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EDITOR'S NOTE

WINTER TRAVEL DESTINATION



I always feel as if I need an attitude adjustment during this transition from the warm and wonderful summer months to the cold days of winter. Daylight Savings Time ends. It's dark outside at 4:30 in the afternoon and, of course, the weather over most of the United States is, well, wintery. I live in California so I tell myself I should be able to manage, but who knows what this winter will bring. I already see snow-capped mountains of the San Gabriel Mountain range and Mount Baldy outside my bedroom window. I just need to learn to ski.

Nonetheless, this weather reminds me of my favorite destination: France! I love the people, the food, the luxurious hotels, and the accents. Paris is particularly beautiful in winter – the lights and snow are illuminating. The Pyrenees mountains are covered with snow and the towns surrounding them are quaint. During my last trip to France, I flew to Paris, Toulouse, Nice and Monaco and frankly, I miss the James Bond Casino! I also suggest renting a fast car so you can race through the French Riviera.

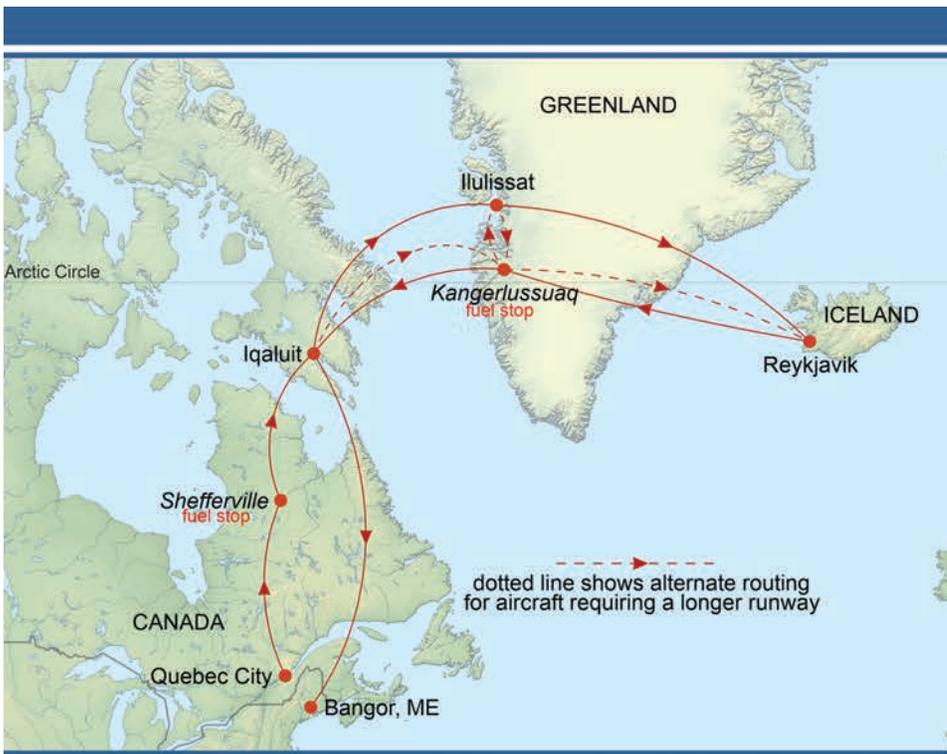
Amazingly, I also toured some airplane factories, of which there are many in this great country. So as I am writing this from the cold state of California (I am in the mountains so allow me this), I hope you can also relive your favorite winter travel destination.

Happy Holidays to all!

Rachel Friedman

Rachel B. Friedman

Rachel B. Friedman, Editor



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MEET THE MEMBER **JIMMY HAYES**



What airplane(s) do you currently fly and how many hours do you have in it?

I currently own a Citation CJ3+, a Pilatus PC-7, a Pilatus PC-9, 2 L-39 Albatross Jets, and a SNJ4. I have about a thousand hours in the CJ3+ over the last 5 years. I fly about 450 hours a year but about 300 of them are in former military planes.

What is your favorite vacation spot(s)?

I've been retired now for 6 years, so I suppose life is a vacation. With that being said, other than trips with our family, my most relaxing spot is anywhere in the air, particularly those flights when I'm going upside down.

What was your favorite thing about flying to Havana, Cuba?

My wife and I flew to Havana a few years ago in the CJ3+ for a ballroom dancing competition. It was a fantastic opportunity to see

a city and country that has such a diverse and complex history with our country. However, from a pure flying perspective, landing in Havana was a memorable occasion that very few private pilots will have the opportunity to ever do.

What are your procedures for getting around foreign countries?

I've had the great fortune to fly myself to 37 countries. Most of those trips were with Air Journey on their great flying adventures including Around the World in 2014. When I'm flying to foreign countries and not on an escorted Air Journey adventure, I still use Air Journey to plan and arrange the trip.

Favorite flying experience?

The 2014 Around the World trip was full of memorable flying experiences. From my first crossing of the north Atlantic in a Pilatus PC-12 to landing in Gibraltar, Hong Kong, and Dubai, there are just so many great memories.

"When I'm flying to foreign countries and not on an escorted Air Journey adventure, I still use Air Journey to plan and arrange the trip."



What drew you to flying?

I grew up in a small town just south of KATL. Most everyone in my small town worked either for Delta or Eastern Air Lines, and I was always around airplane people. But perhaps my greatest attraction to flying came as a young teen when I worked at a drag racing strip that was a racetrack on Friday and Saturday nights and an airport by day. It was in fact that very airport where I obtained my license in 1976.

What is your career background?

I finished graduate school in 1975 and worked in public accounting as a CPA for five years. In 1980, I had the life changing great fortune to be hired by a subsidiary of Cox Enterprises, Inc. I spent the next 37 years with Cox including 34 years as an employee

and 3 years post-retirement on the Board. Most of my years at Cox were in financial roles but was President & CEO when I retired.

How many hours do you currently have?

I have about 5,500 hours, and while I've been a pilot since 1976, most of the hours have been flown since 2001.

What is the first plane you ever flew?

My first flight was in a Cessna 150, N66169 on July 25, 1976. From that very first flight, I realized right away flying was something that I would pursue, although I certainly had no idea flying would be as significant and important in my life as it is. My solo flight was a week after that first flight, and I passed my check ride seven weeks later.

What is the first plane you ever owned?

Four weeks after passing my check ride, I purchased a 1961 Cessna 175 for \$8,000.

Do you have any recommendations for pilots out there?

My recommendation for any pilot is to always follow your personal minimums, obtain all the training you have the opportunity to pursue, and identify a special flying adventure to pursue and achieve. It will be a terrific memory for the ages. **C**





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CESSNA CITATION – 50 Years of Innovation

by **CHRISTINE CULVER**

In September 2019, Textron Aviation Inc. celebrated the 50th anniversary of the inaugural flight of the first Citation Jet. The “Fanjet 500,” later named the Citation 500, made its debut on September 15, 1969 from then-named Wichita Municipal Airport.

The aircraft flew for an hour and a half and reached a top speed of 225 knots. Plans to fly the aircraft to FL200 were spoiled due to a cloud layer limiting the flight to 10,000 feet for its first flight.

The Fanjet 500 combined Textron’s expertise in manufacturing smaller single and twin-engine aircraft with their experience in producing military jet aircraft, specifically the T-37 “Tweet” trainer aircraft. The original idea was to offer business travelers an aircraft that was a simpler and less expensive option than other business jets on the market and give pilots of twin-engine turboprops an easy transition into a jet.

“From that first Citation flight 50 years ago and through every Citation model produced since, our business jet programs are deeply rooted in the combined efforts of our employees, our suppliers and our customers,” said Ron Draper, president and CEO of Textron Aviation.

The Fanjet 500 was first unveiled at the National Business Aviation Association (NBAA) convention in October 1968. The aircraft received its first FAA certification on September 10, 1971. As part of American Airline’s training program, the carrier took delivery of the first Citation 500 in January 1972.

The inaugural Cessna Citation 500 flight was the first of a line of more than 7,500 Citation aircraft delivered worldwide – more than any other aircraft manufacturer. The airframe has more than 35 million flight hours and is known for reliability, efficiency, and comfort.

“The same vision that led to the creation of the original Citation 50 years ago still guides us today,” Draper said.

The Citation family has evolved from that first Citation 500 prototype into larger and faster aircraft with better technology, increased cabin comfort, and more advanced design and production processes. The Citation 500 and 510 are commonly referred to as the “slowtation” by ATC due to its slow indicated airspeed, but Textron has made great strides from the original Citation 500 model to today’s Citations, typically operating over Mach .8. The Citation X, although no longer in production, boasts as the fastest business jet in the world

with a top speed of Mach .92.

“Today’s range of Citations – from the entry level Citation M2 up through the Citation Longitude – incorporates our unwavering commitment to value-added innovation, design and production excellence and unrivaled customer support,” said Draper.

The Citation line encompasses a wide variety of missions and price points – from single pilot short missions to longer trans-continental two-pilot missions. Currently, there are seven models of Citations – both small and midsize – in production to match the needs and budget of a variety of customers. The various models can accommodate between 7 and 12 passengers.

The current Citation family hosts three small business jets: the Citation M2, Citation CJ3+ and Citation CJ4, and four midsize business jets: the Citation XLS+, Citation Sovereign+, Citation Latitude, and Citation Longitude. These aircraft offer a range between 1,550 and 3,500 nautical miles.

“We are building on our history as an industry leader and investing in the future to continue to exceed customer expectations,” said Draper.

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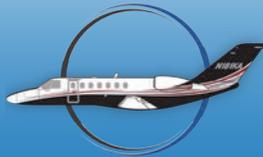
RECENT CITATION TRANSACTIONS

ACQUIRED



2000
Citation CJ1
525-0395
N507HP

ACQUIRED



2006
Citation CJ3
525B-0076
N181KA

ACQUIRED



2015
Citation M2
525-0870
N135RU

SOLD



2016
Citation Mustang
510-0475
G-ERLI

SOLD



2008
Citation Mustang
510-0143
N510BA

SOLD



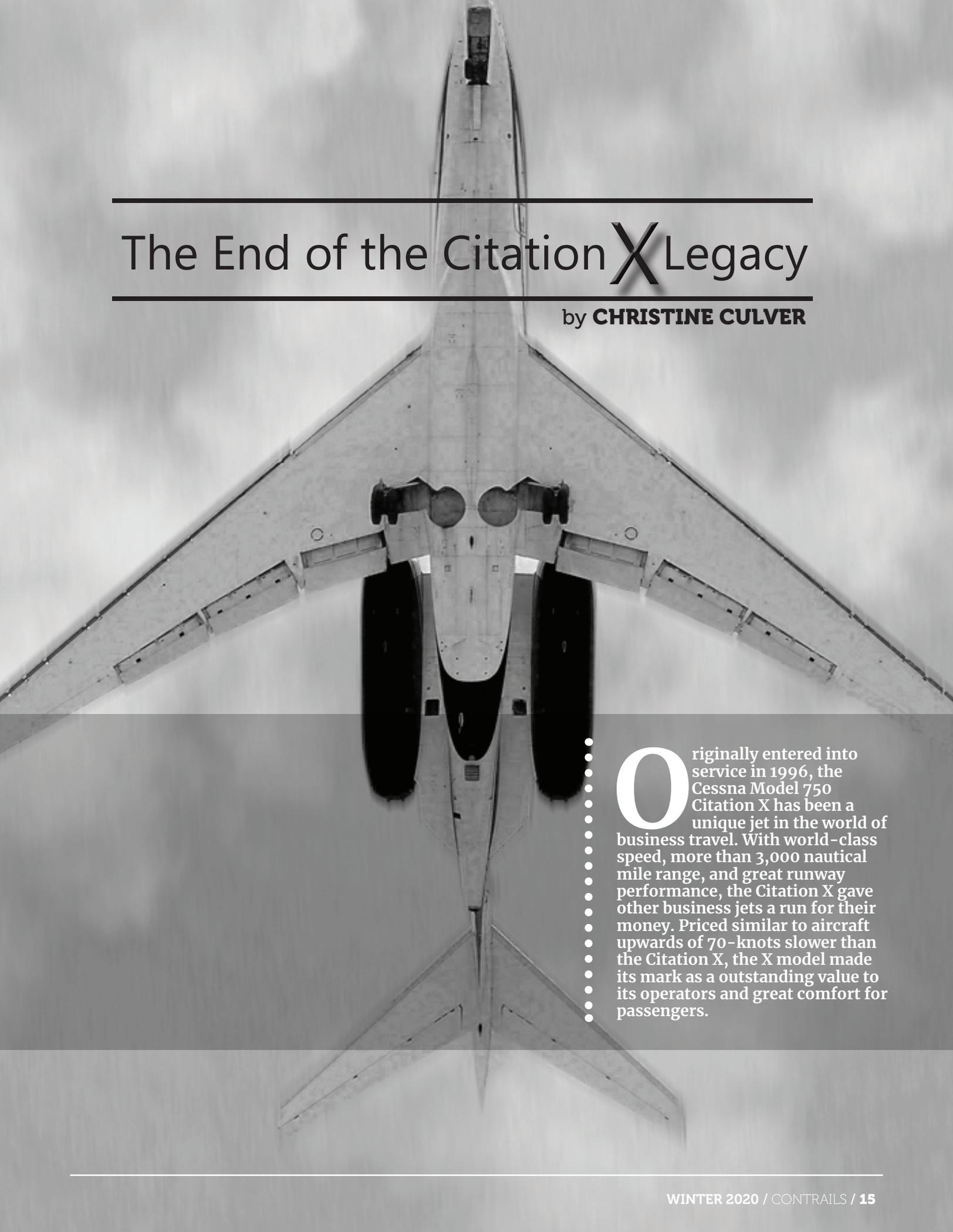
2000
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The End of the Citation X Legacy

by **CHRISTINE CULVER**



Originally entered into service in 1996, the Cessna Model 750 Citation X has been a unique jet in the world of business travel. With world-class speed, more than 3,000 nautical mile range, and great runway performance, the Citation X gave other business jets a run for their money. Priced similar to aircraft upwards of 70-knots slower than the Citation X, the X model made its mark as a outstanding value to its operators and great comfort for passengers.

WTHE END OF A CITATION LEGACY by Christine Culver

Citation jets are known for their reliability and safe straight-wing jets; however, the Citation X brought Citation into competitor's territory. Built with a swept-back wing, tons of style and raw speed, it was the fastest non-Concorde civil airplane in the majority of its production lifecycle. Designed with low drag, a swept supercritical airfoil, and powerful engines, the Citation X has all the key ingredients to go fast.

Unlike previous versions of the Citation, the Citation X was designed from scratch instead of derived from an existing model. It was designed for a different type of customer – those that wanted style and power while still taking advantage of the legendawry Cessna service and reputation. In 1997, the Citation X design team won the Collier trophy, the most prestigious award in aviation at the time.

There was very little competition for the aircraft as they were targeting a niche market – those that needed speed. Range, sophistication, and comfort are of course thrown in there to sweeten the deal for owners.

Cessna announced at the 2010 National Business Aviation Association (NBAA) convention plans to revamp the Citation X. The new Citation would reclaim the fastest business jet title – reaching Mach 0.935, faster than the Gulfstream G650 at Mach 0.925.

The Citation X+ was a completely new version of the aircraft and not just

a quick makeover of the new model. The aircraft featured new winglets, a newly designed Garmin glass cockpit, and auto throttles also by Garmin. The fuselage was stretched, which was the biggest news for passengers. The additional 14 inches of cabin length gave the passengers much more legroom. Other features in the X+ included lighting, two-layer window shades, new entertainment, connectivity options, and individual entertainment portal for each seat.

The Rolls-Royce Allison engines in the X+ were improved and the design maintained the X+ iconic look of swept-back wings and large engines. The Citation X was considered one of the most beautiful business jets of its time. Increased hot and high performance gave the new X+ increased flexibility, more payload, and better runway performance on certain trips – such as in Colorado in the summer.

The Citation X+ is capable of climbing better than 3,500 feet per minute and an unrestricted climb speed of 3000 knots. The aircraft can reach FL430 in just 23 minutes.

Despite being a legendary speed machine, the Citation X+ did not sell as well as intended. Only 314 Citation X and 24 X+'s were sold between June 1996 and June 2018.

“We continuously monitor the market as it fluctuates and adjust

our product offerings as necessary,” stated a Textron Aviation spokesperson. “The Citation X has become a beloved aircraft by operators and passengers alike as the fastest civilian aircraft in the world. With the upcoming entry into service of the Citation Longitude, we are taking the opportunity to minimize overlap within this customer segment and discontinuing production of the Citation X+.”

The Citation Longitude can seat 12 passengers and offers a flat-bottomed floor and over 4,000 nm range, while the X+ typically seats 8 and has a 3,700 nm range. While the speed of the X+ was impressive, other jets are now offering more amenities and reasonably fast speeds for the same amount of money. While speed was once the driver of sales, it appears as though comfort and range are bigger drivers for customers.

We will continue to see many Citation X and X+'s being used in the private jet charter market as it is a solid aircraft with excellent performance and a great reputation. The end of this aircraft's production simply means the opportunity for Textron to continue to deliver new, more interesting aircraft with more amenities to its customers.

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CITATION 525 PROGRAM: CJ INITIAL AND RECURRENCE TRAINING

by **ALYSON BEHR**



The Cessna Citation CJ series defined the light business jet market when it first flew in 1991. As of 2017, there have been over 2,000 produced. When the CJ first came out, it was one of the first jets marketed towards the pilot owner. Designed to be single pilot, it was developed as a natural step up from Cessna's large twin turboprops like the Cessna 421 and 420 for pilots wanting to move into jet aircraft.

Comparing it to today's market is tough because there's a wide range to the CJ line. Sean Gillette, a simulator and ground instructor in the Citation 525 program for a well-regarded industry flight training company says, "You have to take it in different sections. CJ and CJ1 you can compare to a Phenom 100. A CJ2, 2+, and CJ3 you can compare to the Beechcraft Premier 1, 1A and then the CJ3+ and 4 you can compare well to the Phenom 300."

Gillette flew T38s and C21 Alphas, a modified Lear 35, in the Air Force out of Ramstein Air Base in Germany. After the Air Force, he

flew CJ2s Part 91 for a solar energy corporation in Los Angeles before moving to San Antonio, Texas. He believes the CJ is one of the best all-around small business jets available, not only for the capabilities, but for the money too.

FAA TRAINING AND CURRENCY REQUIREMENTS

FAA requirements for the CJ pilot depend on the type of flying they're doing. For Part 91, the requirement is the initial course and type rating and then once-a-year recurrent training. On top of that if you're doing Part 135, that will depend on your Part 135 Operating Specifications (Op Specs) training requirements. Some people and operators require twice-a-year training. Gillette offers, "What you'll find, I think, is most operators in a 135 world will do twice a year, once every six months." Even though Part 91 fliers are only required to do annual recurrency, Gillette says many flight training companies have full service clients who pay a little bit extra and do recurrent training as often as they want.

GETTING PREPARED

There are a few tasks and study items you can do in advance of showing up for your training that will put you ahead of the curve. Gillette says to study up on your jet's operating limitations and memory items. Some flight companies have programs with enhanced courseware delivery and presentation applications for iPad as well as web-based versions for Android and Windows-based tablets and desktop computers. Typically, when somebody signs up for training, they're sent an email where they download the app for the program that they've signed up for. Companies usually have apps for all the programs they run, whether it's for Gulfstream, Falcon, or anything Cessna, containing everything that they're going to need for the training program: All of the manuals, including avionics, cockpit posters, and checklists, etc. They don't usually include avionics simulators, however, there are some free online simulators like the Garmin 750. Gillette says, "These help for people that have airplanes or buying an airplane that has the Garmin upgrade."

LOOKING FOR YOUR INITIAL TYPE RATING?

Gillette says that defining the optimum experience he'd like to see in a trainee for the initial type rating was tough. "We've had everything from people who have 30,000 hours that are getting out of the airlines to flying these things. We've had people from Canada who have 200 hours that are getting a job flying right seat and getting an SIC type. In some cases, the 200-hour pilot did a better job than the 30,000 hour pilot." He adds, "It is really dependent on the person, their abilities, and their level of training. I personally never look at how many hours they have, because one, I don't feel it's a good indication of somebody's experience or capability; and two, I think it's a poor way of judging experience and capability." He says in general, if they have some time flying a high-performance airplane multi-engine with systems comparable to the CJ, it does help speed things along a little bit. Interestingly, he believes that if you were flying a King Air, it's a great stepping stone to the CJ. "In all actuality, CJ's are easier to fly than a King Air. 100%, in my opinion, and I fly them both."

TIME INVESTED

The number of days and the time invested and logged either in a simulator or aircraft is going to be slightly different for each program. Most initial type ratings will be about 10 to 14 days depending on the aircraft model, and all companies conduct all flight training in a simulator. However, you can do it in your aircraft. The Citation CJ type rating is good for nine airplanes, so it's one of the most versatile type ratings. The company Gillette works for has different training schedules for different models. CJ1 initial training is eight or nine days, which doesn't include a day off. The CJ2+ is 14 days with one day break.

Gillette does a lot of CJ2+ training and breaks it down: "There's a full week of ground school, a couple of days of ground training in a simulator, a full week of simulator training, and then the check in the simulator. The CJ and CJ1 are just a few days shorter than that."

Recurrency for the CJ1 and the CJ2+ are both three-day programs. Gillette says, "If you have a check ride qualified instructor from day one, you can do something called a progressive where you do a half day of ground, half day of sim, for all three days and the check ride is lapped into all three days. So as long as everything is covered on the syllabus and you have done everything up to standards, at the end of the third day they give you the logbook endorsement."

There are numerous flight training companies to choose from. Be sure to research them thoroughly before making a choice. Interview instructors to find out if they've flown the aircraft and get a feel for how much they know. If they have client referrals, it's a good idea to follow up with them to ensure you have a great experience and come away feeling confident.





by **JACK
BOYD**

MY WAY IS BETTER

FAR 91.13: Careless
and Reckless
Operation

Just last week I witnessed that guy who repeatedly lobs golf balls in your foursome. His display of careless and reckless behavior could have gotten him banned from the club, or worse, a black eye and bloody nose. Switching gears, I imagined this same gentleman piloting an airplane displaying similar carelessness and recklessness, and the fact that it could result in far greater consequences.

Take an acquaintance of mine, we'll call him Mike. He owns and flies his jet primarily for business use. It is not uncommon for Mike to fly with an expired navigation database on the FMS he barely understands. His usual modus operandi is asking for vectors direct to the runway, starting a gradual letdown, and then relying on suggested corrections from the controllers to find the threshold. You might ask yourself, how can this happen if Mike must complete an annual recurrent ride (61.58)? Well, somehow it happens anyway.



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The FAA defines careless or reckless operation of an aircraft in FAR 91.13. It states “no person may operate an aircraft in a careless or reckless manner as to endanger the life or property of another”. This “catch all” regulation is far-reaching and at the discretion of the Feds. Many times, the book is thrown at violators with certificate suspension or revocation because the act is usually one of intentional behavior.

Being an instructor has its ups and downs. While we may not be in the driver’s seat, instructors are still the ultimate PIC with all the perks and pitfalls the privilege entails. That said, I have had the privilege of “firing” only one of my clients over many years of teaching. Brian was a macho man. He wrestled in college and was the CEO of a large company. I attended a company Christmas party when he was detained for assaulting one of his employees in a drunken rage. Once, after gingerly dressing down Brian for being reckless in the airplane, he threatened that “I would throw you to the pavement right now if you weren’t my instructor.” Brian and I parted ways the following week during a cross country flight when his disregard for my concerns regarding the safe operation of his aircraft reached a crescendo. This behavior was a deal breaker for me and I promptly bought a plane ticket home.

We are all probably aware of the five hazardous attitudes the FAA labels as careless and reckless types: Macho, Anti-authority, Impulsivity, Invulnerability, and Resignation. Let’s take the example of several pro pilots who recently revealed the practice of “hot fueling” in the jumper and agricultural side of the business. They opine that it is common practice to exit an idling airplane and refuel it without anyone minding the flight controls. They rationalize the cost savings for doing so. The Feds certainly would think otherwise.

Another example, I was given the task of observing a Fed ride a few years ago. Another pilot alerted the ground controller that we were taxiing with the baggage door open. Our pilot (being tested) pulled power to idle, set

the parking brake, and started exiting the aircraft. The Fed grabbed him and said shut it down. He stepped out, closed the baggage door and climbed back in. We restarted, made a 180 and taxied back to the ramp. The pilot was told he was in violation of 91.13 and issued a Notice of Disapproval.

What do all these behaviors have in common? A macho personality and a disregard for authority mostly. Studies have revealed that many owner-pilots are susceptible to this because of “Type A” personalities – and “masters of their universe.” They make their own rules as they see fit and usually flaunt authority and the status quo. In many cases, this works well in business, but does not lend itself in the cockpit.

Remember Mike? Well, a friend recently told me that Mike shot an approach in mountainous terrain while IMC. He bragged about scaring the bejesus out of himself as he fumbled for the threshold, then spotting it at about 100 ft AGL. He said he quickly sidestepped to correct the off center arrival and landed without further incident. Mike also mentioned that his front seat passenger asked if this level of danger is common in aviation, having witnessed the chaos away from his usual window seat.

Careless and reckless? You betcha it is.

Jack Boyd is a DPE in South Florida and President of Gold Standard







THE MAGIC OF CROSSING THE ATLANTIC

by **THIERRY
POUILLE**

Early in the creation of Air Journey, the crossing of the Atlantic was already very high on my bucket list. I believe every pilot secretly has a Charles Lindbergh bug in the back of their mind and wants to transpose it to their log book. I completed my first general aviation crossing in April 1974 onboard a brand new C19 King Air taking the northern route – via northern Canada, Greenland, and Iceland before crossing over to Europe.



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My second Atlantic crossing came in 1989 onboard a used Cheyenne. I traveled all the way from Georgetown, Texas to Geneva, Switzerland. I still remember that crossing in detail since there was an amazing flight from Reykjavik, Iceland, to Geneva - nonstop in six hours and 52 minutes. And yes, we still had jet fuel on arrival. We flew at a very slow speed with the props set at 1,700 rpm and did not use the generator heater to save as much fuel as we could.

Since then, and upon the creation of Air Journey, I started to look at the Atlantic in a different way. Since we are now flying jets with range in excess of 2,000 miles and with some aircraft equipped with HF radio, it's about time to take a look at some of the misconceptions of the rendering of the map.

In the early flying of Air Journey, the shortest route to Europe was to leave out of Goose Bay, Canada and fly to Reykjavik, Iceland with a tailwind. At 1,325 nautical miles, this was a goal that few airplanes could accomplish. With modern jets, it's worthwhile to take a closer look at the map and revisit how air travel was being done at the end of the Second World War in the 1940s and 1950s, before the arrival of the Jet Age.

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The Magic of Crossing the Atlantic by Thierry Pouille

As you can see on the map, by leaving Gander or St. Johns (in Newfoundland), Europe is not that far away. St. Johns to Ponta Delgada (in the Azores) is only 1,325 nautical miles – about the same distance as Goose Bay, Canada to Reykjavik, Iceland. From there a number of places in Europe can easily be reached – Lisbon, Portugal (780 nautical miles), Gran Canaria, Canary Islands, Spain (780 nautical miles), and Marrakech, Morocco (945 nautical miles).

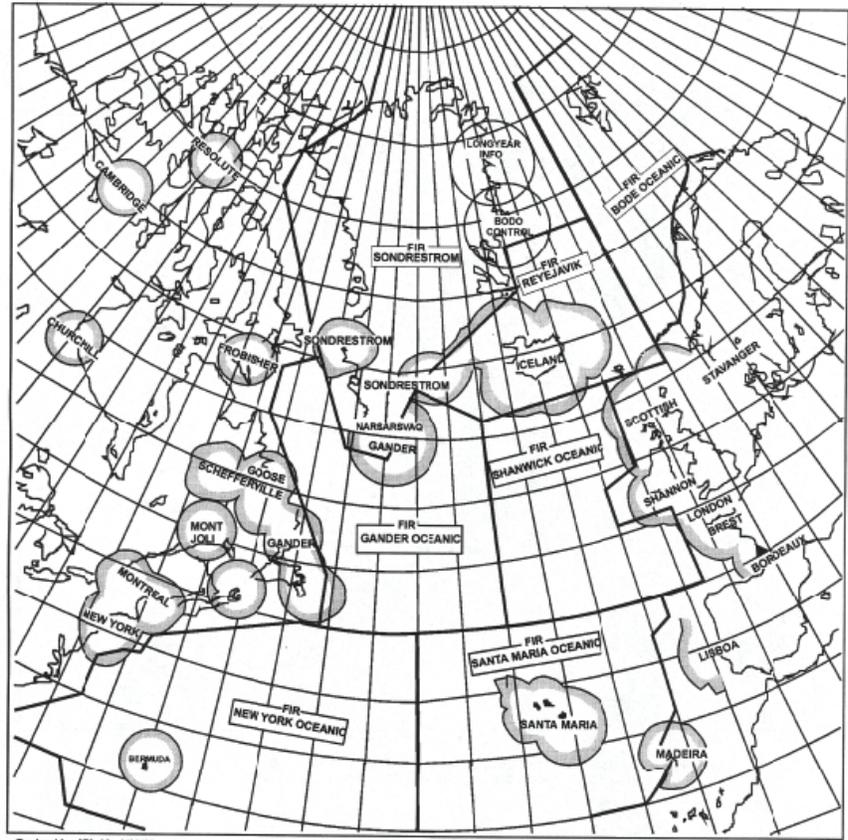
What's interesting is that from St. Johns you can fly also to Shannon, Ireland (distance shy of 1,700 nautical miles), or A Coruña in northern Spain with a distance of 1,860 nautical miles.

When we look at the other way around, you can fly from St. Johns to Bermuda (1,000 miles) and Bermuda to Antigua in the Caribbean (930 nautical miles) or Bermuda to the Bahamas (800 nautical miles). Just to give you a perspective, New York is only 660 miles from Bermuda.

So why aren't we doing this routing on a more regular basis and why do these destinations all look so exotic? Well first there are the regulations. Regulations mean that with the exception of flying across the Atlantic via Greenland and Iceland, all of the other routings require HF radio. While the system is antiquated and could be easily replaced with SAT phone communication, it is not legal to fly these routes without an HF equipped airplane.

There is a story not long ago where a Citation M2 went to Bermuda without HF radio and was not allowed to leave the country to fly back to the US without the proper equipment or fly the route at 5,000'. So follow the rules and regulations.

Now the FAA has also become a lot more interested with the proper training and understanding of what is needed to cross the Atlantic. The old LOA called NMPS has been replaced with the NAT HLA LOA which basically requires the pilot to demonstrate abilities to FAA inspectors to make sure that he or she understands all the rules and regulations related to flying across the Atlantic.



Revised by ATA-10 6/09/98

VHF RADIO COVERAGE IN THE NAT REGION AT FL100



VHF RADIO COVERAGE IN THE NAT REGION AT FL300



Islet of Vila Franca do Campo, Azores

One of the key questions being the point of no return, being also what happened in case of lost RVSM qualification, or even in a case of sudden depressurization.

That's one of the key questions when you cross the Atlantic with a private jet such as a CJ3 or CJ4, if you want to be legal, you cannot cross the Atlantic from St. Johns, Newfoundland to A Coruña, Spain or even St. Johns to Shannon, Ireland because you need to take into consideration the possibility of an inflight emergency. For example, if you have sudden cabin depressurization, with passengers onboard, their access to oxygen is limited. In the case of only a crew onboard, that range

can be extended - but this is a computation you need to do before launching the flight.

Studying these maps is always a fascinating way of preparing travel. With an HF equipped airplane, the leg from St. Johns to Ponta Delgada is only a little longer than three and a half hours. There is good HF radio but believe it or not there is also VHF communication available but not legal along the way.

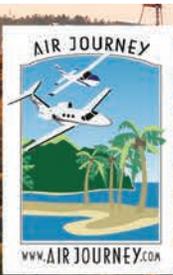
The Azores are still one of the places which have not yet succumbed to the hordes of tourists traveling and there are many beautiful sights and very nice hotels to be visited. It gives you a very good view of Europe.

After Ponta Delgada, Europe is open to you starting with Madeira, Portugal and Gibraltar, Spain. The beauty of us flying the Citation is that the world is a lot closer than it used to be and the comfort of traveling at 45,000' in beautiful, pressurized comfort is unique.

Stayed tuned, there are more fascinating discoveries happening in the next issue. Have you ever considered flying from the West Coast to Hawaii?

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Thierry



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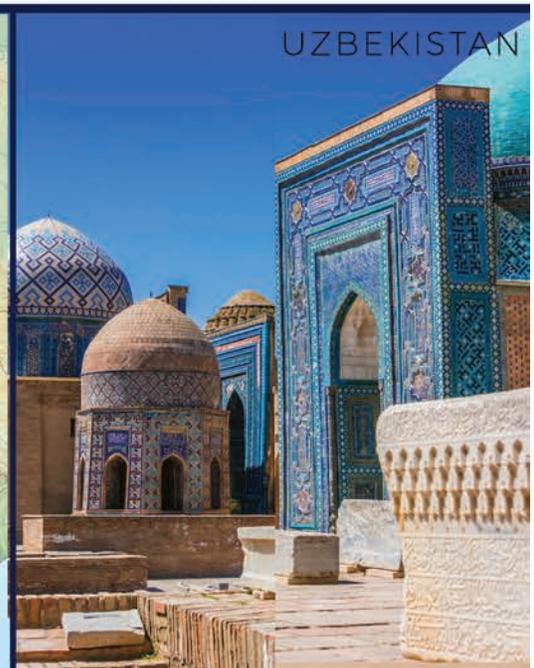
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QUARTERLY QR CODES

by **JULIA MILLER**



Welcome to the winter round of QR Codes!

Welcome to another season of QR Codes! Scan each video to learn more about the Cessna Citation Family including a Citation II review, a flight over the mountains in a Mustang, and the differences in the various CJ models. And you won't want to miss Bruce Monnier's Dual Engine Failure on his Citation medivac flight!

- 1 Dual Engine Failure in a Citation Jet:** Scan to hear about Bruce Monnier's experience in a dual flame-out in a citation jet due to contamination. He was flying a medivac flight with 2 crew, 2 medical personnel, 2 passengers and 1 patient. Learn what happened from Bruce Monnier's perspective and how to
- 2 Citation II Review:** Tour a 1982 Citation II on Mike's Jet Review channel. They will walk you through the exterior, engines, interior and cockpit followed by flight performance, aircraft specifics, and how much these incredible private jets are selling for.
- 3 Airplane Intel:** Travel to Jacksonville, Florida to get an inside look at owning a Cessna Citation Jet. Learn about the multiple CJs and the differences between each as they walk you through the glass cockpit before a flight over the beautiful Florida landscape.
- 4 Top 5 Luxury Private Jets:** See the Cessna Citation Longitude - named a revolution in business aviation - in this top 5 count down of luxury private jets for 2019 and 2020.
- 5 Vegas to Scottsdale:** Fly along with Todd Vollhaber from Vegas to Scottsdale in a Cessna Citation Mustang. Enjoy the beautiful scenery flying over the mountains as he walks you through the flight while showing the standard departure and arrival procedures so you can follow along as he goes.



DO I WANT THE ROCKWELL COLLINS PRO LINE FULL FMS SYSTEM FOR MY C



WELL SESSION CJ?

by FRANK HARLOW

Teaching a Flight Instructor Refresher course (FIRC) a few years back, I had a senior pilot in the class. As a group, we were having a discussion concerning VOR and NDB approaches and their future. We thought the future of those approaches looked bleak. The cost to maintain them was too high for the limited use of the facilities. GPS-facilitated approaches were the wave of the future: Lots of satellites up there. The senior pilot in the group piped up and said, “You boys and girls have not lived until you have flown an Alpha November approach to minimums. That hum in your ears is one great feeling, as sweet a honey on a biscuit.” As a group we came to a collective sigh and then gave the man our utmost appreciation. I am sure he became the real pilot in the group that day.

Fast forward to today, and we see the Collins Pro Line Fusion® for the CJ3 system. That senior pilot would be amazed at the advances in today's aviation navigation. The Fusion has all the bells and whistles you could think of in a Flight Management System (FMS) and more. The Pro Line Fusion® upgrade enables you to enjoy your flying with widescreen displays, high-resolution synthetic vision and touch-screen navigation.

Interestingly, the Fusion system comes with an 838 page operating manual. The reason the manual is so big is there are so many different ways with this system to do the same thing. I am sure it will put you to sleep at night trying to figure out all the different ways you can go from point A to point B. For those of you who don't like to read, an easier way would be to watch the YouTube videos.

The CJ3 jets were originally outfitted with the Pro Line 21 avionics suite, which is an extremely capable system, but as with all technology, it didn't match the full capabilities of newer aircraft avionics. Cessna has

been delivering the CJ3+ with Garmin 3000 avionics since 2015. So, what was the owner of a straight CJ3 to do to upgrade? Until the Fusion was announced, there were no advanced system upgrades for the straight CJ3, other than WAAS and a few other enhancements to the Pro Line 21. Since 2004, more than 400 CJ3s have been built. The Fusion system is a great update to a stellar performer. The Fusion system was first offered in 2012 and is on many large cabin aircraft, but now CJ3 owners can take advantage of the Fusion system.

Rockwell Collins, with their acquisition of ARINC, now has an iPad app. "ARINC Direct" is designed to complement and communicate with Pro Line Fusion. It has robust flight-planning capabilities, as well as performance calculations utilizing APG (Advanced Performance Group) data for optimized departures. Pilots will be able to stream flight plans and performance data to the Fusion panel systems using the included Wi-Fi system module currently dedicated to these communications.

WHAT DOES THE UPGRADE INCLUDE?

1. Three screens larger than the original Pro Line screens. The new 14.1-inch widescreen LCDs come with advanced graphics, configurable windows and touch-screen or point-and-click navigation to make viewing easier.
2. High-resolution synthetic vision, including Collins' patented airport dome and extended runway centerlines with mile markers to better orient the pilot from top of descent through final approach.
3. Touch-interactive maps with eyes-forward flight planning, high-resolution topography, real-time on-board weather radar overlays, obstacles, and special-use airspace and search patterns for expanded situational awareness and reduced workload
4. A fully loaded package of baseline equipment for operation in modernizing global airspace: DO-260B compliant ADS-B, SBAS-capable GNSS, localizer performance with vertical guidance (LPV) approaches, and radius-to-fix (RF) legs
5. Geo-Referenced electronic navigation charts that display own-ship aircraft position for enhanced situational awareness during approaches
6. Easy and fast database updates using a standard USB drive port on the front of the displays, or the optional Aircraft Information Manager (AIM) wireless data loading service
7. The new system also includes intuitive, touch-interactive maps, easy-to-use icons, giving the pilot the ability to control items on the screen through touch as well.
8. Two new cursor control panels and a new "QWERTY" keyboard, which replaces the current FMS CDU mounted in the center pedestal.

I have always wondered why they made previous keyboards in an ABC format instead of a QWERTY board. It would be so much faster.

8. Additionally you can get as addons later; Graphical weather (data link or XM weather) IFIS (charts) on outboard AFD (dual)





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Maybe you are thinking about upgrading to the Fusion system. Let's talk to an early adopter and see what he thinks about the functionality and his adapting to the Fusion system:

Meet Richard Boyer, proud owner of a CJ3. He purchased his CJ3 about five to six years ago, stepping up from a TBM. He uses the airplane for business and pleasure and flies about 200 hours a year single pilot.

How did you approach preparation for delivery of your system.?

While I had the airplane in for a paint and interior upgrade, I added the Fusion system to the airplane. It seemed like a natural fit to the airplane. Prior to picking my aircraft up from maintenance, I took the three day course offered by Pro-Flight in Tampa Florida. I was very glad I did; I had time to sit and really work with the system. The training really gave me an advantage and head start when I got this airplane back. The fusion system is the same but somewhat different from the Collins Pro Line. There are just many more ways to do the same thing with the system.



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What were your first impressions of the Fusion system?

I really thought the system was robust compared to the original Pro Line system. It is something one might get lost in the box, so to speak, without some training. It took me about 100 hours of use to get very proficient with it.

What drew you to complete the Collins Pro Line Fusion update?

I had to do something with the airplane to comply with the ADS-B mandate. This upgrade seemed like the right thing to do. We are now able to comply with the mandate and position the airplane to accept future updates to the system. The added value to the airplane doesn't hurt either.

What are some of things you like about the Collins Pro Line Fusion System?

Having the bigger screens gives the pilot more room to see. What they see is up to the person in the seat. I really like the bigger screens, and the touch screen is fantastic. There are just so many ways to do the same thing and personalize the screens. I get a better picture of where I am going. Most importantly, my situational awareness is vastly improved.

What are your thoughts on how the system works?

I like the simplified process with the touch screen. It really simplifies the process of flight plans, weight and balance, and the like. I use the touch screen about 50% of the time and 50% of the time I use the Qwerty board. If it gets too bumpy, the Qwerty board pays off. Downloading updates is fast and a breeze. With the split screens, you have three large screens and can split any one of them to do what you want. I have an extreme level of flexibility with the screens.

Any troubles with the system?

The airplane was down for 4-6 weeks, and during that time I had the paint and interior completed. I really personalized the airplane for me. The system has been squawk-free from day one. I have had no issues whatsoever.

Did you receive any coaching and short cuts to learning the system?

Being a member of the CJP Association really added to the learning process with the system. I found some really great coaching within the CJP community. A pilot familiar with Pro Line 21 can learn the system in a few days and operate the system proficiently, however they will only discover its full power over time, similar to some of the more advanced avionics now available to pilots.

What about chart downloads. Is the new **process difficult?**

The USB adapter makes life easy; it takes only five minutes to upload. I didn't opt for the wireless updater.

What are your future plans with the Fusion system?

I will certainly take advantage of the CDPLC upgrade when it comes online and is available. There is a software update coming in 2020, and I will take advantage of it also.

Will you add any of the weather options to the system?

One of the coolest features of Pro Line Fusion is the outstanding number of weather display options. In addition to onboard Radar, XM/Sirius Weather, you can also add the optional Datalink Request system for



weather. Fusion provides an amazing number of display options, and you can only begin to explore them all over several cross-country flights.

OUR FINAL THOUGHTS

In terms of safety, the Pro Line Fusion also offers not only GNSS and VOR navigation functions, but also backup position information from up to three VOR/DME ground stations automatically during flight. In that scenario when you may lose GPS signal or our military selectively degrades the signal, the pilot still has backup navigation that will automatically attempt to provide your position.

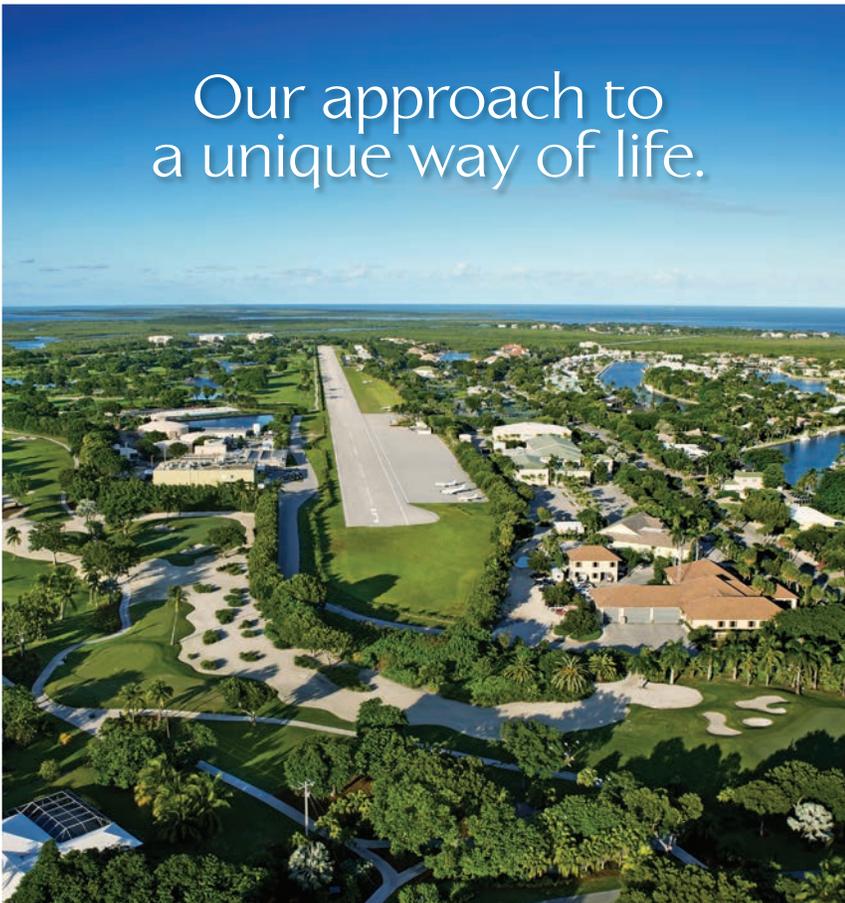
CJ3 owners, if you are looking to upgrade your aircraft's avionics, the Fusion system is waiting for you.

Greasy side down,

Frank.



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Single Pilot: Could vs Should

by CIRRINCIONE

Full disclosure – I’m a fan of single pilot jet operations. I think most pilots that argue against any single pilot jet operations simply recognize their own limited capability and project those limitations onto all other pilots. Everyday thousands of fighter pilots around the world safely execute single pilot operations that are more complex than any Point-A to Point-B trip in a corporate jet or airliner. That said, even with over 15 years of Citation experience, much of it single pilot, and a current average of over 300 hours a year in various Citations, I refuse to fly several trips a year as a single pilot. The decision to go single pilot or as a crew **MUST** consider more than ego or schedule. Every variable is critical and any one of them could be fatal if ignored.

Rather than list all of the possible variables, we can compare a few types of flights that may be appropriate for single pilot operations against those that may be better flown as a crew. To be clear, we are only considering a pilot that is both *trained* and *proficient* in the specific type of jet to be flown. I’m using both of those terms to refer to levels significantly higher than the legal minimums. We’ll accept as a given that you, the Captain, use tools like the PAVE model and IMSAFE checklist to assess each variable and make an intelligent go/no-go decision. Assuming the plane and pilot are in normal working order, we might decide for, or against single pilot operations like this:

Yes, single pilot is probably fine – routine trip, familiar route, simple airspace, benign weather, proficient with avionics, or the plane is going into routine maintenance

No, single pilot is possibly not the best choice – complex departure or arrival procedures (TEB, VNY, LAX, DFW), demanding weather (thunderstorms, low ceilings, fog, or icing), new or unfamiliar avionics, plane coming out of maintenance or modification, long duty day, or travel for a stressful reason (family or business issues), or any circumstance outside of routine operations

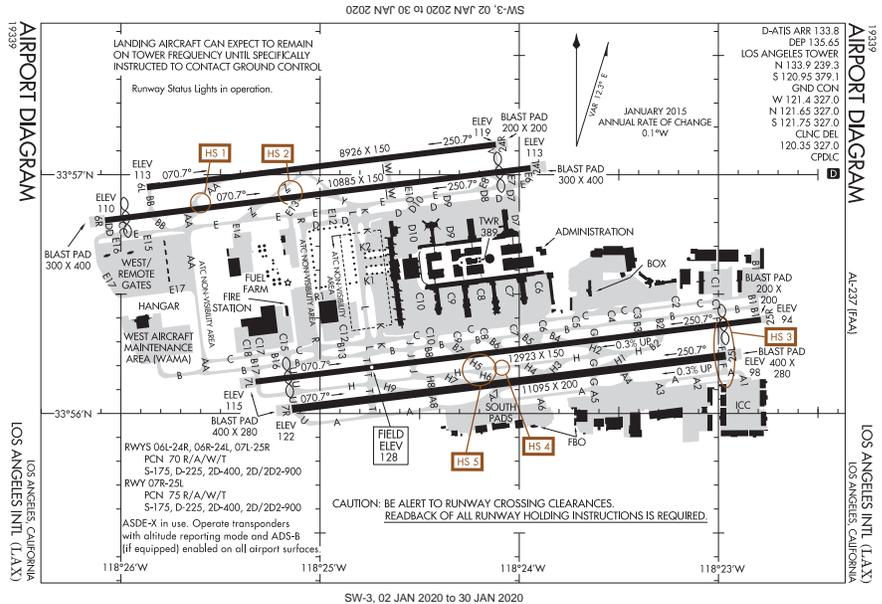
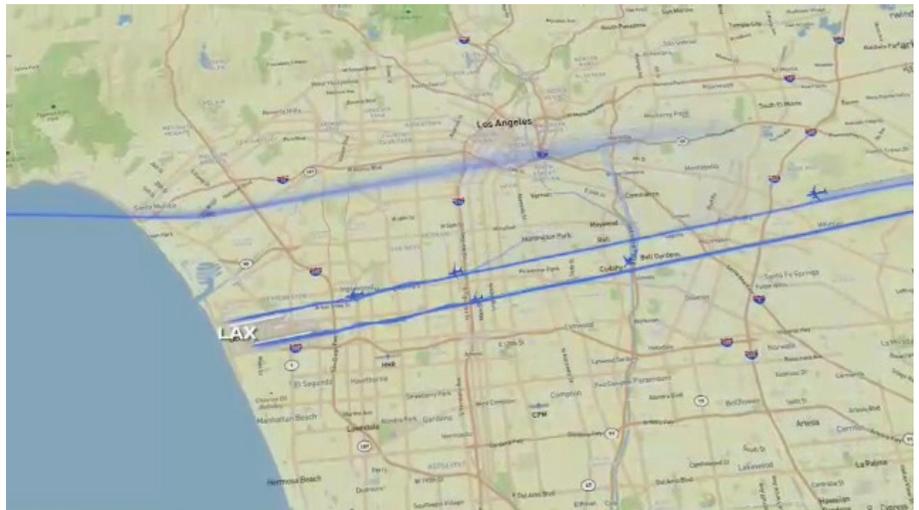


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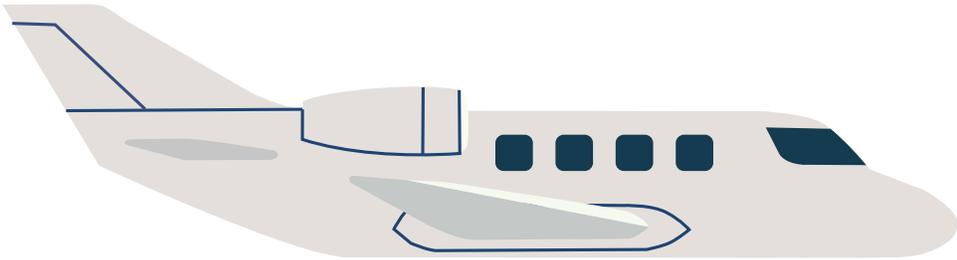
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Let's say we decide a copilot would be a good idea for tomorrow's flight. Do we just call some pilot a friend recommended? Maybe... but will that pilot actually help or hinder us? Would it really be better to fly with a person that always flies VFR – who is messing up radio calls and might not be any better with the avionics than you are – or would you be safer alone? Consider the potential interpersonal dynamics with these different crew mixes:

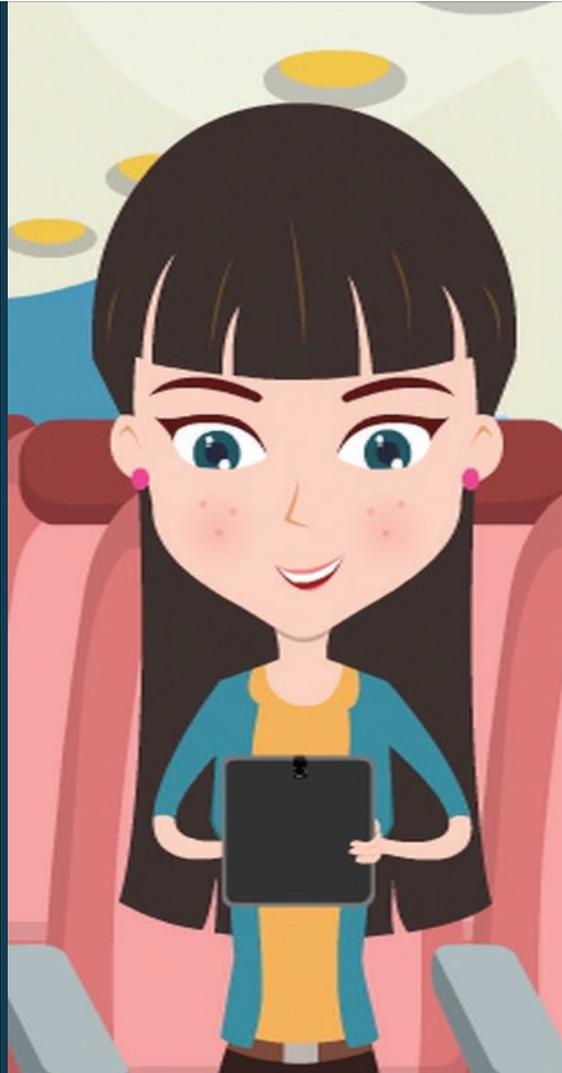
Experienced Captain	<i>with</i>	Experienced Copilot
Experienced Captain / CFI	<i>with</i>	New Copilot first jet flight
New type-rated Captain	<i>with</i>	Experienced CFI
New type-rated Captain	<i>with</i>	New / Inexperienced CFI
Passive Captain	<i>with</i>	Over-bearing Know-It-All Copilot
Over-bearing Know-It-All Captain <i>with</i> Over-bearing Know-It-All Copilot		

Of course, only the first 3 are even close to desirable. However, even those have their unique challenges and built-in distractions. By the way, I just realized that Know-It-All and Killed-In-Action share the same acronym – KIA? Coincidence? Maybe not...

If you decide it's a good idea to build a list of copilots, it's better to do it in advance. Most airports where jets are based have at least a few pilots that may be good candidates as potential copilots. Contract pilots, low-time CFIs, off-duty airline pilots, the mature airport bum who has flown nearly everything, etc. are some of the most common. Each of the above may be great or awful. Further, one may be a better fit depending on the primary reason we want them. For example, consider a pilot with a few hundred hours flying a CJ1. The avionics shop just installed a new Garmin 1000 in it, but the pilot has little or no experience with the new avionics. A local CFI with substantial Garmin 1000 time may be a perfect fit for several short, local proficiency flights. That same CFI may not be much help on a demanding flight to complex airspace in bad weather. We really want the right copilot *before* we are halfway down the arrival, in icing, to a possible missed approach/divert with one or more systems



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degraded. This isn't the time to refine crew coordination or discover your copilot can't program the FMS.

So, how can we be sure the pilots we'll fly with will actually help and not hinder our operation? We'll likely end up with a list that has pilots that are great for some trips but not as good for other trips. Best case, we find 1 or 2 pilots that can do any trip, and 1 or 2 that are a good fit for only certain trips. Here is a possible process that may ensure the pilots on our "Phone a Friend" list will actually help us when we need it.

- **List the pilots that may be a good fit.** There is no point training a person that is always on-call for their real boss and can't leave the local area when we need them.
- **Determine the compensation for each.** A proficient contract pilot will likely want a day-rate plus expenses, while a low-time Garmin 1000 expert may be happy with getting the experience and a good lunch.
- **Make sure each pilot is eligible:** Commercial, Multi-engine, Instrument rated with a valid medical.
- **Train the pilot.** Review 14 CFR 61.55 to determine the legal requirements. Basically, this requires some academics and 3 takeoffs and landings to a full stop as sole manipulator of the controls. There is a little more to it, and doing it right is worth the cost
- **Once each pilot is legal, fly with them on a few simple flights** you would otherwise fly as a single pilot. The point is to refine crew coordination, develop proficiency with your avionics, and assess the 'fit' before you're in a demanding situation.

Let's briefly go back to "train the pilot." I've met copilots whose training ranged from probably not even legal to having them fully prepared for a type rating check ride. Naturally, the best lies somewhere between these extremes. Most of my clients simply have their copilots attend academics when the client does their initial or recurrent training and has the instructor do the required flight events. Another option is to send them to a dedicated training program in either the airplane or a simulator. Either path is fine. However, if your plane has different avionics than the simulator, it's probably far better to do the training in the plane.

There is nothing gained and much risked by confusing your copilot with avionics and procedures that specifically don't apply to your plane. Also, if you might need them for international operations, make sure they document all of the training as outlined in 61.55. Then, any DPE or FSDO can issue the "Second-In-Command" type rating which is required for international flights. Domestic operations only require a logbook endorsement. Once we have a few copilots identified and trained, it's much easier to make a call and get a little help when appropriate. Not having those pilots available may contribute to proceeding with a flight that perhaps we shouldn't. Personally, I would rather spend a little extra money to buy significantly reduced risk.

I hope this has triggered some introspection and an assessment of your particular single pilot versus crew operations. It certainly offered a simple plan if you choose to add a copilot to some of your trips.

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A detailed view of the cockpit of a TBM 940 turboprop aircraft. The cockpit features a modern glass cockpit with four large multifunction displays (MFDs) showing various flight parameters, maps, and engine data. The central console has a gear selector and a new autothrottle lever. The yoke is prominently displayed in the foreground. The background shows a runway at night with lights.

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T AKEOFFS

PART TWO : DEFINING V2

by NEIL SINGER



Many of the new V-speeds first time jet pilots are exposed to are only used in the event of an engine failure: V2, VFS, VENR, VAC. Depending on the aircraft manufacturer and phase of flight (takeoff, go-around, etc.), a pilot will calculate several speeds for each takeoff and landing that he will almost certainly not need to use. While most pilots quickly learn to compute the speeds in initial training and use them nearly every simulator session during one simulated engine failure after another, many pilots harbor misunderstandings about what the speeds represent.



V₂, for example, is often mistakenly thought to be the jet equivalent of VXSE, or single engine best angle of climb speed. Pilots of piston and turbo-prop multi-engine aircraft learn not only the speeds for best rate and angle of climb when both engines are working, V_Y and V_X respectively, but those for best rate and angle with one engine failed. For most non-jet twins, these speeds are given for one weight and altitude combination, and the pilot never ventures beyond these default values.

In contrast, before every takeoff in a jet, the pilot will typically calculate four V-speeds based on criteria such as weight, altitude, temperature, and flap settings. The first two of these speeds, V₁ and V_R, determine how late into the takeoff a pilot may abort the takeoff and when the pilot

begins the transition to flight. The other two speeds, V₂ and a “final” climb speed (which goes by different names depending on the aircraft manufacturer—we’ll call it V_{FINAL}), are only used if an engine fails during the takeoff, after the point at which an abort can be safely completed.

During initial sim training, for nearly every simulated engine failure on takeoff, the pilot is presented with a textbook, that is to say, worst-case, event. The engine is programmed to fail just before V₁, the pilot reacts, rotates the aircraft at V_R, and climbs to a safe altitude above obstructions at V₂. Once above immediately threatening obstacles, the pilot accelerates to the final climb speed and retracts flaps. From this sequence many pilots develop a logical, but fallacious, correlation of V₂ to VXSE, and V_{FINAL} to V_{YSE}.

In fact, it is V_{FINAL} that correlates much more closely to VXSE. So what does V₂ represent then? In short, a compromise. For most circumstances a jet will encounter, certification requirements define takeoff distance as the longer of the distance to either bring an airplane up to V₁ and initiate an aborted takeoff, or continue on one engine so that the aircraft reaches V₂ speed at 35’ AGL. Clearly the higher the V₂ speed defined by the manufacturer, the longer the distance that will be necessary to accelerate from V₁ to V₂ on only one engine. Due to the desire to minimize published takeoff distances, the manufacturer often sets V₂ to be the minimum allowed by certification requirements, based on minimum allowable ratios of V₂ to stall speed and V_{MC}.

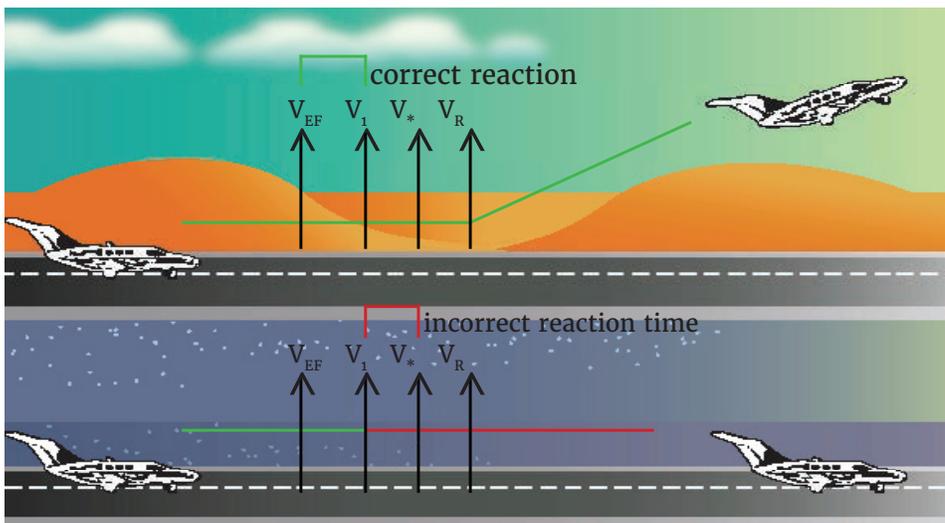
So, what's the implication of V_2 being a bit lower than V_{XSE} ? A brief review of basic aerodynamics will illustrate the drawback to this minimum V_2 approach. While rate of climb is determined by the excess power an aircraft has available, angle of climb is determined by the amount of excess thrust available. For given atmospheric conditions, the thrust output of a jet engine is nearly constant if plotted against airspeed, while the thrust required by the aircraft follows the familiar "J" curve. Given these two curves, it is apparent that the greatest distance between the two lines, or the point of maximum excess thrust, occurs at minimum thrust required speed, which is to say, the minimum drag point of the curve.

At any speed slower than this point, the increase in induced drag means that climb angle will suffer. So by selecting a V_2 which lies below minimum drag speed, the aircraft manufacturer is giving up some possible climb gradient in favor of a reduced takeoff distance. As most jet aircraft have an abundance of extra thrust, this is an acceptable tradeoff, and even during a non-optimal climb at V_2 , most jets will turn out adequate, or even impressive, single-engine climb angles.

While not common in light jets, some larger jet aircraft have software or performance charts that allow for an optimized, rather than minimum, V_2 . If takeoff distance is calculated as 4000', but 9000' of runway is available, it is easy to see that by increasing the V speeds until optimal V_2 is reached, extra runway can be converted into better engine-out climb performance.

What is common in light jets is the ability to depart with a reduced, or even zero, flap setting when runway available is not a limit, but engine-out climb performance may be. By departing with reduced flaps, the aircraft must accelerate to a higher speed before rotation, which brings the aircraft closer to true V_{XSE} . Also, the reduced drag of a lower flap extension means that the thrust-required curve shifts down. For any given speed, less thrust is required simply to maintain level flight, so more thrust is excess, and can contribute to a relatively greater climb angle.

Beyond the performance implications of knowing what V_2 really represents, there is also a practical flight application. While nearly all engine failures in the simulator occur just prior to V_1 , a real engine failure can occur at any point in the takeoff



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Takeoff Speeds: V^2 by Neil Singer

roll. When I conduct in-aircraft training, for example, I typically retard one thrust lever to idle just as VR is reached. With the two to three second spool down time of a jet engine, by the time the pilot recognizes the engine has failed, the airspeed is often five to ten knots above V2. Most pilots just out of sim training exhibit a strong desire to pitch the aircraft up until V2 is reached, then hold V2 until clean up altitude.

Keeping in mind the drag curve, it becomes apparent that a pilot who has attained a speed higher than V2 before recognizing an engine failure would be better served by maintaining that higher speed until at clean up altitude, provided the aircraft hasn't accelerated so much as to be faster than VFINAL. Doing so will result in lower drag, and thus a better climb angle.

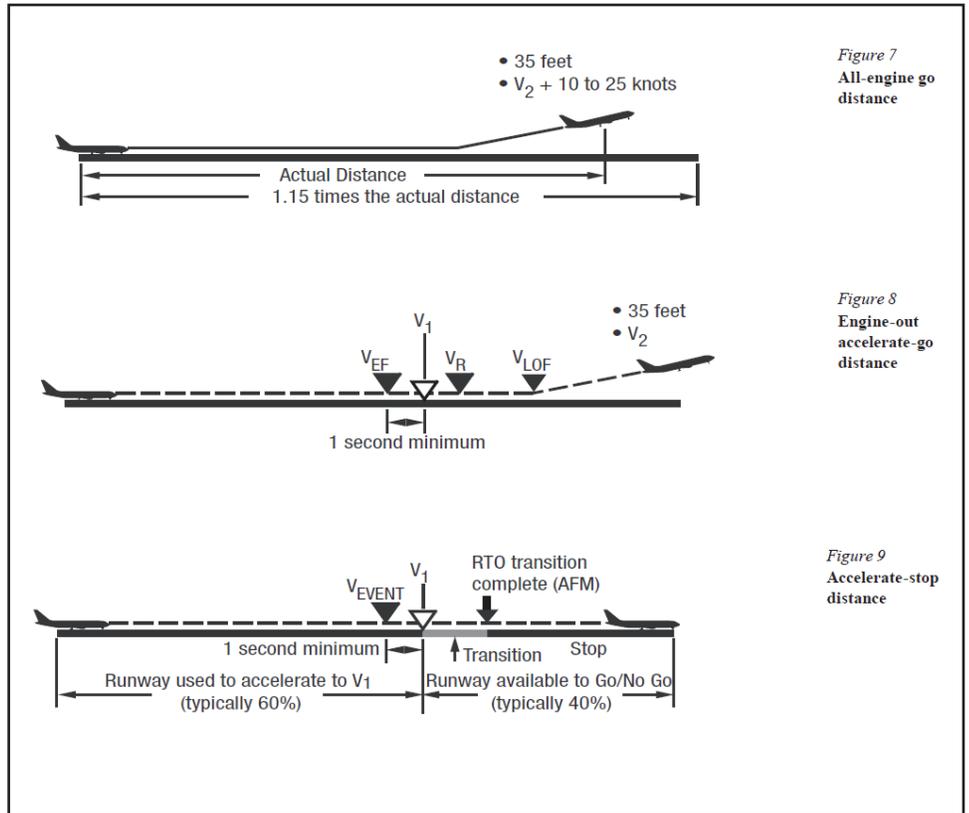


Figure 7
All-engine go distance

Figure 8
Engine-out accelerate-go distance

Figure 9
Accelerate-stop distance

Aeromania

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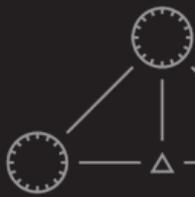
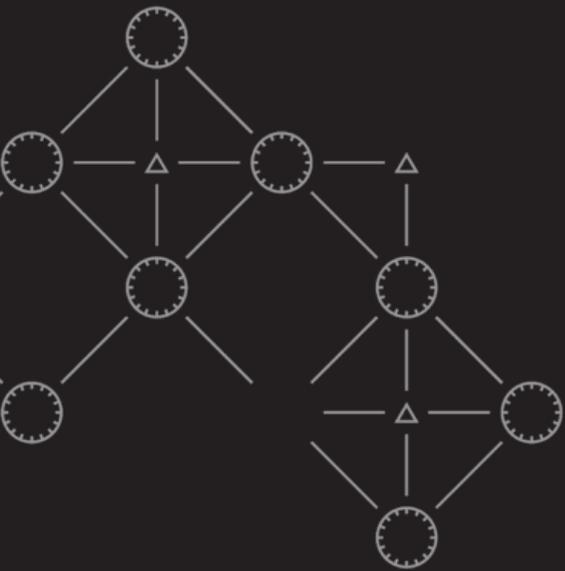
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Greensboro, North Carolina

by FRANK HARLOW

CITATION TECH TALK, TIPS AND TRICKS: DOORS

PUSH ▶

OPEN ↙

Doors, doors everywhere! Some go in some go out. This door swings both ways. “If the door is locked, try the window.” For those of you who are old enough, I am also not speaking of the rock band, “The Doors.” A quick trivia note: The Doors have a song on one of their early albums titled “The End,” lasting 28 minutes. To my knowledge, it was in its day, the longest song to ever be played on the radio and took up the whole side of an LP album. I know this because as a radio jock in Southern Oregon, I played it many times so I could take a much-needed restroom break.

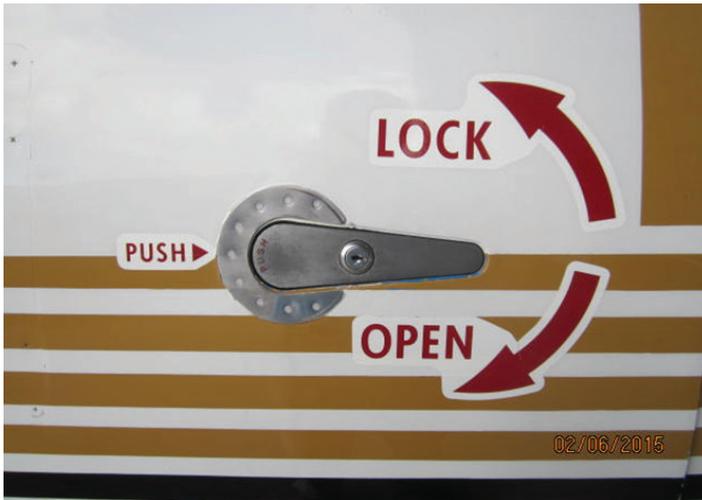
Let’s look at the entry door on most Citations jets. Most Citation doors are built about the same and are similar in operation. The exceptions would be those with a drop-down door. To me, Cessna engineers really outdid themselves when they drew up the door on the Citation’s.

As a pilot there are a number of things to pay attention to with your door. It is the gateway to fun; however, if not managed correctly could be the door to some real trouble.

The Key- insert in to the door. Straight up for flight and flat for open on the ground. Up for flight, flat for ground.

Turn the key and unlock the door. Now we are unlocked.

Push in on the center of the door handle to make the handle come out. To open the door, I lean against the door to apply a little pressure to the rubber door seals. It is a tight fit. Pushing in on the door by leaning into it with your shoulder relieves some pressure on the through bolts and makes it easier to move the handle up or down. Up on the handle for lock and close, down for open.



Open the door, swing it to the left until you hear it click in place. It will now stay in place. It should hold in place with winds up to 15 knots or so. Use caution with a big headwind.

When you bring the steps down, don't drop the stairs. Hold on to them as you bring them into place. Be sure to emphasize use of the handrails, as the steps are pretty steep.

You are now ready to get in the airplane and have some fun. So, looking at those entry steps, what do you think is the weight limit for those steps? You are correct if you said one person. There's no weight limit like other jets.





Standing on the ground and looking to the left of door, you can see a black rubber grommet on the door hinge. That little grommet is the key to your cabin pressurizing and making you comfy at FL350. Air flows through the nozzle on the plane into the black grommet. Be sure the grommet is not cracked and crumbly. If it is missing or gets frayed, the cabin may not pressurize correctly or at all when at altitude. I once had a passenger who took out the grommet and put it in his pocket, like something to play with while we flew along the great blue. I had to ask for its return and he was none too happy.

The inside of the door on the hinge is also the place to put your Customs stickers.



Looking at the side of the door, you can see the two door seals. One for normal use and one for backup. Older Citations only have one seal. The inner seal will expand with the 23 PSI bleed air off of the engines and the other seal fills up to the opening in the chance you lose pressurization. This is your protection for a primary door seal that opens up and does not expand in the slot. Look to be sure that the seal is not old, hard, crumbly or stiff.

EXPERIENCE THE PERFORMANCE



Door pins- There are twelve of these pins made from aluminum, holding the door closed when the aircraft is pressurized. Here is a little math discussion: The cabin is pressurized to 8.55 to 8.80 PSI on most models. So if that door is about 2 feet by 4 feet, giving us 8 square feet, or 96 square inches. Times that by the pressure, 8.55, and that equates 820 pounds of pressure on the door—impressive stuff!

Additionally, on the Citation 500 models there is a small triangle window in the cockpit on the captains side. Its use is to allow some air to flow into the flight deck when the cabin is hot while on the ground. One can also talk to someone outside the airplane without opening the cabin door.

The door on the inside has six green tabs around the outside of the door. When the tabs are green, they let the pilot know the door is fully closed. Red ones show when open. When you close the door, you want to say after checking to see green dots. “6 green, door closed.”

Inside door handle- The sign says push button(Red) pull trigger on handle to release. Open to the left close to the right. When it is the closed position the aluminum pins are fully extended and the door is ready for flight. When it is in the open position the pins are inside the door and not extended.



”Stay Open Latch”-- where I work we have a policy with the door. The pilot will be the ONLY person touching and moving the door. The door has a mechanical latch to hold the door open. It is hidden from the passengers upon entering the airplane. Many grab the door and try to close it to help you as they get in, but it breaks the latch with a very expensive cost to repair.

Before the second pilot enters the airplane, he should press the button in the bottom slot on the left side of the door. The bottom hole has a micro switch in it when pushed will make the “Door Open” light on the master warning panel go out. Push the pin in to make sure all the exterior doors are closed and the keylocks are in the correct position. The light should go out. If not, then one of the door’s key is not in the correct position.



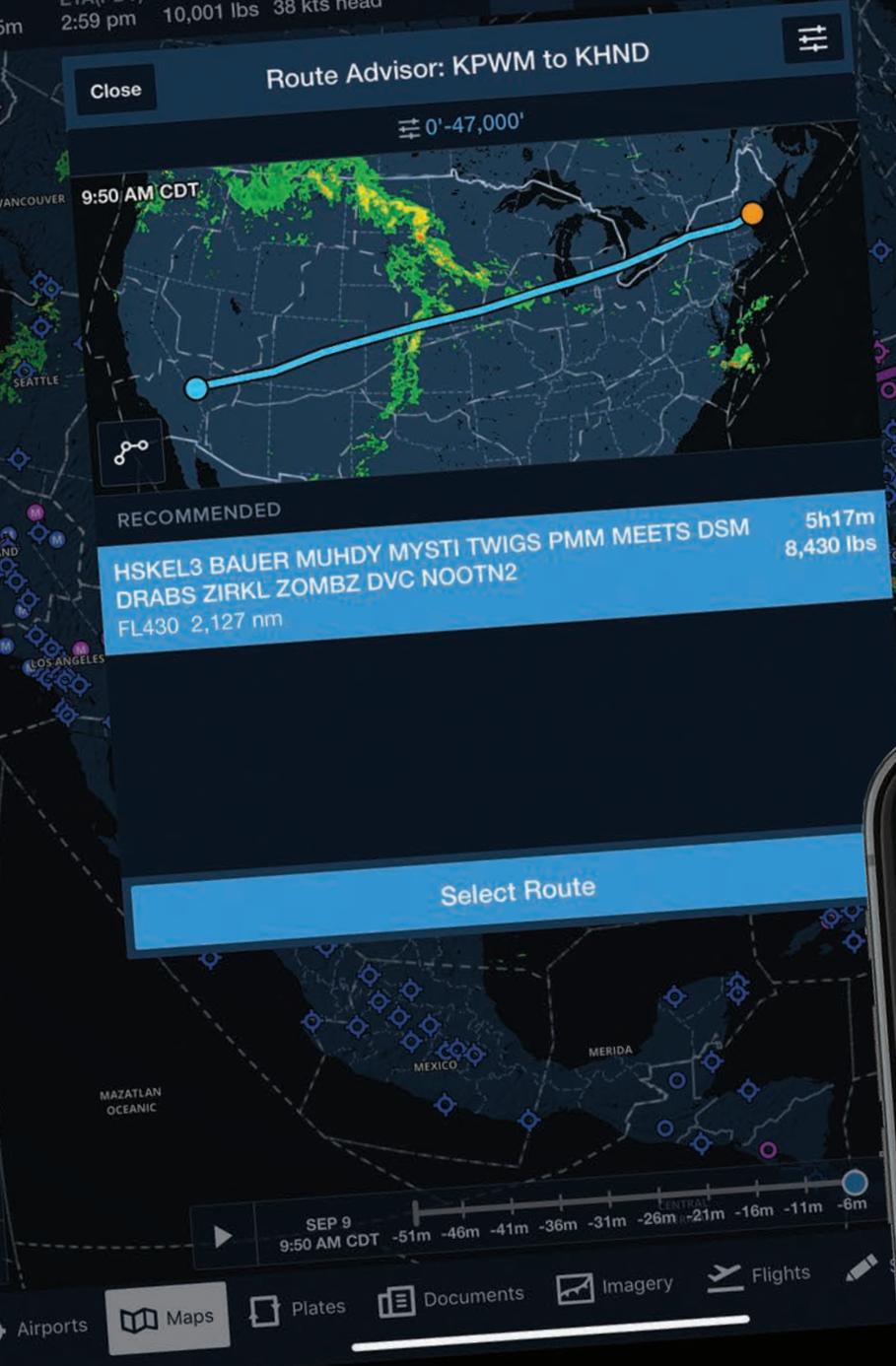
Stand to the left and be the door control when passengers are boarding. You don’t want to be AOG due to a door latch. Check your MEL to see what the remedy is for a broken latch: I don’t think you will be happy.

And finally, do not put anything on the rubber seals such as WD-40, oil products, or cleaners. Use only water to wipe down and be sure it is dry before flight.

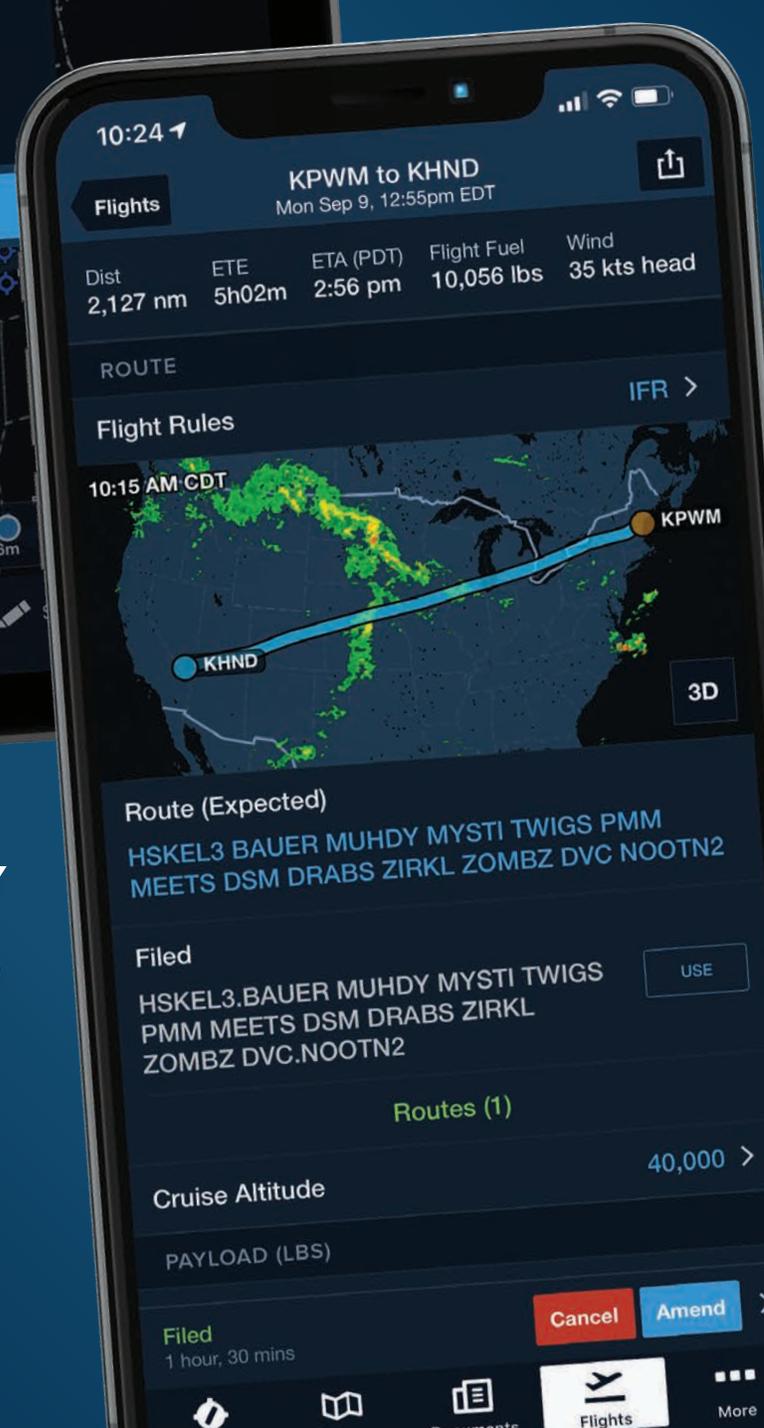
Use your checklist.

Greasy side down,

Frank.



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