



The annual Citation Jet Pilots gathering brought together pilots and spouses for a focus on safety issues.

Citation pilots strengthen safety focus

by Matt Thurber

Last year's Citation Jet Pilots (CJP) annual convention in October broke new ground for the group, with a focus on single-pilot safety taking center stage during the three-day event in San Antonio.

"We think it was a huge success," said David Miller, a Citation owner and pilot and chairman of the CJP Safety & Education Foundation. "The number-one thing [members] are saying is that our focus on safety is now the driving force behind the organization, and it appears that's what members want."

CJP has always included safety as a key part of the organization's efforts, but two fatal Citation accidents made it clear that more work needed to be done. The effort was led by former CJP chair Kirk Samuelson, now chair emeritus, who created the CJP Safety Committee and CJP Safety & Education Foundation.

The first accident occurred on Jan. 18, 2016, near Park City Utah, involving a CJ1 that broke up in flight, following multiple instrument failures. While the NTSB cited as a probable cause "loss of control due to spatial disorientation," investigators weren't able to determine the precise nature of the instrument problems.

The second accident provided more actionable information that might prove helpful to single-pilot operators. On Dec. 29, 2016, the pilot of a CJ4 carrying five passengers took off at night from Burke Lakefront Airport in Cleveland, Ohio. The pilot had been awake for almost 17 hours, and the NTSB said that fatigue was a contributing factor for the controlled flight into terrain accident, in which the CJ4 crashed into Lake Erie, turning right after takeoff and eventually reaching a 6,000 fpm descent rate and 300-knot speed before impacting the water.

Another contributing factor was more pertinent, at least as far as pilots understanding their airplane goes and how important training can be to help pilots learn about the particulars of their avionics.

The NTSB cited as contributing factors "mode confusion related to the status of the autopilot, and negative learning transfer due to flight guidance panel and attitude indicator differences from the pilot's previous flight experience."

According to the NTSB, the pilot likely tried to engage the autopilot after takeoff but didn't do so, possibly because of confusion between the Rockwell Collins Pro Line 21-equipped CJ4 and the airplane he previously flew, a Citation Mustang with Garmin G1000 avionics. Confirmation that the autopilot is on in the Mustang is indicated by a light next to the autopilot engage button, as well as on the "scoreboard" or status box on the primary flight display (PFD). The status box has a display for when the autopilot is on as well as for various lateral and vertical modes and other information, and it is an essential feature to help pilots confirm that the autopilot is doing what the pilot asked for. In the CJ4, there is no button light, but the status box on the PFD does show the status of the autopilot and the selected modes.

The NTSB wrote that "based on the flight profile, the autopilot was not engaged. This implied that the pilot failed to confirm autopilot engagement via an indication on the primary flight display (PFD). The PFD annunciation was the only indication of autopilot engagement. Inadequate flight instrument scanning during this time of elevated workload resulted in the pilot allowing the airplane to climb through the assigned altitude, to develop an overly steep bank angle, to continue through the assigned heading, and to ultimately enter a rapid descent without effective corrective action. A belief that the autopilot was engaged may have contributed to his lack of attention."

Another issue is "that differences between the avionics panel layout on the accident airplane and the airplane he previously flew resulted in mode confusion and contributed to his failure to engage the autopilot. The lack of proximal feedback on the flight guidance panel might have contributed to his failure to notice that the autopilot was not engaged."

Miller emphasized the status box as scoreboard in his discussion of the Cleveland accident, suggesting that the pilot may have mistakenly pushed the yaw damper button and not the autopilot button after takeoff. "I've done it in the Mustang," he said. And the only way to verify that the autopilot is on is to check the scoreboard.

"The autopilot control panel is just a wishlist," he explained. "The autopilot does what the scoreboard says. Not watching your scoreboard can kill you, and I implore your training provider to check you on the scoreboard."

Refocus on Safety

For CJP members, these accidents brought home the importance of focusing on safety. "Most pilots, we all read accident reports," said Miller. "And when we know someone that was killed it kind of drives it home. It was

a sea change that safety needs to be primary. There was a place for it [in CJP], but it was not primary."

The first step was the creation of a safety committee, and Citation pilot and CJ1+ owner Charlie Precourt was persuaded to head the new committee. Precourt is a retired NASA astronaut and Space Shuttle commander and an active general aviation safety advocate.

The second step was creation of the CJP Safety & Education Foundation, to provide a platform for distribution of CJP safety material to anyone who is interested, not just CJP members.

When it comes to promoting safety education, CJP tried to take a different approach. "Owner-pilots are Type A individuals," Miller explained, and they don't like to be told what to do. "Rather than tell them how to fly, we give them things to think about when they fly."

One result of this effort is the creation of a set of what CJP terms standard operating practices (SOPs)—not standard operating procedures as is commonly used by the aviation industry. These SOPs are for owner-pilots and include instructions for most of the Citation models flown by CJP members, including for specific avionics suites. These SOPs are available for free from the CJP Foundation. Safety consultant Neil Singer, a designated pilot examiner who is type rated in many Citation models, helped create the SOPs.

Instead of using the SOPs to tell pilots how to fly their airplanes, CJP took a creative approach at the October meeting in an effort to help members understand the importance of the SOPs while not just simply prescriptively mandating them to implement the practices.



L to r: Charlie Precourt, safety committee chairman; David Miller, chairman of the CJP Safety & Education Foundation; and safety consultant Neil Singer

During the afternoon session on the first day of the CJP meeting, attendees were split into groups based on their avionics types, and the groups competed with each other for points. The game was modeled on Jeopardy, and each group's captain had to pick a category, then the group would have to answer an SOP-related trivia question in that category.

For example, one group selected the takeoff/landing category. The question was whether a jet's published performance numbers must be achievable by a pilot of average skills. The answer is false, and it generated a good discussion of how runway performance is determined, by test pilots with higher-than-average skills doing multiple takeoffs and landings. What was clearly new to many in the audience was that only the best results of this testing are retained, while the poor results are eliminated.

Precourt pointed out that pilots should be careful of relying on the results of performance calculations because they won't always result in the same performance as flown by test pilots. He also suggested that pilots don't rely only on calculated performance generated by an FMS. "I encourage you to go through the whole process," he said, "and not just use the box."

Another question for G1000 pilots highlighted an issue when temperatures are higher than normal. The question asked at what altitude standard temperature stops declining and stabilizes (36,000 feet), and answering the question turned into an interesting discussion about how a Phenom 100 pilot stalled while trying to climb to the jet's 41,000-foot maximum altitude and how margins diminish as temperatures climb.

While the performance numbers may say that the airplane will be able to climb to and cruise at max altitude, that might not make sense. If the flight planned altitude is within 4,000 feet of the jet's maximum capability, then pilots shouldn't expect to be able to fly that high safely, Singer explained.

The game-show format tackled questions on lithium-ion battery fires, over-the-counter medication effects, demonstrated crosswinds, stabilized approaches, monitoring engine starts, avoiding climbs above 30,000 feet in vertical speed mode, and much more.

Video Lessons

To further help the safety lesson sink in, CJP developed a series of "what good looks like" videos.

In the videos, Miller plays the role of the pilot who does everything wrong, then Singer shows how using the CJP SOPs helps fix the problems created by Miller. The flying demonstrations in the video are done in a simulator, which allows the team to show how bad things can get with a hapless pilot at the controls.

In one video, Miller clearly forgets to lock the nose baggage door during preflight, because he's busy handling a critical business call on his cellphone.

Miller flew alone in the left seat in another video, demonstrating exactly what not to do during an approach into Addison Airport in Texas. He was flying a visual approach and clearly well behind the airplane when it entered IFR weather, and he was not prepared to handle the situation. By adhering to SOPs, Singer showed how much easier it was to deal with the unexpected weather. "When things start to go bad, use your SOPs," Singer said. "Don't be David."

While Miller's portrayal of an unprepared and clueless pilot lightened the mood at the event and generated laughter among the attendees, Miller segued into a more serious tone in discussing safety issues that he has encountered.

During a flight in the CJ1+ he had owned, he was busy flying and communicating with Tracon when a passenger approached the flight deck and said, "Hey, man, we're on fire back here." After swallowing the heart that jumped into his throat, Miller realized that the passenger wasn't signaling that a fire had broken out in the cabin but that the heat was turned up too high. "When in doubt, ask," he advised.

During a flight into Gunnison, Colorado, Miller candidly admitted to the audience that he descended below minimums, to illustrate how easy it is to talk oneself into violating SOPs and even regulations. "I talked myself into thinking that I could land in deteriorating conditions," he said. A better way to fly approaches in marginal weather would be to plan to fly the missed approach at the beginning of the approach, then be surprised if the landing can be done safely, he explained.

Spouse Survival

CJP offers plenty of compelling activities for spouses, but one of the big benefits of having spouses along for the event is when they join their partners during the safety sessions. "I was usually stopped afterward by two or three wives," Miller recalled, "saying, 'Thank you for talking about safety; my husband needed to hear that.' They're much more involved emotionally than we think about."

To further integrate spouses into the safety picture, CJP does something unusual, arranging actual practice flights, including landings, in a Citation. The flights are flown with instructors provided by longtime CJP supporter and jet brokerage JetAviva. The spouses first attend ground school then go for a flight in their airplane, flying from the right seat.

To help figure out how to operate the airplane, students receive a laminated checklist with photos of each button and switch to actuate, including radios, transponder codes, etc. Once in the airplane, students fly three full-stop landings.

The training doesn't just help improve safety but occasionally encourages further study. At least two of the students went on to get their pilot licenses, and one is even planning to get type rated, according to CJP executive director Andrew Broom.

Attendance at the CJP event has grown rapidly and reached 474 at the 2018 event, up from 387 the previous year. "I think it's a testament to the program and what we've done to encourage people to come, whether owner-members or their companions," Broom said.

The focus on safety is an important factor, he added. "When someone comes, now they leave with more knowledge than when they came in."

CJP member Harry Hedaya summed up the sentiment from the 2018 event, which featured near-minimums weather on the arrival day. "One of the highlights (aside from making an approach to near minimums) for me, and I would imagine most of you, at this year's [2018] convention was the excellent quality of single-pilot operations safety-related information that was presented. I know what [the organizers] have achieved is no small feat and is the result of a passion towards a safety culture second to none."

Ron Draper, president and CEO of Textron Aviation, underscored the company's support as a sponsor of the CJP annual convention. "We value your feedback and value you as a customer," he said.

Next year's convention will be held at the Broadmoor in Colorado Springs, Colorado, on September 4-7. ■



Citation pilots gathered in San Antonio in October for a three-day meeting focusing on single-pilot safety.