in our CJ's remained within design and factory limitations. We started with flying on both sides of the energy management power curve with varying unload demonstrations, then assorted stalls and moved to a variety of roll/pitch upsets using UTAP recovery techniques to quickly return the airplane to level, stable flight. We ended our first flight with a simulated double engine failure back to Mojave, incorporating the High Key/Low Key tight circle maneuver over our touchdown area. Following the post flight briefing, we completed a thorough discussion on the Macchi MB-326 Impala's ejection seat operation, helmet and O2 mask needed for our next morning's air work. The Flight Research team wrapped up the day with a terrific group dinner that night at a local wine bar to get to know each other better.



Day 2 also began with breakfast at 0700. Then, we moved to another thorough preflight briefing for the Impala prior to air work. Today, we built on yesterday's flight with more extreme upset recoveries and maneuvers. We started with energy management, unloads and stalls to warm up and get the feel of the Impala. We moved to aileron rolls, a split S, loop and barrel roll. Then on to extreme upset recoveries with banks >90 degrees and pitch >45 degrees. With fuel and student enthusiasm high, our instructors also demonstrated a vertical stall with a tail slide, a three turn spin, and cross control stalls through both skids and slips. The instructors were very receptive to individual pilot questions, requests and limitations. While I fully expected the Impala's roll, pitch and yaw maneuverability to be more sensitive than my CJ2+, I sorely underestimated its aerodynamic responsiveness! After returning to Mojave, we completed another instructive postflight debrief.

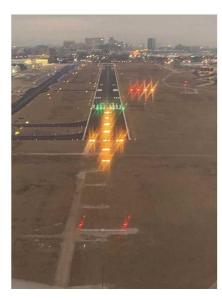
We wrapped up our classroom materials and finished the day by providing candid feedback on our Flight Research experience. Everyone that we interfaced with was in the room with us including the ground crew, the scheduling & ops support team and the instructors. Flight Research clearly takes safety and continuous improvement seriously.

In short, I will train with Flight Research again. I strongly encourage other owner pilots to consider doing the same, particularly those who have not had UTAP training in an aircraft yet. There is no substitute for feeling varying G loads in the seat of your Citation. I found Flight Research upset recovery training to be safe, relevant and a terrific complement to FlightSafety's FAR 61.58 simulator training. However, the Sim's cannot duplicate the varying G loads in flight. The Flight Research team was masterful at working with each of us from our existing knowledge base, flying skill and comfort level. All three of us grew as pilots. They offer two, three and four day courses in their Impalas as well as a High Performance UPRT course in the T-38 for those who wish to join the Mach 1 Club while learning other UPRT maneuvers. Flight Research readily customizes their training to accommodate specific customer interests, needs and personal maneuver limits. FYI... they're now on the hunt for the right A-4 to add to their growing training fleet!

As a personal close, as if the rich UTAP learnings weren't enough, the two training days in Mojave were among the most fun that I've had with my clothes on!

Vigilance Key to Preventing Safety Incidents

by David Miller, CJP Director of Programs and Safety Education



Turn on any television these days and the news headline is likely to be a runway incursion and near disaster. In March, a national "Safety Summit" was convened in Washington, DC to address the public clamor.

What's happening?

According to the FAA, a total of 2,022 incursions happened in 2022. As of February 3rd, this year, we have already seen 466, a significant increase.

Why?

It's probably a combination of a lot of factors. Loads of new pilots and controllers entering the system. Increased workload. Perhaps less supervision on the part of ATC. Maybe a perceived rush to get airplanes moving. And it's likely to get worse before it gets better.

What can we do about it?

Over my fifty year flying career, I gave little thought to a takeoff, landing, or taxi clearance being wrong. Mainly, because they weren't. The controllers were just that good. Now, I am starting to be extra vigilant when I hear, "November 396 Delta Mike, traffic on a two mile final, cleared for takeoff." Today, I spend a few extra seconds thinking about the clearance I received, to make sure it seems logical.

Take the recent near miss at Austin-Bergstrom (KAUS) for example. The FedEx captain who quickly figured out that the Southwest 737 was not going to complete the takeoff saved a lot of lives. Seventy-five feet of separation is scary. And although the pilot in command should not have to do the controller's job, in this case, it was necessary.

A couple of suggestions.

1. Slow down. Don't let someone rush you into making an error.

- 2. Write down every clearance, especially taxi instructions.
- 3. Light the airplane up when crossing active runways.
- 4. Use anyone in the right seat to look for conflicts.
- 5. Add "runway appears clear" to your verbalized checklist.

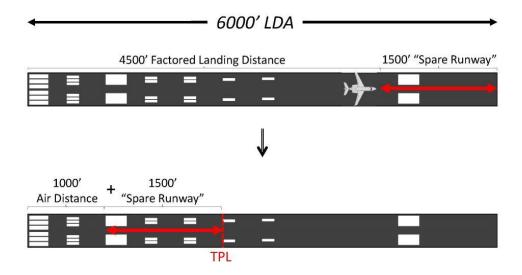
Be vigilant. No one wants to be on the six o'clock news.

STL Primer: Touchdown Point Limits

by Neil Singer, CJP Safety Consultant and Master Instructor

(The following article was published in the March 2023 issue of AOPA Pilot, Turbine Edition magazine and is reprinted with permission.)

The Citation Jet Pilots Safety and Education Foundation (CJP SEF) Safe to Land(sm) initiative (see "Owning the Go-Around Button," May 2022 AOPA Pilot, Turbine Edition), is now "live."



There are two critical components to the initiative which is attempting to reduce the frequency of landing overruns: delivering the aircraft to the runway in an appropriate energy state (not too high or fast across the threshold) and ensuring the rollout and stop can actually be performed with the pavement present. The revised stabilized approach criteria and verbal callouts previously discussed address the first issue by creating a more realistic stabilized approach policy, with the hopes of greater pilot "buy in" and regular utilization.

However, even an approach perfectly flown at VREF delivering the aircraft precisely 50' over the threshold can then become unstabilized over the runway, particularly in conditions of gusty winds. Further, physics can't be cheated, and in the case of non-dry runways a

seemingly adequate runway length has too frequently been found insufficient by crews experiencing an excursion. Enter the touchdown point limit (TPL).

Just as the improved stabilized approach criteria separate targets (e.g., the pilot should try to be no more than ten knots over VREF at 500' AFL) from limits (if still more than ten knots fast at 200' a go-around should now be initiated), the TPL identifies a limit of how far down the runway the pilot will accept touchdown. The target remains the 1000' aiming point markings, but now a pilot is presented for every landing with a concrete point at which the mains must be on the runway for the landing to continue. Calculation of the TPL appears complex at first glance, but with proper tools is simple and quick in practice: the factored landing distance is subtracted from the landing distance available (LDA), then 1000' is added. Breaking down the steps helps understand the logic.

The manufacturer's published landing distances (unfactored distances) represent the best of the best landings. During certification test pilots collect data on how much runway is needed to stop an aircraft that is flown perfectly to the threshold at VREF and 50' height. At the threshold power is brought to idle, the airplane touches down on or shortly before the aiming point, and within one second of main wheel touchdown full braking is applied. Even very good pilots will experience small deviations from VREF and/ or threshold crossing height (TCH) on any given approach, and further are not likely to immediately apply full brake force.



Because of these variations from perfect technique, the FAA recommends the application of a landing safety factor to all turbojet operations. While a minimum of 15% additional runway is recommended, the CJP SEF has elected to use a more conservative 25% factor. Thus, if a landing is calculated to require 3000', the pilot would treat 3750' as the minimum acceptable runway- the factored landing distance.

When a runway is in a non-dry state it is critical that the proper runway conditions are entered during performance calculations. In 2015 the FAA published safety alert for operators (SAFO) 15009, warning operators that analysis of multiple landing excursions revealed "the braking coefficient of friction in each case was significantly lower than expected for a wet runway... on both grooved and ungrooved runways." A committee was established to investigate the issue, and in 2019 SAFO 19003

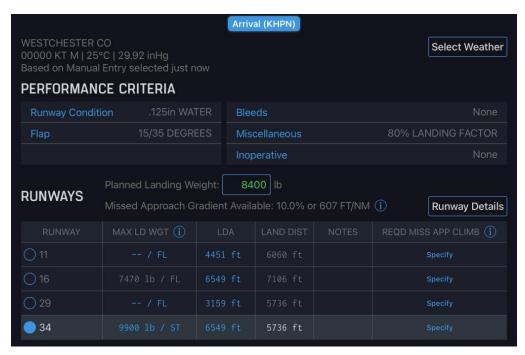
was published with the investigation's results.

SAFO 19003 provides easy to follow guidelines for utilization of a manufacture's non-dry performance information. It was found that even on a grooved runway, if heavy rainfall conditions exist, stopping performance will be more accurately reflected in the contaminated (standing water) performance numbers, not wet numbers. If the runway is not grooved the friction will fall off more quickly; the shift from wet to contaminated performance data should occur with moderate rainfall.

The difference in required runway can be substantial. A Phenom 300 landing at mid-weight will only require 2887 (unfactored) to stop on a wet runway. Should heavy rain be present (on any surface type), or moderate rain be falling on an ungrooved runway, the unfactored distance jumps to 4427 using the contaminated data. Adding a 25% safety factor, over 5500 of runway would be needed for reasonable safety margins to exist.

Putting the pieces together, a pilot expecting rain at time of landing can calculate the TPL for both wet and contaminated conditions, noting that in some cases safe landing will be impossible on shorter runway if the conditions transition to contaminated.

In Figure 1 (below) we see the results of a popular runway analysis program's calculation of the factored landing distance ("80% LANDING FACTOR" is another way of stating a 25% margin was added) for a Citation M2 landing on runway 34 at KHPN in heavy rain. Given the rain intensity, the pilot has input runway conditions of ".125 WATER", which are the most conservative standing water values for the M2. The factored landing distance of 5736' is displayed conveniently next to the LDA of 6549'. We can easily see that the pilot will have 813' more runway present than needed for stopping.



As the performance is predicated on the pilot touching down on the aiming point markings, adding the assumed 1000' of "air distance" to the "surplus" runway of 813' gives us our TPL: 1813'. The calculation has shown that if the wheels are on the ground just at the TPL, there should be just enough pavement left in front of the airplane to stop. Should the airplane float past the TPL, stopping on the runway is in question, and a go-around would be warranted from the float.

Identifying the TPL numerically is of little use to the pilot without correlating an appropriate visual reference on the surface. Using airport diagrams and/ or satellite imagery such as Google Earth, a pilot can choose an easily identifiable reference such as a taxiway or runway intersection to mark the TPL. In the example of runway 34 at KPHN, a pilot can utilize ForeFlight's measuring tool to identify the left turn onto taxiway Kilo as being just over 1700' from the threshold, or a slightly conservative visual TPL reference, given the actual TPL of 1813'.

Finally, an important limit of the TPL methodology must be understood -- the math behind the TPL calculation is predicated on the airplane being at or near VREF crossing the threshold. If an aircraft is flown across the threshold well above VREF the TPL might be "made" by forcing the airplane onto the runway, yet stopping on the pavement might not be possible. TPL calculations complement, but in no way replace, a properly flown stable approach and landing.

Neil Singer is a corporate pilot, designated examiner, and instructor in Embraer Phenoms and Cessna Citations. He has more than 10,000 hours of flight time with more than 20 years of experience as an active instructor.

A Q&A With Jack Tessman



CJP Safety Committee member Jack Tessman retired earlier this year following a long and storied career with FlightSafety International. CJP recently had the chance to sit down with Jack to hear his thoughts on a variety of topics. - David Miller

How has simulator training changed over your 30-year career with FSI?

In 1993, I was hired at the FlightSafety Cessna Learning Center as an instructor in the CE421 and later other aircraft, the equipment used for these courses was usually a small motion simulator, an aircraft ground school course on 35mm slides and a cardboard mockup of the cockpit. Most initial classes during this period also included training that FlightSafety would provide in the customer's airplane with our instructors. Most of the staff that had a current medical were on flight status and enjoyed the opportunity to fly in the airplane with customers. The flying was sometimes extensive where a client had to meet a certain

amount of airplane flight time to satisfy a flight requirement for an insurance provider or regulatory authority. An example of one of the more extensive flight assignments I had, was to fly with 25 hours with each of 5 Russian pilots in a CE208 for a total of 125 hours in 5 weeks, it was fun, and they got a great tour of the US.

As technology improved, we did less in airplane training and added more content to our simulator programs. In the 90's a simulator instructor would try to make sure that the client would tune at least a VOR and an NDB for the RMI during a cross country segment, remember this was before GPS was used extensively, so the instructor could triangulate an approximate location and then vector the client for an approach, today our simulators have 3 screens, one of which graphically displays exact aircraft position relative to navaids and airports. Early simulators also had night only forward visuals, while adequate for the mission, these visuals improved dramatically over years with day/night/twilight visuals featuring 135 degrees of viewing for the pilot.

These advances also included more training capabilities in various weather conditions, stalls, normal and abnormal/emergency procedure and scenarios involving unique situations that could not be previously trained. A good example of our simulators' capability is the current joint project with CJP and FlightSafety called the Safe to Land(sm) program simulator modification, which simulates the environmental conditions that can displace you during landing.

Have you seen a change in the type or experience of customers over that time?



The owners that purchase CJs, and other single pilot jets today 40 years ago would have likely purchased a cabin class piston twin such as the CE421 or a turbine twin like the CE425 or CE441. Each of the major OEMs to include Cessna, Beech and Piper had a product line to support the progression from a piston single to a piston twin to turbine twin, very seldom did the owner/operator move to a jet in this era unless the jet was added to a corporate flight department.

Insurance providers did not always require simulator training when a pilot purchased a cabin class twin but would often offer discounts if the pilot was simulator trained reducing the risk associated with insuring a pilot. During this period, it was common for a pilot to arrive for training and struggle with either instrument or multi-engine procedures, later almost all insurance providers required some type of formal training on these airframes. Today single engine procedures can still be challenging for some customers, but lack of instrument skills is less often a deficiency we see with initial and recurrent clients.

When piston twins were the dominant aircraft flown, complete engine failures were much more common than engine failures in turbine airplanes. These failures were often the result of incorrect operating procedures and not a substandard engine design. An engine failure in many of the piston powered aircraft left the pilot in a very challenging scenario due to a single engine performance that would often yield only a few hundred feet per minute of climb available, so we practiced engine failures in every possible phase of flight producing a very competent pilot. What I found interesting was that the pilots we trained in reality had very few engine failures, in large part because they flew/maintained these airplanes in accordance with our training.

Overall, pilots today arrive for jet training today with more high performance/high altitude and advanced avionics experience than in the past, and also a little more instrument proficient than the pilots we saw in the 90's, I suspect todays avionics is the reason for more instrument-savvy pilots.

How have simulators evolved during your career?

Thirty years ago, the courses provided by companies like FlightSafety were much like the military taught flight training at the time, training organizations preferred to hire former military

instructors where possible as these instructors were skilled in the development/delivery of an organized curriculum with proven results. This curriculum will most often begin with ground school that taught the client the airplanes pressures, temperatures, airspeeds and limitations associated with the systems as well as areas that the pilot could not affect such as the internal function of a fuel control unit or propeller governor, all on the current technology at the time 35mm slide trays.

The simulator training during this period often only used a portion of the ground school content and would consist of airwork, approaches, normal and abnormal/emergency procedures. If checkrides were conducted in the simulator, often only a portion of the checkride would be used for credit with the remainder of the check to be conducted in the actual airplane, due to the level of simulation available. It was common in the 1990s to have simulators approved as a level "A" or "B" device requiring in-airplane checks called 85/15 checks to complete a type rating. Later we began to see more Level "C" simulators and then finally the Level "D" simulators were the most common equipment delivered to the centers. Level "D" simulator allowed us to complete entire type ratings in the simulator without any portion in the actual airplane.

FlightSafety's course approvals during this period were not based on 142 regulations as this chapter of regulatory oversite did not yet exist in the 90's. FAA course approvals were based upon exemptions to PART 121 regulations and applied to PART 61 and 135 training and checking for flight crew certification and currency, two common exemptions used by FlightSafety during this time were 5317 and 5241.

FlightSafety has continually embraced technology. Today when a customer enrolls in aircraft specific training, they will have training materials available electronically before training. An initial will still attend the ground school first in their training to build a foundation of knowledge related to the aircraft systems and the operation of those systems and checklists integrating Cockpit Resource Management (CRM) while teaching the system course, next the client will have systems integration where the technical information provided in the ground school is practiced using some type of device which could be a Graphical Flight Simulator (GFS) the actual simulator or other technology.

Talk a little about the CJP projects you have worked on.

New What Good Looks Like Videos Coming!



CJP's Arnie Evdokimo (above) recently joined the What Good Looks Like crew in Wichita, KS to appear in a new Citation safety video, one of several new videos coming to the WGLL series.

Look for the premiere of this year's new What Good Looks Like content at our October convention in Nashville, TN.

And, as always, you may check out all previously released WGLL videos here!

My first involvement with CJP was at the Colorado Springs CJP convention where Charlie Precourt, Neil Singer and I were on stage for a question and answers segment where I

represented FlightSafety. I have since represented FlightSafety at the conventions in Palm Springs and Austin.

Not long after the Colorado Springs event I began to serve on the CJP Safety Committee where FlightSafety related projects were suggested and, in many cases, brought to completion such as the Companion Course and Safe to Land(sm) course which will be available soon to the membership.

CJP requested a course for the non-pilots that are often passengers on the airplane, so that in the unlikely situation where a pilot becomes incapacitated a "Companion" could safely fly the airplane to survivable landing, the result was the Companion Course, which now has a second phase for those that attended the original course, the new course is Companion Course phase II, I and others enjoyed creating and revising this course with the ladies that helped us with BETA testing this course.

Each year the CJP adds What good looks like videos to the library, David Miller organizes the content, and I will assist with logistics on the FlightSafety end. If anyone is ever asked to participate in these WGLL videos do not miss the opportunity to do so, the videos are well organized and professionally recorded for a premium product, the fun part is working with David Miller, a consummate comedian that make each of these videos fun while at the same time very productive.

The Safety committee identified a situation with the Angle of Attack indicator on CJ's that was potentially hazardous and requested during one of our meetings a solution in training that would expose the pilots to this issue and provide guidance on how to safely fly with the AOA giving erroneous information, I contacted our simulator folks and we modified the CJ simulators to replicate this AOA failure which could occur in a variety of situations and provide this training regularly to the recurrent CJ customers.

Any recommendations for CJP members who want to get the most from their training experience?

When a member comes for initial training review the pre-study materials and during the time in training give us your full attention, try to have someone else handle your business needs during this period and you will be very satisfied with how comfortable you can become with your new airplane.

Later when you return for recurrent training especially after your first recurrent training cycle, you can ask for additional challenges, time permitting, such AOA, AHRS, dual engine failures, etc. also keep a log of "things to ask FlightSafety" when you return, or you can call anytime since you are always a customer even when not in the center.

A Special Message to CJP

Working on CJP projects has been one of the most rewarding aspects of my FlightSafety career. I especially enjoyed the professionalism of working with all the members of the Safety Committee, I was always amazed at the things this group could accomplish and was proud to be a part of that group.

I would also like to thank the CJP membership for the years we worked together, all while getting to know many of you on a personal level - tailwinds to all, Jack.

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.