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King Air 350
Photo Courtesy of Mach Point One Aviation

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Editor's Briefing

by **Rebecca Groom Jacobs**

Supporting the Bahamas

On September 1, Category 5 Hurricane Dorian pummeled the Abaco Islands in the Bahamas. And then, as the world watched with increasing dismay, it stalled for more than 24 hours over Elbow Cay and Grand Bahama. Dorian broke the type of records you don't want to be broken – including becoming the most powerful hurricane ever recorded in the Bahamas – producing billions of dollars in damage, displacing thousands of people, and causing at least 50 fatalities.

Once the storm finally weakened and migrated north, both military and civilian aircraft quickly inundated the area in search, rescue and relief efforts. Though essential, the influx of airplanes created a potential safety issue and a TFR was issued by the Bahamian National Emergency Management Agency (NEMA) to control traffic.

Despite the proximity of the Bahamas to the United States, the logistics for international GA relief flights posed more challenges for pilots than recent domestic hurricanes like Harvey, Irma and Michael – not to mention the devastating extent of damage to the Bahamian airports and aviation infrastructure.

From afar, I watched updates through my social media feeds as GA organizations like AOPA and NBAA joined the relief effort, spreading the most up-to-date flight information. Florida-based manufacturer Piper Aircraft, originally in Hurricane Dorian's projected path, also stepped in to help.

"It was like the Wild West at first as airplanes saturated the area," said Jackie Carlon, senior marketing director at Piper Aircraft. "We let it stabilize for a few days and started making calls to neighboring organizations and our MMO-PA owners group. One of the members is connected to the Bahamas minister of public health, and we learned the greatest need was medical supplies."

Within two days of Piper releasing a notice for supplies to employees and the local community, Carlon said items poured in: medicines, gauze, exam gloves, sanitizer, bandages, oxygen masks, and so on. Some employees purchased and donated items immediately upon receiving their paycheck. Between the local hospitals and its workforce, the Piper team quickly had enough supplies to load up an M350 for its first mission to Freeport. By this time, pilots were required to file for permission to fly into the area.

"We landed and there were tons of airplanes but little security," said Carlon. "We just texted our contact directly so they knew which airplane to drive up to for the supplies. But each trip, the measures got more involved and more detailed."

Piper ultimately conducted three flights, then sent all of the remaining heavier supplies onboard a barge. Following their third landing in Freeport, the minister of public health personally picked up Carlon and pilot Dan Lewis to meet people at the hospital – or what was formally a hospital.

"The hospital is fundamentally closed. Floodwater contaminated the building; crabs were literally crawling past us down the hallways," said Carlon. "When you see the magnitude of the devastation, you wonder if you are really doing enough. But the Bahamian people are perpetually optimistic, and it was amazing to see the immediate resiliency to rebuild and get back on track."

While the journey to recovery will be an arduous one, the leaders of the Bahamas are strongly encouraging pilots and tourists to keep their travel plans. With tourism as its top-earning industry, those dollars will be essential to the rebuild – and of the 16 most-visited islands, 14 are open and unaffected by the hurricane. To assist your potential travel plans, you can find detailed instructions and tips on flying to the Bahamas on page 18, provided by Caribbean Sky Tours. Also, our own Rich Pickett writes of his experience flying Bahamas relief missions on page 26.

I commend all of you who assisted in the relief effort in some way. It is situations like Hurricane Dorian where the GA industry publicly showcases its heart, and maybe it is just me, but that heart appears to continually grow larger and more visible.

Airmail

In Response to Dianne White's "What Makes a Turboprop Safer" (September)

I enjoyed your article in Twin & Turbine and agree with your thoughts. I have been flying for 54 years and converted my P210 to a Silver Eagle (RR turbine conversion) 12 years ago. You might be interested to know that last year, the FAA granted the first-ever STC for a turboprop autothrottle to Innovative Solutions & Support of Exton, PA. The initial approval was for the PC-12. This has been covered in a couple of articles in the business aviation press.

To the point of your safety article, the company recently received an autothrottle STC for certain King Air models. The company is now working toward approval for the autothrottle to enhance safety in an engine-out situation by reducing power on the operating engine if airspeed decreases to near V_{mca}. Hopefully, this has the potential to reduce the number of complete LOC rollover accidents that have been in the news too many times recently.

Full disclosure – I am on the board of and a stockholder of IS&S. Nonetheless, I believe this technology has significant implications for workload reduction and safety, especially for twins. Thanks for your articles.

Bob Mittelstaedt

In Response to Joe Casey's " Top Turboprop: Meridian and TBM700C2" (September)

I just read your very well done article on the TBM vs. Meridian debate– really timely. I have a Meridian and been debating a TBM upgrade (the 700C2 is as high as I could go price-wise, so a good comparison).

You hit the nail on the head – it really comes down to how irritating a fuel stop is to you. My missions all seem to be in the "maybe/maybe not" range (800-1,000 miles usually by myself), and I have a personal minimum of one hour of gas regardless of weather conditions. I hate planning for a fuel stop, but as you say, it is never as bad as you think it will be (and is frankly welcome after 3 hours). Add the increased maintenance costs and it's convinced me the TBM isn't worth the upgrade.

That said, I got my multi-engine rating earlier this year and I am considering something like a Mustang. I can't tell if it's worth it – seems slow for a jet and range and payload aren't huge, but maybe I'm missing something. Too scared to buy an older jet with unknown maintenance costs. Curious if you would have any thoughts, and thanks for a great article.

Eric Haskel

Very good article and comparison of two awesome turboprops. I agree with everything you stated until the last part of your article – have owned a TBM 700A for the past seven years and never had an annual that was anywhere close to $80,000. In my experience, the annual cost has ranged from $15,000 to around $30,000. This year, the annual was in the $30,000 range. While it is higher than average, it included a complete set of new tires (~ $3,000) and a new battery (~ $3,500). You are correct that different inspections that come into play based on years and total hours, but we have never had anything close to the $80,000 price tag you mentioned.

Most importantly, however, is the overall reliability of the TBM. In 7 years and an average of 200 hours/year flown, I have never experienced the hassle of having to cancel a trip/mission due to mechanical issues. That is quite a record, and compared to what I have read and heard about M-series Pipers, trip/mission cancellations are quite regular. Our TBM is based at a TBM service center, AeroCharter at KSUS in St. Louis, MO. I have never felt that we were being ripped off with exaggerated pricing or maintenance requirements. Todd Bauer and his maintenance staff are fantastic.

Brian Klutenkamper

Tamarack Winglets:
Straight Talk with CEO Nick Guida

There's this great adage that goes like this: "Numbers don't lie, but they are so easy to misrepresent."

Few can relate more directly to that statement than Tamarack Aerospace Founder and CEO Nick Guida. Over the course of more than a year, the developer and manufacturer of the ATLAS active winglet system for the Citation CJ line of business jets was faced with the ultimate test: an EASA and FAA emergency AD followed by a fleet grounding. In the wake of those events, the company filed for bankruptcy protection last June as it sought to get the effected aircraft flying again and restore customers' confidence in their product. In July, the AD was resolved by requiring all aircraft to comply with Service Bulletin 1480. Since then, the company has sought to make things right for its customers by offering the SB 1480 free of charge and resetting the warranty time period regardless of when the installation occurred. The company is also on solid footing with an infusion of $1.95 million from a group of customers, vendors and supporters.

For its founder Guida, this was a painful chapter that didn't necessarily need to happen. An engineer with more than 30 years of applied experience, he not only developed the ATLAS system but did much of the flight testing for Tamarack himself. Last month, I sat down with Nick to get the real story regarding the events that led to the AD and what the future looks like for the company.

Q: Can you share on the details of what when on with the emergency AD?

Guida: The details of the emergency AD are very relevant because the amount of misinformation abounds, and it is important to set the record straight. Many surprises awaited us on this journey of discovery and crisis.

The AD was triggered by a false pilot report. The details of the event were highly sensationalized, which prompted EASA to act quickly. Factually, the aircraft response to the fault matched the behavior seen in certification flight testing during simulated failures (easily recoverable). Every conceivable failure condition was flown during the certification process, including flying with one winglet completely removed. For each failure mode, it was required that all the flight characteristic tests including stalls, takeoff and landings, high speed, low speed and single-engine controllability were performed. You can imagine the FAA, EASA and Tamarack's surprise when they read that the pilot reported a 90 degree roll in 1 second. It was so different from the results of all the failure mode testing that it caused the immediate grounding of the fleet in the EU. Subsequently, it was no surprise when it was shown through AHRS data obtained from the plane that the actual roll rate matched the flight test at 4.5 degree per second.

The incident was completely preventable; the existing service bulletins were available up to 51 weeks prior, but not

installed. When it was confirmed that the year-old SB would have prevented the incident, that was not a surprise either. It was very unfortunate, considering the facts, that the AD was allowed to persist for another eight weeks.

As for the FAA delayed response five weeks later, it was no surprise that an AD was issued, but the surprise came in the form of an egregious misstep in the wording of the FAA AD, which incorrectly implicated Tamarack in an ongoing accident investigation. The NTSB was surprised by this language as well as GAMA and even some members and elements of the FAA. The recent 737 Max grounding created an environment that was extremely sensitive and regulatory agencies were on high alert.

Once all the dust settled, the flight restrictions were lifted using the two SBs Tamarack had issued up to a year prior to the triggering event, and this was accomplished only after the FAA and EASA conferred with the NTSB and the AAIB.

Q: Since the AD has been lifted, the fleet is back in the air. What steps is Tamarack taking to "get back in the air" following bankruptcy filing?

Guida: On Monday, Sept. 23, Tamarack filed the Chapter 11 emergence plan. This plan gets all creditors paid and keeps the shareholders intact. This is great news for everyone. Tamarack needs to continue with making sales, fighting misinformation and picking up where we left off with our new projects.

Q: What does this mean in terms of supporting your existing customer base?

Guida: What this means to our 96-plus current customers is "business as usual" along with the same amazing support our team has always provided. Our customers have amassed well over 20,000 flight hours now and we will be here to grow and support the fleet.

Q: Why did you decide to return to the company as CEO, and what does it mean for the company, its products and customers?

Guida: I have always been involved with Tamarack even when I was not on site. I had been working with our engineering team on military projects, the CJ3 investigation and business development. As the largest shareholder, it was in my best interest to provide uninterrupted assistance and guidance. When the AD hit and the events surrounding it were so spurious, I needed to return to a leadership role to help make an impact. We are now going after sales and working on new projects while looking to bring some existing unused patents to market. Our existing and future customers can rely on the Tamarack team and me to take the company to the next level of service.

Q: For the CitationJet, CJ1, CJ2 and CJ3, ATLAS offers marked improvements in performance, range and fuel economy without the weight penalty of traditional winglets. What are your customers telling you regarding their real-world experiences with the system?

Guida: Our customers are reporting incredible gains in all facets of performance. One huge benefit that stands out for the 525 and 525A is the range increase. Because the aircraft can now climb to the higher flight levels, the fuel savings (range increase) is dramatic. Some of our customers have added an hour of endurance to their aircraft (at max continuous thrust) and even more at long range cruise. Our customers are making nonstop flights now where a fuel stop was always required before winglets. Saving money on fuel is always important. We have a few customers that are not completely satisfied and we are working with them to resolve their concerns.

The single-engine climb performance is greatly increased, and the stability and ride smoothing are blatantly apparent. The increase in MZFW of 800 pounds is a huge benefit to the 525A customers because maximum zero fuel weight is often reached on normal missions, while the modest 400 pounds MZFW increase on all the other 525 variants is used on the shorter flights but not as often as the 525A. Most of the customers and public alike comment on the aesthetic appeal the winglets provide. Some of our CJ3 customers are making very long legs now and appreciate the stability. There are many testimonials on our website that attest to the amazing performance our customers are realizing.

Q: What's next for Tamarack?

The next year for Tamarack is going to be an exciting one. We are steadfastly working on getting our message of truth and facts to the public. In the meantime, emerging from Chapter 11 by year's end will help us accelerate our military and commercial projects. We have been approached by several organizations that have interest in investigating active winglets on a platform of their choice and we are interested in finding strategic partners to hasten the commercialization of this unique product. T&T

Dianne White *is the executive director of MMOPA and editor of MMOPA Magazine. For a total of 14 years, she was editor of Twin & Turbine and has worked in the business aviation industry for nearly 30 years. She also serves on the board of directors for Angel Flight Central. An active multi-engine, instrument-rated pilot, Dianne lives in the Kansas City area and can be reached at* **editor@diannewhite.com.**

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Top Turboprop Series:

Pre-Owned Pilatus PC-12 and King Air 350

by **Joe Casey**

PHOTOS COURTESY OF MACH POINT ONE AVIATION

I can hear my Papaw speaking from the grave, "I wouldn't touch that with a 10-foot pole! Are you crazy?!" I'm going to stir the pot with this article as it seems to me there is only one type of turboprop pilot with as much passion for their steed as a King Air 350 pilot – and that is a PC-12 pilot. Owners are justifiably passionate about their favorite airplane because both are singularly outstanding. But which one should a prospective buyer purchase?

Those who frequently read my writing know I am a big fan of the King Air 350. They are fast, super comfortable, carry a load and hold value well. But, there is a true competitor to the King Air 350 in the PC-12. Most PC-12 owners would argue the PC-12 is the frontrunner if competition between the two airplanes existed. And, in all honesty, competition does exist in the marketplace every time a buyer wants an airplane to move six to 10 people, plus bags, in comfort, over a long distance. One or both of these airplanes will likely be on the shortlist, and my goal is to highlight some of the considerations when contrasting these aircraft.

Performance

When it comes to cruise speed, the King Air 350 is going to win every time. With an average cruise of 305 KTAS, it can fly more than 45 KTAS faster compared to the PC-12 (260 KTAS average). Of course, some are faster, some slower – all dependent upon factors such as the power setting chosen by the pilot, the cruising altitude and the OAT. But while the PC-12 is slower, it counters with a better range. With two wings worth of fuel feeding one engine, it can fly well past the bladder limit of most pilots.

Either airplane will carry a load, and I do mean a load. I've had a King Air 350 filled with 10 people, each of them toting bags, and we still climbed out at 2,000 fpm and flew more than 3 hours in pressurized comfort. Similarly, I've flown a PC-12 from Europe to the United States with the entire baggage area full, overflow bags belted into the remaining rear seats, and all other seats full of people. I remember jumping off the runway at Reykjavik, Iceland, in that fully loaded PC-12 and thinking, "What a great performing airplane!" Both airplanes will haul an incredible load, making weight and balance issues a near nonissue.

While both have good avionics suites, the two avionics suites are very different. Any King Air 350 built since 2004 will have some sort of Pro Line avionics, and the PC-12 will probably have a Honeywell panel. Both have a similar footprint in the hangar, both are totally insurable, and both have excellent resale potential on the market.

But, aside from these similarities, let's explore the stark differences. Those differences center around the maximum gross weight (MGW) and the fact that one is a single-engine and the other a multi-engine.

Core Differences

The King Air 350 is certificated in the commuter category, and as such has an MGW of over 12,500 pounds. This means the pilot will require a BE300 type rating. While the BE300 type rating is obtainable by most pilots, the stress of going through type training is significantly higher than that of an airplane with an MGW of less than 12,500 pounds. Training for any non-jet airplane below 12,500 pounds only requires "initial training." A type rating requires a full-blown FAA check ride with a Designated Pilot Examiner (DPE), and "initial training" can be provided by any insurance-approved, appropriately rated flight instructor. Plus, the cost of the BE300 type rating is higher than training that doesn't lead to a type rating.

But the main difference between the two airplanes is obvious: one is a single-engine and one is a multi-engine. The ramifications of that fact are probably what will drive your buying decision making. And I'm not talking about the, "I don't feel safe in a single-engine airplane" mentality, but rather the operational ramifications of flying a single-engine versus a multi-engine.

The venerable PT6 engine found on both airplanes has earned its reputation as being incredibly reliable. Even the most vocal of the population who demand power redundancy in aviation will quietly admit that the chance of failure in a properly maintained PT6-equipped airplane is remote, save a pilot-induced fuel starvation issue. This is not a "single versus multi" discussion in terms of safety, for both airplanes are incredibly safe. The discussion needs to hinge upon the operational differences between the two planes.

There are some buyers who need a multi-engine airplane for insurance reasons. Sometimes a buyer will have super high insurance coverages that demand the most conservative approach to aviation. When "normal" limits of coverage won't cut it, sometimes the single-engine airplane won't cut it either. In these cases, flying with two pilots will probably also be required. But typically, the PC-12 is considered a very safe risk for an insurance underwriter, and I don't think any buyer needs to worry about the single versus multi debate from the standpoint of reliability. A buyer needs to understand the advantages of a single in terms of efficiency. Efficiency is where the single-engine shines when compared to a multi-engine.

The simple fact that two fuel tanks (usually in the wings) feed one engine means that any single-engine airplane will have a better range than a multi-engine comparison. And, the single will have less engine reserve costs, fuel expenses and operational costs. For this reason, much of the business aviation world is turning to the single-engine turbine.

Think about it: Every turbine airplane manufacturer is turning to the single-engine turbine. Cirrus Aircraft, Daher TBM, Piper Aircraft, and now

Textron Aviation is producing (or about to produce) a turbine single. I believe Beechcraft (now Textron Aviation) is about 20 years late developing the single-engine Denali, which is supposed to take flight for the first time late this year. Had Beechcraft pushed its research and development team to produce the Denali 20 years ago, the PC-12 would probably not enjoy the huge presence it enjoys today. Nevertheless, I have no doubt the Denali is going to be a solid airplane that I suspect many King Air aficionados will readily accept because of its deep roots in King Air soil.

The Decision

So, the question that needs to be asked to determine which airplane is right for you is, "Are you emotionally driven by efficiency or by power?" Those who are driven by efficiency will quickly gravitate to the PC-12. Those who are driven by power will gravitate to the King Air 350. Now, this doesn't mean the PC-12 is not powerful nor the King Air inefficient. It simply means the PC-12 is more efficient than the King Air 350 and the 350 is more powerful than the PC-12.

A PC-12 owner will tell you how the PC-12 will show up at a destination on a 600-nm flight only 15 minutes after the King Air 350. They'll also love to compare fuel bills at that destination. The PC-12 owner will also say phrases like "engine reserve," "prop reserve" and "cost per nautical mile." That PC-12 owner will revel in the knowledge that their operational costs are the lowest in the market for an six to 10 passenger cross-country machine.

On the other hand, a King Air owner will love cruising at nearly jet-like speeds, thrill at the rate of climb (even when heavy), and smile when advancing the power levers on the takeoff roll. Power is certainly seductive, and the King Air 350 seduces well. The King Air pilot will say things like, "Fuel is cheap these days," and, "Yeah, I got the Blackhawk conversion."

Interestingly, I rarely see the owner of a smaller single-engine turbine (Meridian, TBM, JetPROP) move up to a King Air. Anyone who operates one of these smaller, single-engine turbines is absolutely driven by efficiency and could not stomach the thought of burning 100-plus gph when flying anywhere. But, I've also never seen a Cessna 421 owner move up to a small, single-engine turbine. Those pilots will almost always move up to a King Air or another multi-engine turbine. The point I'm making is mindset is the critical factor.

Personally, I find both airplanes are the tip of the spear in their respective categories, and a well-informed buyer cannot go wrong with either selection. As the pilot, I would happily build my career upon either steed. T&T

Joe Casey *is an FAA-DPE and an ATP, CFI, CFII (A/H), MEI, CFIG, CFIH, as well as a U.S. Army UH-60 standardization instructor/examiner. An MMOPA Board member, he has been a PA46 instructor for 16-plus years and has accumulated 12,000-plus hours of flight time, 5,500 of which has been in the PA46. Contact Joe at: www.flycasey.com, by email at* **joe@flycasey.com**, *or by phone at 903.721.9549.*

2019 Holiday GIFT GUIDE

by **Rebecca Groom Jacobs**

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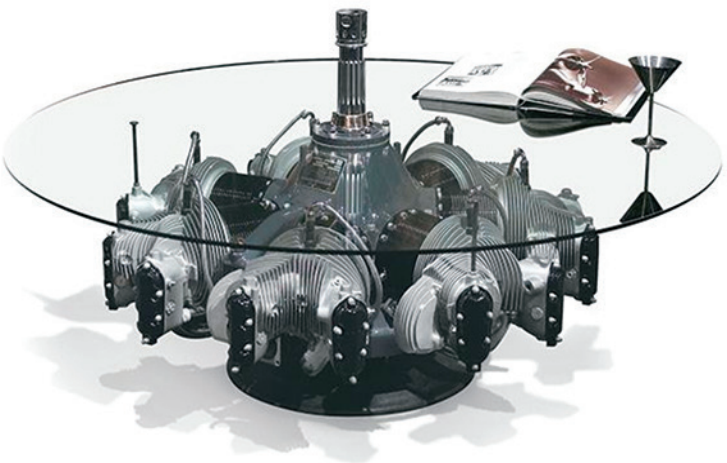

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Bose ProFlight Series 2 ($995.95)

Recently released, the ProFlight Series 2 is the smallest, lightest aviation headset offered by Bose, weighing in at 4.5 ounces. Updates from the original ProFlight include a thinner head cable, improved tap control, new mic winglets and optional Bluetooth connectivity. While the headset will work in higher-noise environments, it is designed to excel in the jet cockpit. For more information, visit *www.bose.com.*

Zulu 3 ANR Headset ($850.00)

Weighing in at 14.6 ounces, Lightspeed's Zulu 3 ANR is a popular choice among aviators searching for a quality ANR headset. Comfort is a top priority for the company, with details like its curved stainless steel headband, tapered performance ear seals and tall head pads. Lightspeed also offers a competitive seven-year limited warranty. For more information, visit *www.lightspeedaviation.com.*

Garmin D2 Delta PX Watch ($899-$1,249)

Garmin's D2 Delta PX series offers aviators levels of capability and connectivity such as NEXRAD weather, airport data, automatic flight logging and more. Pilots can also synchronize their watch with select avionics for enhanced GPS navigation and mapping data. Beyond its range of flight-related functions, the D2 Delta PX (available in three sizes) offers a complete feature set of sports/training, fitness and outdoor navigation tools. For more information, visit *www.garmin.com.*

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Jet Shades ($429+)

Jet Shades are the only anti-glare, anti-heat, removable window panels that entirely fill the cockpit side windows. Jet Shades reduce heat, reduce instrument glare (lessening eye strain), and protect pilots from harmful UV rays. The company offers solutions for many popular owner-flown piston, turboprop and jet products. For more information, visit *www.jet-shades.com.*

Abingdon Co. Watches ($375-595)

Designed by aviation and dive professionals, Abingdon Co. produces quality watches for women involved in adventurous activities like flying, scuba diving, base jumping, motocross and race car driving and shooting. CEO and pilot Abingdon Mullin set out to create classic women's watches built with the tactical tools professionals need. For more information, visit *www.theabingdonco.com.*

Pop's Leather Flight Jackets ($365+)

Since 1960, Pop's Leather has earned a worldwide reputation for exceptional quality leather products at affordable prices. The company is a popular choice (and sometimes exclusive vendor) for military and airline pilots looking for customizable flight jackets. Pop's Leather jackets are also well-suited for corporate flight departments and general aviation pilots. For more information, visit *www.popsleather.com.*

Serengeti Eyewear ($229.99)

Sleek and functional, Serengeti sunglasses are a stylish and practical choice in aviator eyewear. Serengeti equips all of its premium sunglasses with specialized technologies like Spectral Control and photochromatic properties that allow the lens to adjust to varying light conditions. The lens excel under challenging driving or flying conditions, filtering light to clarify and sharpen vision and increasing detail, depth perception and color definition. All Serengeti sunglasses provide UV protection. For more information, visit *www.serengeti-eyewear.com.*

Avery Sound Custom Earpiece ($158)

For pilots utilizing in-ear headsets (i.e., Clarity Aloft, Bose ProFlight), here is a solution for added comfort – customized earbuds. Pilot earpieces are available in Satin Soft or Acrylic material and can be ordered in a variety of colors. Simply complete the at-home impression kit and mail the completed impression to the Avery Sound lab using the provided mailing materials. For more information, visit *www.averysound.com.*

Artisan Glass Decanter ($120.00)

This gorgeous mouth-blown decanter is a worthy tribute to the aircraft it represents. The oak base is handcrafted by Kentucky artisans, while a hand-blown P-51 fighter "floats" in the liquid. Every detail of this artisanal decanter is top-notch, making it a welcome gift or nice addition to your home or office. A personalized brass plate is also available for the base. For more information, visit *www.asimplertime.com.*

Rustico Leather Logbook ($62.00)

Track each flight with this attractive and durable Pilot Log, handmade from top-grain leather by skilled artisans. Available in nine colors, this product includes either a Standard (ASA-SP-30) or Master (ASA-SP-6) Pilot Log. Personalization is also an option and laser engraved on the front. For more information, visit *www.rustico.com.*

Runway Three-Six Apparel & Gear ($20-55)

Runway Three-Six provides aviation-centric clothing and gear for men, women and children. Run by aviation professionals, the company's goal is to advance the image of the industry by producing sophisticated and fun aviation apparel. For more information, visit *www.runwaythreesix.com.*

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Flying to the Bahamas

by **Rick Gardner**

If you are pondering your first international flight, or if you wish to experience a truly "general aviation friendly" international destination, the Bahamas is difficult to beat. An archipelago of 700 islands starting less than 50 nm off the east coast of Florida, it is a dream destination for pilots. As many pilots already know, the Bahamas suffered a devastating blow by hurricane Dorian and images of destruction have been circulating the internet, creating the perception that the Bahamas is out of business. Nothing could be further than the truth!

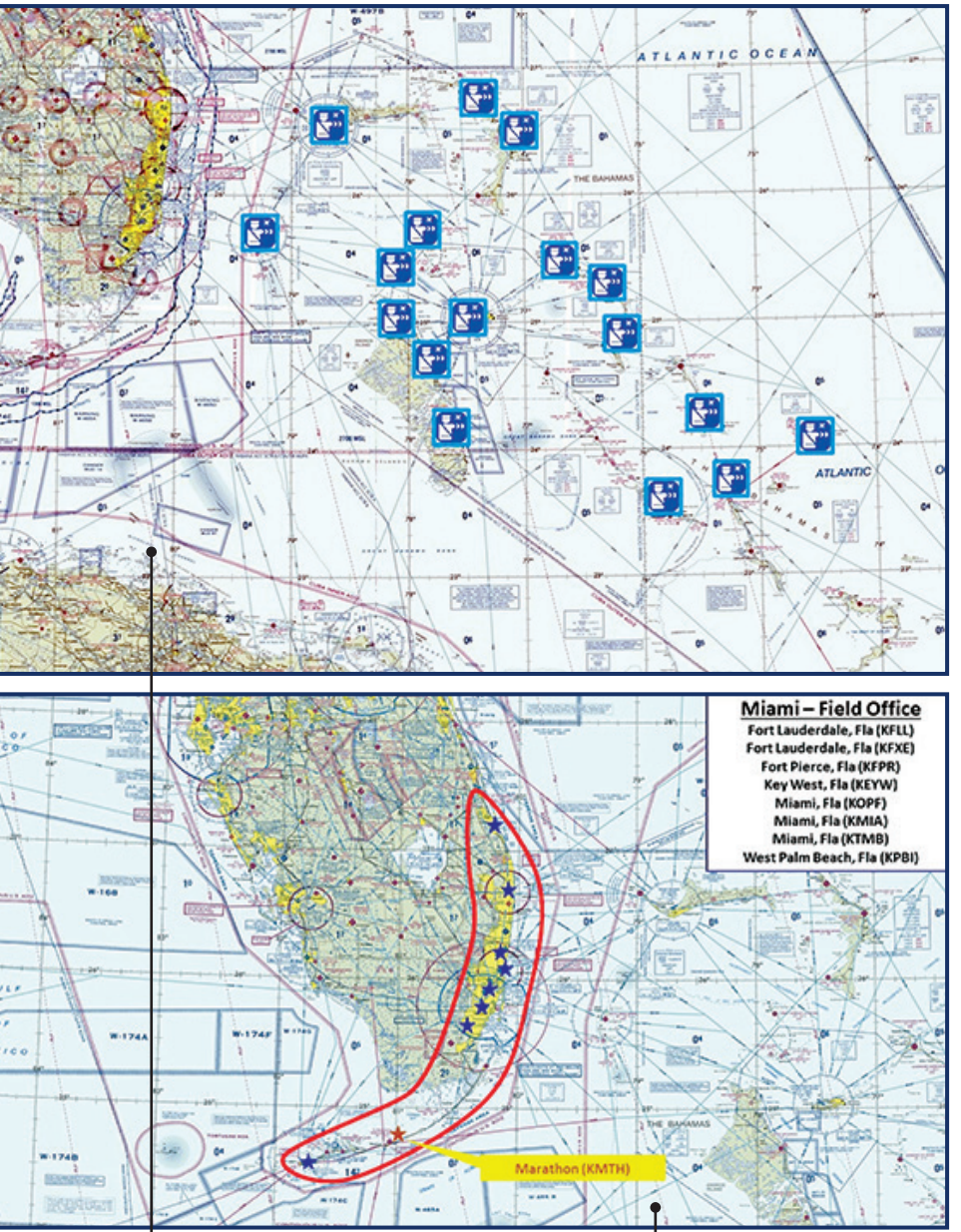
Indeed, the northern islands of Abaco and Grand Bahama were decimated, but the majority of the Bahamas islands were untouched and are operating normally. What the Bahamas people need more than anything to help them rebuild are visitors to their remaining island destinations. They need people to visit and bring their tourism dollars while enjoying the beauty and hospitality of the island nation. The pilot community is best suited to help make this happen as we all have our own aerial transportation and can easily move around the islands.

Planning Your Flight

Once you have selected where you want to go, you need to determine which airport is closest and is suitable for your aircraft. Your first landing and your last takeoff from the Bahamas must be at an Airport of Entry (AOE). If the airport you select for your destination is not an AOE, then you will need to select an adequate AOE convenient to your route of flight. Fortunately, the Bahamas has 18 AOE's conveniently located on most of the major islands, and 10 of them have fuel, which may influence your choice of AOE. However, you should always plan on having enough fuel to reposition to another airport with fuel, just in case. As you will be flying over water, you should arrange to have life jackets and a life raft on board with adequate capacity for all aircraft occupants. There are FBO's on the Florida east coast that rent survival equipment for overwater flights, and several are located at one of the eight United States Customs and Border Protection (CBP) "Designated Airports" where you will need to land to reenter the U.S. Selecting one of these FBOs can make logistics easier on the return.

International flights require that you pay special attention to crew, passenger and aircraft documentation (please refer to my article on international documentation in the May issue, and note that bringing pets to the Bahamas is more difficult than other countries). Remember, if you are flying a CE500, CE550 or CE560 model aircraft under a single pilot waiver issued by the FAA with a limitation that reads, "Not valid outside the US unless approval is obtained by Civil Aviation Authority," you must obtain a specific approval from the Bahamas Civil Aviation Department in order to utilize it in the Bahamas. Remember to verify that your navigational database and charts packages include the Bahamas as part of their territory coverage.

The procedures for flying to the Bahamas are pretty straightforward. First, you must properly file your USA eAPIS departure manifest for your outbound flight. If



❶ Your first landing and your last takeoff from the Bahamas must be at an Airport of Entry (AOE). The Bahamas offers 18 AOEs conveniently located on most of the major islands.

❷ There are eight United States Customs and Border Protection (CBP) Designated Airports to choose from upon returning to the U.S.

you already know your return itinerary, you should go ahead and file your arrival eAPIS manifest for your return to the USA from the comfort of your home, that is one less thing to worry about. Flying a turbine-powered aircraft to the Bahamas means you will probably be operating under IFR which greatly simplifies the Air Defense Identification Zone (ADIZ) crossing requirements as outlined in Part 99. You may file your IFR flight plan for your flight to the Bahamas as you would for a domestic flight, which includes using electronic filing or Flight Service. Miami Center controls the airspace above the Bahamas, so you will feel right at home as you fly over the beautiful crystal clear waters.

En Route

There are only three towered airports in the Bahamas: Nassau (MYNN), Freeport (MYGF) and Marsh Harbour (MYAM), plus one AFIS in Great Exuma (MYEF). All of the other airports in the Bahamas are non-towered and the CTAF frequency for all of them is 122.8. Instrument approach procedures are only authorized for MYNN and MYGF, so you need to be sure that weather is suitable for a VFR arrival and departure at the other airports (which is normally not an issue).

As you fly over the Bahamas, communicating with ATC is not a problem and you can contact Miami Radio for assistance via their Remote Communication Outlets (RCO) located on Grand Bahama (126.9) and New Providence (118.4). You can also contact Nassau Radio on their RCOs on Abaco (124.2) and New Providence (128.0), or the AFIS in

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Great Exuma on 118.0. Direct Dial telephone numbers for Miami Flight Service is (305) 233-2600 and Nassau Flight Service can be reached at (242) 377-7116.

If your destination airport in the Bahamas is not MYNN, MYGF, MYAM or MYEF, you will need to decide whether to close your flight plan in the air by radio or on the ground via telephone. As Miami Center only controls the airspace down to 6,000' MSL, you will have to make that decision prior to being cleared down to this altitude. The weather is almost always clear, so most pilots will close in the air and proceed under VFR. Remember to record the Miami Center frequency you were on so that you can contact them to get your IFR clearance when you depart.

Arriving at the Islands

When you arrive in the Bahamas, you have two forms to fill out: an INWARD General Declaration Form (GENDEC) for the aircraft, and an Immigration Form for each person onboard the aircraft. Due to a quirk in Bahamas Customs regulations, if your aircraft is registered in the name of a corporation, you may be considered a "commercial" flight for customs purposes and you may be required to complete a Bahamas C7 GENDEC and pay $75 USD. Otherwise, you will complete a C7A GENDEC form and pay $50 USD. In either case, a copy of the C7 or C7A will be stamped by Bahamas Customs and returned to you along with a copy of each immigration form. Do not lose these documents. You will pay a nominal landing fee as well. And that's it! C7 and C7a forms can be downloaded for free from the Bahamas government website or the Caribbean Sky Tours Member Website so that you can complete them in advance and minimize paperwork delays.

If you plan to fly within the Bahamas, the short distances imply that you will be flying below Class A airspace, and most pilots will make these flights under VFR which does not require a flight plan unless you are flying to, or within 25 DME of, MYNN. If this is the case, you will have to file a flight plan with Nassau Flight Service. Bahamas Customs regulation requires that whenever you depart or arrive at an airport where Bahamas Customs is present, you must have your C7/C7A stamped. If the airport has an FBO, Bahamas Immigration and Customs officers are typically located there, making the process quick and easy.

Returning to the United States

Your return to the USA is just as easy. Make sure that you have properly filed your arrival eAPIS manifest, contact CBP at your port of arrival to advise them of your arrival intentions, and record the initials of the CBP officer you speak to. Unless you have a CBP Border Overflight Exemption (BOE), you must file your return flight plan to one of the eight CBP "Designated Airports" on the Florida East coast or Marathon, Florida. You may file

your flight plan back to the USA the way you normally do unless you are departing MYNN, MYGF or MYAM where you will have to file your flight plan locally on paper. If you depart from one of the non-towered airports, you will have to climb above 6,000' MSL into Miami Center's airspace to get your IFR clearance. Never enter the USA ADIZ prior to activating your flight plan and squawking your discrete transponder code. Before departing your Bahamas AOE, you must surrender the C7/C7A that you were issued upon arrival, present an OUTWARD C7 GENDEC and return your immigration forms. You will pay $29 per person (including crew,) and if you were issued a C7 upon arrival, you will pay another $75 USD. Upon landing at the Designated Airport in the USA, taxi straight to the CBP station and follow the instructions given by CBP officers or on posted signs.

If you need more information or services for flying to the Bahamas, or assistance in obtaining a BOE, you can contact Caribbean Sky Tours at (786) 206-6147 or visit caribbeanskytours.com. T&T

From Nassau, **Rick Gardner** *is a Bahamas Flying Ambassador and is on the Bahamas Civil Aviation Council. He is also the AOPA representative for the Bahamas. You can contact Rick at* **rick@caribbeanskytours.com**.

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TOTAL MARKET COVERAGE

Jets – 15,414

Chief Pilots & Owners

Count	Aircraft
55	AIRBUS ACJ319
26	ASTRA 1125
30	ASTRA 1125SP
49	ASTRA 1125SPX
33	BEECHJET 400
226	BEECHJET 400A
117	BOEING BBJ
371	CHALLENGER 300
53	CHALLENGER 600
31	CHALLENGER 601-1A
108	CHALLENGER 601-3A
49	CHALLENGER 601-3R
286	CHALLENGER 604
9	CHALLENGER 800
163	CITATION 500
279	CITATION 525
261	CITATION BRAVO
150	CITATION CJ1
82	CITATION CJ1+
188	CITATION CJ2
170	CITATION CJ2+
364	CITATION CJ3
123	CITATION CJ3+
273	CITATION CJ4
151	CITATION ENCORE
55	CITATION ENCORE+
305	CITATION EXCEL
18	CITATION I
248	CITATION I/SP
437	CITATION II
57	CITATION II/SP
154	CITATION III
86	CITATION LATITUDE
191	CITATION M2
377	CITATION MUSTANG
123	CITATION S/II
256	CITATION SOVEREIGN
76	CITATION SOVEREIGN+
234	CITATION ULTRA
232	CITATION V
27	CITATION VI
97	CITATION VII
249	CITATION X
29	CITATION X+
208	CITATION XLS
229	CITATION XLS+
1	DIAMOND I
38	DIAMOND IA
5	DORNIER ENVOY 3
227	ECLIPSE EA500
59	EMBRAER LEGACY 500
141	EMBRAER LEGACY 600
67	EMBRAER LEGACY 650
221	EMBRAER PHENOM 100
264	EMBRAER PHENOM 300
73	FALCON 10
20	FALCON 100
19	FALCON 200
196	FALCON 2000
22	FALCON 2000EX
56	FALCON 20C
14	FALCON 20C-5
21	FALCON 20D
2	FALCON 20D-5
31	FALCON 20E
9	FALCON 20E-5
65	FALCON 20F
58	FALCON 20F-5
178	FALCON 50
7	FALCON 50-40
93	FALCON 50EX
152	FALCON 900
24	FALCON 900C
104	FALCON 900EX
176	GLOBAL 5000
128	GLOBAL EXPRESS
19	GULFSTREAM G-100
202	GULFSTREAM G-200
9	GULFSTREAM G-300
22	GULFSTREAM G-400
288	GULFSTREAM G-450
8	GULFSTREAM G-500
500	GULFSTREAM G-550
54	GULFSTREAM G-II
21	GULFSTREAM G-IIB
120	GULFSTREAM G-III
165	GULFSTREAM G-IV
283	GULFSTREAM G-IVSP
170	GULFSTREAM G-V
33	HAWKER 1000A
5	HAWKER 125-1A
6	HAWKER 125-1AS
4	HAWKER 125-3A/RA
11	HAWKER 125-400A
13	HAWKER 125-400AS
12	HAWKER 125-400B
9	HAWKER 125-600A
3	HAWKER 125-600AS
95	HAWKER 125-700A
59	HAWKER 4000
184	HAWKER 400XP
34	HAWKER 750
170	HAWKER 800A
33	HAWKER 800B
336	HAWKER 800XP
39	HAWKER 800XPI
83	HAWKER 850XP
158	HAWKER 900XP
6	JET COMMANDER 1121
3	JET COMMANDER 1121B
8	LEARJET 23
15	LEARJET 24
1	LEARJET 24A
11	LEARJET 24B
28	LEARJET 24D
11	LEARJET 24E
7	LEARJET 24F
10	LEARJET 25
35	LEARJET 25B
8	LEARJET 25C
85	LEARJET 25D
4	LEARJET 28
26	LEARJET 31
161	LEARJET 31A
30	LEARJET 35
350	LEARJET 35A
13	LEARJET 36
32	LEARJET 36A
29	LEARJET 40
186	LEARJET 45
166	LEARJET 45XR
92	LEARJET 55
4	LEARJET 55B
12	LEARJET 55C
253	LEARJET 60
462	PILATUS PC-12/45
108	PREMIER I
6	SABRELINER 40
17	SABRELINER 40A
3	SABRELINER 40EL
1	SABRELINER 40R
21	SABRELINER 60
17	SABRELINER 60ELXM
2	SABRELINER 60EX
58	SABRELINER 65
13	SABRELINER 80
6	SABRELINER 80SC
66	WESTWIND 1
4	WESTWIND 1123
27	WESTWIND 1124
63	WESTWIND 2

Turboprops – 11,605

Chief Pilots & Owners

Count	Aircraft
369	CARAVAN 208
1208	CARAVAN 208B
32	CHEYENNE 400
131	CHEYENNE I
13	CHEYENNE IA
251	CHEYENNE II
56	CHEYENNE III
37	CHEYENNE IIIA
51	CHEYENNE IIXL
23	CHEYENNE IV

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Count	Aircraft
176	CONQUEST I
253	CONQUEST II
42	JETSTREAM 31
57	JETSTREAM 32
60	JETSTREAM 41
25	KING AIR 100
484	KING AIR 200
21	KING AIR 200C
17	KING AIR 200T
197	KING AIR 250
173	KING AIR 300
9	KING AIR 300LW
554	KING AIR 350
64	KING AIR 350C
354	KING AIR 350I
16	KING AIR 90
10	KING AIR A/B90
63	KING AIR A100
209	KING AIR A200
48	KING AIR A90
104	KING AIR A90-1
93	KING AIR B100
854	KING AIR B200
99	KING AIR B200C
8	KING AIR B200CT
91	KING AIR B200GT
4	KING AIR B200SE
21	KING AIR B200T
77	KING AIR B90
329	KING AIR C90
34	KING AIR C90-1
191	KING AIR C90A
351	KING AIR C90B
80	KING AIR C90GT
89	KING AIR C90GTI
150	KING AIR C90GTX
12	KING AIR C90SE
242	KING AIR E90
156	KING AIR F90
25	KING AIR F90-1
61	MITSUBISHI MARQUISE
1	MITSUBISHI MU-2D
22	MITSUBISHI MU-2F
16	MITSUBISHI MU-2J
33	MITSUBISHI MU-2K
10	MITSUBISHI MU-2L
18	MITSUBISHI MU-2M
17	MITSUBISHI MU-2N
24	MITSUBISHI MU-2P
36	MITSUBISHI SOLITAIRE
616	PILATUS PC-12 NG
146	PILATUS PC-12/47
215	PIPER JETPROP
68	PIPER M500
79	PIPER M600
794	PIPER MERIDIAN
201	QUEST KODIAK 100
2	ROCKWELL 680T TURBO
5	ROCKWELL 680V TURBO II
5	ROCKWELL 680W TURBO II
4	ROCKWELL 681 HAWK
96	SOCATA TBM-700A
68	SOCATA TBM-700B
283	SOCATA TBM-850
100	SOCATA TBM-900
33	SOCATA TBM910
111	SOCATA TBM930
5	STARSHIP 2000A
68	TURBO COMMANDER 1000
30	TURBO COMMANDER 690
132	TURBO COMMANDER 690A
136	TURBO COMMANDER 690B
81	TURBO COMMANDER 840
24	TURBO COMMANDER 900
52	TURBO COMMANDER 980

Twin Piston – 6,320 Owners

Count	Aircraft
34	BARON 56 TC
1412	BARON 58
2	BARON 58 PA
339	BARON 58P
108	BARON 58TC
3	BARON A56TC
332	BARON G58
186	BEECH DUKE B60
163	CESSNA 340
507	CESSNA 340A
58	CESSNA 402B BUSINESS LINER
130	CESSNA 402C
24	CESSNA 404 TITAN
244	CESSNA 414
352	CESSNA 414A CHANCELLOR
39	CESSNA 421
34	CESSNA 421A
319	CESSNA 421B
596	CESSNA 421C
50	CESSNA T303
110	DIAMOND D42
108	PIPER 601P AEROSTAR
24	PIPER 602P AEROSTAR
515	PIPER CHIEFTAIN
25	PIPER MOJAVE
308	PIPER NAVAJO
208	PIPER SENECA
12	ROCKWELL 520 COMMANDER
4	ROCKWELL 560 COMMANDER
11	ROCKWELL 560A COMMANDER
8	ROCKWELL 560E COMMANDER
7	ROCKWELL 560F COMMANDER
13	ROCKWELL 680 SUPER
3	ROCKWELL 680E
15	ROCKWELL 680F COMMANDER
12	ROCKWELL 680FL GRAND COMMANDER
5	ROCKWELL 680FLP GRAND LINER

High Performance Move-Up Singles – 5,807 Owners

Count	Aircraft
219	BEECH BONANZA
438	CESSNA 182
56	CESSNA 206
389	CESSNA P210N
21	CESSNA P210R
54	CESSNA T182
818	CIRRUS SR20
2991	CIRRUS SR22
28	MOONEY ACCLAIM ULTRA
10	MOONEY OVATION ULTRA
238	PIPER MALIBU
104	PIPER MATRIX
441	PIPER MIRAGE

39,146 TOTAL AIRCRAFT

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Seeing Through the Forests:
Hurricane Dorian Aftermath

by **Rich Pickett**

On September 1, 2019, Category 5 Hurricane Dorian made landfall on Elbow Cay in the Abaco Islands chain of the Bahamas with a predicted path northwest over Grand Bahama. With winds up to 220 mph and rainfall measured in feet, not inches, it was forecasted to be a catastrophic weather event, and unfortunately, the forecasters were correct.

I have visited the Abaco Islands several times, including a recent stay just three months earlier on Elbow Cay. After more than 50 trips to the Caribbean, with many including a stay in the Bahamas, I have seen the impact of previous hurricanes on the area. But what I was about to view during relief missions following Hurricane Dorian was worse.

The Game Plan

In preparation for Hurricane Dorian's impact, many aid organizations quickly sprung to action. My first call for help came from a longtime friend from the Haiti earthquake relief efforts, Sam Bloch, now with World Central Kitchen (wck.org). I flew over 120 hours in support of the Haiti earthquake in 2010 and saw firsthand the impact of general aviation in providing critical disaster relief support. At the time of Sam's call, Dorian had not yet made landfall and he was in Nassau looking for a helicopter to do an aerial assessment after the hurricane hit.

Other groups, including aviation-affiliated organizations such as AERObridge, PALS and FBOs in the Southeast, were making contingency plans with the approaching storm. The FBOs, also in the path of Dorian, were nonetheless making initial plans to help others. I worked extensively with Banyan Air Service at Fort Lauderdale Executive (KFXE) on previous relief efforts, and they were again offering assistance with the distribution of donated supplies and pilot support along with Yelvington Jet Aviation in Daytona Beach (KDAB) and others.

Air Unlimited, a Part 135 operator in Sanford (KSFB), has an established business flying daily flights to Marsh Harbour and Treasure Cay in the Abacos. Led by founders Mark Neubauer and Chick Gregg, they promptly started collecting supplies and preparing their King Air 200s for relief flights. The company transformed from carrying passengers on vacation to volunteering their airplanes to help those on the same islands who were such a large part of their life. Donated supplies began arriving at their hangar as the hurricane made landfall, and later, Air Unlimited crews conducted some of the first flights to Marsh Harbour.

Surveying the Damage

The devastation they saw was extensive. Entire communities were damaged and important infrastructure destroyed. Thankfully, the new power plant on Abaco was operational, however, there were no transmission lines and towers left to distribute the electricity.

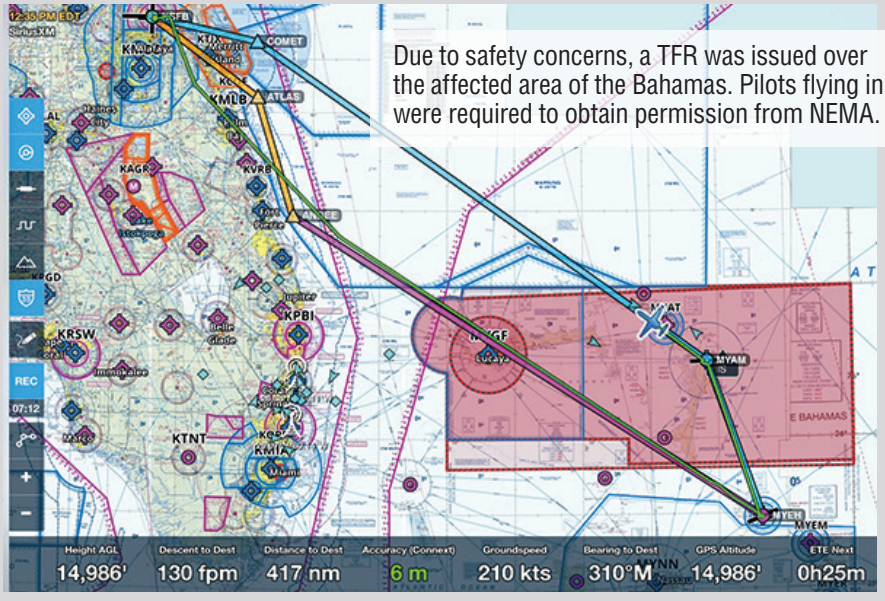
The aircraft owner association forums immediately became virtual war rooms, with owners communicating on how and where they could help. A Facebook group was also created to support communications. Owners with aircraft from small single-engine piston airplanes to large corporate jets and airlines offered their assistance. Rotorcraft were especially important with a storm surge more than 20 feet over parts of the island. For some airports, helicopters became the only option. The runway at Treasure Cay (MYAT) initially had a river of seawater several feet deep that inundated the airport.

On the southern tip of Abaco, Sandy Point (MYAS) appeared to be usable. And as the water receded, the damage to the other airports became visible. Treasure Cay was heavily hit, with all the buildings, including the garage for the airport firetruck, severely damaged. Just to the southeast, at the Marsh Harbour airport (MYAM), the main terminal was damaged as well as hangars. The FBO and Customs building was in usable condition and provided some shelter. The airports on Grand Bahama were similarly hit hard. The storm also impacted communication: cellular, landline and ATC, including radar. With the importance of aircraft search, rescue, and relief efforts, the U.S. Navy placed an AWACS aircraft in orbit to assist in communications. Aircraft, both civilian and military, quickly saturated the area.

While essential, the same aircraft delivering supplies and personnel created a potential safety issue. The Bahamian National Emergency Management Agency (NEMA) requested a TFR over the affected area in an attempt to control traffic. Pilots looking to fly into the area needed to obtain permission from NEMA, which was also overwhelmed with responding to the disaster. While the TFR decreased the flow of relief aircraft and supplies, it did have a positive impact on airspace congestion. With only a few viable landing facilities and little to no airport infrastructure in place, it made sense.

Joining the Effort

I flew my Eclipse 500 from San Diego to Florida and helped Air Unlimited for



Due to safety concerns, a TFR was issued over the affected area of the Bahamas. Pilots flying in were required to obtain permission from NEMA.

Items collected at Air Unlimited in Sanford.

busy, and I located two more relief workers who needed a ride back to Florida. One was Brian Doonan of the non-profit Fuel Relief Fund (fuelrelieffund.org). This organization is generously funded by companies in the fuel production and transportation industry, as well as individuals, and has provided fuel in a number of disasters for several years. When I mentioned to Brian that we might need to stop before our final destination at Sanford, he quickly went to his team, and in no time, they were putting Jet A into my plane. Taking just what we needed, we departed Marsh for Sanford.

Another mission took me to Treasure Cay, where we were working with local first responders to search for a potential storage location for relief supplies. An A&P and aircraft owner joined us to repair a Piper Archer that had been damaged by the storm, with the hope to ferry it back to Florida. Sanford airport controllers were again helpful and found a way to get me an immediate clearance directly to Treasure Cay Airport. The damage there looked even worse than I had seen at the Marsh Harbour airport, with all buildings significantly damaged. With no power, water or communications at the airport, the Bahamian officials sat in camping chairs under a 10-foot standup awning. I walked across downed power poles, lines and fences, helping to secure a temporary communications


Damage seen at the Treasure Cay Airport.

several days flying missions. They had a large team of volunteers sorting the donated supplies, and pilots flying the King Airs to the islands daily. Obtaining clearances took extra time as the Bahamas airspace was still congested, and there was limited ATC communications in the area. But Sanford Airport controllers were very helpful in obtaining clearances for my flights.

On my first flight, the delay for my IFR clearance to Marsh Harbour was 3 hours, so I filed to North Eleuthera (MYEH) and reversed my planned flight. North Eleuthera was outside of the TFR and the hurricane damage. Miami Center was extremely helpful and honored my request to fly at FL350 so I could extend my range, even though the usual routing was lower. With limited radar coverage over the islands, it made their job even more difficult. Descending and canceling IFR, I entered the pattern for Runway 14.

I dropped off a large load of medical and food supplies at MYEH, which was then sent by boats, volunteered by their owners, to the remote islands in the Abacos – the only way to deliver critical supplies to the smaller islands.

A volunteer relief worker needed a ride back to Florida, so we started up the Eclipse and departed for Marsh Harbour VFR. In flight, I contacted the AWACS, call sign WARLOCK, on 122.4, and requested their assistance with traffic advisories and provided my NEMA authorization number. The airborne controllers were an impressive group and made me proud knowing fellow aviators were orbiting the islands, unseen above our plane, helping us.

Approaching the Abacos from the south, we could see the increasing damage flying northwest towards Marsh Harbour. The once verdant forests were brown, with trees stripped of their branches and snapped like toothpicks. The homes and Harbours were damaged, with a large number of capsized boats. I flew near the resort I had stayed just a few months prior and saw widespread damage. After landing, I taxied to Cherokee Aviation, the FBO and only building not destroyed. The hangar adjacent was collapsed with damaged aircraft inside. The ramp was

tent while I waited to return to Sanford. I could see through the nearby pine forests since most of the branches were gone, and trees were broken.

Just before landing at Treasure Cay, I noticed a voicemail from a number I knew to be the U.S. Customs office at Sanford. It usually isn't a good thing to have a call from Customs. Without cell communications, I used my satellite communicator to text my wife and have her call them on my behalf. They needed my overflight permit number for my last flight and the problem was quickly resolved. The U.S. Customs and Immigration officials were amazing and helpful just as they had been in my interactions with them during other disaster missions.

Coming Together

The aviation community once again generously provided essential transportation and hope to those affected by a significant disaster. Whether it is flooding, tornado, fires, or hurricanes, aviators and an untold number of volunteers continue to help those affected by such disasters. While the Abaco Islands

and Grand Bahama experienced direct hits, the remaining islands of the Bahamas were not impacted and still as welcoming as ever to visitors. They truly are a gem and easily accessible.

In my 11,000-plus flight hours, my small participation in helping with disasters and public-benefit flights has been the highlight of my aviation career. If other aviators have the opportunity to do the same, I know it will have the same impact on them. T&T

With 11,000+ hours of piloting more than 100 aircraft models **Rich Pickett** *still has a passion for flying. Rich holds an ATP, CFII SME, SES, glider licenses, and type ratings in the L29, L39, Citation 500/510s/525s, Eclipse 500S and DA10. His company, Personal Wings, provides training, mentoring and aircraft services. You can contact Rich at* **rich@personal-wings.com**.

Five on the Fly

by **Rebecca Groom Jacobs**

WHO:
Mark Pestal

COMPANY:
AeroAngel

POSITION:
President/Founder

HOME BASE:
KAPA / Denver, Colorado

1. *What led you to form AeroAngel in 2010?*

As a board member for a volunteer pilot organization, I saw an unmet need to provide a higher level of service to children needing to access critical but distant medical care by using more capable, pressurized aircraft to fly long distances, often on short notice. Many flight requests were going unfilled due to the limitations of single-engine piston aircraft flown by less-experienced pilots who were often not comfortable flying in instrument flight conditions or unable to do so when the potential for icing existed, for example.

2. *Can you summarize the mission and structure of the organization?*

AeroAngel helps really sick children access distant, life-saving medical care on private jets at no cost to their families. Flights are limited to those passengers who cannot safely fly on a commercial airline flight, but who do not need an air ambulance. As Children's Hospitals across the country increasingly specialize in rare diseases and conditions, we've seen an increasing need to help a family get their child to a hospital located a thousand miles or more away from home.

AeroAngel primarily relies upon volunteers to support its mission. Recently, I left my job as an attorney to volunteer full-time to expand our flight program. AeroAngel is a small nonprofit yet still able to respond to calls on an almost 24/7 basis. We have literally launched AeroAngel flights several hours after receiving a flight request.

3. *What makes AeroAngel unique compared to other aviation charities?*

AeroAngel provides long-distance flights to medical facilities nationwide in private jet aircraft flown by a crew of volunteer professional pilots. While relying on flights donated by turbine aircraft owners, AeroAngel operates its own jet, a Lear 55, from Centennial Airport in Denver. With the larger aircraft AeroAngel uses, an entire family (and flight nurse, if needed) can travel to a medical facility, along with a large payload of medical equipment that many seriously ill children must take with them, including, for example, an oxygen concentrator that needs AC electrical power.

4. *Can you share one of your most memorable passenger stories?*

We received a call several years ago from a mother whose 22-year-old daughter, Courtney, suffered from a life-threatening kidney disease. She was set to be discharged to hospice care from a Denver hospital, but her mother was able to find doctors at John Hopkins in Baltimore willing to treat Courtney if she could get there. I called a friend with a jet to see if he could do the flight. He said he could do it next weekend. I replied that "Courtney will not be here next weekend." He then asked, "When do you want to go?" and I said, "How about tomorrow at 7 a.m.?" He called back an hour later to say he would do the flight. After a 7 a.m. departure the next morning, Courtney, who was barely hanging on and in severe pain on the flight, made it to John Hopkins. Several weeks later, she walked out of the hospital.

5. *What are ways owner-pilots can get involved and support the program?*

AeroAngel primarily relies upon donated flights in turbine aircraft to fulfill flight requests. Joining our flight program is simple, and we handle all of the flight logistics, including providing an additional crew member or mission assistant when necessary. Even one donated flight can transform or save a child's life.

Financial support is also needed to operate AeroAngel's Learjet and expand our ability to provide flights across the country. We also rely on in-kind support and volunteers to provide families a safe option for critical, long-distance transportation. For more information, pilots can visit *www.AeroAngel.org* or contact me at *mark@aeroangel.org*. T&T

Up-grade:

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Touchdown Zone

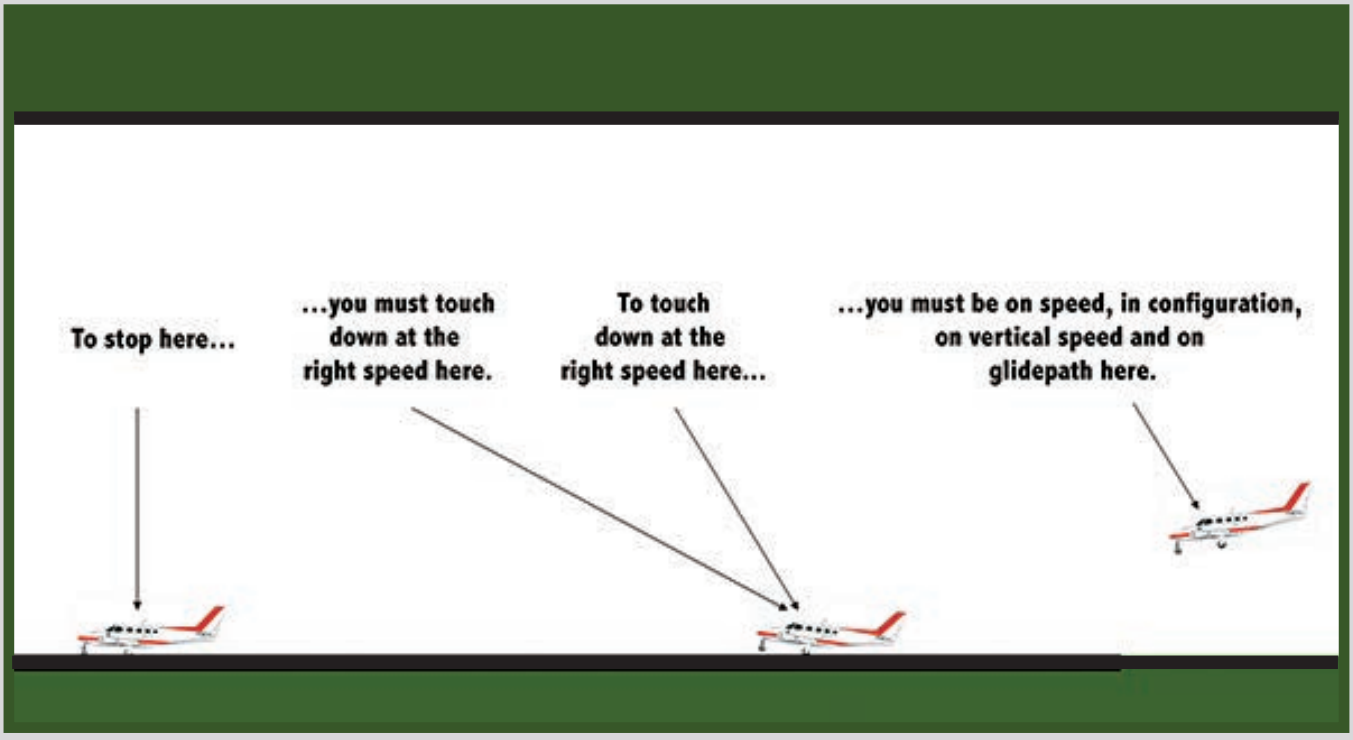
by **Thomas P. Turner**

Three reports from the NTSB:

Surveillance video revealed the Cessna Citation 550 touched down about 1,700 feet past the runway threshold of the 5,000-foot-long runway and that the thrust reversers were not deployed during the recorded portion of the landing roll. The airplane's tires left over 1,300 feet of skid marks before it overran the departure end of the runway. Post-accident testing of the brakes revealed no evidence of any mechanical anomalies. Based on the available evidence, it is likely that the pilot landed the airplane well beyond the runway threshold and did not apply adequate braking effort until insufficient runway remained to stop the airplane on the paved surface. The National Transportation Safety Board determines the probable cause(s) of this accident to be the pilot's failure to attain the proper touchdown point and to adequately slow the airplane within the available runway, which resulted in a runway overrun.

After the Eclipse EA500 touched down on the 4,422-feet-long runway, the airline transport pilot applied the brakes to decelerate; however, the brakes were not operating. He continued "pumping the brakes" and considered conducting a go-around; however, there was insufficient remaining runway to do so. The airplane subsequently continued off the end of the runway, impacted a berm and came to rest upright. Examination revealed no evidence off any preimpact anomalies with the brake system that would have precluded normal operation. According to data downloaded from the airplane's diagnostic storage unit (DSU), the airplane touched down 1,280 feet beyond the runway threshold, which resulted in 2,408 feet of runway remaining (the runway had a displaced threshold of 737 feet) and that it traveled 2,600 feet before coming to rest about 200 feet past the runway. Comparing DSU data from previous downloaded flights revealed that the airplane's calculated deceleration rate during the accident landing was indicative of braking performance as well as or better than the previous landings. Estimated landing distance calculations revealed that the airplane required about 3,063 feet when crossing the threshold at 50 feet above ground level. However, the airplane touched down with only 2,408 feet of remaining runway, which resulted in the runway overrun. The NTSB determines the probable cause(s) of this accident to be the pilot's failure to attain the proper touchdown point, which resulted in a runway overrun.

The pilot of a Beech Baron 58 initially intended to perform a GPS approach to Runway 23, into the wind. However, the weather was below minimums for that approach, and he elected to perform an ILS approach in the opposite direction to Runway 5. While about 100 feet above decision height, the pilot did not have the runway environment in sight and started to go around but did not increase engine power. He then observed the runway centerline markings and, due to excess speed and a tailwind, the airplane floated and landed long. Touchdown was about 1,000 feet before the departure end of the 7,001-foot-long runway at a speed of 85 knots. The pilot applied the brakes but the runway



was wet and he did not feel deceleration. The airplane traveled off the end of the runway, coming to rest upright in a grass area. The pilot stated there were no preimpact mechanical malfunctions with the airplane. Weather at the time of the accident included an 11-knot tailwind. The NTSB determines the probable cause(s) of this accident to be the pilot's failure to maintain a proper glidepath and failure to perform a go-around once a safe landing could not be accomplished, which resulted in a landing area overshoot and runway excursion.

There are mitigating factors in each of these accidents, and the numerous others like them that happen all too frequently in twin and turbine aircraft. Wet runways. Tailwinds. Low visibility. Excessive speed. Improper or ineffective braking. Regardless of the contributing factors, however, all accidents of this type have one thing in common: The pilot did not command the airplane to land in the appropriate runway touchdown zone.

Except in unusual cases, the accepted runway touchdown zone is:

- Approximately 1,000 feet from the runway threshold, or
- At one-third of the total usable runway length, when that usable length is less than 3,000 feet.

On paved runways with an instrument approach an "aiming point" may be marked with large white markers if the runway is longer than 900 meters (close to 3,000 feet). On these runways, additional "hash mark" stripes are painted 500 feet before and 500 feet after the aiming point marking, defining the limits of the touchdown zone.

Regardless of the runway, you should positively identify the touchdown zone when landing. The trick is to land in that zone so that there is sufficient runway remaining to bring the airplane to a stop well within the calculated landing roll distance taking into account environmental and runway conditions, properly operating braking systems, and correct pilot technique.

This brings two vital, often overlooked points:

1. **Required runway length does not equal calculated landing distance.** Available runway begins at your touchdown spot, so it's the distance from that point to the end of the runway that must be compared to calculated landing distance.

   Generally, this means adding 1,000 feet to the calculated distance to arrive at a minimum runway length, because you'll overfly the first 1,000 feet aiming for your touchdown spot. Also, you may land a little beyond your aim point but still be within an acceptable touchdown zone, and if you're like me, you'll likely use something less than test-pilot-optimum braking technique once you're on the ground, so you probably want to pad your ground roll requirement by at least 50 percent. Your minimum acceptable runway length, then, may be:

   (Calculated ground roll distance x 1.5) + 1,000 feet

2. Deciding whether to go around or to continue a landing attempt can't happen after you've touched down with doubts about remaining runway length. It shouldn't happen during your landing flare. No, **your go-around decision should be made on short final before you begin your flare** based on measurable data that will predict whether you'll land in your touchdown zone.

Even if you're aimed precisely for ground contact at your aim point, it does you no good – and a lot of harm – if the airplane is not properly configured for landing and in the proper energy state to safely land and come to a stop. These are the things you can judge before you begin your landing flare. If you are not on speed, in landing configuration, on

glidepath to the touchdown zone, at the proper vertical speed, and aligned with the runway centerline before you begin your flare, go around. Don't wait until later to decide; don't try to fix the errant condition(s) as you transition to flare; and don't try to "salvage" an approach (considering all connotations of the word salvage as it might apply to a botched landing). Here are some considerations as you pass through Decision Altitude (200 to 400 feet above runway threshold height) regardless of the type of instrument or visual approach you're flying:

- **Airspeed.** Generally, this is 1.3 times the stalling speed in the airplane's current configuration at its current weight. This may be a computed or tabulated indicated airspeed from the Airplane Flight Manual (AFM) or Pilot's Operating Handbook (POH).
- **Angle of attack**, if an AoA sensor is installed. If the AFM or POH calls for flying a specific AoA on short final, or an aftermarket AoA device contains specific indications to attain on short final, then this becomes your target. If your AoA indicator is supplemental you may determine an approximate AoA display pattern from experience.
- **Attitude.** Pitch attitude, whether out the windows or on an attitude indicator or Primary Flight Display, will be consistent for a given indicated airspeed and/or AoA at a given center of gravity location and airplane configuration (flap and landing gear position).
- Airplane **configuration** is correct for landing: gear down, flaps set.
- **Power** is as expected for the landing. Performance results from the proper combination of indicated airspeed and vertical speed at the correct power or thrust setting.
- The airplane is **on glidepath** and **aimed to a landing in the runway's touchdown zone.**
- The airplane's **vertical speed** is on target to carry the airplane on glide path from where you are to the touchdown zone.

Runway overruns are disappointingly common in piston twins and turbine airplanes. In almost all cases they're preventable and even predictable if you know what to look for before beginning your landing flare. Measure yourself against these variables as you pass through Decision Altitude; failure to attain any of those variables by this point means an increased risk of runway overrun and calls for an immediate go-around. T&T

Thomas P. Turner *is an ATP CFII/MEI, holds a master's 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.**

Only in America

by **Kevin Ware**

I am 15,500 feet over the approach end of Runway 26L at McCarran International Airport (KLAS) in Las Vegas. I am in a Cessna 340 and not required to talk to anyone on the radio. But for awareness reasons, I have the tower controller on Com 1, who is talking nonstop to inbound airline traffic. On Com 2, I have the approach controller whose frequency I could not get a word in even if I wanted to. But with the transponder code set to 1200 and ADS-B on, I am perfectly legal up here. In fact, I have not keyed the mic even once since leaving Concord back in the San Francisco Bay area an hour ago. This could only be done in America.

Two days earlier, my wife Kari and I left Seattle in our Cessna 340 for an extended personal and business trip through the Southwest. I regularly fly jets IFR in the flight levels and talk with controllers constantly, so when I go on a personal flight, I try to stay in the lower altitudes and avoid talking to anyone. Generally, the altitudes between 12,500 feet and 17,500 feet are nearly empty of traffic. This is because turbine aircraft really need to get into the flight levels for efficiency reasons, and non-pressurized piston aircraft try to stay below 12,500 feet because they don't want to put on the O2 mask. So, in that one-mile thick slice of airspace between 12,000 and 17,000 feet,

pressurized piston twins pretty much have it to themselves. Even when passing directly over major hub airports like KLAS, the Class B airspace rarely goes higher than 10,000 feet seeing as most traffic is either on the surface or away from the space before getting much higher than that. When I get to fly like this, the freedom of airborne movement we have in the U.S. never ceases to amaze me.

Our first stop was the Bay Area of California with Concord (KCCR) as our destination. The weather leaving Seattle was marginal VFR with a lingering cold front creating a visibility of 3 to 4 miles, cloud base of about 2,000 feet and tops of around 16,000. Just an hour before our planned 10:00 IFR departure time, I realized we were running early, so I took out my phone and amended our time to 09:15. Within a minute, I got a text back saying the revised time was approved with the routing BVS, SEA, HIO, direct REJOY (the initial approach fix at KCML). On departure, we called the radar controllers at Whidbey Naval Air Station (the airspace we were under) and were greeted with a courteous "good morning" and promptly given our IFR clearance in the air; no question as to why we did not request it before taking off. Twenty minutes after departure, we were above the tops headed for FL180 and right over the SEA VOR, which is located in the center of SeaTac (KSEA). Only in America could you change your flight plan at the last moment, deal with a military controller on short notice, then fly over a major hub airport – and it all be considered quite routine.

Proceeding southbound, we cleared most of the weather by the time we reached Redding, California, so I canceled IFR but stayed with radar advisories and descended down to 6,500 feet to see more of the Napa Valley. Fifty miles north of KCML, we were switched to the approach controller at Travis Airforce Base northeast of the Bay Area, and right under our direct routing. As we descended VFR down to 3,000 feet, we could see the Air Force traffic underneath us practicing touch and goes in the pattern. The controller regarded our passing as a routine item and shortly switched us to the tower frequency at Concord. Only in America can a small, private piston aircraft fly directly over an active military base and be regarded as routine traffic and sent to another frequency.

A day later, we completed our business in San Francisco and returned to Concord. The weather for the entire southwest corner of the country was CAVU with winds aloft from the west. When I called the ground controller at KCMR and he asked for the direction of flight, my reply was, "Eastbound, VFR." With no further questions asked, he cleared us to Runway 01L via Alpha and Golf. When we switched to the tower controller, he already seemed to know the direction we wanted to go and cleared us for takeoff with a right crosswind departure. Five minutes later, when I notified him we were clear of his airspace to the east, he cheerily responded, "Have a nice trip," without having a clue as to where we were actually going (Williams, Arizona KCMR). Only in America would that happen.

Twenty minutes later, we were over Yosemite National Park climbing through 10,000 feet, and down between the left engine nacelle and tip tank, the rock wall of El Capitan was clearly visible. We proceeded to make a couple of 360-degree turns to take photos of this national landmark. As the camera clicked away, I thought where else can a small private aircraft suddenly decide to make turns over a national landmark without requiring all kinds of authorization. Only in America do we have this freedom.

Once past Yosemite, a direct line from there to KCMR takes you over the corner of the BISHOP Military Operations Area (MOA), outlined in magenta on the chart. Now, crossing through a magenta MOA in America without talking to anyone is quite legal but not often wise. So, in keeping with my desire to stay away from the microphone, I put a slight dog leg in the routing to have us pass over the BISHOP VOR which kept us clear of the MOA. Another reason for my doing this was there was a large forest fire near Taboose Pass about 40 miles south of BIH with a surrounding TFR. Although we were above the TFR's limits at 15,500 feet, there was a lot of smoke I wanted to avoid. Listening to the frequency posted for the area, we could hear no end of fire spotting and bombing traffic working the site. Again, even though we were close enough to easily see the smoke and fire, absolutely no communication from us was required. Only in American does that happen.

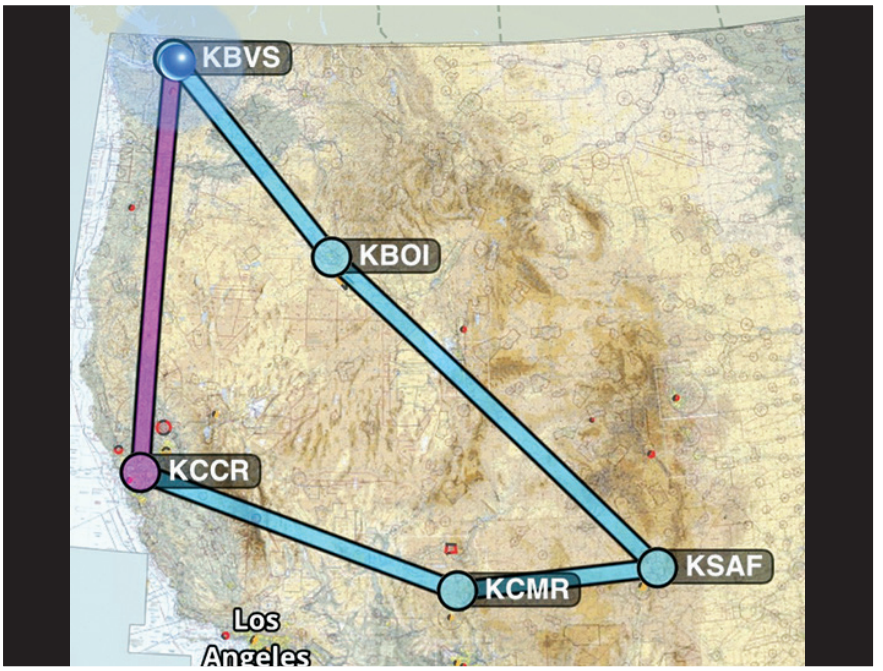
The next area we crossed was directly over the city of Las Vegas at 15,500 feet, with the airport under the left wing. No communication from us was required, expected or even desired. The controllers down there were busy enough without getting involved with a small, piston-powered aircraft flying VFR in mostly empty airspace above the airport. Working our way east, we then passed directly over the Boulder Dam that backs up water for a critical amount of the southwestern U.S. In other parts of the world, you could not fly anywhere near an item of such national importance. And yet, at 15,500 feet, or about two miles above the terrain, we peacefully flew along with our Dolby headset microphones over our heads as we each ate an apple.

Further east, about a half-hour outside of Williams, we passed over the western side of the Grand Canyon National Park. The airspace below 12,000 feet is closed to most air traffic, but the terrain is nearly 5,000 feet high. So, we flew over one of the most spectacular geographic features of the entire world at just 5,000 to 6,000 feet above the terrain. Again, only in America could you do this without any special permission or advance notice.

Williams, Arizona is a small town of about 3,000 people some 30 miles west of Flagstaff. However, the airport (KCMR) has a newly paved 6,000-foot runway and new terminal building specific for general aviation, with parking and chain tie downs supplied (all for $8 per night). After landing, my wife and I needed to get into town a couple of miles away, so the airport manager offered to rent us a brand-new Enterprise car he had already parked on the ramp. Or given we were the only airplane there, he also happily offered to drive us into town himself and give us a free tour in the process. We chose the free ride and tour. Only in America can you find runways and hospitality of that size in a small town.

The next day we took the train from Williams to the Grand Canyon National Park site. We were accompanied by mostly Europeans who couldn't believe all the open space along the way, plus that we ordinary citizens had flown our own airplane into the place without much ado at all.

The following morning we took off for Santa Fe, New Mexico, where I was scheduled to speak to a group of pilots. Upon



In America, private pilots are granted much freedom and access – such as flying over national landmarks like El Capitan in Yosemite National Park.

arriving, we were met by the FBO's (Jet Center) "follow me" truck and escorted to our parking area where we found our rental car with the engine running, air conditioner on and trunk open. We were not required to sign any paperwork or meet with any official – just kindly instructed how to exit the airport gate. Only in America do we have that kind of service.

Two days later, speeches having been given, we departed Santa Fe back for home. There were thunderstorms scattered around the airport and I decided to file an IFR flight plan. However, when getting the clearance, I could see that the instrument departure route would take us through an area of heavy rain that I could see both out the window and on the iPad. On short notice, I told the ground controller I decided to depart VFR but would accept radar following. Not a problem, he said, and we soon made our way around the scattered thunderstorms in visual conditions with the help of the departure controller. Fifty miles northwest of KSAF, when clear of all the weather, I thanked the radar controller for his help and changed the frequency to 121.5. For the next two hours, we flew 500 nm across the vast Southwest, with rare evidence of human habitation and the frequency completely silent.

While en route to the Salt Lake area, Kari and I discussed where we should land for fuel and lunch. Ogden on the north end of Salt Lake is always a nice stop, but then Boise was only another 45 minutes to the west and we knew of a really good BBQ restaurant not far from the airport. And so, while airborne and needing permission from no one, we chose our destination almost on a whim. Only in America can that be done.

The next morning, we departed Boise in bright sunny conditions. But knowing there was a cold front on the west side of the Cascades with low IFR conditions throughout the Puget Sound area, we departed Boise VFR but with an IFR flight plan we planned to pick up along the way. The switch from VFR to IFR was handled as an everyday event by the Seattle Center controller, and we were soon bouncing around in the rain and clouds as we descended to 5,000 feet over Paine Field (PAE), the IAF for our approach into KBVS. We were switched to our old Whidbey Naval Base controller, greeted warmly, and cleared for the GPS 29 approach into BVS. Upon breaking out of the overcast and seeing the airport, we closed our flight plan in the air and landed without incident. Only in America do we have such a flexible air traffic management system that permits that sort of operation on a routine basis without any folderol at all.

From time to time, I fly jets internationally and after putting up with all the rules and bureaucracy other countries require, I fly trips like this and am reminded just how free we are America to operate our aircraft as we choose. It is a freedom we should always cherish and always defend. 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 corporations 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**.

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by **Kevin R. Dingman**

All the Leaves are Brown

Flying with a summer brain and an autumn body.

Dad first took me hunting for rabbits when I was four years old and for my first flight in a C-172 the next year. When I was older, he added hunting deer, geese and squirrels to our outdoor activities. Fifty-nine years later, hunting is still what I do when I let my hair down – and nowadays, that's not very far down.

This year, with less than a 6 percent chance of being drawn in their lottery as a non-resident, I drew a New Mexico, muzzle-loader, mule deer permit in an area in which the elevation ranges from 8,000 feet to over 12,000 feet. For those familiar with NM, it's unit 45. Since my office for 85 hours each month is at about 8,000 cabin altitude, I figured a high altitude, wilderness hunt on horseback would be doable for this 63-year-old, soft-skin, flat-land Gringo. I'm a healthy airline pilot; how hard could it be?

Equine Transport

I'm not a horse person. And, except for the about-to-be-told adventure, had not been on a horse since they were the primary genre of TV shows like Bonanza, Gunsmoke, The Lone Ranger and a horse is a horse of course, of course – Mr. Ed. You're welcome for the theme song now stuck in your head. The relevance of this horse tail (homophone intended) to intrepid aviators is our characteristic "how hard could it be" mentality about, well, everything.

A two-hour drive to the trailhead was followed by four hours on horseback to camp at 11,000 feet. We slept in tents, ate fried spam, drank whiskey, tequila, filtered water from a stream, and hiked with hunting gear two to four miles each day. My mistake was not only thinking that I could ride a horse (High-Ho Silver) for 10 to 12 hours along rocky trails with nothing but air on one side but also beginning a high altitude, Pecos wilderness hunt with a sore throat and an emerging cold. Breathing the chilly, rarified air only accelerated its emergence and I was out of breath from 7 a.m. until 7 p.m. Not to mention three layers of skin are missing from four half-dollar-sized spots on my rear end from said equine transport. How hard could it be? Well, I had to bail out of the hunt two days early when I couldn't stop coughing and developed a fever. Therein lies the point of this tale: Our perception of abilities often diverges from our actual ability – who'd-a-thunk.

I am only an average man but, by George, I work harder at it than the average man.

– Theodore Roosevelt

Ben Hogan is known as the golfer that popularized practice because of the thousands of range balls he would hit. And Rowdy Gaines swam around the world in preparation for a race that lasted 49 seconds. Like Hogan and Gaines, we need to decide how much effort we want to put into the endeavor of flying airplanes. What kind of pilot do we want to be? How much do we want to study, learn, practice, and how well do we retain lessons learned? We all have a list of things we could do better: more precise and timely flight planning, better people skills with our passengers and support personnel, use of our avionics, execution of GPS departure, enroute, LNAV and VNAV approach procedures, understanding aircraft systems or simply making better landings.

While I use the GPS/FMS in the 737 all the time, the Garmin in the Duke is both less familiar and much less user-friendly. My nemesis lately has been loading and executing the Garmin GPS approach modes. Inactivity in any endeavor causes us to work harder when we return to that activity. When I haven't flown the Duke for a while, my memory muscles have atrophied. Even at the airlines, when I return to the captain's saddle after blistering my rear, relishing delicacies from cans and sipping savory creek water, I'm grateful to have standardized procedures, checklists and a first officer to help get my feet into the stirrups. For those not operating in a formal environment, there are techniques you can employ to self-monitor your proficiency.

Slow down, you move too fast.

– Simon and Garfunkel

A while back, I wrote about keeping a record of our missteps and lessons learned in a journal and then periodically reviewing them to avoid repeating mistakes. You may find this is easy to begin but more difficult to keep up. I have also mentioned the value in using a knee pad or accessory table to write down every ATIS, route clearance, ground control instruction and information from ATC – even frequency and altitude changes. These recommendations can not only keep our spam out of the campfire but will assist us in deciding how closely our ability matches our perception of our ability. Reviewing the results from these techniques is a necessary first step when it appears that all our leaves are brown (and our sky is gray).

Unfortunately, we may discover that working harder or smarter may not always make us a better aviator. Everyone and everything reaches a point (or age) of diminishing returns. At some point, it's time to start using, even relying on, some of the things they used to bemoan as a sign of weakness or inability: the crutches of a to-do list, written or mechanical checklists, multiple autopilot modes and assistance from others. The sticky note thing, as well as that to-do list idea, have their own issue; however, lots of pieces of paper scattered around in pockets, the fridge and the cockpit that have gone unfinished. Perhaps the most effective technique is to give ourselves more time so that we can slow down to a speed that produces an acceptable level of proficiency.

While I use the GPS/FMS in the 737 all the time, the Garmin in my Duke is less familiar and my muscle memory weakens when I haven't flown it for a while.

Time…Time…Time; Is (not) on your side. No, it's not. – Mick Jagger

Next September marks 30 years since I last flew the F-16 – and I thought it was the horse ride and thin air that made me feel older. That day, on my 34th birthday, I remember wondering if I had squeezed every bit of training and fun out of my flights. Surely, I could have worked harder, smarter or put more effort into some of them. If only I could have had a few more flights to be sure. I felt the same emotions when asked by CNN about how I felt about delivering an MD-80 to Roswell. Why didn't I stop to smell the Mad Dog roses more often, or certainly a few more times before I took one of them to the recycling graveyard.

Flying airplanes for 58 years, and after four engine failures and a plethora of system problems, you gain a perspective on the metaphysical magic of the machine. As you evaluate and monitor your own flying ability and proficiency, remember that there is a balance between our overachiever obsessions with accuracy and efficiency and the emotional gratification of the art. Don't let time slip you by. Slow down and smell the avgas or Jet-A. And even though it won't respond like Mr. Ed, after your next flight when no one is looking, let a little California Dreamin' into your heart and give the airplane a kiss on the nose. You will be glad you did when all your leaves are brown. T&T

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Judgment or Experience

Becoming a Great Pilot

We have all grown up with truisms. Those memorable sayings that are obviously true. Like, "A little knowledge is a dangerous thing." Or, "A house divided against itself cannot stand." How about, "The more hours in your logbook, the better pilot you are."

I am not so sure about that last one.

In my flying career, I grew up thinking that any airline pilot was better than any private pilot simply because of the thousands of hours of additional experience. And, on any given Sunday, that is probably true. But there are always exceptions, such as the 20,000-hour retired jet captain who hops in a single-engine airplane and crashes while scud running. Those kinds of accidents keep me awake at night.

So, what's the difference between a dangerous pilot and a great one? Is it physical coordination, good judgment, experience? Which one is more important? I set out to find some answers from my logbook.

Jolley Byrd (yes, that is his real name) was always the life of the party. He drove his Cadillac fast and lived like there was no tomorrow. He was my father's business partner and in the early 1970s, with a few hundred hours in his logbook, he purchased his first airplane – a V-tailed Bonanza. At the time, I was a 21-year-old private pilot with less than 100 hours, and I jumped at the offer to ride in the back seat of his powerful flying machine while he practiced his newly learned skills with an "instructor." It was a beautiful day for flying and I felt like I was in heaven. Then, in an instant, I almost went there.

Jolley, with coaching from the guy in the right seat, spun the V-tail, spiraling vertically multiple times without warning. This particular model, however, was not certified for intentional spins. I literally thought we were going to die. To my astonishment, we recovered. I tried to breathe again. And then Jolley spun the airplane again. This guy is crazy, I said to myself.

After we landed, I got out of the airplane and never flew with Jolley again.

About a year later, he forgot to extend the gear and made a very expensive landing. Then in 1974, he departed Dallas Love (KDAL) in awful weather headed for west Texas. He lost control during an instrument approach to Abilene (KABI) with a 100-foot ceiling and visibility of less than a mile and perished. Those of us who knew him were not surprised.

Jolley lacked both experience and good judgment.

On the other end of the spectrum, meet Jim Harrod. I met Jim in 2007, right after I purchased my brand-new Citation Mustang, serial number 8. I was in the first type rating class at FlightSafety and the Mustang was new to everyone – sim instructors, mechanics, even pilots. Jim was my mentor for five days after I took delivery and we flew all over the country exploring everything about the airplane. Jim knew little more than I did about the Garmin G1000 avionics and its intricacies, but he had just retired from a career flying packages around the world in a 747.

On a moonless night, flying across the Florida panhandle at FL400, I heard a strange noise, "bee-boo, bee-boo, bee-boo." The autopilot had disconnected and a red "pitch trim" light appeared on the PFD (primarily flight display). Now hand-flying the airplane at 40,000 feet, my mind began racing. I must advise ATC, descend out of RVSM airspace, find the abnormal checklist, and fix the problem. To my surprise, the checklist did not address the issue. Not a word. This particular failure was simply not anticipated.

I was not in a happy place.

Then, in his deliberate, calm and reassuring voice, Jim said, "Dave, do you think there might be a circuit breaker somewhere?" I looked and found one marked AFCS (autopilot flight control system). We reset it, and sure enough, the computer system rebooted itself and came back to life. Cessna later revised the checklist to address the issue. Jim had the experience and more importantly, the good judgment that I lacked that night. But you don't have to have 20,000 hours to have good judgment.

Meet Larry King.

Larry is the proud owner of a beautiful Citation M2. With a little over 1,500 hours logged, Larry thinks my 6,000 hours

make me something special. Surely, I must have better judgment because of my extensive experience. Not long ago, we found ourselves stuck in Memphis waiting out a huge squall line moving through the DFW (Dallas-Fort Worth) area. All the airline flights to DFW were canceled and on FlightAware I counted 13 airplanes holding for better weather southeast of the front. Eventually, they all diverted.

We went to lunch to wait it out. Two hours later, our trip looked possible. We departed Memphis (KMEM) in clear, warm skies. Our filed route had us arriving from the northeast and penetrating a significant line of weather. Over eastern Arkansas, Fort Worth Center said, "November 921 X-ray Tango, most of the arrivals are being rerouted over Oke City and then into Dallas. How does that look to you?"

Puzzled, Larry and I looked at each other. "That's a big deviation to the north, and we would still have to penetrate the line of weather building in Oklahoma," I said. But that's what the controller is suggesting, I thought to myself. Maybe we should just do what he says.

Larry had a different idea. "Why don't we try arriving from the southeast. It looks better and I don't see any lightning on NEXRAD," Larry said. "I think that is a great idea," I responded.

We asked for an amended route, flew the arrival into Mesquite (KHQZ) in light to moderate rain and turbulence, shot the RNAV LPV 36 approach and broke out well above minimums. The plan worked perfectly. Larry, with much less experience in his logbook, exhibited good judgment.

Unfortunately, we cannot buy good judgment. But we can do a few things to put us in a position to use it:

1. Train more than is required to be "legal." If your insurance carrier says once per year, do it twice. If a simulator is available for your airplane, use it at least every other training event.
2. Fly several times a year, on real trips, in real weather, with a fully qualified mentor. Not your neighbor friend, but a professional who knows a lot more about your airplane and avionics than you do.
3. Join organizations specific to your airplane. For a few hundred dollars, they provide tremendous value. Attend the events and take advantage of the safety programming offered at their gatherings.
4. Don't become complacent. Being a great pilot is much more than making a nice landing.
5. On your drive home from the airport, critique your performance. What could you have done better?

And finally, buy a pair of epaulets and keep them under your pillow. This will help you dream about flying like a pro.

Fly safe. T&T

David Miller *has owned and flown a variety of aircraft from turboprops to midsize jets for more than 50 years. With 6,000-plus hours in his logbook, David is a member of the Citation Jet Pilots Safety Committee and writes and speaks on aviation topics. You can contact David at* **davidmiller1@sbcglobal.net.**

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