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56 CHALLENGER 601-3R
279 CHALLENGER 604
5 CHALLENGER 800
169 CITATION 500
319 CITATION 525
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69 CITATION CJ1+
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390 CITATION CJ3
180 CITATION ENCORE
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50 CITATION II/SP
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57 LEARJET 25B
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172 LEARJET 31A
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426 LEARJET 35A
21 LEARJET 36

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24 LEARJET 40
219 LEARJET 45
193 LEARJET 45XR
115 LEARJET 55
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12 LEARJET 55C
293 LEARJET 60
130 PREMIER I
16 SABRELINER 40
13 SABRELINER 40A
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3 SABRELINER 40R
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1 SABRELINER 60A
2 SABRELINER 60AELXM
12 SABRELINER 60ELXM
3 SABRELINER 60EX
1 SABRELINER 60SCEX
85 SABRELINER 65
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3 SABRELINER 80SC
101 WESTWIND 1
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76 WESTWIND 2

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COVER PHOTO

Photo Courtesy of Pilatus
Business Aircraft, Ltd.

TWIN & TURBINE WEBSITE

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Twin & Turbine (ISSN 1945-6514), USPS 24432 is published monthly by Village Press, Inc. with advertising offices located at 2779 Aero Park Drive, Traverse City, Michigan 49686. Telephone (231) 946-3712. Printed in the United States of America. All rights reserved. Copyright 2015, Village Press, Inc. Periodical Postage Paid at Traverse City, MI. SUBSCRIPTIONS: *Twin & Turbine* is distributed at no charge to all registered owners of cabin-class aircraft. The mailing list is updated monthly. All others may subscribe by writing to: *Twin & Turbine*, P.O. Box 968, Traverse City, MI 49685, or by calling 1-800-447-7367. Rates for the United States and its possessions follow: one year \$29.95; two years \$52.50. Canadian subscriptions are \$15 per year additional, including GST tax. Overseas subscriptions are \$30 per year additional, U.S. funds. Single copies \$3.95.

ADVERTISING: Advertising in *Twin & Turbine* does not necessarily imply endorsement. Queries, questions, and requests for media kits should be directed to the Advertising Director, *Twin & Turbine*, P.O. Box 968, Traverse City, Michigan 49685. Telephone 1-800-773-7798. Website: www.twinandturbine.com.

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Looking Back



It doesn't take long. As soon as pilots accumulate a few hundred flying hours, they begin to leaf back through their logbooks, reminiscing over planes flown, places seen and people noted. I remember filling up my first slim volume of carefully-annotated minutia (truly, there

were some flights logged in indigence-mandated minutes) and turning through the pages before tossing it on the shelf. Looking back is not just for the aged, but for anyone who's on a journey.

I don't know how one flips through electronic records. As a print-and-ink guy, I've always been a scrivener, reluctantly accommodating a computer keyboard only after the office scanner no longer recognized my flawed typing. The pleasure of recalling experiences can no doubt be drawn from digital entries as well as handwritten ones, perhaps linked to additional files.

Why are we interested in going back into the archives of airplane types and stops made? Sometimes it's curiosity, wanting to verify something we think we've done, but aren't dead-sure of. Have I really flown that N-number, way back when? Did I fly during the ATC strike in 1981, and where was I flying around September 11 of 2001?

Learning is the transfer of knowledge gained through experience, and sometimes we make the transfer by personal recall, not solely by absorbing it from others. The trips in

my logbook are testimony that I did find the airport in an unexpected snowstorm, or that it did take twice as long to come back home as it did to fly out.

In my very earliest days, I made entries in aircraft logbooks, as well as my own, because some of the older planes weren't equipped with recording tachometers. Each pilot dutifully entered the time flown, to keep track of oil changes, landings and fuel consumed.

To create a useful record, it's important to be dead-honest about one's logbook entries – for yourself, if no one else. I do not, for instance, log pilot time unless I fulfill a takeoff/landing duty, which is why there's no helicopter time in my books, even though I've spent many hours en route under rotor, performing as a human autopilot. As a glaring FAA inspector once told me, holding a ballpoint pen in his hand, "Ya know, this pen can write anything in a logbook." His point was well-taken, and you and I have probably seen considerable P-51 (as in Parker 51 fountain pen) time in logs we've scrutinized. Take pride in keeping clean records, so you can look back at them as the gospel truth.

As do many senior birdmen, I no longer log the routine runs in detail, or keep track of time-in-type. But my logs still contain significant mementos of chasing jackrabbits after high-elevation takeoffs, deviating around storms, and making unplanned diversions to out-of-the-way airports. Looking back is habitual and infectious. It can also be productive, as a way to avoid repeating the mistakes we've made.

LeRoy Cook.
Editor

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Pilatus

The Majestic

by Todd Hotes

An aerial photograph of a city, likely New York City, with a river in the foreground. A white Pilatus PC-12 aircraft is flying in the lower right corner, viewed from a low angle. The aircraft's propeller is blurred, suggesting motion. The city buildings are densely packed, and the river is a prominent feature. The sky is clear and blue.

The Pilatus PC-12 is a majestic-looking airplane, standing 14-feet tall with a 53-foot wingspan. Its footprint rivals that of a small to mid size jet, but it's not. It's a single-engine pressurized turboprop. The latest version, the PC-12/47E, also known as the NG (Next Generation), was introduced in 2008. Yes, its price tag may approach that of a small jet. However, this is where the similarities end. In the case of the NG, the profit is in the purchase.

Described as the high-performance sport utility vehicle of the sky, the PC-12NG provides a high ratio of cost to performance. Boasting 330 cubic feet of cabin space, a 4'5" x 4'4" cargo door, and an increased maximum takeoff weight of 10,450 lbs (compared to 9,920 lbs in the previous model), the PC-12NG, and all of its predecessor upgrades, delivers the ability to carry a heavy

payload across a vast expanse of earth, at a reasonable speed. Dependable, efficient, and eloquent are just a few adjectives that describe the NG. Propelled by the large, dependable Pratt and Whitney PT6A-67P engine, and with a glide ratio of

almost 2.4 nm per thousand feet AGL, the fear of an aircraft having only one engine quickly subsides. With intelligent piloting, combined with the reliability of the engine, the PC-12NG is as safe (arguably safer) as any aircraft of its size.

PC-12NG



**A New Generation
of PC-12's**



I've now flown the NG for almost five years; the airplane never ceases to amaze me. Whether it's the performance on any particular day, the flexibility of suitable airfields (including unpaved airstrips), or the reliability of the airframe, the NG always delivers what we've grown to expect from the Pilatus. If you're looking for a personal airplane, this is it. If you're looking for a cargo hauler, this is also it. And if you're looking to maximize business travel, well, this is it, too. It's a horse of many different colors, and this is what sets the airplane apart. Follow along, as I walk through different stages of flight to describe the Pilatus PC-12NG. But first, let's note the differences among previous models.

Old Dog, New Tricks

Initially appearing in 1995, the PC-12/41 had a gross weight of 9,036 lbs, quickly upgraded to 9,920 lbs with stronger landing gear as the PC-12/45. Pilatus deserves much credit for providing retrofits for

older airplanes to bring them up later standards. Larger winglets in 1998, panel changes in 2001 and the increase in gross weight in 2006 to create the PC-12/47, continued the upgrades. Pre-NG aircraft used the PT-6A-67B engine, limited to 1,000-shp after five minutes.

The NG has had a few significant upgrades over the earlier model PC-12s. For one, the airplane now comes standard with the Honeywell Primus Apex Integrated Avionics System. Very robust, the avionics package includes four 10-inch reversionary screens that can easily be reconfigured in the event of a failure. The screens are arranged in a "T" shape, with two PFD's on either side of the upper MFD and one additional MFD below that. The information is divided in quadrants for easy viewing and interpretation. Maneuvering around the system is made easy with a cursor control device, in addition to the standard joystick, which helps tremendously in turbulent conditions. Housed in the modular avionics unit,

subsystems controlled by computers and line-replaceable modules allow the integrated avionics system to produce easy-to-manage information, system functionality, and graphical depictions.

Moreover, the NG also benefited from new winglets (for a myriad of efficiencies), a rudder/aileron interconnect (for improved lateral stability and coordination), servo tabs on the aileron (introduced on the PC-12/47 for boosted roll performance), and lastly, as mentioned earlier, increased power from the PT6A-67P engine, capable of 1,845-shp but flat-rated to a continuous 1,200-shp by Pilatus, coupled to the increased maximum takeoff weight (MTOW) of 10,450 lbs. All of these upgrades have continued to make the NG a formidable player in both the turboprop and light-to-small jet markets.

Operationally

The PC-12NG handles as well as she is beautiful. With all of the new

upgrades, versatility is unsurpassed. Whether the mission is flying in a congested terminal environment, where adaptability in airspeed and automation are paramount, using unimproved airfields, with help from trailing link gear and large tires, or flying in mountainous terrain, requiring agility and ultimate pilot control, the NG has you covered, for rather reasonable fixed and variable operating costs. The aircraft doesn't satisfy every mission profile, but it has quite a large operating envelope.

Powering up the PC-12NG gives the feeling of being in a larger aircraft. Its sights, sounds, and spacious cockpit, along with the ergonomics and "switchology", resemble that of a "big airplane", albeit, a single-pilot friendly one. Pilatus and BMW have gone to great lengths to design the cockpit (and cabin) with eloquence, durability, and functionality in mind. Cockpit organization is made easy with side storage areas for paper charts, mini drawers behind each seat to fit Jeppesen-binder size items, coat hooks aft of the seat, cup holders for the ever-important cup of coffee, and cockpit lighting in just the right places. The cabin isn't too shabby either; it's usually configured with four club-facing seats and two forward-facing seats, plus room for two more, with access to entertainment.

Power-up is simple, but proper procedures need to be followed, due to start-up logic within the computers. Along the same lines, using a ground power unit for preloading the flight plan/performance information, as well as ground heating and cooling, gives the feel of a larger airplane. Be that as it may, the airplane does have two NICAD batteries that are fully capable of battery starts: One powers the starter/generator and the other provides power to maintain essential systems during start.

Taking to the Sky

Taxiing the NG is fairly easy, despite its size. Although it appears

how comfortable?

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SPECIFICATIONS Pilatus PC-12NG

Powerplant

Pratt & Whitney Canada	PT6A-67P
Seats	8-11
Fuel	402 gal.

Performance

Certified ceiling	30,000 ft.
Max. cruise speed	280 kts
Stall speed	67 kts
Takeoff distance (50 ft. obstacle)	2,650 ft
Landing distance (50 ft. obstacle)	1,830 ft
Max. range (w/reserve)	2,210 n.mi.
Climb rate	1,920 fpm

Weights

Ramp	10,495 lb
MTOW	10,450 lb
Zero Fuel	9,039 lb
Max. landing	9,921 lb
Empty	6,602 lb
Useful load	3,893 lb

Dimensions

Wingspan	53.33 ft
Height	14 ft
Length	47.25 ft
Cabin length	16.9 ft
Cabin width	60 in
Cabin height	58 in
Baggage	40 cu.ft.

Information: www.pilatus-aircraft.com

to have a very long nose, the sight picture from the pilot seat makes it relatively easy to see everything in front of you. With the help of brakes, turning radius is a reasonable 32 feet, wing tip to wing tip. Similarly, it's an easy airplane to taxi in and out of small spaces, thanks to a large viewing range and easy "tribal knowledge" aircraft reference marks to locate the position of tires, etc. Additionally, the aircraft's lighting makes it easy to see and be seen at night. Having a large prop with beta control also limits the required braking, so as to facilitate smooth and steady taxiing. There is no separate propeller control.

After completing the before-takeoff checklist and ensuring that the "takeoff configuration" Crew

Alerting System (CAS) message is extinguished, you're ready to advance power. With 1,200 shp coming to life, torque is strong. Right rudder to counteract the pulling tendency is necessary, although steadily advancing power reduces the extreme pull. Power response is smooth and, with the help of the torque limiter, takeoff power is set easily. Unlike older models of the PC-12, the NG's flat rating means the time limit for power reduction is a thing of the past. Observing proper temperature limits, however, must be maintained. Once off the ground with flaps and gear retracted, the aircraft accelerates nicely. With the help of the yaw damper and autopilot control of the rudder trim, rudder control takes little effort.

Although automation can take over at this point, hand-flying the PC-12NG is part of the fun and experience. Unlike previous models that felt boxy and heavy, the NG, although still semi-heavy on the controls, feels more steady than cumbersome. With the help of the aileron servo tabs, the airplane rolls much faster and smoother. The one drawback I find is having only electric trim. Call me old fashioned, but I still like to have a manual way of trimming. Nevertheless, with alternate trim and pitch-runaway control, the worry dissipates quickly.

The Wild Blue Yonder

Happily at home at 28,000 feet and 280 kts, generally speaking, the PC-12NG's ride is smooth and relatively quick. Heading west to east and dipping into the jet stream, ground speeds are often in the mid-to-high 300-kt range. At max power, full fuel, and averaging a 55-gph burn in the high 20,000's, range is generally upwards of 1,500 nm with



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The advertisement features a central image of a white twin-engine turboprop aircraft in flight against a blue sky with white clouds. The aircraft is shown from a three-quarter front view, highlighting its propellers and wings. The text is arranged around the aircraft, with the company logo in the top left, the product name in the top center, and the B/E Aerospace logo in the top right. Three white rounded rectangular boxes at the bottom contain the key benefits: 'Faster.', 'Better.', and 'Smarter.', each with a brief description. At the very bottom, contact information is provided.

IFR reserves. Of course, having a small bathroom on board (especially on trips into the wind) makes those legs more pleasant. The airplane is RVSM capable but, generally speaking, the extra 2,000 feet is not worth the cost of enabling. The ride in turbulence is fairly smooth. A wing loading of 37.6 lbs/square foot facilitates the fantastic low-speed flight regime Pilatus is famous for. However, the byproduct can be a slightly bumpier ride than that of a higher wing-loaded airplane, although the NG is usually able to find smooth, clear air with a 30,000 foot service ceiling. Another nice feature of the NG is its wide center-of-gravity envelope. It's very hard to exceed limits if proper POH limitations are followed. The aircraft has all 402 gallons of its usable fuel in wing tanks, resulting in very little CG change as fuel is consumed.

Down We Go

The Primus Apex system makes descent and approach planning




*Todd Hotes
Former Check Airman
Chief Pilot, Polymer
Resources, LTD.*

easy, even for the single pilot. VNAV capability, charts on the upper MFD, and the aircraft's performance, all assist with getting the airplane on the ground in every circumstance. Similar to many turboprops, having almost nine feet of aerodynamic braking out front enables mistakes to be easily accounted for. Furthermore, while managing the automation as a single pilot takes time to learn, once understood, information is easily found and usually only two clicks away, via the CCD. Once on the approach, the NG is very stable and the sequence of events unfolds systematically. Gear operating speed is 180 kts and the first notch of flaps is available at 165 kts. With the propeller and power reductions, the airplane slows fairly rapidly. Vref is easy to calculate, as it's essentially taken from the dynamic speed bug (1.3 X VS0) that's derived from the AOA vanes, air data computer and actual aircraft weight from the flight management computer.

Speaking of Vref, for those uncomfortable flying at slow landing speeds, the Pilatus will offer a challenge. As mentioned earlier, with a low wing-loading and 40 degrees of Fowler flaps extending

wing area, Vref speeds can easily be in the low 80-kt range. For an airplane of this size, it definitely takes time to adjust to. That being said, the airplane is perfectly happy at slow speeds, and in fact has a Vso of 64 kts at max-landing weight. With the help of trailing-link gear, just about every landing (assuming the wheels stay attached) makes the pilot out to be a hero. Deceleration is effortless with the reverse-pitch propeller.

All in All

The older model PC-12 is a tremendous aircraft. The PC-12NG is just that much more capable. Whether the mission is executive charter, medical evacuations, cargo hauling, or pleasure cruising, this aircraft has something for everyone. It's an easy aircraft to maintain and has a rather high 3,500-hour TBO. From a department manager's perspective, it delivers the cost/benefit analysis every flight department dreams of and it completes the missions safely, quickly, and comfortably. From a pilot's perspective, it's a sleek, advanced and, most importantly, thrilling airplane to fly. Pilatus has again hammered the nail on the head with the PC-12NG. 





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WHERE ARE WE NOW, EXACTLY?

by LeRoy Cook

Staying aware of the aircraft's position and, most importantly, where it's going on its present track, is a vital part of piloting. Historically, many, many tragic CFIT (controlled flight into terrain) accidents have resulted from lapses in positional awareness. The pilots thought they were in safe airspace, until the trees came through the windscreen.

Even if an accident does not result, there are probably numerous instances each year when the crew or pilot allows the aircraft to stray outside its intended flight path, perhaps causing embarrassment or momentary alarm. These events should bring attention and resolve to eliminate future occurrences.

Now that we are well-equipped with navigation displays, flight management systems and automated flight controls, there should be zero CFIT accidents and inadvertent off-course excursions. The fact that loss of positional awareness continues to occur is evidence of the creativity of human ability to induce failures. Pilots can keep up with only so much programming and changing; frequent twists and turns in the aircraft's flight path can leave us unsure of exactly where we are and where we're supposed to be.

With TAWS or other terrain-awareness equipment installed,

there's less likelihood of ignoring the rock monitor's "pull up" alert and red-splashed display, but it can still happen, particularly when warnings become commonplace because the terrain is nearby. In nearly every case, however, near-misses or close encounters are the result of an earlier loss of positional awareness – a result, not a cause, of the piloting error.

Therefore, we must return to a basic fundamental fact of flight; know where you are, and know it before you get there. As my instructor taught me, "never let the airplane take you anywhere your brain hasn't been one minute before (or longer)." If you keep track of where you are, you won't get lost, and more importantly, you can plan ahead for what must take place next.

"Where's It Taking Us?"

Today's pattern of position loss is more likely to occur from information overload, or from over-reliance on automation. In the first case, the pilot has a geo-referenced map but it has so much symbology on it that the aircraft's position is submerged in data. It's important to utilize brain-power to monitor the flight's progress. Know where you've already been, know how long it's been since the present heading was taken up, and gauge where you are. Do not depend strictly on the MFD's view of present position.

Because most of the flight may be flown coupled to a flight plan loaded in the FMS, it's easy to rely on the automation, but remember GIGOm – Garbage In, Garbage Out. Misprogramming is only a fat-finger push away. Again, make sure it looks right when the results of your entry tally up. At every turn, verify where Otto is taking you, not just that the aircraft is following the line. Make sure it's the RIGHT line.

Having radar vectors to downwind or base-leg position, or onto an intercepting heading, is not a cure-all. A friend of mine who was an airline simulator instructor often challenged his trainees by vectoring their simulated flight into the approach airspace, whereupon he would ask them to place a pencil point on the approach chart, to show him exactly where they were. All too much of the time, they would give him a blank-stare response. They were obviously dependent on radar guidance, with no backup resource in their mind.

Evidently, these well-schooled pilots had completed familiarization training on using the flight management system and following procedures and systems. But, they hadn't a clue about how to maintain a mental picture of the flight's progress. Simple dynamics should keep us aware of the airplane's position in space, from elapsed

time, heading and speed. Should the MFD fail, a back-up chart or tablet won't have all the MFD's features; our mental picture should be able to fix our last known position and project the flight's progress to its present location.

Night, IMC or unfamiliar locations are all operational challenges requiring extra caution. Having previously made an entry to an airport helps to orient us, although one must not be lackadaisical from having had a fleeting familiarity. Facilities do change, and new obstructions can pop up. Following charted procedures is particularly important when visibility is obscured, but that doesn't mean you can't keep track of your progress, anticipating where the next magenta path will appear and what the leader line on the flight path icon is forecasting. Do not abandon your responsibility as pilot-flying--keep track of where you are and where you're going.

The sad result of loss-of-positional-awareness is an aircraft literally flying itself, and if intervening terrain or obstructions loom up quickly, impact may be unavoidable. Distractions, like passenger requests or ATC re-routes, must not replace monitoring the flight's progress. And it will progress; airplanes need forward momentum to maintain controlled flight. That means you're not where you were minute-before-last; you're now over here.

GPS or multi-sensor navigation systems are great at marking a present fix. They are not so helpful with relating that fix to hazards and routes, especially when a flight plan has yet to be loaded. The pilot's duty is to know roughly where he or she is, and to use the GPS in a forward-looking manner, free of surprises.

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distance-to-go. That's not the same as positional awareness. How often have you glimpsed the surface through a break in the undercast and were surprised to find yourself offshore? Is your present heading taking you into terrain? How long can you maintain this heading before you must turn to avoid CFIT? What altitude will clear all obstructions, if you need to climb away from a landing attempt? These question must be resolved by having positional awareness. You can't know where you're going if you don't know where you've been.

Some of the famous aviation accidents were the ones with no positional awareness at the controls. In 1972, Eastern Airlines Flight 401, a Lockheed TriStar, was flown into the swampy, flat terrain of the Florida Everglades because all of the crew was preoccupied with troubleshooting a faulty landing gear light. No one noticed that the autopilot was disconnected and altitude was dwindling. A total of 101 persons died, with 75 survivors.

Some 23 years later, American Airlines 965, a Boeing 757, crashed into a mountain at Cali, Columbia, killing 160 passengers and crew; four people survived, by a miracle. The weather was clear, but darkness was a factor. Contributing to the loss of positional awareness was a last-minute runway reassignment, plus an FMS programming error, leaving the airplane blindly pursuing an approach path to a non-existent airport, inserting itself into a mountain valley. Ground proximity warning gave a last minute "Pull up" command, but descent spoilers were not retracted and the slow climb was not sufficient.

The chain leading to accidents often begins with a simple mistake, compounded by further oversights. Losing positional awareness is such a mistake. With all the tools we now have, it's not difficult to regain PA, but first we have to realize that we're lost. 





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Alternates

by Gary “Waldo” Peppers

“Weather recall” is one of the most hated transmissions a fighter pilot ever hears, second maybe only to “Guns kill at thirteen thousand over Quartzite!” My flight heard the dreaded weather recall from the 325th Tactical Fighter Wing SOF (Supervisor of Flying) in the middle of our final air-to-air engagement.

It was a 2-versus-1 ACM (Air Combat Maneuvering) training mission in which my star F-15 student, Ken Wilsbach, led by our squadron Weapons Officer, “Bambi” Kiefer, got to beat up on me as the lone bandit. Wilsbach’s objective was to execute the briefed tactics and support his flight lead IP in dispatching the bandit with ruthlessness and celerity. My job was to die like a man.

In the first two “canned” set-ups, the bandit was only allowed to maneuver predictably. In the final two set-ups, though, I was allowed free maneuver to fend off the attacking element and even kill them if I could. That was my favorite flying – a high-G, sweat-soaked adrenalin rush with make-believe missiles and imaginary bullets! Usually, the bandit gets beat down on energy and eventually gets shot – on film, anyway. Hence the maxim, “When you’re in a 2v1 fight, try not to be the 1.”

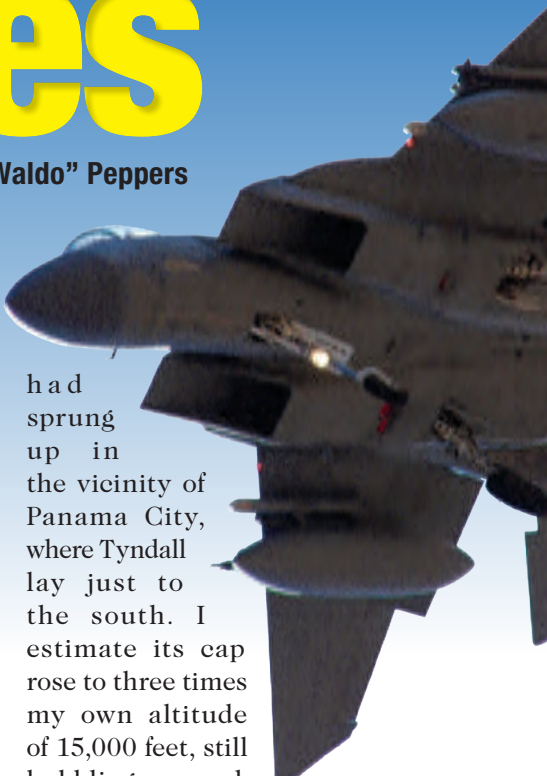
On hearing the SOF’s call, Bambi called, “Dusty One flight, knock it off” to terminate our maneuvering. He then called the flight to join up and fence out (safe switches, reset squawks) for the return to base. I switched over to the SOF frequency automatically to acknowledge the recall – Bambi and Wilsbach would

hear it in their aux receivers – and then joined them on the recovery frequency. Our F-15As had only one UHF transmitter and two UHF receivers. No VHF.

Once we joined up close on lead, Wilsbach on the left wing and me on the right, Bambi signaled for a visual fuel check – thumb to his mouth in a drinking gesture. Wilsbach held up two fingers vertical and then one horizontal to signal 2,600 pounds remaining, a thousand pounds less than I had. Wingmen (and students) always use up JP-4 faster than flight leads from jockeying the throttles to maintain position, along with somewhat less judicious use of afterburner while fighting. Still, Bambi had briefed “bingo” as 3,200 pounds, the minimum fuel state for continuing the engagement. Had Wilsbach flown through bingo on that last set-up? Maybe he hadn’t set his bingo bug correctly. As his flight commander, I made a mental note to query him about it in the debrief.

The bingo state was established to allow the flight enough fuel to rejoin in the area and recover to the Tyndall AFB traffic pattern with 2,000 pounds on a VFR day. Normal landing fuel was 1,200 pounds; “minimum fuel” was declared at 1,000; and “emergency fuel” was 800. Eglin AFB, 60 miles up the coast, was our closest divert. An F-15 required 1,000 pounds from overhead Tyndall to touchdown at Eglin with tanks dry. I added a hundred pounds to that for each of my dependents.

Although this was supposed to have been a VFR day, the sight 50 miles to the northwest starkly revealed the cause of the recall. A huge “cumulonympho gluteofractus”



had sprung up in the vicinity of Panama City, where Tyndall lay just to the south. I estimate its cap rose to three times my own altitude of 15,000 feet, still bubbling upward with no sign yet of an anvil top forming. As far as I could see in every direction the sky was clear and placid, except for that one thunder boomer threatening to ruin our day.

Approaching the high fix, the start of the long downhill slide into Tyndall, Arrival instructed us to make one left-hand orbit to get spacing on another flight just ahead. The arrival frequency was a continuous jabber of instructions, reports, requests, sequences, and conflict calls. I’ve been on busier frequencies since then – maybe approaching O’Hare on any Sunday evening – but this was close. I marveled that the voices I heard on frequency, with one or two exceptions, were calm and concise in that clipped staccato of urgency maintained by professionals.

Burning 100 pounds of jet fuel a minute, we made a 200-pound turn to the left. As we rolled out inbound to the high fix, Bambi made a thumb jerk motion to signal me to take my own spacing. I did another spin to the right, switched on my discreet squawk, and became my

own separate flight, Biker One. I rolled out four miles in trail of Dusty One just as they began the penetration.

I reported the initial approach fix and Arrival cleared me for the high dive. Throttles retarded to just above idle, I could hold 300 KIAS for the 30-mile descent to Tyndall's overhead pattern. The storm ahead appeared to be just north of the runways but I couldn't perceive any movement from that distance.

Just then, the SOF-in-the-box announced that arrivals would be on hold beginning in two minutes while the active runway was switched from 31 to 13. Great, I thought, that probably means the storm is passing to the east.

Tyndall Arrival began issuing vectors to the west to the flights ahead of me. A 270 heading would put them on a wide right downwind for landing 13. One by one we were handed off to Tyndall Approach for sequencing into the overhead pattern.

"Tyndall is now IFR," announced Approach on the common frequency. "All aircraft expect PAR approaches to full stop." The only ILS Tyndall had was 31R. I began slowing to 250 knots, radar pattern airspeed. Ahead of me, Dusty One told Dusty Two (Wilsbach) to fly his own radar pattern while he (Bambi) followed in two-mile trail. Approach gave Dusty Two his own discreet squawk and vectored him 240. The flight ahead of Dusty Two was turned to 030 for the radar base leg.

I leveled off at 2,000 feet, about four miles offshore abeam the airfield. From my angle, it didn't appear that the storm had moved to the east at all. It looked like it was just spreading out, growing wider at its base. In fact, I couldn't see anything of Tyndall except a

faint outline of the hangars. Tyndall Approach told Dusty Two to turn right to 030, base leg. I watched him make the turn six miles ahead of me on the radar display and then picked him up visually in the turn. I crossed my fingers.

Half a minute later, Dusty One was given a vector to 030. Simultaneously, the SOF announced that Tyndall was now closed due to winds and visibility, and all aircraft should expect to hold for fifteen minutes or proceed to alternates. By alternates he meant our divert bases. None of our flight plans that day required alternates. Approach repeated his words verbatim a moment later.


"Dusty Two, go cheap suit." Bambi was sending Wilsbach to their pre-briefed discreet frequency, one he hadn't told me about! "Shotgun" I knew – thirty-ought-six, or 300.60. What the hell is a cheap suit? Had to start with a 2 or a 3...\$29.95! I spun my frequency to 299.50 just in time to hear the end of Bambi's query," – state?" "About a thousand," Wilsbach answered.

About a thousand pounds of fuel, I thought. What does that mean? If he had eleven hundred wouldn't he say that? I looked at my own fuel gauge: 2,100. Wilsbach had a thousand less than me when we left the area. Maybe he does have 1,100 pounds remaining. No, he's been flying on Bambi's wing since we left the area. If he had 950 or 920 he might answer "about a thousand," not if he had more than a thousand.

I switched back to Approach in time to hear Bambi transmit, "Dusty Two, come left to 300. Approach, Dusty One and Two are proceeding direct Eglin, emergency fuel, cancel IFR." Caught by surprise, Approach hesitated a second and I jumped in. "Bambi, Waldo. He doesn't have the gas to get there! Take him into Panama City. It's right there in the clear. Tower is two fifty-seven nothing." Fanin Field's longest runway was over 6,000 feet, plenty

for the F-15. "Kay, thanks." Bambi didn't sound too grateful for the advice, though.

Well, they made the local news that night. Not for heroically saving the taxpayers \$54 million dollars' worth of combat flying equipment, but for causing some \$15,000 damage to the Panama City airport. Wilsbach made it down just fine with at least enough gas to taxi to the ramp. Bambi, concerned about landing on Brick One, dragged it in and took out some approach lights with his wheels. Hero to goat in five seconds flat!

Nobody ever claimed that great fighter pilots have to be naturally great pilots. The fighter pilot's job, ultimately, is killing people we don't like and breaking their stuff. The flying part, that's just the commute to the job site. But maybe we should work on that. 



Gary Peppers is a 15,000-hour ATP who holds CFI, CFII, helicopter, and B-737 type ratings. He served 29 years on active duty from 1971, flying Army UH-1 and OH-58 helicopters and Air Force F-15s and OV-10s. Recalled to active duty in 2009, he flew MQ-1B Predators in Iraq, Afghanistan and Libya. Retired in 2013 to Cape Coral, Florida, he owns a Piper PA-31 Navajo and a PA-24 Comanche.

Twin Proficiency:

Awareness Reserves

by Thomas P. Turner



It was a surprising and frightening statistic. Several years ago, I attended the Bombardier Safety Stand-Down in Wichita, Kansas. The Stand-Down is a two-day series of safety seminars and workshops, aimed primarily at pilots and operators of business jets. During one presentation, the speaker asked the roughly 300 people in attendance to answer a question: “Have you ever fallen asleep in the cockpit in flight?” Responses were anonymous through a “clicker”-type remote system. The result: over 60% of the professional pilots in attendance admitted to having fallen asleep at the controls at least once. In follow-up questions, at least half of the remainder reported at least one instance when they found it very hard to stay awake in flight.

More recently, I attended an NBAA’s Single-Pilot Safety Stand-Down. One of the speakers asked the same question of this group of pilots, most of who fly alone in piston twins and turbine airplanes. Once again, there was an anonymous response system; nearly two-thirds of the pilots reported instances of having great difficulty staying awake in flight. Several admitted to actually falling asleep while in solo command of an aircraft in flight.

The National Transportation Safety Board reports that pilot fatigue issues were contributors to 23% of aircraft crashes in 2012. NTSB investigators are now researching an accident pilot’s sleep patterns in the 72 hours preceding a crash, when such information is available.

Fatigue is real

Non-aviation, but nevertheless important, research by the Canadian Center for Occupational Health and Safety reveals that *after* rising from an uninterrupted eight-hours of sleep:

- Being awake for 17 hours has the same deleterious performance effect as a 0.05 blood alcohol content.
- Being awake for 21 hours has the same performance effect as a 0.08 blood alcohol content – the legal limit for driving in Canada and most of the United States.
- Being awake for 24 hours has the same performance effect as a blood alcohol content of 0.10.
- Numerous studies list common behaviors in fatigue-study subjects. As you read the list, think about how often we read the same words in discussions of aviation crash factors.
- Reduced decision-making ability.
- Reduced ability to do complex planning.
- Reduced communication skills.
- Reduced productivity and performance.
- Reduced attention and vigilance.
- Reduced ability to handle stress.
- Reduced reaction time – both in speed and thought.
- Loss of memory or the ability to recall details.
- Failure to respond to changes in surroundings or information provided – loss of situational awareness.
- Inability to stay awake, involuntary microsleeps – short

sleep periods the subjects are not even aware are taking place.

- Increased tendency for risk-taking.
- Increased forgetfulness.
- Increased errors in judgment.

It’s almost as if we made sure pilots get eight hours of uninterrupted sleep every night, and limited their duty day to avoid noticeable reductions in performance due to fatigue, we could virtually eliminate all aircraft crashes. That’s hyperbole, of course. But if the NTSB is right, we could eliminate nearly a quarter of all accidents if we could just deal with pilot fatigue.

Everybody talks about it...

To paraphrase Mark Twain, everybody talks about fatigue, but nobody does anything about it. Most *Twin and Turbine* pilots use the airplane for business. Limiting the duty day, that is, establishing a maximum number of hours from alarm clock to engine shutdown (NBAA recommends 14 hours maximum), runs counter to the realities of business and the flexibility we get from the use of a business or personal airplane. Reducing that 14-hour recommendation, when you haven’t had eight hours of uninterrupted sleep the night before, seems even more anti-business.

How do we reconcile succeed-or-fail business reality to the life-and-death reality of flying while fatigued? Like any good business decision, it requires *strategy* and *flexibility*. Your strategy may be as simple as planning your meetings

and site visits so you fly at the times that best fit your lifestyle.

For example, I've always been a morning person (hate me if you wish). When I was flying a Beech Baron over 300 hours a year, I found that I was far fresher getting wheels up at 5 am than I was if I took off at 7 pm. It also helped that an early morning departure meant I was flying toward daylight conditions – everything gets better when it's easier to see. Like most people, I also tend to slow down in the middle of the afternoon, during "siesta time." From a flying standpoint, that tells me to avoid flights over the roughly 2 o'clock to 3:30 period. Take a good look at your personal sleep and drowsiness patterns, and see if you can arrange your schedule to avoid flying during your awareness downtimes.


Any good strategy requires flexibility, and flying is no different. You have to be flexible because of weather and equipment failures.

Allow yourself to be as flexible about your fatigue state as well. That may mean that you finish your last meeting at 4 pm but stay overnight to fly home early the next morning, if that matches your personal rest patterns. The good news is that most airport hotels have low aircrew rates (just ask), and modern interconnectivity means you can work from just about anywhere. In fact, I'm about to email this article to *Twin and Turbine's* editor from an airport. With cell phones and wireless access, most people will never know you're in Allentown instead of Albany or Atlanta.

Awareness Reserves

In flying, as well as business, there is a strong culture of rewarding those who push on for long hours and denigrating those who get tired and give up. Another word for fatigue is "weakness," and no pilot or business-person wants to appear to be weak. Instead, we should think

about fatigue (or lack of fatigue) as a resource. We need to plan about the fatigue reserve in our bodies the same way we strategize about fuel in the airplane's tanks – establish a maximum duty day limit and an even healthier personal – minimum "awareness reserve" that you'll want to have at the end of every flight.

Being tired in the cockpit makes it far more likely you'll make the kinds of mistakes found in most NTSB reports. To reduce your risk by as much as 25%, according to the NTSB, it's time to get real about fatigue. 

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



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From The Flight Deck

by Kevin R. Dingman


Kite Tales

Just as we scribe details of a troublesome flight in our logbook, so the snowfalls and venomously-bitter cold of last winter are now recorded. Inches and feet, extreme temperatures and lessons learned; from north to south, many of these were charted as new records. Now, April showers bring May flowers, and this year we can record the arrival of spring with renewed appreciation. Soon, grass on the airports and yards will need to be mowed. Not only is it time to get out the bat, ball, glove, lawn mower and cleaning supplies, but it's kite season too – if there is such a thing.

For a lot of us (Wright Brothers included), kites were one of our earliest endeavors into the flying realm, along with gliders and rubber band airplanes. Before the days of two-handled controls and rip-stop nylon, kites were made of wooden sticks covered with paper, most of them by a company called Hi-Flier. Instead of fancy handles, you flew them holding a ball of kite string with a stick through the hole in the ball's middle. The string came from a dime-store called Woolworths, Ben Franklin or Kresge's and the stick came from the woods – back when there were woods next to your house. If the kite was deployed in a stiff wind, the string would cause the inside of your pinky finger to bleed, completely unnoticed. Ah, those were the days.

Chemicals, Compounds and Carcinogens

In addition to kites, string, and balsa wood airplanes, the dime-store also had BB's for your BB gun, rolls of caps for your cap gun, pocket knives, baseball cards for the spokes of your bike, model airplane glue,



spray paint and all the sugar-infused candy you could ingest – all right there on the shelves. No locks, no restrictions and no ID required. We were free to use our own judgment and if you liked your dime-store, you could keep it. Unfortunately, this freedom also allowed the purchase of candy cigarettes, over-the-counter codeine and morphine, lead-based paint, rat poison with arsenic, insecticides with DDT, and a host of other products laced with hazardous chemicals, compounds, and carcinogens. Adults perused the aisles of the store smoking their Winston, Lucky Strike, Camel and Marlboro cigarettes. Perhaps it's best, after all, that the government intervened with some product and social regulations to make our kite shopping less hazardous.

In the spring, we went to the dime-store for our kites; Dad selected a box-kite and we three boys were given the diamond-shaped ones. I didn't like box-kites and never understood why until I was older; it was the aesthetics. Dad's box-kites were square and never had a tail. A square doesn't look very aerodynamic, and a kite just isn't a kite without a tail. Mom let us tear up old pillow cases and bed sheets to make tails for our more streamlined-looking diamond kites. Three or four two-foot sections of linen, tied

together with granny knots, made a fine tail. Their diamond shape, along with a tail, made them look agreeable, like the two-seat, twelve-cylinder Jaguar, the Beech Duke and runner sleds. And not so much like a Volkswagen van, Piper Apache or toboggan. Now I understand: the square box kite, without a tail, wasn't sexy.

After construction, failure to get the kite airborne was both common and frustrating. Without the guiding assurances from Dad, it often seemed impossible. And, once aloft, the ability to keep it airborne was not to be taken for granted. If the wind was to change speed, or shift direction, the string could go slack and the fragile paper kite would either flutter pathetically to the ground tail-first or point its nose at the earth, thereby increasing tension on the string and impacting the ground just below the speed of sound. A kite with no tail has nothing for its flier to work with to stabilize it when there are shifts in the wind. In a light, steady wind, that's fine, but it's a good idea to add a tail, in case the wind shifts speed or direction.

Once stabilized in the air, learning to maneuver around and away from obstructions was the next milestone. Even Charlie Brown found it necessary to explain to the Peanuts gang the formidable truism of the "kite-eating tree." As a novice kite flyer, the learning curve was thusly fraught with setbacks, disappointments and broken kites. Once mastered, however, the full therapeutic effect of a bloody crook in your pinky finger could be realized.

Perhaps there was a deeper meaning to kite flying than Dad and we boys realized. After all, we were just a bunch of kids (Dad included) playing outside and getting grass stains on our jeans. By donating her linens, Mom not only got the four of us out of the house, but she had facilitated stability. Innately, Mom

let us tear up pillow cases because she knew that the winds of life are never steady for long; especially when raising children. For her three boys, kite flying was an early success and confidence builder. Once older, we got involved with Dad's RC model airplanes, but, even armed with the confidence gained from kite flying, we never developed the skills and patience that he had for building planes. But still, I fell in love with the processes, smells, mechanics and aesthetics of kites and airplanes.

Another spring "togetherness" ritual, and one not so enthusiastically anticipated, was washing and waxing the cars. Waxing Dad's Ford Mustang, which I hoped would someday be mine, was a labor of love. Kites, model airplanes and the Mustang are the reasons I still like to get hands-on with the maintenance and cleaning of airplanes. And the warm, kite-flying air provides an opportunity to do just that, to clean out the hangar and wash our plane, enthusiastically. There are a million products for cleaning and polishing boats, cars and airplanes and, fortunately, we can still purchase some pretty serious solvents and cleaning products from the dime-store, some of them not so good for all parts of the plane or our skin. I begin by pulling the Duke around the corner and running a leaf blower through the hangar to blow out the winter dust bunnies, dirt and other bits of wintertime stuff. I'm still finding some sawdust and drywall powder from building the office. If ambitious, you can next throw a few buckets of soapy water on the floor and squeegee it out.

Sponge Bath

After the hangar is clean, a warm, soapy sponge bath is in order, top to bottom and front to back – for the plane, that is. When administering the sponge bath, pay close attention to the areas most affected by winter ground operations. There are areas, though, where a sponge bath is not



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GOVERNORS

enough to do the job, and certain grime needs more effort. But, if you use the wrong products or techniques, disaster may ensue. And be careful with the idea of using a power washer; especially on hinges, locks, landing gear and in the wheel wells. All that grease in those Zerk fittings is there for a reason. Behind the cabin combustion heater's exhaust, engine nacelles and the entire underside of the plane, for example, more serious chemicals, compounds and carcinogens are needed. For the interior, it's time to remove the winter-grimed floor mats, clean the carpet and upholstery, dust and clean the instrument panel, take out the blankets and sanitize the O₂ masks. Maybe even clean the honey pot and its surroundings.... maybe.

Kites and Kids

It was easier to get the kids to clean the plane than it was the cars, and my kids enjoyed the trips we've

taken in airplanes – even the ones on the airlines. They can certainly handle the controls of an airplane, but none ever developed an interest in becoming a pilot. I hadn't thought much about why. Maybe it's because we never flew kites – not even an ugly box kite. How did I let that happen? "The cat's in the cradle and the silver spoon...." I suppose. With springtime chores looming, kite flying may again have to wait, but "we'll get together then...you know we'll have a good time then."

If you're accustomed to hiring someone to clean the airplane, I encourage you to reconsider and do the sponge bath part yourself. Take the kids along, even the grown-up ones. Check the operating manual for compatibility of products and then make a trip to your dime-store for some chemicals and compounds. Maybe you should pick up a kite and some string while you're there. Next, get permission and snag some linens from home to use as rags; take some

extra – she'll understand. You never know when the winds will change and you might want to use the extras to make a kite tail, in order to make a kite tale, even if it cuts into your pinky finger. I wish I had. **T&T**



Kevin Dingman has been flying for 40 years. He's an ATP typed in the B737 and DC9 with 20,000 hours. A retired Air Force Major, he flew the F-16 then performed as a USAF Civil Air Patrol Liaison Officer. He flies volunteer missions for the Christian organization Wings of Mercy, is employed by a major airline, and owns and operates a Beechcraft Duke. Contact Kevin at Dinger10d@gmail.com.

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NBAA

NATIONAL BUSINESS AVIATION ASSOCIATION

focus

NBAA Opposes Onerous New White House Proposal – You Can, Too

by Ed Bolen NBAA President and CEO

Despite our industry's many benefits to communities across the United States, business aviation is frequently a target for unsubstantiated rhetoric and onerous policy proposals from Washington policymakers. For example, President Obama's recently released fiscal year 2016 budget proposal again focused on business aviation with a renewed effort to lengthen the tax-depreciation period for business aircraft from five years to seven.



Administration officials have referred to the five-year schedule as a "loophole" that disproportionately benefits those who can afford business aircraft. However, media outlets that have researched the topic, as well as industry advocates, say the schedule is an effective driver of economic investment that dates back decades, and applies to a wide variety of equipment classes, from construction vehicles to aircraft.

NBAA was quick to point this out in forceful statements challenging the White House's newest budget plan, including comments published in the leading Washington, DC daily newspaper *Roll Call* noting that far from being a loophole, depreciation schedules allowing deductions to be taken closer to when aircraft or other assets are purchased were set by the IRS and approved by Congress decades ago.


We added that incentivizing business aircraft purchase not only gives companies access to

a tremendous competitive asset, but also helps preserve jobs in America's vital aircraft manufacturing sector.

Readers of *Twin & Turbine* can help spread this message as Congress debates the President's fiscal year 2016 budget plan. NBAA is urging its Members and other concerned aviation stakeholders to use NBAA's Contact Congress resource, located on the Association's website, to make their voices

heard on the administration's proposal.

NBAA's Contact Congress tool, available at www.nbaa.org/contactcongress, provides an easy way for Members to voice their views on the need to reject the administration's attempt to change the depreciation schedule. Each Contact Congress message is customized for the sender, and each message may be edited to a sender's specifications. NBAA never discloses senders' information to other parties.

As NBAA continues to promote a positive agenda for the business aviation community, and fight onerous proposals that would curtail our industry, we must also ensure that our size and significance are recognized in Washington. With a new Congressional session now underway, I thank you for your support in ensuring that GA continues to have a strong, clear and united voice on Capitol Hill. 

NBAA-Backed Provision Included in Pilots' Rights Legislation

Congressional proponents of the nation's general aviation (GA) industry recently introduced new legislation to bolster legal protections for GA pilots nationwide, including language proposed by NBAA to ensure that pilots and other certificate holders facing FAA enforcement action have timely access to information necessary to assist them in formulating a proper defense.

U.S. Sens. James Inhofe (R-OK) and Joe Manchin (D-WV) introduced the Senate version of the "Pilots Bill of Rights 2" (PBOR2) legislation, S.571, on Feb. 26. On the same day, U.S. Reps. Sam Graves (R-6-MO) and Collin Peterson (D-7-MN) introduced a companion House measure, H.R. 1062.

Last year, members of the NBAA Regulatory Issues Advisory Group joined Dick Doubrava, the association's vice president for government affairs, and Brian Koester, NBAA's project manager for operations, in meeting with Inhofe's office regarding the addition of language that will ensure defendants have an opportunity to prepare a proper defense.

The resulting provision, specified in PBOR2, would require the FAA to hand over the enforcement report when serving emergency orders, and upon request in all other cases. Although the timely release of such documentation was a key requirement in the original PBOR legislation, multiple reports from the pilot community indicate the agency has not consistently released this documentation in sufficient time to enable defendants to mount a proper legal defense.


"This key provision ensures that pilots and other certificate holders facing FAA enforcement action are granted their due process under law," noted NBAA President and CEO Ed Bolen, "and is keeping with the spirit and intent of the initial Pilots Bill of Rights measure in assuring that the nation's pilot community is treated fairly during enforcement action proceedings. We are particularly pleased that our concerns in this area are reflected in this new legislation, and we look forward to doing what we can to help move these important bills into law."

"This key provision ensures that pilots and other certificate holders facing FAA enforcement action are granted their due process under law"

Additional provisions outline specific actions the FAA may not take, should the agency fail to provide timely notifications to individuals facing enforcement action at the start of the investigation. The PBOR2 legislation also calls for expedited action to reform the Notice to Airmen (NOTAM) process, and the extension of civil liability protections afforded to government employees to aviation medical examiners and

other FAA representatives in the private sector.

The new measures, which build upon the landmark Pilot's Bill of Rights legislation signed into law in August 2012, also include language to compel the FAA to take action on oft-delayed industry calls for reform to the third-class medical requirement for general aviation (GA) pilots.

NBAA has consistently joined with other industry association in calling for this reformed certification process, which seeks to broaden access to GA aircraft while maintaining the industry's commendable levels of safety, and spur growth throughout the nation's GA pilot community. 

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NBAA Weighs in on Canada's Planned Electronic Passenger Info System



NBAA recently advised international business aircraft operators of two new online systems, scheduled for implementation by spring 2016 by the Canada Border Services Agency (CBSA), to pre-screen air travelers prior to a flight's departure for Canada.

The interactive advance passenger information (IAPI) initiative – similar to the U.S. Customs and Border Protection's electronic advance passenger information system (eAPIS) – would require valid documentation of all travelers, including Canadians, prior to boarding an aircraft. The second process, the electronic travel authorization (eTA) would be required of all visa-exempt foreign nationals, except U.S. citizens.

The CBSA says the IAPI initiative will help vet travelers' information earlier in the process, identify individuals who do not have the proper travel documents before they board an aircraft destined for Canada, and reduce costs associated with removing individuals who do not have the appropriate documents.

The IAPI initiative is not a replacement for the Canadian Passenger Accelerated Service System (CANPASS) that allows members to access more airports and provides expedited clearances for low-risk, pre-screened travelers.


Merlin Preuss, vice president of government and regulatory affairs for the Canadian Business

Aviation Association and former director general of civil aviation at Transport Canada, noted that while the new IAPI system potentially represents another layer of paperwork for business aircraft operators, it also closes a security gap for the aviation and maritime sectors created under a previous U.S.-Canada entry/exit treaty that only addressed land crossings.

Sarah Wolf, NBAA's senior manager of security and facilitation, met recently with U.S. and Canadian border agency representatives, as well as the Aircraft Owners and Pilots Association (AOPA), Canadian Owners and Pilots Association (COPA) and other stakeholders to discuss ways to minimize filing duplication, reduce data entry errors and address information privacy concerns.

AOPA and COPA have created an online survey, seeking operator and pilot input that will be relayed to the CBSA for consideration in creating the final IAPI rules. The survey asks about anticipated impacts, such as changes in flight frequency, and whether pilots might allow the U.S. to share eAPIS information with their Canadian counterparts.

The U.S. eAPIS program was implemented in May 2009. Beginning in January 2014, Mexico's National Institute of Immigration agency mandated that private aircraft operators electronically transmit advanced passenger information data. Unlike the U.S. and Mexican programs, which require filing for both departure and entry flights, IAPI applies only to flights entering Canada.

Also scheduled for implementation next year is the proposed eTA program, which would require foreign nationals who are not exempt from doing so to apply online by entering biographic, passport and background information. These requirements would be similar to the personal information currently collected at a port of entry in Canada. 

NBAA Applauds House Vote to Make Small-Business Expensing Allowance Permanent (320)

NBAA recently welcomed a vote by the U.S. House of Representatives to make several small-business tax provisions permanent, including the ability to expense up to \$500,000 in capital investments.


The “small-business expensing provision” encourages investments in equipment, such as aircraft parts, up to a certain value by not subjecting them to standard depreciation. Instead, they may be expensed in the year they are purchased, similar to many other business expenses.

This small-business expensing allowance has been increased steadily since 2003, rising from \$25,000 to \$500,000 in 2014. The provisions have been temporary, however, and on New Year’s Day, the amount reverted to \$25,000 for the 2015 tax year.

America’s Small Business Tax Relief Act of 2015, which was sponsored by Rep. Pat Tiberi

(R-12-OH) and approved by the House Feb. 13, would set the limit at \$500,000 and index it to inflation going forward.

“NBAA welcomes progress on key issues, such as more flexible tax provisions, which encourage small businesses to invest and strive for growth,” said NBAA President and CEO Ed Bolen. “Making the small-business expensing provision a permanent fixture of the tax code will stimulate growth for the many small businesses that help general aviation generate \$219 billion in annual U.S. economic activity.”

Rep. Tiberi was one of the main supporters of a bill in the last Congress that would have made bonus depreciation permanent, and NBAA is urging lawmakers to revisit the issue during the 114th Congress. NBAA also is calling on Congress to reject the Obama Administration’s provision in its fiscal year 2016 budget request to lengthen the tax-depreciation period for business aircraft from five years to seven. 



NBAA Has Resources, Updates on Drone Developments

Unmanned aircraft systems (UAS), or “drones”, offer great promise for a variety of applications in many areas of life and commerce, including opportunities for use by entrepreneurs and companies that rely on aviation as part of doing business. NBAA recently introduced a dedicated web resource to assist business aviation stakeholders seeking information on how small unmanned aircraft systems (s-UAS) may be integrated into their operations.

Available at www.nbaa.org/ops/uas/, this resource covers the latest news regarding the development of this burgeoning industry, as well as NBAA’s work with industry representatives and federal officials to safely integrate UAS into the National Airspace System (NAS).

Despite the potential benefits of UAS in a variety of business aviation applications, NBAA has long maintained that it is imperative that any introduction plan for UAS be thoughtful, deliberative and focused on safety.

This means UAS should not share the same airspace with manned aircraft until they have equivalent certification and airworthiness standards as manned aircraft, including the ability to take timely directions from air traffic control, and to sense and avoid other aircraft and UAS.

NBAA has been an active participant throughout this process, and the Association’s concerns were reflected in a long-anticipated notice of proposed rulemaking (NPRM) released Feb. 15 by the U.S. Department of Transportation (DOT) and FAA towards adopting a regulatory framework governing the commercial operation of small unmanned aircraft systems (s-UAS) weighing less than 55 lbs.


The NPRM proposes to regulate UAS operations under Part 107 of the Federal Aviation Regulations (FAR). NBAA will comment on areas

of particular importance to business aviation operators seeking to utilize s-UAS in a variety of commercial roles.

Some of the proposed operating parameters for s-UAS including limiting operations to a maximum operating altitude of 500’ AGL and minimum visibility of 3 miles under VFR daytime (official sunrise to official sunset, local time) conditions. s-UAS operators would also be required to pass an aeronautical knowledge exam and obtain an FAA UAS operator certificate, with biennial reexaminations in line with recertification requirements for pilots of manned aircraft

The NPRM also states that s-UAS must remain within visual line of sight of the operator or visual observer at all times, closely enough to be seen with unaided vision other than corrective lenses, and that such unmanned aircraft must yield right-of-way to all other aircraft, manned or unmanned.

“The FAA believes that a high level of safety can be achieved under the proposed requirements and the rule will enable the opportunity for the private sector to conduct research and development, develop commercial small UAS businesses, and add a large economic benefit to the U.S.,” said Bob Lamond, NBAA Director, Air Traffic Services & Infrastructure, following release of the NPRM.

Sessions addressing UAS operating protocols and benefits have also played an increasing role at NBAA events, including last year’s NBAA Business Aviation Convention & Exhibition in Orlando, FL. Most recently, a panel of industry experts discussed the business and economic opportunities for UAS, while also identifying challenges that flight departments would face with incorporating UAS into their operations, at NBAA’s 2015 Leadership Conference in Tucson, AZ. 



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Tom Turner and Fred Nauer Named to Flight Instructor Hall of Fame

The National Association of Flight Instructors' Flight Instructor Hall of Fame was established 18 years ago to recognize individuals who exemplify the promotion of excellence in flight instruction. This year, NAFI is proud to announce two outstanding individuals as inductees into the Hall of Fame. They are *Twin & Turbine's* very own Tom Turner, along with Mr. Fred Nauer.

Tom Turner has been a flight instructor since 1988, after serving as an officer in the United States Air Force. He has served aviation in a variety of roles, most recently as Executive Director of the ABS Air Safety Foundation in Wichita, Kansas. In his tenure there, Turner developed such programs as the Beechcraft Pilot Proficiency Program and the ABS Flight Instructor Academy. These programs educate and standardize instructors and pilots in the techniques of flying Beech aircraft, drawing on the collective experience of American Bonanza Society instructors over the past three decades.

In addition to his duties at ABS, Turner has been a FAASTeam Lead Representative since the program's inception, and he earned the 2010 award as the Safety Team Representative of the Year. He also serves on safety committees with NBAA, has presented forums at Sun 'n Fun and EAA AirVenture, and is a founder of EAA's Type Club Coalition, among other services to the community. He is also the author of three books, *Weather Patterns and Phenomena: A Pilot's Guide*, *Cockpit Resource Management: The Private Pilot's Guide*, and *Controlling Pilot Error: Checklists and Compliance*, all published by McGraw-Hill.

Turner also writes the FLYING LESSONS weekly safety e-newsletter, available by free subscription at www.mastery-flight-training.com. And, of course,

he contributes his monthly column, "Twin Proficiency", to *Twin & Turbine* magazine.


Fred Nauer has been a flight instructor since 1992, after serving as an officer in the United States Air Force. Bringing his experience as an Air Force F-4E navigator to civilian aviation, Nauer has been a role model and mentor to younger and less-experienced instructors, leading by example and emphasizing safety in all areas of training. He is currently the chief instructor at Thunderbird Aviation in Eden Prairie, Minnesota.

Turner and Nauer will be inducted into the Hall of Fame in a formal ceremony during the NAFI Members' Dinner during the Lakeland, Florida Sun 'n Fun fly-in at 6 p.m. on Thursday, April 23 in the Buehler Hangar.



About the Flight Instructor Hall of Fame

Established in 1997, the Flight Instructor Hall of Fame has inducted 26 individuals over the course of 17 years. Its recipients must have a minimum of 20 years working in aviation education and must be well respected within the industry. The award consists of three pieces; a traveling trophy that is presented to the current inductee(s) for a year, a commemorative plaque for the inductee(s), and a wall display honoring all recipients that resides within the AirZoo Aviation Museum (www.airzoo.org) in Kalamazoo, Michigan, which is also the National Association of Flight Instructors headquarters.

For more information visit NAFINet.org or call 866-806-6156. 

NextGen GA Fund Announces the Launch of "Jumpstart GA 2020", Orders 10,000 L-3 Lynx NGT-1000 Units

On February 11, 2015, the NextGen GA Fund announced the launch of "Jumpstart GA 2020" to accelerate the general aviation community's adoption of rule-compliant ADS-B Out avionics. As part of this program, the GA Fund has secured an order for 10,000 L-3 Lynx® NGT-1000 units, manufactured by L-3 Aviation Products of Grand Rapids, Michigan. Dealer cost will be \$1,649 per unit. Orders can be placed by FAA-authorized repair stations through either L-3 Aviation Products or directly to the GA Fund.

An open competition run by the GA Fund culminated February 5, 2015 with receipt of five separate offers from ADS-B manufacturers. L-3 offered the best pricing,

product availability, FAA certification and features such as embedded GPS WAAS.

"AOPA has made it clear that over 30,000 aircraft owners would park their aircraft rather than upgrade to ADS-B at current market prices, and we're hopeful the volume purchase made possible by the GA Fund addresses these concerns," said Michael Dymant, Managing Partner of the NextGen GA Fund. "Jumpstart offers a one-time opportunity for N-registered single-engine piston aircraft owners to take advantage of special prices. They can also beat the rush to install before the January 1, 2020 mandate, and at the same time improve the resale value of their aircraft."


EN ROUTE

According to the NextGen GA Fund, Project Jumpstart will shortly expand this program to include another 10,000 ADS-B In configurations that will dramatically increase functionality and operational benefits for the general aviation pilot, providing weather and traffic information and 1090ES transponders.

Availability and Deadline

The Lynx® NGT-1000 ADS-B Out units will be ready to ship to FAA-certified repair stations and distributors beginning in June of 2015. Equipment will be offered on a first-come, first-served basis and must be installed by FAA-certified mechanics before July 1, 2016 to qualify for the price point offered. For more information about the Lynx® NGT-1000, visit L-3Lynx.com.

About the NextGen GA Fund

The NextGen GA Fund is a public-private partnership formed under Section 221 of the FAA Reauthorization and Reform Act of 2012, and is 100 percent funded by the private sector. The NextGen GA Fund will eventually support over \$1 billion in NextGen avionics financings for general aviation operators to retrofit tens of thousands of turbine and twin engine aircraft. For more information about the NextGen GA Fund, visit www.nextgenfund.com 

Twin Commander University Set For April 23-25 In Savannah

The distinctive Twin Commander profile – a long, slim wing atop a long, low-slung fuselage ending in a tall vertical fin – has been a familiar sight for nearly six decades. And, one of aviation's greatest living heroes – Bob Hoover – has been around for nearly as long, flying his extraordinary energy-management air show routine in a Shrike Commander. Without question, Twin Commanders are steeped in tradition.

That rich tradition will be the theme of the 2015 Twin Commander University, set for Thursday-Saturday April 23-25 at the Hilton Savannah DeSoto in beautiful, historic Savannah, Georgia. Participants should plan to arrive at KSAT in time to play some golf in Savannah's soothing spring weather. On Thursday, April 23, Erik Eliel will present his highly acclaimed Airborne Weather Radar course, a comprehensive six-hour examination of the abilities, and shortcomings, of the most important weather-avoidance tool in your cockpit.

The University also will feature product and service exhibits by Twin Commander partner companies, including authorized service centers, SimCom Training Centers, and others.

For additional information, visit www.twincommander.com/university-2015. 

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Piper Aircraft Launches Meridian M500 With The Latest In Garmin Avionics

As of January 28, 2015, Piper Aircraft has introduced its newest top-of-the-line M-Class Meridian M500 single-engine turbine business aircraft, featuring the latest in Garmin avionics, enhanced safety features and a number of other significant product improvements.

"The 2015 Piper M500 will come equipped with the very newest Garmin avionics package for increased safety," said Piper President and CEO Simon Caldecott. "As part of our on-going product improvement initiatives, we saw an opportunity to give our customers the latest improvements in proven avionics technology, with electronic stability protection, underspeed protection and automatic level mode, among other improvements."

The Piper M500 seats six with club seating. It is powered by a Pratt & Whitney PT6A-42A 500-shp engine, sports a 260-KTAS max cruise speed and has a range of 1,000 nm. Equipped with an improved Garmin G1000 avionics suite, the 2015 M500 is listed at a competitive price of \$2.26 million.



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Upgraded Avionics

The M500's new Garmin G1000 avionics suite will feature dual high-resolution 10-inch PFDs and a high-resolution 12-inch MFD, as well as the latest Garmin Software upgrade, along with a GFC700 autopilot with enhanced Autopilot Flight Control System (AFCS), including a number of flight safety features:

- Electronic Stability Protection (ESP)
- Underspeed Protection (USP), Coupled Go-Around
- Expanded Engagement Envelope
- Level Mode, Autopilot Auto-Engage
- Master caution, master warning, gear position, gear warning incorporated in the G1000

Electronic Stability Protection

Electronic Stability Protection (ESP) helps prevent the onset of stall/spins, steep spirals, and loss-of-control conditions. This passive feature discourages aircraft operation outside the desired flight envelope. ESP functions independently of the autopilot system and only takes effect when the pilot is hand-flying the aircraft with the autopilot disengaged. It works as a soft "barrier" to keep the Piper M500 inside the performance envelope by automatically engaging servos to slightly correct control surface positions when the aircraft exceeds one or more flight parameters –

essentially "nudging" it back inside safe parameters.

Underspeed Protection

Underspeed Protection (USP) is a flight director function that reacts to underspeed conditions in a way that allows the autopilot to remain engaged but prevents the airplane from stalling while the PFD annunciates when active. With stall protections developed as part of the USP system, coupled go-arounds are possible without disengaging the autopilot. With this feature, the autopilot will remain engaged and fly the missed approach. If power is not added, the USP system will maintain a speed just above stall warning, adjusting airplane pitch attitude as required.

Automatic Level Mode (Blue Button)

The M500 also features an autopilot Level Mode function as standard equipment that, when triggered, will return the aircraft to a wings-level attitude with zero vertical speed. Upon activation, Level Mode will automatically engage the flight director and autopilot functions to return the aircraft to straight-and-level flight. Activating Level Mode cancels all armed and active modes, leaving all other autopilot modes available while the Level Mode is activated, simply by pressing the associated mode control button.

For further information, contact www.piper.com. 



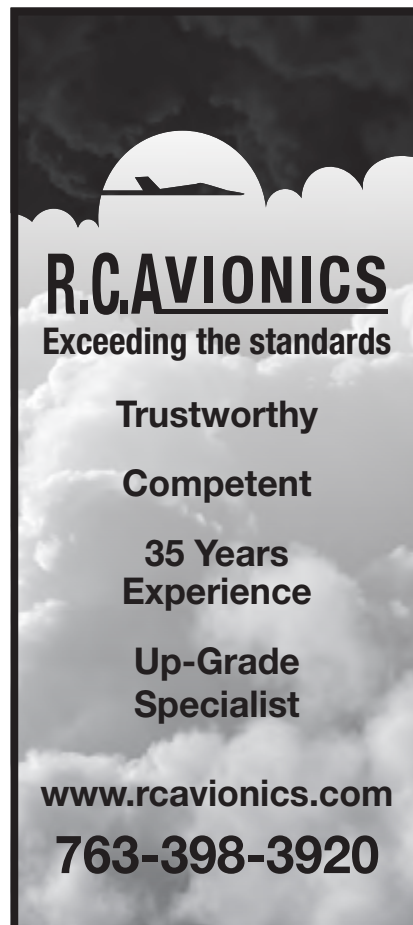
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by David Miller

Sometimes, Slow Is Better

Recently, I wrote about my addiction to speed. But, as I found out on one of my latest flights, sometimes flying slowly is just as important.

An area of low pressure was moving into north Texas, with showers scheduled to arrive by noon. The forecast for Addison (KADS) was 1,500 overcast and more than 6 miles visibility as we approached from the southeast on a December morning. The ATIS, however, told a different story: “Information Sierra, wind 180 at 15, gusts to 24, visibility 2 miles in mist, ceiling 700 overcast. Expect the ILS to runway 15.” I quickly checked the weather at nearby Dallas Love (KDAL), which was reporting 600 overcast. Glad I put on a little extra fuel, I thought to myself.

“November 1865 Charlie, reduce to 210 knots,” came the request from regional approach as we crossed YEAGR intersection at 9,000 feet. Hum... slowing us down a little early today. Not too unusual, though, especially when weather is around.

As we neared Addison, the line of airplanes trying to beat the lowering weather lengthened. “65 Charlie, slow to 170 knots,” came the command from a fast-talking controller, now very busy. I could see the line of traffic on the TCAS display. Then came the restriction to 150 knots as we turned abeam final. “65 Charlie, I have a lot of traffic landing at Addison and I’ll have to put you on an extended final.” “No problem,” I said. “65 Charlie, reduce to your minimum approach speed. You are following several 172’s trying to beat the weather.”

With flaps and gear out, I had the CJ1+ slowed to 130 knots in solid IMC and light rain. “65 Charlie, can you reduce any further?” said the controller. I was doing the best I could to stay in line but this plan was not looking good. “Negative,” came my reply, just a couple of miles outside the final approach fix.



With 5,000-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, Miller, along with his wife Patty, now own and fly a Citation CJ1+. You can contact David at davidmiller1@sbcglobal.net.

“65 Charlie, cancel approach clearance, turn left to a heading of 090 and climb to 2,100 feet.”

Wow, I thought. This is just like my simulator training. And in the almost forty years I have been flying in and out of Addison, this was the first time I had to go missed in IMC. Power up, positive rate, gear up, flaps up, left turn to 090 degrees – all came quickly. Patty, sitting in the right seat, wondered what was going on, but I didn’t have a lot of time to discuss the situation.

“65 Charlie, I apologize. I got you too close to those 172’s. Their groundspeed was about 60 knots with that wind. I will take you around for another approach,” said the harried controller. “Not a problem, I said. I could use the practice.”

We flew another circuit and broke out at 600 AGL in light rain. It’s satisfying to use some skills you practice so many times in the simulator. Today, going slower was better. I even got a “high five” from Patty as we taxied in.

Fly safe.

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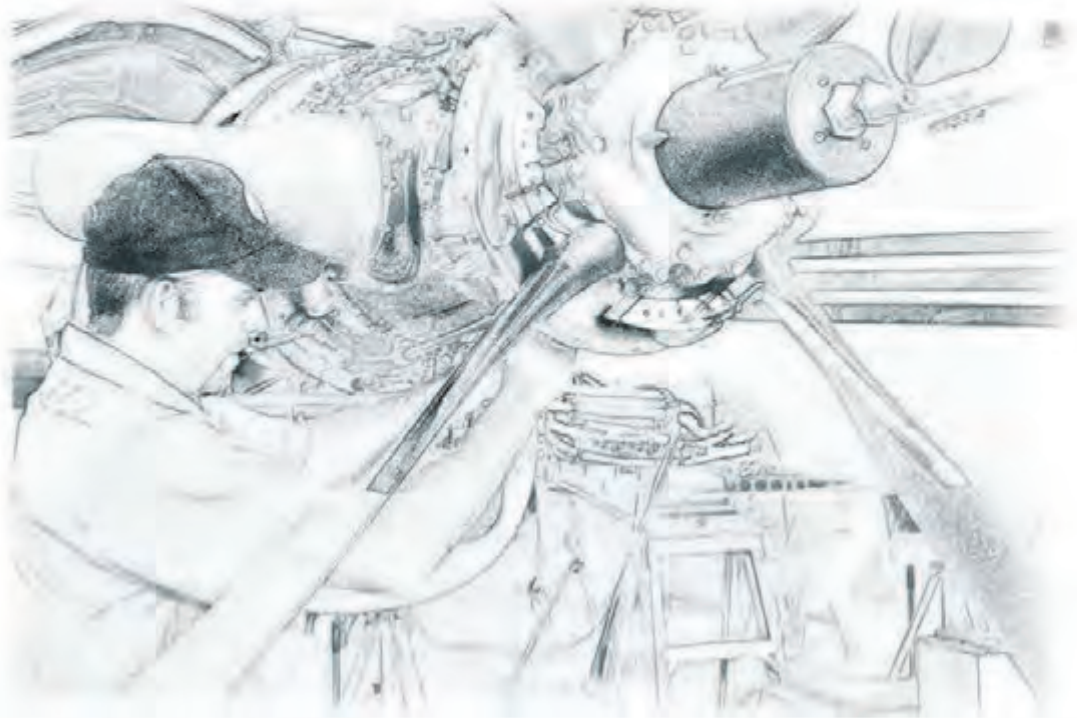
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