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Contents

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FEATURES

TWIN & TURBINE

EDITOR
Dianne White
(316) 213-9626
editor@diannewhite.com

EDITORIAL OFFICE
2779 Aero Park Drive
Traverse City, MI 49686
Phone: (660) 679-5650
E-mail: *editor@diannewhite.com*

PUBLISHERS
J. Scott Lizenby
Dave Moore

PRESIDENT
Dave Moore

CFO
J. Scott Lizenby

PRODUCTION MANAGER
Mike Revard

PUBLICATIONS DIRECTOR
Jake Smith

GRAPHIC DESIGN
Michael McCatty

TWIN & TURBINE WEBSITE
www.twinandturbine.com

ADVERTISING DIRECTOR
John Shoemaker
Twin & Turbine
2779 Aero Park Drive
Traverse City, MI 49686
Phone: 1-800-773-7798
Fax: (231) 946-9588
johns@villagepress.com

REPRINT SALES DIRECTOR
MEDIA COORDINATOR
ADVERTISING ADMINISTRATIVE ASSISTANT
Betsy Beaudoin
Phone: 1-800-773-7798
betsybeaudoin@villagepress.com

SUBSCRIBER SERVICES
Rhonda Kelly
Diane Chauvin
Jamie Wilson
Molly Costilo
P.O. Box 968
Traverse City, MI 49685
1-800-447-7367

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Distracting Distractions

Last fall, the unthinkable happened. It was unthinkable because I didn't think it would happen to me, and I wasn't ready for it when it did. After 25 years of flying and thousands of hours, I have had my share of "uh-oh" moments in the cockpit. But this is one I didn't see coming.

On this day, I was flying a solo hop from my home airport Johnson County Executive (OJC) to Manhattan, Kansas. The weather was perfect – sunny skies, light winds and no adverse weather forecasted. Although I could have flown VFR, I elected to go IFR, then pre-flighted as usual and fired up the plane. Everything checked out normal on the taxi, and I was quickly cleared for takeoff on Runway 18.

The aircraft accelerated smoothly, all the gauges were in the green, and upon reaching V_r, I broke ground and began my climb from the runway. At about 100 feet, all hell broke loose inside the aircraft. Literally. With a loud pop, the rear baggage door flew open, sending a deafening roar of air through the cabin. Papers and loose equipment swirled. The air pressure vibration pressed in on my inner ear in concert with my briefcase that was rhythmically slamming against the baggage compartment floor.

After my initial reaction of disbelief and shock, I sternly instructed myself to fly the plane, and nothing more. Airspeed was fine, attitude was stable, gear and approach flaps were still down…I had a perfectly functioning airplane, albeit a very noisy one. I called tower and told them I needed to come back around to land, explaining what had happened. After I was immediately cleared to land, I focused on the landing checklist, flew the pattern and made an uneventful landing. Once on the ramp, I assessed what had happened. Although I thought I had securely closed the door, one stubborn pin did not engage. Once airborne, the pressure popped the door open. There was no damage to the aircraft since my airspeed was relatively low. What started as an extreme adrenaline rush ended up being no big deal. The only casualties were cowl plugs and some errant papers that exited the aircraft and were decorating someone's yard. I secured the door – for real this time – was re-issued my clearance and made the flight without further incident.

We've all read NTSB reports where the first link in the accident chain was an unexpected event that distracted the pilot. While it is hard to imagine that a minor or unanticipated distraction could kill us, that is exactly what has happened time and time again. So much so, it is among the NTSB's top priorities for general aviation safety improvements.

A study by the Flight Safety Foundation found that distractions, even small ones, can have a profound effect on pilot performance. In examining the effect of distractions in approach and landing accidents, 72 percent of pilots omitted an action or took an inappropriate one. In more than half, the distraction caused them to have insufficient or loss of lateral or vertical situational awareness. In 45 percent, the pilots had a slow or delayed reaction.

We all know the mantra: aviate, navigate, communicate, manage. We tell ourselves that we know what to do when confronted with such an occurrence. But I contend that three gremlins can work to undo our best intentions: fixation, disbelief and the notion that we can effectively multitask.

Fixation, as you know, is the tendency to focus our cognitive capacity on one task, such dealing with an abnormal situation, and neglect other critical tasks. We've seen that occur time and time again where a pilot or crew are so focused on solving the problem, they lose sight of the big picture. In some cases, they fly a perfectly good aircraft into the ground. Disbelief (which I experienced momentarily) is the condition where we simply don't accept the situation and fail the respond. Because the circumstances were the opposite of what we expect, we involuntarily respond, "This can't be happening." Physiologically, the startle reflex, which originates in the brain's amygdala, impairs our cognitive abilities and slows our response.

Lastly, your mom's superpowers notwithstanding, we humans are poor multitaskers. As pilots, we are good at keeping a number of balls in the air. But when something goes awry, tension rises and our workload increases, our ability to do every task with 100 percent accuracy declines dramatically. This is particularly an important point for those of us who fly single pilot.

As an instructor once told me, "When the (bleep) hits the fan, just keep the wing happy." Good advice, especially when an unnerving event occurs at an inconvenient time during a flight. Most if not all stall accidents are the result of not paying attention to airspeed and angle of attack. Training in managing unusual events at critical points during a flight allows pilots to develop cognitive strategies for dealing with such occurrences.

In the book of "things we'd rather not experience again," I've checked one potentially dangerous distraction off the list, and glad that I'm here to write about it. Fly safe!

Dianne

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Multiple Policies = Multiple Problems?

Ensure your various policies do not overlap, or worse, conflict with each other.

by **Kyle White**

Do you own or operate an aircraft? Or maybe you own or lease a hangar? If you are reading this, chances are you do one or both. Additionally, you probably purchase insurance to protect against your perceived exposures. Most people think insurance policies operate individually and without overlap among multiple policies. If there is overlap in the coverage, what's the big deal? It just means you have that much more coverage, right? Unfortunately, that common perception is false, so let's learn how to better manage the money spent on a product you hope to never use.

If you have coverage for something in one policy, and that same coverage is in another policy, instead of double coverage, what you will likely have is an expensive problem. Over the last decade, insurance premiums have plummeted, and ancillary coverages have expanded. This coverage expansion has created a more complicated buying environment.

An insurance company does not want to provide you with coverage if you are already buying it via another insurance policy. To avoid this, they put a clause in the policy that states, "if you have coverage available to you under another policy, this policy is excess and the other policy is primary." Those who lease aircraft may have signed a contract that has wording that assumes or allocates certain liabilities to either the lessor or lessee. Did you put this contract on file with your insurance company? Was a certificate of insurance issued that acknowledges, not just the contract, but the specific indemnification and other clauses you agreed to on the certificate? What about wording on the certificate that states, "primary and non-contributory?" It is very important that all parties understand which and whose policy pays first.

Imagine you have two policies, both of which have this wording regarding a particular peril. If both policies say the other is "primary" and theirs is "excess," who pays first? Who has two insurance policies you ask? I would venture to say nearly everyone I know has two insurance policies (or more)! Home, auto, boat, aircraft, and many more. For this article, we'll keep it aviation related.

Many people reading this article are involved in a management function of a business. The company you support may have an *aircraft* policy to protect the aircraft and the liability associated with owning, operating and maintaining the aircraft. Additionally, the company may have a *property* policy to protect against physical damage of a hangar you own or lease. Or, you may have a *corporate property* policy that protects all buildings the business owns and premises liability associated with those properties. There may also be an *auto* policy that does not exclude aviation exposures.

It is imperative you evaluate all of your policies to find the coverage overlaps and the "if you have coverage somewhere else" terminology. If you fail to do this, you may find yourself in an expensive battle while your lawyers convince the insurance companies to cooperate with each other and settle your claim. There are many coverage overlaps our industry fails to address. For the purpose of brevity, we will address a few of the most common: Premises Liability, Non-Owned Aircraft Liability, and Contents. But remember, there are many more!

We routinely come across double coverage for Premises Liability. Many aircraft owners are based outside of metropolitan areas at rural airports. In doing so, they may find there isn't an adequate hangar to house their star player, so they work with the airport authority and build their own hangar. Like other property the aircraft owner has, they purchase an insurance policy to protect their asset against physical damage and liability that may arise out of ownership, maintenance, or operation. Some owners may also find themselves contractually obligated to do the same, even if they are only involved in a long-term lease of a hangar, not as an owner. There are also FBOs that have attorneys create detailed contracts to protect the airport authority. We can usually differentiate the aviation-focused attorney from the generalist in the event property damage or negligence occurs, because of the coverage required and how it is described.

Generally, aircraft policies contain liability coverage for Airport Premises Liability. There is language within the policy that may be limiting or more inclusive for this coverage though. Such as, does the policy extend to premises you rent, occupy, use, and own? Or does it exclude property you actually own? Does your fixed wing aircraft policy that has premises liability coverage extend to protect that exposure? It is important to review the wording buried in your multiple policies to address your specific situation.

A few months ago, I met with a business owner that operates a twin-engine turboprop. I reviewed the two policies, one for the King Air, and the other for the hangar he owned. Then we had a conversation about his operation and ownership structure. One of the items we discovered was double coverage for Premises Liability. There was $1 million of coverage under the property policy and $10 million under the aircraft policy. Which limit would you rather have protecting you?

I explained to the aircraft owner that he was paying more money to be in the undesirable situation of having two policies point at each other. Each policy says the other one is primary in the event of a simple "slip and fall" claim in front of his hangar. He was more than a little shocked. To alleviate this problem, we simply deleted the Premises Liability

coverage from the Property policy, saving the client roughly equivalent to the cost of 300 gallons of Jet-A.

One of my favorite double-coverage finds pertains to non-owned aircraft. Some people are fortunate enough to own two airplanes, some of which may have two separate policies. This could be disastrous in the event you have a claim involving a non-owned aircraft. The reason is because most likely you have the following language in both of your aircraft policies: "This coverage shall be excess insurance over any other valid and collectible insurance available to you."

Once again you have two policies pointing at each other. How do we determine which policy is primary? Most likely, if you own both a Cheyenne and a Bonanza, you would want the Cheyenne policy to be primary, as it most likely has significantly higher liability limits available to protect you in court. I have also seen situations where a non-pilot aircraft owner owns one airplane, but then decides that watching the professional pilots fly the Cheyenne is so much fun, he decides to start working on his pilot's license. With good intentions, he purchases a Renter's policy (Non-Owned coverage) and starts taking lessons. You now have the same problem, two policies pointing at each other.

For those of you that only have one aircraft and one aircraft policy: Do you ever use a non-owned aircraft? One of our clients called last week stating their Hawker was going to be down for maintenance and they are going to use a friend's King Air 90. Whose policy would pay in the event of a claim? If the PIC from the Hawker meets the pilot warranty of the King Air and is PIC, will the King Air policy be primary? This exact scenario is something that should be addressed in a contract between the two parties in order to avoid litigation in the unfortunate event of a claim.

The third coverage that can come into play is contents of your hangar. You could find yourself in a double coverage situation if there is a Property policy in addition to your Aircraft policy. Be sure you understand if your Aircraft policy is going to make you whole in the event of, say, a hangar fire in which you may have coverage under your Aircraft policy for "spare parts," or if your Property policy is going to respond. In this scenario, it doesn't have to be a fire. What if you have "mechanic's tools" covered under your Aircraft policy, but also covered under your Property policy?

It is important, whether you are a business or an individual, to make sure all of your policies are aligned with each other and working in a concerted effort as to not unintentionally undermine one another. We only discussed three examples, but there are many more scenarios to consider. Additionally, by streamlining coverages within your policies you may find that you reduce your premiums. T&T

Kyle P. White, an aviation insurance specialist, is CEO of Aviation Solutions, a Marsh & McLennan Agency LLC company. He has professionally flown the Beechcraft King Air 90 and B200, and holds an ATP, multi-engine, instrument and instructor ratings. You can reach Kyle at *kyle.white@marshmma.com.*

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A Plane with a Purpose: Meet the Mille

by **Dianne White**

If you attended AirVenture Oshkosh 2016, you may have noticed a very unusual business jet parked in Boeing Square sandwiched between the C-47 *"That's All, Brother"* and an F-15 Eagle. Featuring a custom, air-brushed paint scheme inspired by Star Wars, Star Trek and vintage military aircraft markings, this is no ordinary Phenom 100. The distinctive aircraft, better known as the *Millennium Phenom*, has a very special mission. It and its owners Mark and Diane Holt have dedicated much of its time aloft to flying America's wounded warriors as part of Veteran Airlift Command.

"I've always had an admiration and appreciation for the people who sacrifice and serve our country so that we have the freedom to pursue any path we choose. I have always wanted to contribute something back. Now I feel like I am serving those who served us," said Holt.

The Road to Giving Back

Like any great American success story, Holt found a niche in his chosen industry and with a lot of hard work and creativity, he grew his small business into an international competitor. Aviation played a vital role in his success.

nnium Phenom

Photos by **Adam Glowaski**

Businessman and philanthropist Mark Holt, owner of the Millennium Phenom.

A closer look at the unique interpretation of the Millennium Falcon on the wing and vertical stabilizer.

"Aviation helped change the paradigm for my business," he said. "It played a key role in helping us expand our business."

Born in Green Bay, Wisconsin, Holt fondly remembers his father's passion for flying. An aircraft financier, Holt's father struck up a friendship with world-famous air racer and aircraft designer Steve Wittman, to whom he loaned the money to build his first Tailwind, a popular two-seat experimentally built aircraft. Wittman, for which the Oshkosh, Wisconsin airport was named, remained a close family friend of the Holts.

After his father lost his medical and gave up flying, Mark decided it was his turn to move to the left seat. Mark sought the advice of friend and aviation mentor Doug Rozendaal, an Iowa business owner, CFI and warbird enthusiast. At the same time, he was traveling exhaustively throughout the upper Midwest working for a bio-tech company. He had seen the power of aviation as a business tool, and was anxious to apply it to his business.

"Doug sat down with me and a pad of paper and mapped out a path to attain my ratings," Mark remembered. "A year later, I came back with my license."

The Artist Behind the Millennium Phenom

When we typically think of custom paint design for aircraft, we envision unique stripe patterns or color combinations. However, John Stahr takes the definition of custom paint design to a whole new level. The artist behind the show-stopping Millennium Phenom paint design, Stahr creates the intricate illusions of texture and three-dimensional detail that makes the artwork come alive once it is applied to the surface of the aircraft.

A pilot and aviation enthusiast, Stahr has been a professional artist and designer since 1978. The airborne canvass for John Stahr's creations ranges from business jets to amphibious twins to warbirds and small personal aircraft. He also designs custom paint for motor coaches, tractor-trailer rigs and a variety of tow vehicles. In all, his designs have graced the exteriors of more than 1,000 vehicles and aircraft.

Stahr's studio is located in Eugene, Oregon, but he regularly travels all over the country to bring his artwork to life. An expert airbrush artist, he specializes in aircraft nose and tail art along with other specialty applications. He also does commissioned paintings and is well known for his realistic style and dramatic cloudscapes.

Stahr worked with owner-pilot Mark Holt for five months concepting, designing and completing the Millennium Phenom project, which features dozens of tiny details and subtle nods to the famous sci-fi movie series of the 1970s and 1980s. He also airbrushed custom helmets fashioned after the one Star Wars' Luke Skywalker wore flying his X-Wing Starfighter.

"The Millennium Phenom was definitely in the top 10 of the projects I have done in my career," he said. "It was so gratifying to see the concept come together. And knowing how Mark is using the aircraft on behalf of Veterans Airlift makes it just that much sweeter."

For more information, go to *stahrdesign.com*.

A De Havilland Otter featuring John Stahr's unique artistry.

In 1998, Mark used the proceeds from the sale of his first aircraft, a Piper Archer, to buy a bio-tech company headquartered in Mason City, a small town in north-central Iowa. Called Varied Industries Corporation, the company manufactured feed ingredients for dairy cows, beef cattle, poultry and other livestock.

"When I bought the company, I was trying to figure out how to bring prospective customers to Mason City for plant tours. I quickly determined the best way was to bring them here in a private aircraft," he said.

For a small company in a big pond filled with large, billion-dollar companies — many of them household names — the ability to conduct a day trip for a plant tour became a competitive advantage. "Once we started picking up customers and bringing them to Mason City to see our technology and plant, our sales closure rate jumped to more than 90 percent. The big companies were discrediting us for being small, but once prospective customers got an up-close look at our facilities, they were convinced."

Over next 15 years, Holt and his company owned more than a dozen aircraft, including a Saratoga, Cessna 310, Piper Mirage and a TBM 700 turboprop. With the desire to fly farther, faster and above the weather, he began his search for the ideal single-pilot jet. After studying the market and considering every airframe available, he finally found the perfect match: an Embraer Phenom 100.

"I wasn't tied to one particular brand, so why not buy the one that appealed to me the best," he said. "I liked that the Phenom was a clean-sheet design, and I was impressed by the Phenom's ramp presence, robust design and roomy interior."

An access door is embellished with an image of the flux capacitor that powered the DeLorean in *Back to the Future.*

The underside of the Phenom 100 pays homage to the U.S. Air Force, as well as a nod to Star Trek. Note the "battle damage" to the belly fairing.

As his first jet, Holt was keenly focused on single-pilot ergonomics, flying characteristics, as well as mission capability. The Phenom did not disappoint.

"It is an amazing airplane and fit my missions very well," added Holt, who often travels to his residence in San Diego. "Coming from a TBM with its 6-foot speed brake out in front, the only downside – which is true of any light jet – is that it has a very small footprint for stopping. Without reverse thrust or speed brakes, you have to pay attention and be on your game when landing on icy or wet runways."

Holt said the impact of operating a jet was felt immediately.

"Put a 1,000-mile radius circle around Mason City. With the Phenom, anyone in that circle can be at my facility within two hours. For example, I can bring someone from Colorado, give them a tour, feed them lunch and have them home that afternoon. It is a powerful tool."

By 2014, Varied Industries was the largest manufacturer of all natural animal health products. Late that same year, the company was acquired by Arm & Hammer Animal Nutrition, who was attracted to the company's breakthrough in a yeast-based additive that aids in an animal's growth and health.

While Holt left his company behind, he kept the Phenom to help him refocus on a new endeavor.

Flying with a Purpose

"I am a purpose-driven person, so I began exploring ways to combine my flying with something meaningful. Veterans Airlift Command fulfills that desire," he said.

Veteran Airlift Command is a nonprofit organization that provides air transportation for medical and compassionate purposes for primarily post-9/11 injured servicemen and women and their families through a large network of volunteer

In addition to the Phenom 100, Mark Holt owns a 1957 De Havilland Beaver and a Cessna 182 equipped with the Wipaire Boss Conversion.

aircraft owners and pilots. Founded in 2006 by Walt Fricke, a wounded warrior from his service in Viet Nam, the organization coordinates missions coast to coast, providing safe, comfortable and honorable transportation that would otherwise be difficult and some cases impossible on the airlines. Holt met Walt Fricke two years ago, and the more he learned about VAC the more it resonated. Following the sale of his company, he committed to fly 200 hours a year on behalf of VAC missions.

In early 2016, Holt decided to repaint his Phenom to reflect his new mission. "Initially, I had a military-style paint scheme in mind. But that changed when I met John Stahr," he said.

John Stahr is the founder and owner of Stahr Design, a studio located in Eugene, Oregon that specializes in original custom paint designs for aircraft. Holt had spotted a De Havilland Otter with a unique airbrushed scheme designed by Stahr. He contacted John and they began to flesh out a design for Holt's Phenom.

The Millennium Phenom's first Veterans Airlift Command mission transported U.S. Marine Corps Sgt. Bentley and his daughter. Sgt. Bentley sustained a severe traumatic brain injury and shattered his spine after his vehicle hit an IED.

On behalf of Veterans Airlift Command, Mark Holt and the Millennium Phenom recently secured transport for Sgt. Dominic Martinez, who was injured by an IED while en route to an Iraqi police station near Baghdad, Iraq in 2006. The Millennium Phenom brought him to San Diego to participate in a Warrior Bonfire Program designed to help Purple Heart recipients learn to surf, paddle board and receive therapeutic healing.

The Millennium Phenom was featured prominently in Boeing Plaza at AirVenture Oshkosh 2016. PHOTO COURTESY OF EAA

How did a military themed paint scheme evolve into a tribute to the great spaceships from two of the world's most popular sci-fi series? Stahr recalls asking Holt, "What does it feel like to fly a jet?"

He replied, "I feel like an X-wing fighter or the Starship Enterprise descending to Earth's surface." Stahr found his inspiration.

Over the next several months, Stahr and Holt refined the design, incorporating features from Starship Enterprise, the Millennium Falcon, and the famous flux capacitor that powered the DeLorean in *Back to the Future.* The design also featured the Star Trek United Federation of Planets seal, as well as the illusion of "battle damage" on the belly fairing. As the design continued to evolve, Holt was concerned it was straying from his vision of serving wounded warriors.

About Veterans Airlift Command

Now in its 11th year of operation, Veterans Airlift Command fills a vital role in providing transportation for post-9/11 combat wounded soldiers and their families for medical or compassionate purposes. The organization requires three things to continue their mission: Piloted planes, passengers and money to keep the program going. You can give something back to the soldiers who sacrificed so much by becoming a VAC volunteer pilot.

Ready to volunteer? Go to *veteransairlift.org* to learn more and fill out the pilot and aircraft application form. You can also send an email to *info@veteransairlift.org*. Thank you for your support of our veterans.

"At one point, I thought it was getting a little too crazy. John said, 'don't you think these guys have had enough seriousness in their lives? You are hauling purple heart recipients with life-altering injuries. Maybe they'd like to have some fun,'" he said. "It turned out to be pretty cool."

In addition to the airbrushed paint scheme applied by Stahr, Flying Colors Aviation in Benton Harbor, Michigan completed the prep work, base paint, and final sanding and clear coat. In May 2016, the aircraft rolled out of the paint bay, ready for its new life as a volunteer for Veterans Airlift Command. Since then, Holt has flown the Millennium Phenom for several missions for VAC.

His friend and aviation mentor Doug Rozendaal added, "Mark has this incredible vision. He can look at something and see what it could become. Whether it's turning his small company into a mega-success, creating the Millennium Phenom, or helping those who've served our country, he has the ability to see the path forward and isn't afraid to execute."

Holt recalled the conclusion of a recent mission for a young wounded warrior. "As I got his bag out of my baggage compartment, I saw that it had the purple heart pinned to it. After I handed it to him, he dropped it on the ramp and gave me a bear hug with tears in his eyes. He said, 'Mr. Holt I never believed in a million years I would ever fly in a private jet, much less sit in the front right seat,'" he said. "I don't do it for that, but it sure is so awarding." T&T

by **Thomas P. Turner**

Fast-Track or Step-Up?

For decades, the path to advancement in high-end personal or business aviation was clear: learn to fly in a simple, fixed-gear single-engine airplane. After a time check out in a high-performance piston airplane, that is, one with more than 200 horsepower, usually with a controllable-pitch propeller. You'd probably earn your instrument rating in this airplane. Next, get into a light retractable-gear airplane and, after a few hundred hours, transition to a heavier retract. When the time (and your experience) was right, pick up your multi-engine rating in a low-horsepower light twin, and later move into a heavier piston twin. Only after all this experience you might consider turbine transition, into a turboprop twin. Several hundred or more hours of experience later, get your jet type rating.

But is that still the "right" way to get into today's stable of light, single-pilot jets?

The industry is geared toward this "brand loyalty" progression. Cessna and Piper had products that took you from simple trainer to turboprops and, in the case of Cessna, into that destination light jet. A couple of decades later, at least for a while all Cessna products from its entry-level trainers to smaller Citation jets all featured nearly identical Garmin G1000 panels, a move made in part to make it easier to move up through the model line. Other manufacturers didn't cover the entire progression, but tried for those airplanes coming off their lines. For example, although Beechcraft never made a huge splash in the training market (it's Musketeer/Sierra/Duchess line tried, without success, to capture a major market share), in 1984 Beech redesigned the "heavy retract" Bonanza and twin-engine Baron with what its sales brochure called "turbine-style" panel gauges and engine controls, looking as close to the turboprop King Air panel as they could.

Surely this is the way to become qualified in a single-pilot jet: gain

hundreds of hours of experience in each succeeding step upward in complexity and performance, both of the airplane and the airspace in which it flies. But is it necessary to work your way incrementally up the line over several years, sometimes having to reach back decades in airplane model and equipment to fill a gap when there is no current-production equivalent available?

Do you need to buy-sell-buy-sell-buy, and sell again, going through the hassles of swapping airplanes every few years when you can buy the jet you want now and train in it until you are single-pilot ready? Do you have to step up incrementally to achieve your goal, or in today's world, can you efficiently fast-track your way into the jet you want far sooner?

What It Takes

For purposes of this discussion we'll assume money is no object. You can afford the airplane(s) personally, or through some combination of business use and tax advantages have what you owe the government diverted to cover most or all the costs of owning and operating your aircraft. Given the financial solution, what it takes to fly a light jet is training and experience. Recall that experience can be defined as learning by what happens to you, while training can be considered learning from the experiences of others. Training does not necessarily mean time spent with a Certificated Flight Instructor, but flying with a trained aviation educator is probably the most predictably successful way of learning to fly advanced aircraft.

Therefore, what is the minimum training and experience you need to fly a single-pilot jet? Perhaps surprisingly, it's not all that much. At a minimum you'll need a:

- Private Pilot certificate;
- Instrument rating;
- Multi-engine rating, if the jet has two (or more) engines;
- High Performance endorsement (although arguably this does not apply since jet thrust is not normally measured in horsepower);
- High Altitude endorsement;
- RSVM qualification, if the jet will be flown above FL290;
- Type Rating for the make and model of jet to be flown;
- Single-pilot authorization for that make/model jet, if the type rating distinguishes between single-pilot and two-pilot crew.

Except for the 40 total hours required for the Private certificate and the 40 hours of dual required for the Instrument rating (some of which may overlap), there are no further minimum hours required to fly as single pilot of a light jet. Of course, no one is going to get in the left seat of a jet in 80 hours of training (solo time toward the Private is technically supervised instruction). But you don't have to have 2,000 or 1,500 or even 500 or 300 hours total time to earn single-pilot jet privileges.

The real question is: what do you need to know to be in command of a light jet? In addition to the basics of visual, instrument and night flight, you'll need to master operations in all these arenas. You'll need intimate familiarity with both low- and high-altitude airspace rules and requirements. You must be an expert on aviation weather in the low and high altitude regimes. Human factors education is vital as you'll be operating at a fast pace under extreme workloads in all kinds of weather with pilot fatigue as a constant concern. On top of this all, you need to know your airplane's systems, procedures and techniques intimately, in normal, abnormal and emergency conditions. (One hint: if you aren't familiar with the difference between "abnormal" and "emergency" procedures, you aren't ready for a jet yet). The Type Rating Practical Test, in fact, focuses sharply on your knowledge of the airplane and its systems. It's the same, exact check ride you'd take to earn your ATP. The only difference is you don't have to have at least 1,500 hours; you aren't required to do the simulator training now required to earn an ATP; and you don't need to pass the ATP written exam to get a type rating. However, you must perform at the ATP level, even if you're a Private/IFR pilot.

When considering your path to stepping into your first light jet, your success depends more on your attitude and discipline applied to whatever type of airplane you currently fly.

How To Get It

This brings us back to our original question: what is the best way to get all this experience? Is it better to learn incrementally, gradually moving your way up while delaying your end goal? Or can you go virtually straight from first airplane (trainer) to last (single-pilot jet), from Alpha to Omega, without the years in between?

Certainly, it's possible to make the jump to jet-speed in one great leap. That's what the military does, right? Jet pilots go into combat with less than 400 hours. For a while the U.S. Air Force started pilots on Day One in jet airplanes. Why learn propeller habits when your target is mastery of a jet? Of course, military pilots don't even begin training until they've passed a battery of physical and knowledge testing that eliminates most those who apply before they ever strap into an airplane. Pilot training is a full-time, seven-day-a-week job. Trainees

don't have to run a business or manage a practice to afford the jet they fly; all they do is learn to fly jets. Training is extremely regimented and fast-paced, with little tolerance for those who can't keep up, even when they are well along with their training. Those who can't pick things up quickly are washed out.

Most civilian, single-pilot jet pilots live in a different world, where flying airplanes is secondary to what they must focus on professionally. They do not face involuntary elimination from training. If they can pay the bills and pass a medical they can continue to fly. If they fail a check ride they can take it again and again as many times as they want until they pass. So "military pilots step right into jets, so can I" is not a valid argument for the single-pilot jet hopeful.

However, working your way up the line step-by-step is no guarantee of success either. Just because you fly a particular model of airplane does not mean you have mastered it, and to paraphrase what they say in financial circles, past performance in less-complex or capable airplanes does not guarantee success in the next step up. Whether you build experience incrementally or you leap to the top, success—and survival—require these traits:

- An attitude of continuous learning, with a commitment to study outside the cockpit every week;

Continued on page 23.

Individuals who buy, train religiously and become skilled in a technically advanced aircraft, such as the Cessna TTx or Cirrus SR-22 tend to make the move to a light jet easier.

Flying Direct To Jets

Leading Light Jet Instructor Discusses Moving from Piston

With high-performance airplanes increasingly used as initial aircraft, it's becoming more common for pilots to fast-track themselves directly from first airplane to jet. Introduction of the Eclipse 500 and Citation Mustang led to the concept of a "mentor pilot," an experienced right-seater – usually, but not always, a certificated instructor – to guide the new jet pilot through the transition after earning the type rating but before the pilot flies completely alone in the cockpit.

There is no requirement for this aerial internship in the Federal Air Regulations. If you've passed the type ride you're qualified, as far as the FAA is concerned. The insurance industry, however, frequently requires 25 or more hours of flight time of Supervised Operational Experience with a mentor pilot.

2010 National CFI of the Year Jeffrey Robert Moss is one of the best-known jet mentor pilots in the industry. MossY is typed in several single-pilot jets and has had enormous success in creating highly qualified jet captains from low-experience pilots who have made the leap from first airplanes, usually a Cirrus SR22 or Cessna Corvalis/TTx. Part of that success, he says, is inherent in the pilot who buys one of these technologically advanced piston airplanes as a first aircraft.

Jeffery Moss

"They like to be on the cutting edge of technology," Moss said. "They want to go higher, faster, farther."

These pilots are comfortable and completely proficient with the ubiquitous G1000 flight deck. They might not be thinking about jets when they first learn to fly, but they tend to consider airplanes "people movers" rather than the traditional pilot who flies more for fun. As they see the freedom and utility of personal flight and their travel needs call for more speed and capability, they look past the array of intermediate airplanes and move right into the light jet that happens to permit a single-pilot crew.

Moss doesn't just fly around with new jet owners. He follows a stringent 25-hour flight syllabus that delivers a lot of experience in this short span of time.

"That's what the mentor pilot is there for," he added, to "take them out of their comfort zone" and put them in crafted, real-world situations that force them to make decisions about weather, fuel reserves, and approaches at nontowered airports.

"About 10 percent of them can't complete [the syllabus] in six days and need more time," MossY reported. "Seven of 10 of those were typed in a simulator" and had little or no actual airplane time before beginning their mentorship. Lest you think this is marketing, Moss is a simulator instructor as well. However, he prefers to "type in the jet, then verify in a simulator."

In Moss's experience, pilots who move directly into jets are "much more receptive to training" than those who have worked their way up the traditional way. He prefers pilots to earn their multi-engine rating in the jet so they don't have to unlearn the "mixture, prop, throttle, identify, verify, feather" routine used in piston twins, which is contrary to how engine-outs are handled in jets.

His experience is that pilots who have a lot of unsupervised flight time in turboprops have much more difficulty becoming single-pilot jet proficient, because they must unlearn a lot of their turboprop and piston habits. Overall, Moss thinks the glass cockpit single-engine piston to single-pilot jet transition is "the most efficient path to a type rating" in a single-pilot jet.

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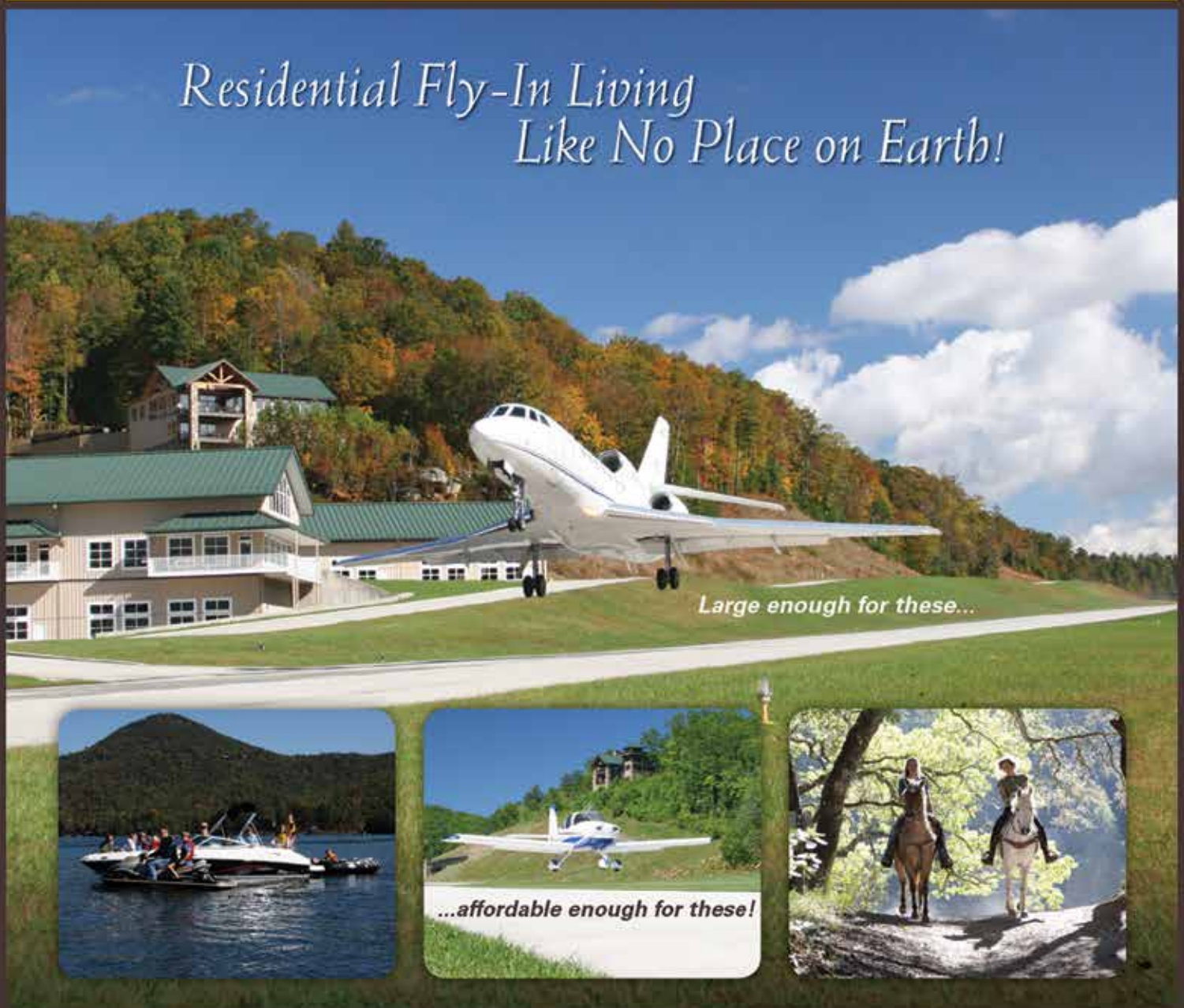

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CHIEF PILOTS & OWNERS

Aircraft Count

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32	ASTRA 1125
31	ASTRA 1125SP
63	ASTRA 1125SPX
51	BEECHJET 400
275	BEECHJET 400A
58	BOEING BBJ
391	CHALLENGER 300
65	CHALLENGER 600
58	CHALLENGER 601-1A
133	CHALLENGER 601-3A
56	CHALLENGER 601-3R
279	CHALLENGER 604
5	CHALLENGER 800
169	CITATION 500
319	CITATION 525
284	CITATION BRAVO
151	CITATION CJ1
69	CITATION CJ1+
202	CITATION CJ2
160	CITATION CJ2+
390	CITATION CJ3
180	CITATION ENCORE
306	CITATION EXCEL
5	CITATION I
288	CITATION I/SP
478	CITATION II
50	CITATION II/SP
173	CITATION III
329	CITATION MUSTANG
138	CITATION S/II
257	CITATION SOVEREIGN
284	CITATION ULTRA
287	CITATION V
20	CITATION VI
104	CITATION VII
257	CITATION X
199	CITATION XLS
1	DIAMOND I
53	DIAMOND IA
3	DORNIER ENVOY 3
282	ECLIPSE EA500
47	EMBRAER LEGACY 600
8	EMBRAER LEGACY 650
158	EMBRAER PHENOM 100
82	EMBRAER PHENOM 300
123	FALCON 10
28	FALCON 100
25	FALCON 200
176	FALCON 2000
21	FALCON 2000EX
81	FALCON 20C
17	FALCON 20C-5
26	FALCON 20D
3	FALCON 20D-5
7	FALCON 20E
8	FALCON 20E-5
59	FALCON 20F
82	FALCON 20F-5
229	FALCON 50
8	FALCON 50-40
113	FALCON 50EX
135	FALCON 900
21	FALCON 900C
116	FALCON 900EX
98	GLOBAL 5000
112	GLOBAL EXPRESS
25	GULFSTREAM G-100
161	GULFSTREAM G-200
8	GULFSTREAM G-300
27	GULFSTREAM G-400
222	GULFSTREAM G-450
7	GULFSTREAM G-500
330	GULFSTREAM G-550
42	GULFSTREAM G-I
110	GULFSTREAM G-II
31	GULFSTREAM G-IIB
186	GULFSTREAM G-III
188	GULFSTREAM G-IV
317	GULFSTREAM G-IVSP
182	GULFSTREAM G-V
40	HAWKER 1000A
9	HAWKER 125-1A
2	HAWKER 125-1AS
1	HAWKER 125-3A/RA
2	HAWKER 125-400A
29	HAWKER 125-400AS
1	HAWKER 125-400B
4	HAWKER 125-600A
11	HAWKER 125-600AS
113	HAWKER 125-700A
50	HAWKER 4000
187	HAWKER 400XP
21	HAWKER 750
223	HAWKER 800A
2	HAWKER 800B
335	HAWKER 800XP
14	HAWKER 800XPI
67	HAWKER 850XP
131	HAWKER 900XP
4	JET COMMANDER 1121
6	JET COMMANDER 1121B
12	JETSTAR 731
11	JETSTAR II
51	JETSTREAM 31
40	JETSTREAM 32
15	JETSTREAM 41
15	LEARJET 23
26	LEARJET 24
5	LEARJET 24A
19	LEARJET 24B
53	LEARJET 24D
14	LEARJET 24E
9	LEARJET 24F
33	LEARJET 25
57	LEARJET 25B
7	LEARJET 25C
94	LEARJET 25D
6	LEARJET 28
28	LEARJET 31
172	LEARJET 31A
43	LEARJET 35
426	LEARJET 35A
21	LEARJET 36
34	LEARJET 36A
24	LEARJET 40
219	LEARJET 45
193	LEARJET 45XR
115	LEARJET 55
5	LEARJET 55B
12	LEARJET 55C
293	LEARJET 60
130	PREMIER I
16	SABRELINER 40
13	SABRELINER 40A
7	SABRELINER 40EL
3	SABRELINER 40R
24	SABRELINER 60
1	SABRELINER 60A
2	SABRELINER 60AELXM
12	SABRELINER 60ELXM
3	SABRELINER 60EX
1	SABRELINER 60SCEX
85	SABRELINER 65
1	SABRELINER 75
17	SABRELINER 80
3	SABRELINER 80SC
101	WESTWIND 1
4	WESTWIND 1123
45	WESTWIND 1124
76	WESTWIND 2

TURBO PROPS

CHIEF PILOTS & OWNERS

Aircraft Count

275	CARAVAN 208
1087	CARAVAN 208B
3	CARAVAN II
34	CHEYENNE 400
221	CHEYENNE I
14	CHEYENNE IA
303	CHEYENNE II
59	CHEYENNE III
21	CHEYENNE IIIA
59	CHEYENNE IIXL
22	CHEYENNE IV
303	CONQUEST I

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34	KING AIR 350C
17	KING AIR 90
7	KING AIR A/B90
120	KING AIR A100
203	KING AIR A200
58	KING AIR A90
221	KING AIR A90-1
135	KING AIR B100
902	KING AIR B200
78	KING AIR B200C
63	KING AIR B200GT
2	KING AIR B200SE
3	KING AIR B200T
66	KING AIR B90
295	KING AIR C90
32	KING AIR C90-1
160	KING AIR C90A
316	KING AIR C90B
7	KING AIR C90SE
278	KING AIR E90
160	KING AIR F90
17	KING AIR F90-1
1	MERLIN 300
1	MERLIN IIA
29	MERLIN IIB
12	MERLIN III
20	MERLIN IIIA
49	MERLIN IIIB
14	MERLIN IIIC
5	MERLIN IV
13	MERLIN IV-A
13	MERLIN IV-C
105	MITSUBISHI MARQUISE
1	MITSUBISHI MU-2D
29	MITSUBISHI MU-2F
1	MITSUBISHI MU-2G
22	MITSUBISHI MU-2J
32	MITSUBISHI MU-2K
15	MITSUBISHI MU-2L
23	MITSUBISHI MU-2M
30	MITSUBISHI MU-2N
38	MITSUBISHI MU-2P
55	MITSUBISHI SOLITAIRE
673	PILATUS P-12
341	PILATUS PC-12 NG
549	PILATUS PC-12/45
154	PILATUS PC-12/47
492	PIPER MERIDIAN
10	ROCKWELL 680T TURBO
6	ROCKWELL 680V TURBO II
7	ROCKWELL 680W TURBO II
9	ROCKWELL 681 HAWK
89	SOCATA TBM-700A
91	SOCATA TBM-700B
4	SOCATA TBM-700C1
115	SOCATA TBM-700C2
318	SOCATA TBM-850
22	SOCATA TBM-900
6	STARSHIP 2000A
51	TURBO COMMANDER 1000
27	TURBO COMMANDER 690
129	TURBO COMMANDER 690A
113	TURBO COMMANDER 690B
58	TURBO COMMANDER 840
16	TURBO COMMANDER 900
23	TURBO COMMANDER 980

TWIN PISTON

OWNERS

Aircraft Count	
9	ADAM A500
1550	BARON 58
479	BARON 58P
137	BARON 58TC
5	BARON A56TC
142	BARON G58
43	BEECH BARON 56 TC
2	BEECH BARON 58 PA
217	BEECH DUKE B60
193	CESSNA 340
556	CESSNA 340A
120	CESSNA 402B BUSINESS LINER
64	CESSNA 402C
38	CESSNA 404 TITAN
288	CESSNA 414
374	CESSNA 414A CHANCELLOR
72	CESSNA 421
61	CESSNA 421A
454	CESSNA 421B
757	CESSNA 421C
66	CESSNA T303
124	PIPER 601P AEROSTAR
29	PIPER 602P AEROSTAR
18	PIPER 700P AEROSTAR
465	PIPER CHIEFTAIN
28	PIPER MOJAVE
870	PIPER NAVAJO
24	ROCKWELL 500 SHRIKE
33	ROCKWELL 500A SHRIKE
69	ROCKWELL 500B SHRIKE
46	ROCKWELL 500S SHRIKE
8	ROCKWELL 500U SHRIKE
28	ROCKWELL 520 COMMANDER
15	ROCKWELL 560 COMMANDER
21	ROCKWELL 560A COMMANDER
17	ROCKWELL 560E COMMANDER
11	ROCKWELL 560F COMMANDER
36	ROCKWELL 680 SUPER
17	ROCKWELL 680E
19	ROCKWELL 680F COMMANDER
22	ROCKWELL 680FL GRAND COMMANDER
14	ROCKWELL 680FLP GRAND LINER

HIGH PERFORMANCE MOVE-UP SINGLES

OWNERS

Aircraft Count	
250	BEECH BONANZA
493	CESSNA 182
71	CESSNA 206
448	CESSNA P210N
26	CESSNA P210R
58	CESSNA T182
1	CESSNA T206
2714	CIRRUS SR22
240	PIPER MALIBU
387	PIPER MALIBU MIRAGE

37,744 TOTAL AIRCRAFT

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Continued from page 18.

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- Ability and willingness to fly very frequently, two or more days a week;
- A strong sense of personal commitment to flying excellence and an honest appraisal of their performance on every flight;
- Acceptance of flying as a second career, one that frankly you're probably not yet as good at as the one that pays for your airplane.

Many pilots take a long time to realize these traits all apply to them. Generally, we come to that realization only by making mistakes—hopefully not too terrible—and coming away with another "I'll never let that happen again" experience. If you move up too rapidly you'll have to learn those lessons quickly from someone else, and severely limit what you let yourself do in the jet until you assimilate them.

You may choose to enjoy the journey, and gradually earn experience as you move up through successively more capable airplanes. Or you may have the means and urgency to move directly from piston single to single-pilot jet. Ultimately, safety and success depend more on your attitude and discipline applied to whatever type of airplane you fly. Fast-track or step-up, you need extreme commitment, professionalism, and a willingness to admit you will never know it all…but must keep working to try. T&T

Thomas P. Turner is an ATP CFII/MEI, holds a Masters Degree in Aviation Safety, and was the 2010 National FAA Safety Team Representative of the Year. Subscribe to Tom's free FLYING LESSONS Weekly e-newsletter at www.mastery-flight-training.com.

A Hole in the Ice

When clouds bring loads of ice, pilots must reach for all the tools in their toolbox.

by **Kevin Ware**

The nice thing about Learjets is that you can almost always vault completely over weather that would cause other aircraft no end of trouble. And so, it is with some concern that we are sitting in the pilot's lounge at the FBO in Columbus, Georgia (KCSG) planning our 1,933-nm return flight to Washington state, and studying some nasty weather that it looks like we will have to land in, rather than simply just jumping over.

It is 52 degrees and sunny in KCSG and clear and 31 back in Seattle. But in between, the entire central part of the United States is suffering from a blizzard due to a series of lows that extend all the way from Houston to Fargo, North Dakota. These are slowly moving east and carrying with them a huge load of water they picked up while over the Pacific Ocean a thousand miles out to the west. As they move east into colder air, all that water gets dumped, creating a mess of low ceilings with cloud tops well into the flight levels, plus blowing snow, ice, freezing mist and drizzle near the surface. The system is so large that in looking at the weather chart, we cannot see any way to readily fly around it, no matter how big of a dog leg we are willing to make.

To complicate matters, the winds aloft are howling from the northwest at more than 100 knots, which will give our 465-knot Lear 40 an effective ground speed of about 350, thus reducing our range to a bit under 1,000 nm. This severely limited our ability to "vault" over anything. This also means we will need to land somewhere in the middle of the weather mess for fuel. The immediate conundrum is where to make that stop.

In looking over the TAFs, nearly all of the airports anywhere near the midpoint of our route are forecasting ice, plus freezing mist or drizzle and low IFR conditions. For pilots who have flown a long time in the northern states, snow is not too bad, but water that can't make up its mind if it is frozen or liquid, that's not good at all.

The de-ice systems on a Lear's polished leading edges get hot enough to fry an egg. So it is not so much excess ice accretion on the wing that we worry about as all the rest that goes with it. With a touch down speed on the order of 125 kts, we are concerned about stopping the airplane safely on the runway if surface conditions are icy. If surface conditions are icy, glare ice will be particularly bad.

Then there is the practical matter of what to do about the ice accumulated during the approach when it is still frozen to the airplane after the refueling quick-turn is completed and we are ready to leave. What happens if we get stuck and have to park the airplane for the night at that location? When winter conditions deteriorate, heated hangar availability becomes as rare as hen's teeth and can be very expensive. But if the airplane spends the night outside, the next morning you may find a large non-aerodynamic ice cube that only has minimal resemblance to the shiny, sleek airplane you left out last night.

Of course, assuming the equipment is functioning, you can get the airplane de-iced. But the de-icing fluid is four times the price of fuel at $16.95/gallon and (reasonably so) the line guys always seem to be more concerned about removing ice than how much of the expensive de-icing fluid they are casually spraying all over the place. The process can easily use 30 to 50 gallons, which adds about $800 to the fuel stop expense. This potentially may prompt the bean-counters to ask why you chose to land there in the first place. All kinds of things to consider and we haven't even left Georgia yet.

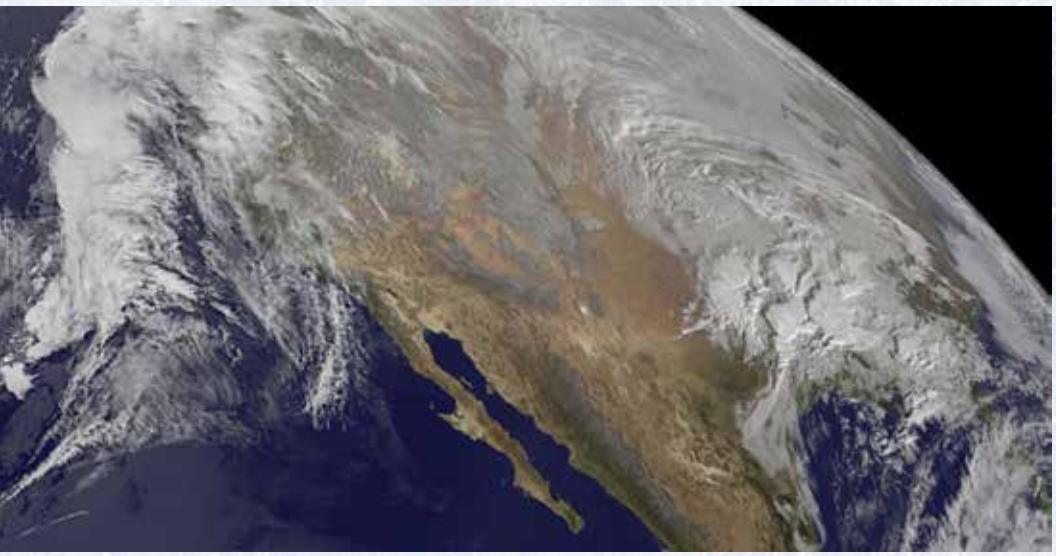
We aren't the only crew members standing around in the Columbus FBO pilot briefing room, grousing about conditions to the west, looking at the weather reports on the computer screen, and thinking that if this was a personal flight, we would just bag it, or better yet fly the airplane south for a half-hour and spend the next several days on the warm beaches of the Florida Panhandle. but that is not to be.

Then, one of the pilots from a swept-wing Citation parked next to us on the ramp who is also westbound noted a potential solution. In looking at the weather on the computer screen, he points out that due to a peculiar scalloping on the systems eastern edge, North Platte Nebraska (KLBF) is being temporarily spared from the worst of the storm. It has an airborne hole in the ice with its opening facing toward us. They are calling for 1,500-foot overcast, visibility of seven miles, surface winds from the north at 10 to 15 kts with occasional blowing snow, but no forecast of freezing rain or mist for the next 2 to 3 hours. KLBF is just 914 miles away and has an ILS to runway 30. The FBO is Trego Dugan, which is the same company we used at Grand Island on the way out and has jet fuel priced at just $3.56/gallon. Perfect. We file right away, quickly load our passengers and beat the Citation off the ground by 3 or 4 minutes.

It is my leg to fly and we soon leave the clear conditions behind us and enter the leading edge of the winter low pressure weather system to our west. Six miles beneath us, semi-trucks on the interstate are losing traction and causing huge multi-vehicle pileups. For us, we are still IMC as we pass through the mid 30s with just some light-to-moderate chop, which is causing the airline crews nearby to look for a smoother ride. Going through FL390, we finally break out into a clear, very cold and sunny sky. We settle for FL430 where we find the temperature to be at ISA -6 and a ride as smooth as silk. For the next two hours, we eat thick ham sandwiches, sip rather good FBO coffee, and are all alone up there in the bright sunshine apart from a Gulfstream going the other way a couple thousand feet above. Somewhere behind, from time to time when our center frequencies match, we can hear our Citation buddies from KCSG coming along behind us.

About half-hour out from KLBF, we see on our iPads that the weather has deteriorated a bit more than was predicted with the freezing drizzle now back on the line. We decide there could be a lot of ice in the clouds under us, and decide to stay high as long as we can by entering a TOD (top of descent) into the Universal FMS much closer to the airport than we normally would. If there is ice, the faster you go, the better, and the

A pilot's worst nightmare: an airframe loaded up with ice. The safest strategy is to make sure all de-ice systems are operating, then get airborne as soon as you can and climb above the icing levels as fast possible.



Powerful winter storms, fueled by plenty of moisture, can stretch from Texas to Canada, setting up an ideal environment for icing stretching for hundreds of miles.

controller helps by telling us to keep our speed up as much as possible, as we are number one for the ILS, with a Citation close behind. We come out of 18,000 at over 325 knots descending at 4,000 fpm and ask the Citation what they need us to do in order to maintain spacing. Their reply is 250 kts. To us that seems a bit slow given the ice, and so with speed restrictions released, we keep the angle of attack low, and the speed above 300.

The IAF (initial approach fix) for the KLBF 30 ILS is OMESE and we come charging down to it with all the de-ice equipment on, the spoilers out and the power at a good 65 percent to keep everything hot. On reaching the initial approach altitude of 4,700 feet, the spoilers stay out as the pitch goes up, which rapidly decelerates the airplane to flap extension speed. At that point, almost simultaneously, the spoilers are retracted and the flaps are lowered (spoilers out with flaps down is prohibited in a Lear 40).

Shortly thereafter, we are established on the glide slope with the speed down to 150 knots, flaps at 40 degrees, three green on the gear and the autopilot plugging in a 10-degree wind correction angle to the right. Somewhat surprisingly, we break out at about 1,700 feet AGL and can see the airport about 3 miles away through a windshield fringed with ice. Knowing the airplane is carrying ice, I want to get a feel for how it is handling well before landing. I shut the autopilot off but keep the speed up 10 knots above the Vref of 125. I brief the PNF that I intend to transition from a crab to a slip over the approach lights, touch down

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a little early on the right main first, then either make exit C3 on the left, or if braking seems poor, just let it roll to the end. He concurs, saying, "Yep, that's what I would do."

The touchdown goes as planned, and hearing the Citation behind us reporting established on the localizer, we get the reversers and brakes going and make C3 without any slipping or sliding. The Citation lands shortly after we exit and lets it run to the end of the runway, which is not good for us because that puts him much closer to the FBO and fueling truck. The Citation crew however comes to a complete stop after exiting the runway, and stays there apparently running their after landing checklist. Seeing that happening, I pick up the taxi speed a bit, and beat them to the wand-carrying line guy next to the fuel truck by about the same amount of time our departures differed back at KCSG.

We open the door and get out of the Lear to find its de-icing equipment has worked quite well. There is a little bit of rime ice on the winglets. It is nothing we can't remove by hand that would prevent us from taking off again as soon as our fueling is completed. Not so for our Citation-driving buddies. They must have kept their airspeed low and angle of attack too high while descending because the bottom of their wing and vertical stabilizer have so much ice that even our passengers comment on it. Standing at the FBO's counter, they ask if the de-ice truck is working and about how much it will cost. The estimate could easily pay for a month's worth of crew meals. With considerable trepidation, they retire to a private area of the lounge to call their company for approval.

While the line guys are trying to get the de-icing truck's frozen engine started for the Citation, we are loading up while giving thought to the departure. Obviously, it would be better to not fly when icing conditions exist. But if you must, the safest strategy is to make sure all de-ice systems are operating, then get airborne as soon as you can and climb above the icing levels just as fast possible, all the while keeping the horizontal speed up as high as the airplane will do and still climb well. A lightly loaded Lear 40 will climb 4,000 to 5,000 fpm while doing 275 and 300 kts in the horizontal. In our case, this means that if the climb is unrestricted, we will be above the icing levels at about 4 minutes.

With this in mind, we call Minneapolis Center on their remote frequency for our clearance and request (for reasons of ice) no delay in our climb after takeoff. They understand the problem completely and come back with a clearance directly to the mid-30s.

Five minutes after takeoff we are in bright sunshine, and a bit later, land in Seattle where it is clear as a bell. With nasty icing conditions now just a distant memory, we think, "Nice trip." T&T

Kevin Ware is an ATP who also holds CFI, MEII and helicopter ratings, has more than 10,000 hours and is typed in several different business jets. He has been flying for a living on and off since he was 20, and currently works as a contract pilot for various corporate operations in the Seattle area. When not working as a pilot he is employed part time as an emergency and urgent care physician. He can be reached at kevin.ware2@aol.com

Winter flying is a balance of evaluating risks with aircraft capability and careful weather analysis.

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The Write Stuff

Authentic Aviation Authors

With a hot coffee at hand, the crackling fireplace provided ambience for perusing a stack of magazines and several issues of *Trade-A-Plane*. Not that I would ever sell the Duke, but you never know when an irresistible MU-2 may flirt with the Air Force retirement check and seduce my better judgement. A sigh accompanied the turning of the final, big yellow page. The remaining magazines laid before me like a pile of high-school homework.

Pilot Periodicals

The stack was primarily pilot periodicals, but some were for non-pilot, common folk: world and national news, hunting, fishing and writing magazines. They had accumulated after a month of vacation and a month of post-op recovery (robotic assisted, laparoscopic inguinal hernia repair for the surgeons among us). Who knew; Percocet impairs the ability to read, remember and thusly to keep up with, well, everything. The vacation and blurry post-op weeks were followed by a fast-paced and focused month of training and check ride on the B737-800 NG. During Guppy School, there were no brain cells for recreational reading. Once you have seven, eight or 92 dozen periodicals in a pile, it's like mowing the lawn after having waited too long, or in my neck of the woods, waiting too long to shovel snow. After a three-month absence, even when using the force, behind the reading power curve I was.

We all have our favorite writers that motivate us to read at least a couple stories from each magazine. In fact, we keep some subscriptions active just for the articles of our favorites. You know the characters: Rod Machado, the legendary Mac McClellan, Thomas Haines and Barry Schiff. There's Martha Lunken, Dave Matheny, Patty Wagstaff, Dick Karl and our own David Miller, just for starters. You can't throw out unread works of these authors, so we savor their stories then flip through the remainder of the magazine to catch up on events and new developments. We assume that the same advertisers will always be there, but we tear out ads for things we like, just in case.

The Future Has Arrived

When in "news debt," you feel disconnected. What did I miss? According to the stack of magazines and our favorite writers, no one is sure how the lifelong, GA-using president will treat us pilots and the Part 23 revisions to aircraft manufacturing standards are approved. Pilot third class medical reforms are about to be implemented, electronic ignition for certified, piston aircraft engines is finally here, 94 UL fuel is out there and UL102 may be here in 2018. Electronic technology continues to enhance our airplanes. According to Mac, the future promised by the FAA 20 years ago has arrived as VORs give way to GPS. We have WAAS with LPV minimums, synthetic vision displays, HUDs, FADEC in every kitchen and, coming soon to a cockpit near you, AR (Augmented Reality) glasses that superimpose computer-generated images into our view.

The drone population is growing and development continues on pilotless airplanes. The movie *Sully* was a hit and put a positive shine on all of us, some of the shine, unrealistically, at the expense of the NTSB. Several magazines dissected its accuracy and narrative including a review by FO Jeff Skiles. The bad news: we lost Bob Hoover, experienced pilots are still running out of gas and some of us continue to encroach onto active runways. While the used aircraft market has recovered to what is historically normal levels, turbine owners may be selling again. The final shocker is that GA is approaching a tipping point in pilot numbers that, if allowed to continue, will question the viability of the GA industry. What? When did that happen? I thought we were in a period of recovery and growth.

An Endangered Species of Swashbuckler

As hundreds of lifelong professional flight instructors, whom can instruct and inspire with Yoda-like results, begin to relax more often than they sit in a hot, bumpy trainer, GA is slowly losing oil pressure. EAA and AOPA have been promoting programs to entice young people into GA: Young Eagles and the You Can Fly programs. And they are helping. But the national completion rate for private pilots is just 20 percent. Gen-X and millennials aren't any less skilled than previous generations. In fact, they're a level or two of magnitude beyond previous generations in their ability to understand, interpret, and even embrace new technology. From computers to phones and tablets to avionics, it's their domain.

Having finished a month-long course of training on the 737 using a combination of electronic trainers and simulators, I'm inclined to agree that a quantum leap in the use of simulation in GA is due. It's a step to reduce the entry fee into our world and should increase the completion rate of these tech savvy students to something north of 50 percent. Medical reform should also have a positive effect by removing a perceived obstacle in learning to fly.

Another source of GA pilots is those already certified. There are about a half-million non-current pilots and my Wings of Mercy co-pilot is one of them. We all know that it boils down to time and money. I've offered to pay for him to get current. No time, he says. It's a matter of leading a horse to water, I suppose.

The new flight hour requirement for entry into Part 121 employment is not helping draw pilots to the industry. I agree with the point, but respectfully disagree with those that say the hours aren't needed. A 400-hour pilot in the right seat of a 50-passenger jet, at night in the weather, flying alone after their over-60 Captain had a "medical event" is an invitation for brain freeze. Especially in a new pilot that has never faced the real (not simulated) boogey man up close and personal. Or watched a captain deal with him. The affordability of aircraft rental or purchase and the amount of income that flying can potentially generate, remain the quintessential conundrums in gaining the experience to face these issues.

Rumors

For years, the regional airlines could hire relatively inexperienced pilots that were willing to work for historically sub-standard pay. Mainline Part 121 operators are starting to feel a hangover from that era as they cannibalize the pilot ranks from their feeders to

After years flying the MD-80, author Kevin Dingman has spent the last several weeks undergoing his airline's training for the Boeing 737-800 NG.

re-populate the mainline with experienced pilots. As a stop-gap measure, managers are currently trying to squeeze more time and money out of the soon-retiring generation of pilots. Often in violation of negotiated working agreements (union contracts) designed to assure adequate rest and quality of life (days off). There are over-the-road truckers in their 70s and 80s. Why not pilots? A news report pointed to the obvious reason: an increase in accidents in this age group of truckers. That's the latest rumor at work: age 67 retirement. But it's only a rumor. I think the industry recognizes that the safe, low-hanging fruit in that cost-saving bucket has already been plucked. Age 65 will remain the end of that column in their miserly ledger. I say that from the perspective of one of the low-hangers already plucked. Soon, the only source of new airline pilots will be from GA.

Decades of flying, research and access to industry movers and shakers puts those favorite writers from above at an altitude in which they have a good view of our issues. But (no pun intended) opinions are like, well, you know, and everyone has one. So here is mine: If I were looking to become an airline pilot, I'd be happy to see the timing that is playing out in GA and Part 121 these days. They say the cyclic nature of the airline business is ending and we are headed toward a future of stability. The airlines are hiring. Salaries are headed up. And in GA, airframes, powerplants and avionics are more reliable and functional than at any other time. The changes to Part 23 will be helpful in managing costs and increased use of simulators in GA is due. But we need to increase our numbers.

The best thing you can do is the right thing;

the next best thing you can do is the wrong thing;

the worst thing you can do is nothing.

Theodore Roosevelt

It's nice to sit in front of a crackling fireplace, searching for an irresistible airplane. But the hangar is nice, too. If you're a student pilot, now is the time to keep at it. More use of sims and the pilot medical reforms will lower both the cost and apprehension of entering the ranks of GA. If you are non-current, go flying and take an instructor along; they don't bite. If you're an owner, your baby in the hangar misses you. Keep up with events and rumors through periodicals and your favorite writers. Like a Walter Cronkite news broadcast, some must be read every time regardless of the length of the grass, depth of snow or the half-life of Percocet.

And that's the way it is. T&T

Kevin Dingman has been flying for over 40 years. He's an ATP typed in the B737 and DC9 with 22,000 hours. A retired Air Force Major, he flew the F-16 then performed as a USAF Civil Air Patrol Liaison Officer. He flies volunteer missions for the Christian organization Wings of Mercy, is employed by a major airline, and owns and operates a Beechcraft Duke. Contact Kevin at Dinger10d@gmail.com

Reining It In

Proper energy management and technique are keys to getting your aircraft stopped in time

by **LeRoy Cook**

Bringing an aircraft safely to taxi and turnoff speed begins with proper planning. Know how much runway you need to get stopped, factoring in the weight, wind and altitude conditions, the runway surface and any obstructions in the approach path. Landing distances from the ops manual charts are a start, but they should be regarded as minimums, not as absolute sufficiency. They are, after all, based on test-pilot efforts. If you have any doubt, go to a longer runway.

Once it is determined that the destination runway is adequate, make sure you are flying a profile that will place the airplane's wheels on the surface within a normal touchdown zone, with speed managed so as to begin the rollout with an acceptable amount of energy to be dissipated. This task begins with a stabilized approach, despite ATC's traffic separation requirements. Don't be faced with trying to slow down on short final, 20 knots too fast while the VASI lights are stubbornly white in the lower part of your windshield. Get the airplane on target early in the approach, or start planning a go-around.

Runway overshoot accidents generally result from an unstabilized approach or a contaminated runway that wasn't considered when the flight was planned. It shouldn't come as a surprise when we find a slick surface; check ASOS or ATIS for reports of precipitation, seek runway condition reports from ATC, and watch out for pilot reports that are being altered to "good" or "mostly dry" to cover an operator's requirements.

Stabilizing the approach becomes even more important when the runway is contaminated. Fly the appropriate approach speed and make your target spot in the sacred first 1,000 feet, or at least the first third. Combining approach speed and glideslope target should produce a good touchdown with adequate runway remaining. Remember, you always have the option of going around if the approach isn't working out.

That said, going around becomes a riskier option as the landing progresses. It's relatively easy to pull up while still a few hundred feet above the ground; it's quite another to power-up and reconfigure after the tires are on the runway, already slowing down with flaps and spoilers deployed. In general, once the flare is begun and the airplane is no longer at approach speed, it's best to consider the landing made. Executing a go-around while rolling should be considered if there's a clear reason to do so, such as an aircraft or vehicle entering your runway, wildlife hazard or unexpected wind shift.

Whoa, Whoa, Big Fella

If you planned properly, flew the approach in a stable, slow manner and touched down in the correct zone, a normal rollout and exit should be assured. Braking technique is important. The landing isn't over until the chocks are under the wheels. Deceleration takes more than standing on the pedals. Use everything appropriate to the aircraft's recommended procedures.

When it comes to getting close to the handbook stopping distances, stick with the methods recommended by the aircraft manufacturer. Company testing found what works most consistently, using average, but aggressive, piloting technique. Use other methods only if you want to act as a test pilot. One of the first requirements is to immediately apply full brakes and hold the pressure, especially if anti-skid equipped. Pumping brakes or delaying application is simply adding unwanted stopping distance.

If the runway is wet, hydroplaning is a definite hazard, but it can be managed by letting the ABS cycle or releasing brake pressure if you feel a lack of deceleration, caused by locked-up wheels. If you see a slick, shiny runway, make your touchdown firm, rather than trying for a soft, roll-on landing. That doesn't mean pushing the airplane onto the ground at excessive speed, which only encouraging hydroplaning, but rather allowing the tires to sink onto the wet surface with enough force to break through the layer of water.

You're Down, Now What?

Some aircraft handbooks encourage raising the flaps after touchdown to increase the weight on the wheels, which improves brake effectiveness by removing lift. Most of our airplanes have enough weight to preclude this requirement. If you're equipped with armed ground spoilers and lift-dump systems, verify they've functioned and slowing is normal.

Reverse thrust is a comforting adjunct to wheel brakes, but it must be used appropriately. If in a turboprop, select propeller condition to proper idle setting, move briskly into Beta and increase power as recommended, remembering to come out of reverse before decelerating to a speed that might generate FOD or prop erosion. Steer aggressively to guard against swerving or sliding.

Jets with reverse thrust are also much better equipped to handle a slick runway, but also have limitations to be observed. Excessive reverse on a contaminated surface can create unwanted yaw motion, most particularly with fuselage-mounted engines. Again, be prepared to use aggressive steering and come out of reverse at the first sign of loss of directional control.

Crosswind operation has an effect on stopping distances, in that the benefit of an all-headwind component is lost and braking is slightly compromised if good controls application is not maintained. In most cases, the effect is minor but pilots may be tempted to use extra speed for their approach because they think the crosswind requires added control. Do not pad the numbers excessively, just because a crosswind is present. Most importantly, factor the tailwind or headwind effect into your base leg planning, which can cause you to wind up higher or lower than you might normally be when you roll out onto final.

As you progress down the runway, you should have plenty of stopping distance ahead, because you planned your touchdown for the first portion of the runway and you maintained an approach speed. Keep braking; it's more efficient to use heavy braking right after touching down than to jam on brakes in a panic as the runway end approaches.

Air traffic controllers seem to be ever-more prone to issue commands to exit at specific taxiways or seek a response about parking while we're still in the early stages of a landing rollout. If you aren't able to comply, respond with "Unable" right away and deal with control of the aircraft first. If you were issued a "Land and Hold Short" landing clearance, you are expected to carry it out because you accepted it as issued. The time to refuse LAHSO is when it's first brought up, not after you're on the rollout.

As the rollout continues, you may, in the absence of ATC instructions, spare the brakes and reverse thrust to roll out to the end. A longer taxi may better suit your brake and engine cooling concerns. However, we often try for that mid-field turnoff in order to reach a favorite FBO or terminal. Don't abuse the aircraft and passengers with rough stopping technique, to show off your prowess as a STOL pilot.

Bringing an airplane down to a walk is another example of proper energy management, begun early in the process so there are no surprises as the runway distance-to-go markers flash past. Done correctly, there should never be a reason for the tower controller to quip "speed permitting, exit at the end." T&T

Leroy Cook has been flying professionally since 1964 and holds ATP/SMEL certification, along with CFI ratings for ASME, Instrument and Glider. He began writing about aviation subjects in 1970 and is the author of thousands of published magazine articles and various books. He is was editor-in-chief of Twin & Turbine from 2011 through 2016.

WAI Announces Pioneer Hall of Fame Inductees for 2017

Women in Aviation International (WAI) has selected the 2017 inductees into its International Pioneer Hall of Fame. These women will be honored at the 28th annual International Women in Aviation Conference, which will be held March 2-4, 2017, at Disney's Coronado Spring Resort in Lake Buena Vista, Florida.

"Honoring these women and chronicling their achievements is an important mission for Women in Aviation International," said WAI President Dr. Peggy Chabrian. "Not only have these women had great individual accomplishments but they have paved the way for other women to have similar success."

The 2017 Pioneer Hall of Fame inductees are:

1) The First Class of Women Naval Aviators includes Judith Neuffer, Barbara Allen, Jane Skiles, Ana Marie Scott, Joellen Drag and Rosemary Merims. In January 1973, eight female trainees were selected to train as Naval aviators. The women reported to Pensacola for flight training in May 1973. Two women were dropped from the program and six women went on to earn their "Wings of Gold" and became the first women to be designated full-fledged military pilots. Their success made it possible for subsequent female Naval aviators.

2) Lt. General Stayce Harris is the highest-ranking African-American woman military pilot in all the United States armed forces. She is the Assistant Vice Chief of Staff and Director, Air Staff, Headquarters U.S. Air Force, Washington, D.C. She also serves as Deputy Chairman of the Air Force Council, and is the Air Force accreditation official for the international Corps of Air Attachés. Lt. General Harris has logged more than 2,500 hours in military aircraft including the C-130H, KC- 135R, C-141B/C, T-38 and T-37.

3) Elizabeth "Betty" Everts Greene (deceased) is a trailblazer in humanitarian and missionary flying. She learned to fly in 1936, served as a WASP during World War II and went on to help found the Mission Aviation Fellowship (MAF). Today, the MAF operates 135 aircraft in 33 countries, flying five million nautical miles a year to provide medical care, disaster relief and participate in community development.

The Women in Aviation International Pioneer Hall of Fame was established in 1992 to honor women who have made significant contributions as record setters, pioneers, or innovators. Special consideration is given to individuals or groups who have helped other women be successful in aviation or opened doors of opportunity for other women. Each year, the organization solicits nominations from throughout the aviation industry for the WAI Pioneer Hall of Fame. T&T

Barry Schiff DVD Available at Aircraft Spruce

ASA's *Proficient Flying, the Best of Barry Schiff* is now available for purchase at Aircraft Spruce. Barry Schiff is a consummate aviator, author, and educator with a passion for general aviation. In these three DVD's, Barry Schiff uses his educational skills to help pilots visualize procedures that will ensure safety while flying. Each disk contains specific scenarios in detail, and how to calculate the next move in the face of danger. With more than four hours of instruction, expect to learn all intricate aspects of flying in the process of becoming a safer pilot.

For more information, please contact Aircraft Spruce at 1-877-477-7823 or 951-372-9555. Aircraft Spruce's complete product line is available at *www.aircraftspruce.com.* T&T

New Beechcraft G58 Now Equipped with G1000 NXi Flight Deck

The factory new Beechcraft Baron G58, along with Textron Aviation's entire piston line, will now equipped with next generation Garmin G1000 NXi integrated flight deck. The avionics system has received FAA certification for Textron Aviation piston aircraft and the company said "deliveries are expected to commence soon."

The G1000 NXi platform features faster processing times, improved graphics rendering and enhanced readability with LED back-lighting. Other improvements include map overlay on the HSI, improved FMS capabilities to include visual approaches, standard ADS-B in and out, the ability to view VFR and IFR charts on the moving map, animated Sirius XM weather depiction. Optional enhancements offer wireless database updates and flight plan uploads with Flight Stream and enhanced runway situational awareness that can help pilots avoid runway incursions with SurfaceWatch. T&T

Garmin Introduces VIRB Ultra 30 Aviation In-cockpit Bundle

Want to capture and share all the action from your next flight? Garmin has added to the VIRB Ultra 30 action camera family, offering several new accessories tailored to capturing rich, high definition footage in-flight. VIRB Ultra 30 is a waterproof action camera with the power to shoot stunning Ultra HD footage at 4K/30fps. The VIRB Ultra 30 contains a suite of new features, including voice control, an intuitive LCD color touchscreen, and one-touch live streaming.

The VIRB Ultra 30 aviation in-cockpit bundle includes a stereo headset audio cable, so pilot-to-pilot communications and air traffic control transmissions may be embedded within the video. A prop filter is also provided to eliminate propeller distortion created while filming video in-flight or capturing high-quality still photos. The VIRB Ultra 30 aviation in-cockpit bundle also includes a cage mount, which is the smallest and lightest way to mount VIRB Ultra inside the cockpit.

With G-Metrix, VIRB Ultra utilizes internal sensors such as the high-sensitivity GPS, accelerometer and gyroscope to capture even more performance data. For example, pilots can review in-flight footage to see how many G's were recorded during a flight maneuver and overlay the data overtop the video. In addition to G-Metrix data, VIRB Ultra is Connext-capable so aviation-specific data such as aircraft pitch, roll, lateral acceleration, turn rate and more can also be received from the G3X Touch flight display or Flight Stream 110/210/510 and overlaid within the video.

It is also compatible with the D2 Bravo, D2 Bravo Titanium, Garmin Pilot and the Aera 660 aviation portable. VIRB Ultra also features the ability to connect to the GMA 350c and GMA 245 series audio panels via Bluetooth, which can embed audio overtop high-definition video without the need for a headset cable.

The VIRB Ultra 30 also features voice control so users can speak several straightforward commands to the camera – even when utilizing the headset audio cable in the cockpit. Commands such as "OK Garmin, start recording," or "Ok Garmin, remember that," tag specific moments within the video so recordings can be effortlessly reviewed afterwards.

Once video is recorded, users can use the free VIRB Mobile app, which can live-stream video footage via YouTube and allow pilots to view, edit and share videos that automatically highlight the best moments in-flight. VIRB Edit desktop software is an easy-to-use editing program that allows customers to auto-create videos, add music, trim video clips and incorporate transitions to perfect in-flight video.

The VIRB Ultra 30 aviation in-cockpit bundle now available for $499.99. For more information, visit: *www.garmin.com/aviation.* T&T

Cutter Aviation Adds Two HondaJets to its Charter Fleet

Two new HondaJet aircraft have begun operations from Cutter Aviation and the first ever FAA Part 135 charter flight in a HondaJet departed from Cutter Aviation Phoenix Sky Harbor in late December 2016.

Gordon Paige, Cutter's director of operations, said, "We are delighted to be the first charter provider offering flights with the new HondaJet. This aircraft comfortably seats up to six passengers, has a fully enclosed lavatory, provides more baggage space than competitors and provides the customer an experience unlike any other light jet on the market." T&T

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How to Win Friends and Influence People

A recent Citation M2 flight with my friend Larry King reminded me about the business advantages of flying customers in a private airplane. For many, it's the flight of a lifetime. When you land at your customer's home town and taxi up to the FBO to meet them, it's a big deal. Sometimes they bring their friends and families to see them off. Cameras and cell phones appear. Memories must be preserved. Years ago, I remember landing our Sabreliner at a small Virginia airport, only to be met by at least 10 total strangers. They had heard a rumor about a "big" jet landing at their local airport and just had to come out to see if it could be done.

If you fly long enough, you will eventually have some passenger "moments." My favorite Alabama customer, Glen Pike, was a 300-pound bear of a man who was always late paying his invoices. His first flight in a small airplane was in my B-model Baron.

He was scared to death.

I wedged Glen in the back of the Baron as we headed to the factory for a tour. Somewhere about half way home, I put the airplane in a 30-degree left bank, turned around to Glen and said, "Glen, let's talk about your payment problems." You have never heard a grown man scream so loudly.

His checks were never late again.

Other than Donald Trump, no one refuses a trip in a private jet. Larry's customers in San Antonio were no exception. But we had to get there first.

Departing Mesquite (KHQZ) for San Antonio (KSAT) presented few problems, but the weather en route did. A huge low, almost the size of Texas, lay over our route for days, flooding central Texas and causing some to lose their lives. Minutes after takeoff, we were enveloped in the weather, me operating the radios, radar, and NEXRAD, and Larry flying the airplane. Soon, we were deviating. At our cruising altitude of FL 260, the ride was acceptable with light to moderate turbulence, and no icing. "Fort Worth center, November-921-Xray-Tango needs another 10 left for weather," I said.

No response. Not a word. There was just total static on the frequency. The most I had ever heard.

"Fort Worth, do you read November-921-Xray-Tango?" I repeated over the deafening static. I swore at the Garmin radios. Then from center, "American 1234, can you relay to American 5678? There is a thunderstorm right over my transmitter and nobody can hear me!" I apologized out loud to Garmin. With everyone now talking to each other, we descended into San Antonio, shot the ILS to 30L, and landed just after the thunderstorms had passed.

At the Million Air ramp, the customers said their goodbyes, took photos, and were all smiles. As they left, Larry said, "One of those guys shook my hand twice in 10 seconds. Last week, he didn't even like me!"

I think it worked.

Fly safe.

With 6,000-plus hours in his logbook, David Miller has been flying for business and pleasure for more than 40 years. Having owned and flown a variety of aircraft types, from turboprops to midsize jets, Patty and David currently fly a Citation M2. You can contact David at *davidmiller1@sbcglobal.net.*

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