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editor's briefing



A New Year



A handful of the *T&T* team at EAA AirVenture 2018. (L-R): Dianne White; Rich Pickett; Thomas Turner; Rebecca Groom Jacobs; Joe Casey; Kevin Dingman.

Happy New Year!

2018 will always remain special to me, as it was the year I joined this publication. Over the past year, I have expressed to numerous people this is the dream job that I did not realize I wanted. I am fortunate for the experiences and people in my life that led me here.

With the turn of the new year, I thought I would share a "state of the union" for the magazine going into 2019. As you may know, *Twin & Turbine* continues to be the only monthly aviation magazine that speaks solely to twin and turbine owner-pilots. It is delivered to nearly 40,000 owners around the world and put simply, is true "pilot talk." When I assumed this role last summer, I stated my plan to bolster the magazine with additional perspectives, insightful editorial, and an updated design. We have since wel-

comed five additional (regular) contributing writers to the T & T pool including industry veterans, active pilots and young professionals.

Over the past six months, our writers – both new and veteran – have genuinely impressed me with their experience, knowledge and passion. Together we have one clear goal: continue providing the multi-faceted and relevant aviation journalism that *Twin & Turbine* is known for – content that all of you, pilots of owner-flown, cabin-class aircraft, will find real value.

And based on T & T's first ever readership survey conducted last June, the publication has been doing a good job of fulfilling that goal, as 9 out of 10 participants stated they find Twin & Turbine to be a valuable resource. This finding, in addition to other survey data, was highly encouraging and provided our team with great momentum as we completed 2018. So, thank you again for those who took the time to share your feedback and insights in support of our mission to keep T & T an instrumental magazine for owner-pilots.

In regards to design, this will be a focus in 2019. You can expect the look and feel to evolve over the coming months. The magazine will retain the content you are familiar with, but it will be presented in an updated, clean way. I am excited for this next step forward.

As always, should you have a story idea, feedback or comments, I'd love to hear from you. I believe this publication is a reflection of the owner-pilot community wherein everyone can share and learn from one another. Feel free to email me at *rebecca@twinandturbine.com*.

Rehau Haude

Airmail

In Response to David Miller's "Scoreboard" (November)

Your articles are always interesting but you drove home a very good lesson with the one on monitoring the scoreboard.

Our instructors TELL us to pay attention to this but like most pilots new to the G1000, so much is going on that it is often overwhelming (just like figuring out what to watch when starting the turbine in a Meridian).

Now that I've got 1,000 in a PA46T, my eyes quickly dart around watching the gauges as the engine comes alive. However, even though I now have the bandwidth, I have not gotten in the habit of watching the scoreboard EVERY time. Like you, I have been following the crash out of BKL but I had not heard the autopilot theory – although it makes perfect sense. Your article drove home a great point and I plan to make this a mandatory scan item whenever I engage the autopilot or make a change.

Charlie Tillett Wayland, MA

In Response to the Editor's Briefing (November)

I had to write you a little note to let you know how much I enjoyed your story about being introduced to flight. In particular, about Mr. Clemens.

We had one of our aircraft (a Beechjet) go to him in 2014. You are right, his infectious love of flying is simply the best. Your article brought back, instantly, our conversations about flying and family while we waited for the money to move around to complete our transaction. Thanks again for the reminder of Mr. Clemens!

Bruce Hanson Willmar, MN

In Response to Grant Boyd's "Airpark Living" (November)

I read with interest the story about Alpine Airpark and found an error with this statement: "At that time, the airport consisted of a crushed gravel, private runway just 20 feet wide."

Bill Kibbe and I developed the airport in 1978. The runway was 58 feet wide and 6,200 feet long with an 8-inch base and 3 inches of asphalt.

He and I both operated Learjets off that runway, a Lear 35 and 24. I operated out of there for 18 years then sold the property in 1996. Not sure when Kibbe sold his half. I just wanted to set the record straight!

Thank you, Bill Simpson

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position report by Dianne White



What Does it Mean to Be a "Safe Pilot?"



hroughout the history of powered flight, humans attempted to balance safety while stretching to improve the performance and mechanical limitations of the machine. Some of the biggest feats and leaps in technological achievement came with a big dose of risk. Certainly, aviation's safety record has progressively improved over the last 100 years. Today, we have a plethora of technologies – reliable engines, satellite navigation, datalink weather, ground prox, TCAS, and autopilots with envelope protection – to help us keep the shiny side up and the help us gently bring the wheels back to earth.

So, if we have all these fantastic situational awareness tools and technology, why do we continue to have fatal accidents? Between 2001 and 2011, nearly half of all GA fatalities were because the pilot lost control of the aircraft in flight. Even with all the shiny buttons and pretty pictures in front of us, we still can't escape our very human evolutionary shortcomings. We misinterpret sensory input, inject our erroneous biases, become oversaturated, fixated and sometimes simply lazy in keeping up with the aircraft. And there's that "fight or flight" response to what we perceive as a dangerous situation. It evokes a strong physiological reaction that can flood our bodies with adrenaline and cortisol, rendering us less capable of thinking, evaluating, reasoning and responding.

Here's a list of human performance failures that can lead to LOC incidents, according to NBAA safety experts:

- Responses to aerodynamics how pilots perceive and control the airplane;
- Energy management maintaining awareness of the airplane's energy state;
- Flight path management maintaining awareness of position in space;
- Automation management understanding and application of automation and technology;
- Pilot monitoring monitoring the other crew members' performances and the state of the airplane and automation;
- Distraction minimizing and managing distractions and interruptions;
- Startle a physiological response such as a loud noise;
- Surprise the response to an unexpected event;
- Stress managing and mitigating acute and chronic stress.

Regardless of whether you fly a Boeing or a Beechcraft, no pilot is immune. So, what are we as an industry and pilot community doing about it? At all levels – from the FAA, NTSB to the alphabet groups – there is a big spotlight on LOC and deservedly so. Several type-specific owners' groups have developed safety programs that address the key areas that plague their specific communities. The goal is to "think globally" about best practices for preventing these accidents and provide pilots the tools to "act locally" to make their daily flight operations safer.

As an example, the Malibu/M-Class Owner Pilots Association (the organization I lead) has rolled out the Master Aviator program that focuses on the three key areas that lead to accidents in the PA46 community: loss of control, skill deficits in directional control and lack of proficiency due to not flying enough. The program adds a spirit of competition among members to work through progressively higher levels within the program. Members who complete the requirements will be recognized and awarded their Aviator, Senior Aviator or Master Aviator "wings" at the 2019 Convention.

Another type-specific group, the Citation Jet Pilots Association, has developed the Gold Standard safety program, which recognizes Citation pilots who go above and beyond minimum Citation currency requirements to complete enhanced training programs offered by CJP partners. Examples include 100 turbine hours PIC (in the last year), a second 61.58 check at a Part 142 simulator training provider, adding a rating or undergoing upset recovery training.

The NBAA Safety Committee earlier this year launched a safety initiative focused on the loss of control inflight. They have put together a number of resources, videos, online training courses and scholarships for pilots and CFI's seeking LOC prevention training.

What's energizing about all this is 1) LOC has the attention of the community from top to bottom, from the FAA to the grass-roots pilot organizations, and; 2) great ideas for LOC prevention are being developed and implemented all across the spectrum of business aviation. The result is innovative thinking that provides real tools, achievable, tangible goals and a roadmap to becoming a safer pilot.

The question that always follows any discussion on safety: What do we do to change the attitude of the "unreachable pilot?" Unless there is an incentive (most likely financial) or social pressure from the larger community (of which its effectiveness is dubious), no amount of programming, videos, or PR campaigns will change the habits of these cowboys. That doesn't mean we don't stop trying. But as new generations of pilots come up, let's instill in them the attitude and habits that will make them strong advocates of safety.

We may not be able to shake the evolutionary shortfalls we humans possess, but we can commit to becoming safer pilots when faced with situations that can lead to a LOC event. It's the beginning of a new year and the perfect time to take the next step and commit yourself to improve your skills, knowledge and proficiency.

Here's to a new year of safe flying for all!

(If you are interested in details of any of the safety programs mentioned above – or you are involved in a safety program that you'd like to share, send me an email at editor@diannewhite.com)

The Top 10 Leading Causes of Fatal General Aviation Accidents 2001-2016:

1 Loss of Control Inflight

- 2. Controlled Flight Into Terrain
- 3. System Component Failure Powerplant
- 4. Fuel Related
- 5. Unknown or Undetermined
- 6. System Component Failure Non-Powerplant
- 7. Unintended Flight In IMC
- 8. Midair Collisions
- 9. Low-Altitude Operations
- 10. Other

Source: FAA



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ΑυτΗΕΝΤΙΟ





A Hair's Breadth

by Thomas P. Turner

any pilots don't realize that an aircraft certificated for flight in icing conditions (sometimes called Flight in Icing Conditions, or FIKI, or simply "known ice" certification) are not designed, safe or legal to operate with impunity in all icing conditions. If the rate of ice accumulation is too great even "known ice" airplanes are not safe to operate. In areas of lesser ice accumulation known-ice airplanes may enter, but may not remain in icing conditions beyond a defined amount of exposure.

Read this icing accident report from the NTSB:

Approximately 13 minutes after departure, the pilot reported the airplane was accumulating ice. He requested and was cleared to descend from 5000 to 4000 feet MSL. Subsequently, the pilot requested and was cleared to descend to 3000 feet, and to proceed direct to the initial approach fix for the RNAV (GPS) 36 approach for landing at a nearby airport. No distress call or additional ATC communications with the pilot were recorded. The airplane impacted trees and terrain approximately 17 miles south of the airport. Tree deformation, ground scars and craters were consistent with a near vertical impact.

Instrument meteorological conditions (IMC) with low ceilings, reduced visibility, light rain, mist, and drizzle prevailed at the departure airport and along the flight route. The temperature profile in the accident area was +1° Celsius at the surface, -3°C at 3000 feet, and above freezing at 7000-8000 feet. SLD (Supercooled Large Droplet moisture) was likely present in the accident area at and below 5000 feet and produced moderate to severe clear icing on the airframe in the minutes prior to the accident. Propeller blades exhibited physical evidence (blade bending and twisting) consistent with high power (at or near the low pitch/high rpm range) and rotation (symmetrical energy) at impact. No evidence of an in-flight mechanical or flight control malfunction was found that would have rendered the airplane uncontrollable prior to the impact.

The NTSB determined the probable cause of this accident to be: The pilot's inadvertent flight into severe icing conditions. A contributing factor was the pilot's inadequate preflight planning.

Two PIREPs (Pilot Reports) from the immediate accident area were filed in the hour before the accident airplane's departure. FAA records confirmed the pilot received both of these PIREPs when he briefed and filed for his departure just before his 0918 (local time) departure. At 0838, a Beech Baron 58 at 7,000 feet MSL reported the ceiling during climb out was 1,000 feet overcast with the tops of the overcast at 6,000 feet, temperature 10 degrees

Celsius, wind 221° at 39 knots, light icing at 3,000 feet to 4,000 feet during climb. At 0905, a Mitsubishi MU2 at 7,000 feet MSL reported during climb out the sky was overcast at 900 feet with the tops of the overcast at 5,000 feet, light icing 2,300 feet to 3,300 feet during climb.

It was Christmas Eve. The airplane had a broken alternator switch, and the pilot's final flight was an attempt a hop to nearby Jonesboro, Arkansas to have the switch replaced before flying to meet up with his family for the holiday. Weather near the departure airport was 200 overcast, visibility 1.5 miles, and +1°C surface temperature. Jonesboro (KJBR) was reporting 700 overcast, visibility 10 miles, with a 15-knot wind, +1°C surface temperature, and rapidly falling barometric pressure. The pilot may have thought he could quickly climb through the ice (after all, PIREPs called it "light") and into an inversion above the clouds, then descend rapidly through the clouds in the approach to his destination. The holiday may have increased his perceived stress to make the flight despite the adverse conditions.

Many *Twin & Turbine* readers' aircraft are certified for flight in icing conditions – so-called "known ice" approval. But in what conditions exactly does "known ice" approval permit you to safely operate? Most pilots don't know that ice certification provides a relatively small amount of ice protection. When is ice accumulation too much for even a known-ice airplane?

FAA certification for flight in icing conditions requires that the airplane's ice protection systems be adequate to prevent or remove accumulations of ice in one of two conditions: continuous exposure and intermittent exposure. Known-ice airplanes are permitted to remain in continuous icing conditions only in stratus clouds when water droplets are no more than 40 microns in diameter. That's 0.0019 inches (0.05 mm). Even then known-ice certification assumes the pilot will exit icing conditions before traveling 17.4 nautical miles - any more exposure than that and the accumulation may exceed the system's ability to remove accumulated ice.

In cumulus clouds, only very short and intermittent ice exposures are approved. The maximum droplet size un-



		Maximum Droplet Size		Maximum	
Conditon	Cloud Type	Microns	Inches	Millimeters	Exposure
Continuous maximum	Stratus	40	0.0019	0.05	17.4 nm
Intermittent maximum	Cumulus	50	0.0020	0.05	2.6 nm





▲ Cross-section of the icing exposure. The pilot would have to climb through nearly 5,000 feet of potential icing conditions to get on top and into the warmer air above (inversion). A typical climb speeds is at least 2.5 minutes of continuous exposure, covering approximately six miles of horizontal distance – all in SLD conditions even "known ice" airplanes are not certified to handle.

▲ Conventional wisdom is that if you encounter freezing rain, your escape path is to climb. In classic freezing rain scenarios, however, the moisture above a region of freezing rain often consists of supercooled liquid droplets – just as dangerous, and just as outside-the-approved-envelope as the freezing rain you're trying to escape.

der known ice protection is 0.002 inches (0.05 mm). Exposure to ice accumulation is limited to 2.6 nm – requiring an immediate exit from icing conditions to avoid overwhelming the protection system.

Any water droplet greater than 50 microns in diameter is considered a "large droplet." If the water is in a liquid state and the temperature is at or below freezing, it is a "supercooled" large droplet or SLD. By definition, no ice protection system is certified for flight:

• in any SLD conditions;

- in icing in stratus clouds for more than 17.4 nautical miles of continuous exposure;
- in cumulus clouds for more than 2.6 nautical miles of exposure.

To put this in perspective, the diameter of a human hair is 90 microns, or 0.070 mm – nearly 150 percent of the maximum water droplet exposure limit. What this means is that at or below freezing temperatures if water droplets are large enough to be perceived as individual drops or "streams" on your windshield or



wings, they are too big for even known ice airplanes to be protected. No matter what you're flying, you need to exit this type of visible moisture immediately.

CIP and FIP

One of the most significant advances in aviation weather in recent years is the introduction of Current Icing Potential (CIP) and Forecast Icing Potential (FIP) charts. CIPs and FIPs allow the pilot to see the probability ice may form at a given altitude along a planned route of flight, and if it does, the anticipated rate of ice accumulation. The FIP charts also plot areas of forecast SLD. Remember that the CIP and FIP are just a few years out of the experimental phase, and they are far from perfect in their predictions. However, the FIP, especially, is an outstanding addition to a pilot's weather briefing when freezing temperatures may exist where that pilot wishes to fly.

To use the charts, look first at the Probability chart for the altitude(s) you might fly. Any probability of ice at all means you need to investigate further - although of course, a probability of 60 percent (for example) means ice is far more likely than if the probability is less than 25 percent, the reality that even less than 25 percent likelihood of ice means ice may indeed affect your flight. If the FIP indicates an icing possibility, next check the expected intensity chart. Any route and altitude that includes an ice probability greater than zero and more than possibly "light" ice accumulation means even the known-ice pilot must plan for an escape. If the forecast is for greater than moderate ice accumulation or anywhere the FIP predicts SLD, make other plans, whether to fly a different route, fly at a different altitude, or to fly at a different time - because even known-ice certification is not valid there, and will not keep you and your passengers safe. TET

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.





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January 2019

Our First Look de the Hone de lette

Honda Aircraft extends range and performance

with



by Rich Pickett

he HondaJet, certified in December 2015, has undergone its first upgrade – referred to as the Elite. After selling 92 of the first model, Honda Aircraft, under the leadership of CEO and President Michimasa Fujino, has released this new version with increased performance, additional range, upgraded avionics and significant interior upgrades. In my conversations with Fujino, Honda began work on the Elite immediately following the certification of their first model.

In the October, 2017 issue of *Twin & Turbine*, Dianne White wrote a thorough review of the original HondaJet. So, for this article, I sought to explore the Elite-specific modifications during a recent test flight in Phoenix. I was joined by Peter Kriegler (director of sales at HondaJet), Michelle Hoover (sales manager at HondaJet Southwest) and her colleague Genaro Sanchez (director of marketing) on the flight to explore the company's new model.

Jet Journal

its latest model.



Preflight

While conducting a preflight of the HondaJet Elite, you notice some differences in comparison with other jets in its class. Of course, one of the most obvious differences is the engines mounted on pylons above the wing, which Honda terms Over-The-Wing Engine Mounts (OTWEM). In addition to a reduction in aerodynamic drag, this patented design allows Honda to offer a larger cabin and aft baggage compartment. Moving to the left wing, I noticed some subtle aerodynamic differences. Honda has removed the mid aileron fence and small triangle vortex generators from the winglet as part of the aerodynamic upgrade. Looking under the fuselage, Honda incorporated a much smaller skid plate with later serial numbers. The Elite also has a slightly larger center fuel tank capable of 90 pounds of additional fuel.

Progressing to the GE Honda HF120 engines, Honda engineers have changed the engine inlet with the incorporation of a perforated honeycomb index structure ahead of the fan blades. This perforation, according to Fujino, acts as an acoustic baffle to absorb higher frequency sounds that would typically be heard by the passengers, especially at high power settings and below 10,000 feet. While you might think this is a trivial change, it lowers the noise level to 80 dB in the cabin – significant enough for passengers to notice the difference between the models. On the tail, Honda has removed the vortex generators and aft T-strip on the elevator. They also increased the width of the elevator by approximately 7 inches. These changes, along with the other aerodynamic improvements, have reduced the takeoff distance by 443 feet at sea level (more at higher elevations) and provides improved second segment climb performance – which can be important under hot and high altitude departures.

On the lower aft section, you notice the optional speed brakes are stowed. This option, which most owners select, is also certified for 6.5-degree steep approaches which are required for several airports in congested areas including London City where the required glide path is "only" 5.5 degrees. Moving to the right aft section, I checked the optional external toilet service door and noticed a change in Honda's single point gravity-feed fueling port on the right empennage. To reduce the chance of line personnel filling the tank too quickly and splashing fuel, they have incorporated a lighted panel adjacent to the filler. When the fuel level approaches full, the panel will advise the fueler to slow the flow rate – a simple but ingenious idea.

The nose section of the plane drops dramatically from the cockpit window which offers pilots a great forward view. In conjunction with the aft baggage area, the nose baggage brings the total exterior storage volume to 66 cubic feet, which is substantially



Honda incorporated a perforated honeycomb index structure ahead of the engine fan blades, contributing to a quieter cabin.



▲ The Garmin G3000 avionics suite offers a plethora of new capabilities such as enhanced stability and underspeed protection (USP) and enroute and sectional chart overlays.

The Elite's Active Performance Planning feature incorporates data from all phases of flight as well as forecasts winds aloft to determine accurate data.

larger than the Embraer Phenom 100EV or the Cessna Citation M2. However, the M2 continues to offer the highest external baggage weight limit despite Honda increasing the forward baggage weight limit to 200 pounds. While most operators run out of baggage space before reaching a weight limit, it is still a consideration for some operations.

The side windows have a more pronounced curve than some other jets. I asked Fujino about this design, and he offered some interesting observations, many of which I had never considered. The slight curve, along with the shape, offers pilots the ability to have a vertical view that approaches that of a much larger window while reducing the glare that is inevitable flying at high altitudes above the clouds. This glare reduction not only reduces eye strain but also improves the readability of the displays – an important factor in aircraft with extensive use of full glass panels.

Interior

The HondaJet Elite used for the flight, N420EX, was equipped with virtually all available options including the refreshment center, complete with a coffee maker. In addition to the engine inlet change, Honda further reduced interior noise by optimizing insulation and quieting the air conditioner and avionics cooling noise in the cockpit.

This particular Elite also offered a unique sound system from Bonjiovi Acoustics, which features 24 transducers mounted to the interior panels to offer immersive sound not previously available in any aircraft. I tested it in flight while sitting in the cabin with Michelle and found it very impressive, especially with the quieter interior. Progressing to the rear of the cabin, you find the lavatory, now with a belted seat option to offer another legal passenger seat for takeoff and landing. This is not just your typical light jet toilet as it offers not one, but two small skylights, and an optional sink with running water activated by a motion sensor. Fujino informed me they wanted to ensure the lavatory provided an inviting environment, rather than a dark, closed area for passengers.

I counted 23 interior furnishing options available, ranging in price from \$5,600 for leather crew seats to \$44,500 for the lavatory sink to \$167,900 for Gogo Talk & Text. As with any option, each choice reduces the useful load.

On to the Flight

The HondaJet Elite offers the latest version of the Garmin G3000 avionics suite. This version incorporates improved displays, upgraded processors and higher resolution which enables a number of new capabilities. Some of these new features can be installed on the existing fleet with a software update including the use of visual approaches with vertical advisory guidance, AOA indicator on the PFD, plain language TAFs, altitude constraints on the MFD and others.

The Elite's G3000 also features two innovative features, Advanced Integrated Takeoff and Landing (TOLD) and predictive performance – Active Performance Planning. The new TOLD feature, in addition to the typical Vspeed calculations and field length requirements, displays the net climb and descent gradients. The inclusion of the climb gradients is extremely useful when determining whether your plane can meet the departure procedure requirements.

Many aircraft can provide pilots with simplified performance data including range, fuel at destination, time en route. The estimates use ground speed at a single point in time which may change along the flight. The Elite's Active Performance Planning incorporates data from all phases of flight as well as forecasts winds aloft to determine accurate data. The G3000 can integrate winds aloft information directly from the Sirius XM weather data stream to provide the pilot with significant precision. And in case remote weather data isn't available, pilots can enter average winds for use in the calculations.

The updated avionics suite also includes an optional Enhanced Automatic Flight Control System (AFCS) Stability and Protection and Electronic Coupled Go-Around with Underspeed Protection (USP). Pilots now can use the autopilot for the entire approach, including a missed procedure if required. The Underspeed Protection reduces the chance of inadvertent stalls while under autopilot control by reducing pitch to a safe level, which has been available in other platforms.

Starting the plane is simple. Power up the avionics, run your checks using the electronic checklists (which have also been expanded with the Elite) and push the Start button. The Honda GE FADEC does the rest. This automation is also extended to other functions such as the deicing system and activating lighting at appropriate phases of flight.

Taxiing from the Cutter Aviation ramp for departure was easy with electrically assisted steering. A firm push on the right rudder pedal and I made a quick 180-degree turn in almost no



(L-R) Rich Pickett; Michelle Hoover; Peter Kriegler.

space – a great feature for tight ramps. It takes just a short time to adjust to the electric steering's sensitivity then you appreciate its usefulness. After takeoff, Phoenix Departure Control was very helpful with our test flight request, and I quickly flew the jet up to FL370 toward Tucson, reviewing several of the systems on our climb. Hand flying the plane was enjoyable, with it exhibiting stable handling even at the higher flight levels.

Peter informed me about a nice feature with the HondaJet Elite called Cruise Speed Control (CSC). CSC could be described as a simple autothrottle except it uses the FADEC. Once engaged at speed, the FADEC will make slight adjustments to control speed within a narrow range. While not useful for major changes in pitch, I found it useful to accommodate the small speed changes with high altitude wave conditions or speed restrictions. With a max altitude of FL430, a top speed of 422 KTAS, a fuel burn of 1090 PPH at FL310, the Elite is the fastest in its class. Often in the real world, pilots fly much higher and at FL410, and mid-weight, I calculated the speed at 403 KTAS/0.70M burning 724 PPH. This is a few knots faster than the original model and faster than the M2 or Phenom 100EV.

After descending below FL180, I continued to explore the flight envelope with stalls and steep turns. I was also able to test one of the new stability enhancements integrated into the Elite's G3000 system by purposefully banking more than 45 degrees. You can feel the subtle resistance to remind you to reduce bank. It isn't strong enough to prevent you from banking further, but it is a useful reminder when hand flying. The stall recoveries were simple and so smooth that even our passengers didn't notice.

The flight went by quickly, and it was soon time to return to Sky Harbor. We were assigned the PINGG 1 arrival. The descent planning was easy, and I used some of the new features including the useful profile view on the MFD that also displays altitude restrictions. The TOLD data capability for landing was easy to use with all of the required information readily accessible. I also tried the sectional chart MFD overlay which had amazing clarity. I flew the visual to runway 25L, finding the airplane to be very responsive at the lower speeds and landed smoothly. A testament to the great design produced by Fujino's team.

Performance Improvements

Due to the various aerodynamic changes, the HondaJet Elite operator will see a slight increase in cruise performance, 200 nm additional range, reduced runway requirements and improved climb performance. The runway and climb performance improvements are especially significant. In calculating the impact of the upgrade for a departure at Aspen, Colorado (KASE), we looked at two scenarios, one at 19C and the other at 27C. At 19C, both models can depart at their MTOW, however, the Elite will



use nearly 1,100 feet less runway. At 27C, the difference is even more dramatic. The Elite can depart with over 1,000 lbs more weight and still use 600 feet less runway. With a total fuel capacity of 2,900 lbs, the performance increase and increased runway safety have a dramatic impact on capabilities.

Options for Existing HondaJet Owners

Honda Aircraft is offering its existing 92 HondaJet owners the Advanced Performance Modification Group (APMG) upgrade which offers many (but not all) of the upgrades in the Elite. For \$250,000, owners will receive the aerodynamic improvements on the tail, aileron, and winglets as well as the MTOW increase of 100 lbs, higher Zero Fuel Weight, and some of the software updates to the G3000 avionics suite. Since the Elite has the latest generation of G1000 displays and autopilot, capabilities such as enroute and sectional chart overlays, enhanced stability and underspeed protection (USP) are not available.

The upgrade also does not include the engine inlet acoustic improvement or the 90 pounds of extra fuel. However, a HondaJet owner opting for the upgrade will still see their range increase by approximately 100 nautical miles at max range cruise and improved performance. The expense may be worth it for the improved performance in certain situations.

In summary, the HondaJet Elite offers the owner-pilot several enticing features not currently available in many business jets. With a list price of \$5.5 million (includes most popular options), it is priced above its direct competitors. As with all aircraft decisions, the total cost of ownership and mission applicability including range can be the determining factors.

HondaJet Elite by the Numbers

> *Mid Weight 9,500 lbs **Based on Max Ramp Wgt

After 11,000 hours of piloting over 90 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 5008 and DA10. His company, Personal Wings, provides training, mentoring and aircraft services. You can contact Rich at **rich@personalwings.com**.



Jet Journal

Innovative Jet Ownership

by Rebecca Groom Jacobs

tartup company "Jet It" is not your typical fractional. Founded by aviators for aviators, Jet It seeks to alleviate the expenses related to jet ownership by allowing as little as two and up to 10 owners to collectively purchase and utilize a new HondaJet from its developing fleet. The ability to share the acquisition and maintenance expenses of a jet is a value proposition the company is offering to frequent travelers and owner pilots alike.

The creators behind this "hybrid fractional program" are former Honda Aircraft sales executives and longtime friends Glenn Gonzales and Vishal Hiremath.

"While selling for Honda Aircraft Company, we frequently came across pilots who were ready and willing to step up to a jet but could not justify the cost of whole aircraft ownership," said Gonzales, CEO of Jet It. "We created Jet It as a response to what the market was asking for – the benefits of jet ownership at a much more affordable price point."

Following the acquisition cost (starting at \$600,000), Jet It members are charged a flat rate of \$1,600 per flight hour in addition to a monthly management fee which covers items such as maintenance, management and pilots (the larger the share size, the lower the fixed expenses). Unique to other fractional programs, Jet It allots members a set number of days

versus hours for the year where each shareholder is entitled to the same amount of days as defined by their share size. The minimum flight time requirement is 30 minutes, and there is no limit to how many hours the aircraft can be flown per day.

When asked why the pair selected the HondaJet as its launch product, Gonzales spoke to the aircraft's efficiency, speed and space. "My co-founder and I were at Gulfstream before our time with Honda, and we found the HondaJet to have legroom relatable to a \$20 million G280. From a speed standpoint, the HondaJet is equivalent to Citation CJ3, and its efficiency equivalent to a King Air C90. It is such an interesting aircraft with performance and amenities that exceed other aircraft in its class."

Initially, Jet It will maintain a fleet of 10 to 12 HondaJets stationed around the eastern United States. Those who live within a 30-minute position of one of the aircraft can become a shareholder. The company anticipates rapid expansion to the western U.S. along with operators in Canada, Mexico and southeast Asia.



A Requirements for Jet It owner-pilots include maintaining a medical and completing training either at FlightSafety or in the aircraft.



▲ Unique to other fractional programs, Jet It allots members a set number of days versus hours for the year.

"The response has been overwhelmingly positive, and things are moving forward very quickly," said Gonzales. "My partner and co-founder Vishal is establishing our international operations as we speak which is something quite unique. In the future, owners traveling near our international partners will be able to fly and operate one of our HondaJets at the same price point they are familiar with in the U.S. We have begun this effort in southeast Asia where the company will be known as Jet Club."

Currently, Jet It is seeing an even split in travelers (back seaters) and owner pilots interested in the program. By the time of this article's publication, the company expects its first three aircraft to be in operation. The first unit is now purchased with 40 percent of the aircraft belonging to pilots.

"We are the first fractional organization to place owners in the cockpit of a new jet," said Gonzales. "These are individuals well aware of their travel patterns. Oftentimes, they are small business owners who simply need more range or reach than their current aircraft allows. Whatever the case, we can customize their ownership to meet their qualifications and needs."

Requirements for Jet It owner-pilots include maintaining a medical and completing training, PIC or SIC, either at FlightSafety in Greensboro (simulator) or in the aircraft itself (any location). Once qualified, owner-pilots can then plan, fly and operate missions to whatever extent they wish. Each flight, they will be joined by one of Jet It's professional pilots which allows for unique flexibility.

The completion of HondaJet training will also earn owner-pilots the status of membership in the "Red Jet Squadron." This is a name developed by Gonzales and Hiremath as a way to establish community and camaraderie among Jet It and Jet Club owner-pilots. The idea was influenced both by Gonzales' time as a fighter pilot in the Air Force as well as Hiremath's experience within various flying clubs.

When asked what success would look like one year from now Gonzales replied, "When quantifying it, we would like to see a dozen airplanes throughout the eastern half of the U.S. with operations established in Canada and Asia as well. But the most important measurement of success to us is that we have happy owners who are receiving the service they asked for."

For more information visit: https://info. gojetit.com/join-the-red-jet-squadron (CC)





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The Next Phase in Airborne Connectivity

Gogo's latest AVANCE systems quick to be adopted across business aircraft.

by Rich Pickett

hat began as Aircell in 1991, Gogo has grown into a household name for airline passengers and business aircraft operators alike. Utilizing a network of cell towers, primarily in the continental United States, Alaska and parts of Canada, users can call, text, email, and browse the internet at 3G and 4G speeds. Their most recent systems, AVANCE L3 and L5, build upon the company's popular ATG product line which recently achieved 4,500 total installations.

Gogo AVANCE

One of Gogo's goals in developing AVANCE was to offer an efficient service upgrade process that could easily expand with user requirements and system capabilities. Both the L3 and L5 can be reconfigured to several different profiles to meet the needs and budgets of operators. If an operator wishes to change their service, they simply call Gogo and their system profile can be changed remotely through their communication link with the aircraft. Previously, an operator would have needed an avionics technician to accomplish the change on the hardware itself. The AVANCE systems can also proactively notify the Gogo support center of technical issues with their systems while airborne. In some cases, they can resolve problems before the aircraft even lands.

The two AVANCE systems, L3 and L5, differ in capabilities and cost. The L3 is likely more applicable to the *T&T* audience as it was designed specifically with light to mid-size jets and turboprops in mind. It weighs approximately 18 pounds for the system and dual antennas. Offering the equivalent of 3G bandwidth, passengers and crew can obtain email, browse the web (useful for weather and planning updates), text and conduct voice calls. Users connect through the Gogo dual-band Wi-Fi router which is included with the system. Using this capability, you can connect your smartphone and utilize Wi-Fi testing and calling. This method allows you to use your own phone number, adding to the convenience to continue your conversation on the ground.

Data Plan Options

To accommodate varied communications needs, Gogo offers a broad selection of data plans. They start by defining the number of aircraft users of the L3 system. The "Core" plan supports five

devices, the "Plus" plan supports seven, and the "Max" plan supports up to 25. Each phone, tablet, and computer counts as one device. Whenever I use these systems personally, I remind my passengers only to connect the devices they *need*, otherwise, the system limit may quickly be reached. Of course, if you consistently need more devices to access the system, Gogo can remotely upgrade your access to the next tier.



Gogo's AVANCE L3 system.

For those L3 users who only need a maximum of five users under the Core plan, they can choose between an hourly rate of \$99 (which provides light internet use, email, talk and text, and Gogo Vision Information services) or monthly and annual options. This is more expensive than the basic hourly plan offered by BendixKing for their global Inmarsat-based Aerowave system, however, there are some additional services with the L3. If and when stepping up to the Plus and Max plans, users do not have an hourly plan available and must select either pre-paid monthly and annual portions or pay as they use the system. The advantages of the higher-level plans are improved bandwidth and more devices. In talking with installation facilities, the L3 system typically costs \$120,000-\$130,000 installed.

For operators of aircraft larger than the turboprops and lightmid jets, the AVANCE L5 builds upon the capabilities of the L3 by offering 4G bandwidth for faster communication. In addition to faster bandwidth, the L5 supports the control of various



cabin management systems through their onboard platform. While the L5 does not offer an hourly or monthly and annual subscription plans, it does offer the pay-as-you-go options similar to the L3. The price for the equipment and installation for the L5 is in the range of \$180,000-200,000.

Gogo Vision and the DASH App



Both AVANCE L3 and L5 systems offer "Gogo Vision." Gogo Vision has two components: Information Services and Entertainment. The Information Services feature provides flight progress, weather, Bloomberg news clips, and other capabilities. The Information

Services portion of Gogo Vision is included at no additional charge with either system. For those users who would also enjoy having onboard entertainment, they can add these features for an additional \$595 per month. With the entertainment option, users can access movies, online magazines, and television shows from the onboard media server. These offerings are updated when the aircraft is on the ground, providing much faster streaming while airborne.

Both systems also offer the Gogo Dash App, a mobile and computer-accessible application that allows flight and ground personnel to monitor the AVANCE system. You can obtain realtime performance information, diagnostics, and even review your data usage. The latter is extremely important if you want to manage your data costs before they exceed your budget.

Airborne Cybersecurity

With the increased use of the Internet for conducting personal and business communications, users need to be mindful of security even while flying. Gogo has addressed these issues with their systems. Onboard the aircraft, all Wi-Fi communication can be secured with industry standard encryption (which I recommend implementing on any aircraft router). To isolate the growing number of networked aircraft avionics, the Gogo system's only interface is in a receive mode which avoids any potential interference. Gogo uses some of this information to determine flight progress as an example. Airborne users can still be affected by malware transmitted through websites or email, but it is nice to know that the aircraft communications companies are taking cybersecurity very seriously in order to minimize any issues.

Closing Thoughts

It is clear that the adoption of airborne communication systems has grown dramatically in recent years with a number of companies offering various options. Operators have the choice between satellite and ground-based systems, each with their own advantages and disadvantages. While the satellite-based systems are generally more accessible, the air-to-ground options offer some of the highest bandwidth. In some cases, operators can install both types of systems, optimizing the benefits of both.

The introduction of the Gogo AVANCE line of products offers some of the most comprehensive systems on the market for ATG communication. The L3, in particular, provides another great high-speed option for turboprops and light-mid jets, with reasonable data plan options. For larger aircraft, the AVANCE L3 might still be more than adequate, unless higher bandwidth is needed in which case the L5 may warrant additional consideration.

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Jets - 15,487

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ount	Aircraft
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25	ASTRA 1125
31	ASTRA 1125SP
51	ASTRA 1125SPX
36	BEECHJET 400
238	BEECHJET 400A
124	BOEING BBJ
371	CHALLENGER 300
55	CHALLENGER 600
38	CHALLENGER 601-1A
109	CHALLENGER 601-3A
51	CHALLENGER 601-3R
289	CHALLENGER 604
9	CHALLENGER 800
166	CITATION 500
285	CITATION 525
266	CITATION BRAVO
153	CITATION CJ1
85	CITATION CJ1+
194	CITATION CJ2
163	CITATION CJ2+
357	CITATION CJ3
92	CITATION CJ3+
240	CITATION CJ4
152	CITATION ENCORE
50	CITATION ENCORE+
297	CITATION EXCEL
18	CITATION I
242	CITATION I/SP
451	CITATION II
58	CITATION II/SP
161	CITATION III
64	CITATION LATITUDE
171	CITATION M2
381	CITATION MUSTANG
125	CITATION S/II
256	CITATION SOVEREIGN
68	CITATION SOVEREIGN-
2/1	

236	CITATION V
28	CITATION VI
97	CITATION VII
255	CITATION X
25	CITATION X+
212	CITATION XLS
209	CITATION XLS+
1	DIAMOND I
42	DIAMOND IA
3	DORNIER ENVOY 3
232	ECLIPSE EA500
52	EMBRAER LEGACY 500
135	EMBRAER LEGACY 600
58	EMBRAER LEGACY 650
232	EMBRAER PHENOM 100
261	EMBRAER PHENOM 300
75	FALCON 10
21	FALCON 100
19	FALCON 200
186	FALCON 2000
21	FALCON 2000EX
58	FALCON 20C
15	FALCON 20C-5
23	FALCON 20D
2	FALCON 20D-5
31	FALCON 20E
9	FALCON 20E-5
68	FALCON 20F
64	FALCON 20F-5
194	FALCON 50
8	FALCON 50-40
91	FALCON 50EX
153	FALCON 900
23	FALCON 900C
102	FALCON 900EX
180	GLOBAL 5000
127	GLOBAL EXPRESS
19	GULFSTREAM G-100
206	GULFSTREAM G-200
8	GULFSTREAM G-300
22	GULFSTREAM G-400
283	GULFSTREAM G-450
7	GULFSTREAM G-500

471 GULFSTREAM G-550

22 GULFSTREAM G-IIB 128 GULFSTREAM G-III 170 GULFSTREAM G-IV 283 GULFSTREAM G-IVSP 170 GULFSTREAM G-V 34 HAWKER 1000A 5 HAWKER 125-1A 7 HAWKER 125-1AS 4 HAWKER 125-3A/RA 11 HAWKER 125-400A 13 HAWKER 125-400AS 12 HAWKER 125-400B 11 HAWKER 125-600A 3 HAWKER 125-600AS 103 HAWKER 125-700A 59 HAWKER 4000 187 HAWKER 400XP 34 HAWKEB 750 180 HAWKER 800A 33 HAWKER 800B 353 HAWKER 800XP 40 HAWKER 800XPI 81 HAWKER 850XP 155 HAWKER 900XP 6 JET COMMANDER 1121 4 JET COMMANDER 1121B 1 JETSTAR 6 5 JETSTAR 731 12 JETSTAR II 8 LEARJET 23 17 LEARJET 24 1 LEARJET 24A 11 LEARJET 24B 34 LEARJET 24D 10 LEARJET 24E 7 LEARJET 24F 11 LEARJET 25 36 LEARJET 25B 9 LEARJET 25C 92 LEARJET 25D 3 LEARJET 28 28 LEABJET 31

167 LEARJET 31A

62 GULFSTREAM G-II

33	LEARJET 35
13	LEARJET 36
32	LEARJET 364
30	LEARJET 40
192	LEARJET 45
166	LEARJET 45XR
100	LEARJET 55
4	LEARJET 55B
12	LEARJET 55C
256	LEARJET 60
467	PILATUS PC-12/4
110	PREMIER I
6	SABRELINER 40
17	SABRELINER 40A
3	SABRELINER 40E
1	SABRELINER 40R
21	SABRELINER 60
18	SABRELINER 60E
2	SABRELINER 60E
62	SABRELINER 65
13	SABRELINER 80
6	SABRELINER 80S
71	WESTWIND 1
5	WESTWIND 1123
29	WESTWIND 1124
62	WESTWIND 2
Tur	boprops – 1
C	hief Pilots & Ow
Count	Aircraft
2	PIPER MALIBU
260	CADAVANI 208

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2	PIPER MALIBU	
362	CARAVAN 208	
206	CARAVAN 208B	
2	CARAVAN II	
33	CHEYENNE 400	
137	CHEYENNE I	
13	CHEYENNE IA	
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179 CONQUEST I



19	MERLIN III		
26	MERLIN IIIA		Owne
47	MERLIN IIIB	Count	Aircraft
19	MERLIN IIIC	37	BARON 56
4	MERLIN IV	1433	BARON 58
9	MERLIN IV-A	2	BARON 58
8	MERLIN IV-C	345	BARON 58
63	MITSUBISHI MARQUISE	108	BARON 58
1	MITSUBISHI MU-2D	3	BARON A5
23	MITSUBISHI MU-2F	321	BARON G5
18	MITSUBISHI MU-2J	188	BEECH DU
33	MITSUBISHI MU-2K	162	CESSNA 34
11	MITSUBISHI MU-2L	520	CESSNA 34
18	MITSUBISHI MU-2M	70	CESSNA 40
17	MITSUBISHI MU-2N	121	BUSINESS
24	MITSUBISHI MU-2P	133	CESSNA 40
36	MITSUBISHI SOLITAIRE	24	CESSNA 40
67	PILATUS PC-12 NG	247	CESSNA 4
49	PILATUS PC-12/47	357	CESSNA 4
28	PIPER JETPROP	80.00	CHANCELL
46	PIPER M500	43	CESSNA 42
59	PIPER M600	38	CESSNA 42
81	PIPER MERIDIAN	335	CESSNA 42
3	ROCKWELL 680T TURBO	607	CESSNA 42
5	ROCKWELL 680V TURBO II	53	CESSNA TO
5	ROCKWELL 680W TURBO II	106	PIPER 601F
4	ROCKWELL 681 HAWK	24	PIPER 602F
98	SOCATA TBM-700A	442	PIPER CHIE
68	SOCATA TBM-700B	314	PIPER MER
92	SOCATA TBM-850	25	PIPER MOJ
02	SOCATA TBM-900	315	PIPER NAV
5	STARSHIP 2000A	13	ROCKWELL
70	TURBOCOMMANDER 1000	24	ROCKWELL
38	TURBO COMMANDER 690	77	ROCKWELL
40	TURBOCOMMANDER 690A	44	ROCKWELL
39	TURBOCOMMANDER 690B	5	ROCKWELL
79	TURBO COMMANDER 840	12	ROCKWELL
24	TURBO COMMANDER 900		COMMAND
56	TURBO COMMANDER 980	5	ROCKWELL

25 MERLIN IIB

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Owners ount Aircraft 37 BARON 56 TC

- 2 BARON 58 PA 345 BARON 58P 108 BARON 58TC 3 BARON A56TC BARON G58 321 188 BEECH DUKE B60 162 CESSNA 340 520 CESSNA 340A 70 CESSNA 402B **BUSINESS LINER** 133 CESSNA 402C 24 CESSNA 404 TITAN 247 CESSNA 414 357 CESSNA 414A CHANCELLOR 43 CESSNA 421 38 CESSNA 421A 335 CESSNA 421B 607 CESSNA 421C 53 CESSNA T303
- 106 PIPER 601P AEROSTAR
- 24 PIPER 602P AEROSTAR
- 442 PIPER CHIEFTAIN
- 314 PIPER MERIDIAN 25 PIPER MOJAVE
- 315 PIPER NAVAJO
- 13 ROCKWELL 500 SHRIKE
- 24 ROCKWELL 500A SHRIKE
- 77 ROCKWELL 500B SHRIKE
- 44 ROCKWELL 500S SHRIKE
- 5 ROCKWELL 500U SHRIKE 12 ROCKWELL 520
- COMMANDER 5 ROCKWELL 560

COMMANDER 11 ROCKWELL 560A

- COMMANDER
- 7 ROCKWELL 560E COMMANDER 7 ROCKWELL 560F
- COMMANDER
- 13 ROCKWELL 680 SUPER
- 3 ROCKWELL 680E
- 14 ROCKWELL 680F COMMANDER
- 14 ROCKWELL 680FL GRAND COMMANDER
- 6 ROCKWELL 680FLP **GRAND LINER**

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Count	Aircraft
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54	CESSNA 206
393	CESSNA P210N
21	CESSNA P210R
52	CESSNA T182
1	CESSNA T206
782	CIRRUS SR20
2920	CIRRUS SR22
238	PIPER MALIBU
104	PIPER MATRIX
449	PIPER MIRAGE



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Listen to Your Body

by Scott Kraemer

T is every pilot's worst nightmare to lose their medical certificate. Outside of achieving ratings, a valid medical is the gatekeeper for a flying career. And rightfully so with regard to the safety of flight, but it also a privilege to hold one from a life wellness standpoint. From personal experience, I lost mine after undergoing a necessary medical procedure. Thankfully, after a recovery period and enduring the FAA's medical re-approval gauntlet, I regained my ticket to ride. But during the process, combined with some personal soul searching, I learned there are several factors to consider toward your longevity as a conscientious professional pilot.

Relationships, career demands, lifestyle choices, self-inflicted wounds can all contribute and dictate your ability to either keep or lose your current FAA medical class status – whether you fly for pleasure or for a career. In my case, traveling and flying around the sky while someone else was covering the airplane, gas and travel expenses was indeed a privilege. However, your body's health can often take a veiled jump seat as you hurl yourself through the earth's atmosphere to various destinations on an unpredictable and rigorous schedule.

Though part of the job (of which some think is incredibly glamorous), there is a physical toll that you will pay for the opportunity to see and experience the world at large if you are not cognitively aware of the potential IED's set in your path: flying on multiples sides of the clock; successive daily pressure cycles; adverse weather or equipment issues; long duty days; minimal exercise; improper diet; sleep deprivation; sitting for hours on end; mission stresses; family demands. These are all causative effects on your mind and body's wellbeing and play a huge role in the fabric of your life. Think of yourself as a growing tree and work and life circumstances (plus personal choices) act as an ax that chip away at your structure

little by little as time goes on. How do you handle and even minimize the chipping?

In my case, I wish my former employer never gave me a credit card and an open expense account. I was no model image of the most health-conscious human, and when combined with entertaining customers, health-centric choices were not at the forefront. When my grease low light or BBQ deficiency annunciator would illuminate, I admittedly would travel on my stomach with sometimes reckless abandon. It does not help that there are so many unique cuisines and places to eat when you're on the road. I occasionally tried to be "good" but for the most part was oblivious to what was best for my body. Let's just say I affronted diet and exercise with an attitude of "I'll be better tomorrow - maybe."

After 20 years of this carefree attitude and passing physicals, I felt a little off one day. It was just a momentary dull tinge ache in my upper left chest that I attributed to schlepping passenger's large square heavy bags and fitting them into small rounded holes. A few weeks later, I had similar pain, but it went away just as quickly. This occurred on and off for several months, but my tone-deaf brain failed to see the ramifications. Then one night at home, the same dull ache came back with a vengeance and didn't go away as quickly. Finally concerned, I told my wife about it, and she immediately said we're going to the hospital. I protested and urged her to take me back to the house because the pain was gone before we left the neighborhood. With a look of stern yet concerned indignation, she thankfully did not heed my plea and knew exactly which hospital in town had the best cardiac facilities (evidently, her natural instinct she knew this was coming).

Upon hospital admission, like a Hot Section Inspection, I was thoroughly probed and prodded. Interestingly, the EKG treadmill test at first showed pretty normal. But after what seemed to be an eternity to reach a target heart rate, the nurse asked me to hurry because her arms were getting tired from holding all the cables hanging off my body. So, Nurse Ratchet increased the incline and speed of the treadmill to full thrust. And then it hit me, and I slammed on the brakes. An immediate sonogram later and I was in surgery. The good news was it was not a heart attack, but I had blockage in three arteries, so stints were in order. Fortunately, no physical damage to the heart according to an enzyme test but I was only functioning on 2 percent blood flow to those arteries. It is amazing I had not already left the planet or stroked out.

Regarding recovery, it was a welcome respite to have a few consecutive days off at first. But, how to get back into the left seat afterward? Per the FAA, you're grounded for a minimum of six months before you can even reapply for a medical. After six months, you have to go in for a medical and knowingly flunk it because you must now check the box "yes" as you are now classified as having "Heart Disease." So, you fail the exam and what happens next takes you on an attention-grabbing journey to get your health and career back in order. To meet the FAA requirements became my full-time job.

Bureaucracy being what it is, you must have all your medical records documenting the event. Reams of doctor notes, X-rays, MRI's, EKG test results, blood work and many other tests are required. The FAA requires you to go back to the hospital for another cardiac catheterization surgery to ensure the first procedure was successful (not negotiable by the way). The procedure is classified as an elective surgery that your insurance might not provide coverage. It is a pass/ fail test and your only chance to get your medical re-instated. You are then subject to a perpetual six-month First Class recurrent exam by your personal Flight Surgeon which also requires an EKG where you must reach 150 percent of your target heart rate based upon your age at the time. In other words, a lot of heavy breathing is required.

Additionally, your lifestyle must change and your body be fully recovered before you even apply. In my case, it was around 10 months from the initial event to when I had my medical back in my hands. I was very fortunate as my employer supported me going back to recurrent Flight Safety training. The events did, however, change me for the better. Most prevalent is the valued appreciation of your lifespan and relationships with the people you love. But also, taking care of yourself contributes to remaining active in the career you love. As I sucked up the King Air landing gear on my first flight back at the yoke (something I feared might not ever happen again), I thanked the universe for allowing me passage through it once again.



So, listen to your body. Drop the tree ax. Do all you can to lower your stress levels through mind control and cut the garbage intake. If you feel off, do something about it immediately. The stakes are far too high to play Russian roulette with your health.



Scott Kraemer is a 35 + year veteran in the business aviation industry, with 27 of those years spent in the sales and market-

ing department at Beechcraft Corporation. Scott holds a Commercial Pilot License and has logged over 7,000 hours in more than 50 aircraft models. Presently, Scott is an Executive Director for Holstein Aviation specializing in aircraft acquisitions, sales and consultation. You can contact Scott at **jscottkraemer@gmail.com.**







WHO: Don Sumple Executive Director, Angel Flight Central

HOME BASE: Kansas City, MO

by Rebecca Groom Jacobs

1. Can you summarize the mission of Angel Flight Central (AFC)?

Angel Flight Central serves people in need by arranging charitable flights for health care or other humanitarian purposes with the help of volunteer pilots. Angel Flight Central serves 10 states in the mid to upper Midwest. Ninetythree percent of our flights are medical while the other 7 percent consist of the humanitarian variety. Our humanitarian flights are primarily flying children to special needs summer camps. These children typically have HIV/AIDS, cancer, heart disease or are burn victims. The camps are free however the parents cannot afford the transportation costs to get their child to and from camp. When needed, Angel Flight Central also flies disaster relief flights.

The organization was formed in 1995 when founder, Jim Stevens, flew a young boy from his church who was suffering from a heart ailment to a medical facility for lifesaving treatment. The parents were not able to obtain the treatment needed in their home area. The young boy's mother was so appreciative and gave Jim a huge hug with tears flowing down her face. Jim was so touched that he said to himself, "I need to do this again." Twenty-three years later, Angel Flight Central pilots have flown over 26,500 flights and counting.

2. Why is this transportation so beneficial to these patients and their families?

Many AFC passengers would not be able to afford the transportation costs to receive, in many instances, lifesaving treatment. There are many cases where an individual is suffering from a disease such as cancer and it is a 7 to 10-hour car ride to a medical facility, which would be unbearable in his or her condition. Angel Flight Central will fly an individual to treatment as many times as necessary.

A secondary benefit: While the organization provides air transportation to medical facilities, it also enables families to maintain a quality of life that they wouldn't be able to if they had to pay for airline tickets to reach their treatment facility. They can now use those dollars for the necessities of life such as food, shelter and clothing.

3. What is a typical mission?

The maximum distance for an Angel Flight Central flight is 900 nautical miles (a 3-leg flight). We never ask our pilots to fly more than a 300 nautical mile leg, so each can be home before dark. However, the pilot has the ability to take as many legs as they would like. During AFC's 2018 fiscal year, the "typical" flight was two

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legs averaging 460 to 550 miles in distance, with a flight time of roughly six hours. Passengers are both adults and children. One of the misnomers that we face is that Angel Flight Central just flies children, which is not true. As a matter of fact, more than 60 percent of our flights are for adults over the age of 18.

4. How many pilots and aircraft are currently affiliated with the organization? What is the process for registering?

Currently, Angel Flight Central has 330 dedicated pilots in our region. Each pilot either owns his or her plane or has access to one. The organization does have special requirements that each pilot must meet. Angel Flight Central stresses a culture of safety and is very concerned about the safety of not only our passengers but our pilots as well. We routinely tell our pilots they can always cancel a flight but cannot cancel a poor decision.

If a pilot is interested in becoming a volunteer pilot for our organization, they can log into our website at *www.angelflightcentral.org* and click on "Pilots." I can tell you for certain that there are individuals alive today because of the generosity of these men and women who give their time, treasure and talent to our organization.

5. Can you share an example of one of the patient stories? How did the network provide the care he/she required?

Mike C. is a single father of a high-school Junior. Mike runs his own home inspection business, mainly so he can set his own schedule. Mike was involved in a terrible car accident that left him with a threat of never walking again. To continue his miraculous progress, Mike is charged with traveling to a specialist in Minneapolis every two months. The drive to-and-from is debilitating, and usually requires a week or more to recover from, before feeling strong enough to return to his business. The process has left Mike financially and emotionally bankrupt.

During the Kansas City Better Business Bureau's Annual Meeting in January 2018, Brendan Sneegas, the AFC director of operations and development, unknowingly sat at the same table as Mike. Brendan learned of Mike's story and offered to set him up with an "angel flight" to determine if free air-transportation could make a difference in Mike's ability to recover and get back to his business quicker and with less pain. Mike more than agreed.

On January 28th, 2018 Mike and his son Zach took off from the airport with a local pilot and landed in Minneapolis 90 minutes later. Mike attended his appointment while the pilot waited at the FBO. At 8:30 p.m. the very same day, the plane touched down in Kansas City. Mike returned to his Independence, Missouri home and was able to be back, running his business the next day. Angel Flight Central hopes to repeat this story every two months as long as Mike needs us.

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The Makings of a Good Captain

by Kevin Ware

ne of the benefits of the professional pilot contract flying I do is that I occasionally fly as Second in Command (SIC) with a wide variety of other pilots as the Pilot in Command or Captain. They come from diverse aviation backgrounds with most (but not all) having more than my 11,000 hours of flight time. In an FAR Part 91 environment, where flight operations are not standardized airline style, how "things are done" can vary quite a bit with each individual captain – which just makes what I do even more interesting. Here is one example.

It is my turn to fly, and while we are listening to the AWOS, Mike sitting in the left seat of the Lear says, "Looks like you got the rough leg." And that indeed appears to be true with the winds gusting 16 to 28 knots from 250 directly across the runway as we taxi out to Runway 34 in Minden, Nevada (KMEV). And though conditions on the airport itself are VFR with the ceiling at 9,000 feet and a visibility of six miles, immediately to the north over Reno, there is a thunderstorm which is blocking our way home back to Seattle.

Mike briefs the published departure procedure, but also notes it will take us right through the weather then gives me a questioning look. I tell him I intend to depart VFR (the airport is non-towered) then make a right turn to the northeast to take us away from the weather, during which time he can coordinate with the departure controller and get our IFR clearance. He nods and says, "good idea." He makes the Unicom announcement as I taxi out, carefully line up the airplane on the runway, with the nose wheel exactly on the white line, then push the TFE 3500s up to take-off power.

As the airplane accelerates and just as Mike calls "airspeed alive," a big gust of wind from the west hits the vertical stabilizer which changes the airplane's direction slightly making the nose wheel move about 18 inches to the left of the white center line before I can fix it. Out of the corner of my eye, I can see this immediately gets Mike's attention, so much so that he misses the "80 knots, cross-check" call out. I do a little tailwheel type footwork on the rudder pedals and soon have the nose wheel back on the white line where it belongs. But then hearing nothing from the left seat, I finally say, "You going to call out some numbers for me Mike?" He immediately replies with, " $V_{1,}$ rotate," and we climb into a very bumpy sky.

By the time we get to 18,000 feet, Mike has coordinated with departure, and we have an IFR clearance and have worked our way around the thunderstorm now lying off our left wing. Once things settle down, I ask Mike, "What happened back there Mike - you forget to call the numbers?" He replies, "No, I was actually paving more attention to you keeping the airplane on the white line." And then adds, "...as a good captain should." It is a point well taken, and I make a note to remember it. In the end, the safety of the flight is the PIC or Captain's responsibility, and he needs to be paying careful attention to the most pressing issues, of which keeping the airplane on the runway during a takeoff roll would certainly be one.

Mike is one of those pilots I always learn something from when I fly with him. He has 27,000 hours, was trained to fly by the Navy and then spent a career flying heaving metal with a highly regarded U.S. airline on mostly international routes. He brings a certain mature, grey-haired discipline to the cockpit that some might find irritating, but I actually appreciate. If he is the trip captain and the pilot monitoring (PM) while you are the pilot flying (PF), you can guarantee he is watching what you are doing and expects you to do likewise for him. When he is in the left seat, challenge and response checklist work for every flight regimen is a given – as are sterile cockpit rules below 10,000 feet.

Another thing he watches closely is speed control. As you come down to 10,000 feet, it is certain he will start saving something if you are not exactly at or below 250 knots. If you are at say 280 knots while descending through 11,000 feet, he will definitely provide a helpful hint like "speed brakes will help." Such compulsivity could be degrading if it did not go both ways, and a good captain always welcomes comments from the SIC regarding his particular flying, which he does. Usually, these exchanges are quite short like "speed 260, 9,000 feet, Mike," to which his reply would almost certainly be, "slowing, thanks."

That kind of courteous collegiality is what makes flying as a crew fun. But, it can vary a lot depending upon the captain/pilot's background. I commonly find that pilots who have flown for airlines (Part 121) have a very standardized way of conducting things. Interestingly, their "standardization" can vary a lot depending upon what airline they flew for; something they themselves often do not recognize. It is not uncommon to hear, "Well, that's how we did it at Delta," only to find someone else do something completely different



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800.390.4324 www.airfleetcapital.com on another trip and saying, "That's how we did it at United." It is my observation that however it is done, "standard operating procedures" that are understood and followed by the entire flight crew make flying safer and easier.

Another thing most captains with airline backgrounds routinely do is trade off alternate Pilot Flying (PF) and Pilot Monitoring (PM) legs with their second in command. This is a custom often not followed by people with a purely Part 91 background which I think detracts from safety. As it turns out, the PM in a business jet is usually the busiest pilot in the cockpit, and it takes a while to learn that role well and practice to keep it current. Captains that never choose to work that side of the flight can get rusty with some of the busy SIC duties which paradoxically makes them avoid that role even more.

As an example, I once flew a trip from the southern U.S. to the far end of South America and never once touched the controls. The captain/owner reserved that role for himself. By the time we got well down into the southern continent, I was starting to wonder if without a very active and competent SIC, he could operate the black boxes and deal with the Spanish accented controllers well enough to even find his way back.

At the same time, pilots working as SIC who never actually fly any legs can lose currency in basic aircraft operations which is not a good thing either. If they have not had a lot of experience themselves, they tend to get stuck in that role which makes upgrading to captain difficult. There was a Learjet pilot in my area who had several thousand hours in the aircraft as SIC that applied for a job as captain to one of the air ambulance companies, and just plain busted the company check ride that would have given him the job. He, of course, was embarrassed but then explained that the PIC he had flown with for the past five years never allowed him to touch the controls. As a result, he was a whiz with the FMS and radio communications, but little else, Good captains regularly alternate Pilot Flying and Pilot Monitoring legs with their SIC because it keeps both pilots sharp and contributes to safety.

Another thing that pilots with military and airline backgrounds usually do very well is understand the notion of "chain of

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Phone: (425) 643-4000, x305 Info@Lumatech.com command." If flying as captain, they tend to invite comments and suggestions, but in the end, know that the final decision is theirs. In turn, if flying as SIC, they will certainly contribute to the discussion but almost automatically defer to the captain's judgement when the question arises. The business of understanding the chain of command, with the command position usually held by the pilot with the most experience, also contributes to safety and is something purely Part 91 pilots sometimes do not do that well.

Perhaps the most difficult situation to encounter as a professional pilot is suddenly finding yourself flying as the SIC with a new "captain" (often a new owner/ pilot) who has little experience flying to professional standards in an aircraft requiring a crew of two. Even though trained for the aircraft in a simulator and appropriately type rated, many of these pilots tend to fly every leg personally regardless of circumstances, and vastly underutilize the more experienced pilot sitting on their right. Sometimes these guys are good, but sometimes not. This problem is almost unique to Part 91 operations because with the airlines, seniority rules generally put

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ADVERTISING DIRECTOR JOHN SHOEMAKER 2779 Aero Park Drive, • Traverse City, MI 49686 Phone: 1-800-773-7798 • Fax: (231) 946-9588 E-mail: johns@villagepress.com the most experienced pilot in the left seat. A fellow professional contract pilot acquaintance of mine from the Southeast recently told me that flying in role like this was the most dangerous and scary flying he had ever done and his background even included military experience where he had been shot at. Although it may be tough on the ego of the new pilot/owner, it would be safer in such circumstances if it was decided well before takeoff that the captain would be the pilot with the most experience.

Even pilots with extensive crew experience can sometimes get in trouble if the same two individuals always fly together. This rarely happens in Part 121 settings because airlines rotate crews, but is often the case in business or Part 91 operations. The problem is that unless they are careful, these crews get to know each other's patterns very well, start taking short cuts and drift into sloppy habits that a pilot new to the scene would recognize and question right away. There was a fatal Gulfstream crash recently wherein two perfectly qualified and highly experienced pilots died on the takeoff run simply because they left the control lock in place. This would have readily been

caught with better checklist discipline, something a good captain would insist upon every single time.

What makes a "good captain" for any given flight is dependent upon experience, attitude, training, discipline and a willingness to not let the boredom of routine professional flying get in the way of safety. Other factors aside, generally the best person to take on the role is the one with the most experience – a little grey hair also seems to help a lot.



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 <u>busi</u>ness 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.



From the Flight Deck

by Kevin R. Dingman

Debrief

Errors of omission and commission: Remembering lessons learned.



"A stood for altimeter. It told how high a man flew. B stood for boost. It told the power in the engines. C stood for compass. It told in which direction a man was proceeding. It was delightfully simple."

An error of omission is not doing something that we should have done like forgetting to put the gear down, not feathering a prop during an engine failure or neglecting to load an arrival/approach into the FMS. An error of commission is the mistake of doing something, but doing it wrong such as extending the gear but while too fast, feathering the wrong prop during an engine failure or loading the FMS with the wrong arrival/approach. Despite Ernie's A-B-C, and ARROW, PAVE, CIGAR, GUMP, Identify, Verify, Feather and several dozen other memory mnemonics, litanies and checklists developed over the years, we continue to make errors of omission and commission. Most of our mistakes are small and of little consequence, but the potential for a serious blunder looms over us like the sword of Damocles. By reviewing significant events from our flights, a technique employed in the military (and the airlines and corporate), we can reduce both types of errors. This tool reinforces the good and helps us to avoid repeating the bad; it's called a debrief.

Doctorate Level Epiphany

A fellow F-16 pilot sent me an article from BCA (Business and Commercial Aviation) magazine about military briefings and debriefings. The story focused on the methods and practices learned during Vietnam which led to the creation of

- Ernest K. Gann, Island in the Sky.

the Navy and Air Force Fighter Weapon Schools. The BCA article reminded me of the tenacity we employed in learning from the events during each mission as fighter pilots. While flying the F-16 at Nellis AFB in Nevada, we were often tasked to support USAF Fighter Weapon School training sorties. Sometimes we acted as the air-toair bad guys trying to shoot them down, and other times as the air-to-ground bad guys trying to drop bombs on their airfields, military machinery and other highvalue assets - like their golf course. In both the air-to-air and air-to-ground scenarios, the Fighter Weapon School student's mission was to intercept us and to shoot us down. During the doctorate-level briefings and debriefings for these missions (typically twice as long as the actual flight), we "operational" fighter pilots discovered the value and benefit of a best-of-the-best, detailed and critical debrief and we began to sit-in on the briefings even when not participating in the missions. I invite you to experience just such an epiphany.

Squirming Hatch Blower

Even though the piloting profession was in on the ground floor of using checklists, we continue to skip things accidentally (or intentionally if we think it's already completed) and then we swear (often literally) that we will never make that mistake again. Many of us fly as PIC with no SIC so we can't expect checklist assistance or



a critique from the other pilot. Therefore, any criticism will have to come from a self-deprecating admission.

To wit: I've been slow to retract the gear in the Duke during an oh-dark-thirty departure, forgotten the flaps on a missed approach, lowered the gear way too early during an approach in ice, worn work boots and landed with a brake pedal depressed ("Big Foot Flies Again," T&T May, 2018), failed to press the execute-approach button on the GPS/FMS, forgotten to move the fuel cross feed valves back to normal after a ground check, ran the wing of an MD80 into a deice truck (not my fault - see "Wintertime Blues," T&T February, 2016), almost went into an inverted spin when I over-controlled a training spin in the T-37 and I recovered an F-16 from a computerinduced near deep-stall during a maintenance test flight ("Paper Airplanes," T&T May, 2011).

I've also left the door unlatched in a B36TC, hit the tail of a PA28 with a roll of toilet paper while in flight ("The Pilots Mom," T&T May, 2016), almost slid off an icy runway in a Cherokee 140, briefly caught a C-150 engine on fire during an over-primed start, got way too slow on a real, single-engine approach in the Duke and these are just the ones that I'm willing to admit. Twenty-three thousand hours has given me plenty of time to make mistakes and to even repeat some of them. I'm certain that I wasn't the first, nor will I be the last, to commit a squirming-hatchblower faux pas. So, is there something more than self-deprecation that we intrepid aviators can use to defend ourselves from Ernie Gann's probabilities of fate?

The Debrief Diary

I found her diary underneath a tree. And started reading about *me...* – "Diary" by Bread, 1972

Debriefing a flight from start to finish allows us to examine and learn from the good, the bad and the ugly (Clint Eastwood, 1966). But after flying

for several hours, it's easy to forget what happened during the preflight, engine start, taxi, takeoff, cruise, descent, approach, go-around, taxi, parking, shut down, towing to the hangar (and in the words of Yul Brynner in "The King and I") etcetera, etcetera, etcetera. Now imagine trying to remember all of that stuff after three or four legs, over three or four days in a row, month after month, year after vear - for decades. We can't remember it all so we should write it down as it occurs. As an F-16 instructor, check pilot and maintenance test pilot, I flew with a kneeboard and kept notes next to the mission profile to remind myself of what to discuss during the debrief. And at my carrier, I print a document showing the date, the to-from, and the takeoff and landing time of each leg over the span of the trip. I then record important events, questions and errors next to each leg of the trip. We can do something similar in our GA airplanes.

In the Duke, I use a pre-printed flight planning form with room for the ATIS, copying a clearance, frequencies, logging time/fuel and the inevitable errors of omission and commission. We normally have some low-workload time during cruise to reflect and record issues. Once we reach TOC (top of climb) and have finished the cruise checklist, set the power, talked to the passengers and savored a crew meal, we can take out our pen and our debrief log (millennials and millennial wannabes can use the notepad icon on your phone or iPad) and list the errors we've made and questions that arose. During the descent, approach and taxi we need to make mental notes to be recorded similarly once at the FBO, hangar, hotel or office. If you have no anomalies or lessons to record then you either weren't paying attention, were too embarrassed to admit them or you think that you're the best pilot you ever saw. Here are a few things you may want to include in the debrief diary for those of us that aren't Gordo Cooper:

- Issues or events occurring with fueling, weight and balance, deicing or towing;
- ATC clearances changes, surprises and issues;
- Forgotten or improperly applied checklist steps;
- Procedural confusion with aircraft systems including the FMS and autopilot;

- Errors in navigation, altitude, the arrival procedure or the approach;
- Ground movement issues including confusion, missed turns or near incursions;
- Avionics, mechanical and weather problems.

A thorough debrief is the best way to ensure hard experience is turned into lessons learned - especially if we review a list of our personal lessons from previous flights. For myself, I've begun transferring and compiling these recorded issues from each flight into a single source "There I Was" diary. A quick review of the compilation before a flight reminds me of previous issues, questions and errors. And not surprisingly, just the thought of the diary becoming longer with each flight is a motivator to be more diligent in procedural and checklist compliance so as to prevent adding yet another lessonlearned to the diary. I recommend you make it a practice to pull out your own record of the above debrief suggestions as part of your pre-flight routine.

A Regular Review

It's what you learn after you know it all that counts.

– John Wooden

Making an error of omission or commission is frustrating and you're not the only one that does it. Despite memory mnemonics, litanies and checklists, we all make them. But we can combat the occasional sword of Damocles and Ernie's assertion that we are hunted by fate, with a regular review of our debrief items. A several-hour, Fighter Weapons School, self-deprecation is certainly overkill, but we should at least conduct a regular review of our list of experiences to ensure that we remember. Millennials can record lessons with electronics; we geriatric, old-school types will use an ink pen. Either way, give it some thought. After all, no one wants to be a squirming hatch blower or find a bomb-crater on their golf course. Happy New Year my friends.

Kevin Dingman has been flying for more than 40 years. He's an ATP typed in the B737 and DC9 with 23,000 hours in his logbook. A retired Air Force m jor, he flew the F-16 and later performed as an USAF Civil Air Patrol Liaison Officer. He flies volunteer missions for the Christian organiz tion Wings of Mercy, is employed by a major airline, and owns and operates a Beechcraft Duke.Contact Kevin at **dinger10d@gmail.com**.



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On Final by David Miller



Flying with a Mentor

any *Twin & Turbine* readers have come up through the ranks as masters of their own destiny. By that, I mean flying single pilot. Whether it be in a Cirrus, TBM, Baron, or King Air, many of the airplanes we fly are designed to be flown by one person. And, other than a BFR or an insurance requirement, we don't often spend time with a professional in the right seat.



My experience is somewhat different. I decided early on in my business career that having a pro up front created more time for me to run my business while still enjoying the fun parts of flying my airplane. Starting with a Duke and then a B100 King Air, my copilot JC and I flew together everywhere. As we transitioned into jets that required two pilots (Sabre 40 and 60), I was "at home" in a crew environment.

I also flew a Falcon 10 and 50 for seven years with pilots from a Fortune 500 flight department, which was an amazing experience where I was mentored by professionals. They were excellent teachers, and many were headed to the airlines. When I purchased my first Mustang, it felt natural to have a mentor at my side.

But it wasn't always that way.

Departing Addison one hot July afternoon in a very old Queen Air, JC was anxious to get going. I was a newly minted multi-engine wonder, invited to ride right seat with a load of passengers on the trip to Corpus Christi. Level at 9,500 feet, the right engine exploded. I glanced over my shoulder to see a hole in the cowling and parts glowing beneath the smoke. Instinctively, JC reached to feather the prop. Nothing happened. Those big windmill blades were dragging us down.

"You handle the radios," JC barked. Refusing to declare an emergency, JC descended toward Addison. On downwind, Addison tower said, "November One Zero Delta, you're number three to follow a Cherokee on a touch and go."

"Tell them we are landing," yelled JC. After which, he reached up and turned off the avionics master switch!

JC was simply tired of listening to ATC.

We survived, but I worry that some of you may have had a "JC" in your cockpit, too. You may have never experienced what a pleasure it is to learn from a real pro.

After a few more harrowing experiences, I realized that JC was a great stick and rudder guy, but a terrible mentor. I began to look for pros who could make me a better pilot. And after a few hits and misses, I have some characteristics to look for:

- Someone who possesses significantly more experience or knowledge than you and has the desire and ability to share it.
- Someone who can tell you at least three things about your airplane or avionics that you never knew within 30 minutes of meeting them.
- Someone compatible with your personality.
- Someone your wife would let into the house for dinner.
- Someone who will challenge you to think about how you operate your airplane.

Finding the perfect mentor can be challenging and rewarding. It is worth the effort.

Fly safe. T&T

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

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