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VOLUME 21 NUMBER 10

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COVER PHOTO
The HondaJet over Wisconsin countryside during AirVenture 2017

Photo by Glenn Watson
Mach Point One Aviation

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Zone of Totality

How many times have you heard the promise, "*this once in a lifetime opportunity!*" Whether it's used to sell you a car, persuade you to take a free Caribbean cruise, or convince you to invest in silver via those annoying cable TV ads, you are implausibly told *THIS is the deal of the century! Don't wait! You'll always regret it if you don't act now*!

That's exactly how my spouse viewed all the hysteria leading up to the solar eclipse last August. While I was busy ordering eclipse glasses, discussing watch parties with friends and contemplating taking a flight to the totality path, he was the epitome of Archie Bunker, a grumpy old man. He didn't buy into all the hype. He didn't get why anyone would fly hundreds of miles to watch the sun disappear for two-and-a-half minutes. Thankfully, he had me as a counterbalance, as I was completely overboard with excitement. Perhaps that's why we make a good pair.

In my opinion, this celestial phenomenon was captivating because 1) It's rare – it was the first one of this magnitude in the United States in 99 years. The one I remember in 1979 was only a partial eclipse for most; 2) It was an epic, coast-to-coast occurrence. It cut a 70-mile wide swath across 14 states from Oregon to South Carolina where 12.2 million people live. It was estimated that 7 million traveled to be in the path of totality, and general aviation traffic was up nearly 30 percent that day. Finally, 3) It's freaky science! Never has there been so much technology available in the palm of our hands to help us learn about, track and experience the eclipse. There were a plethora of apps and websites dedicated to the event, all of which could be accessed on a phone or tablet. This only deepened my fascination with that big ball of fire we take for granted.

Since we live very close to the path of totality in Kansas City, the area of 100 percent coverage was only 50 nm north. On the morning of ECLIPSE DAY, I decided to scrap my plan to jump in a plane and fly north to St. Joseph, Missouri. A line of showers popped up west and north, bringing solid cloud cover. Instead I headed to Johnson County Executive Airport where our friends at KCAC (the local Piper and Pilatus dealer) were hosting a watch party and cookout. Ninety-nine percent totality would have to do. At least I'd be hanging out with a bunch of pilots who were just as psyched I was. At the last minute, my husband decided he'd join me. I grabbed an extra pair of eclipse glasses and we headed out the door.

Once we reached the airport, we noticed a very subtle dimming of sunlight. According to my eclipse app – and confirmed with a look through our glasses – it had started! Then we noticed a cloud bank making its way toward the airport. It looked like we wouldn't get to see it after all. Suddenly, my spouse turned to me with this wild look in his eyes and said, "What are we doing? We've got an airplane. Let's go!"

With less than an hour to go until totality, we raced home to grab headsets and keys while calling in an urgent ramp order to the FBO. We sped back to the airport, tag-teamed the preflight and fired up the plane. With clouds continuing to build to the northwest, we decided to fly east, with the plan to intercept the totality zone over mid-Missouri.

En route, the strangest light washed over us. Stark, yet soft. We flipped on nav lights and checked that our cockpit instrument lights were up. In the distance, we could see the dark shadow of the eclipse creeping toward us. At 12:30 local, we found ourselves flying in total darkness. The sky went blue-black, the stars came out and street lights from the tiny towns below came on. At the horizon, it was 360-degree twilight, with a gorgeous dark-orange glow similar to what we see right after the sun sets. For two-and-a-half minutes, we giddily gazed upward, marveling at the shimmering solar corona. It looked like wisps of cotton candy swirling out of an impossibly black disc where the sun used to be. My spouse, 100 percent humbug-free, was mouth agape, giggling loudly.

Before we knew it, time was up and a slice of sun began to cast weak sunlight. We turned back toward home and continued to marvel at what a gift we had been given. There are few events in life that leave a permanent, indelible impression, and this is one of them. We were part of a small percentage of humans that not only saw one of Earth's most spectacular natural events, but we viewed it from Flight Level 090. My husband humbly admits I was right (of course!) This was a "once-in-a-lifetime opportunity."

Did you miss the eclipse? There's another coming up in seven years, although it won't be coast to coast. On April 8, 2024, the moon's shadow will sweep northward across Mexico to Texas, into the Ohio River Valley, upstate New York to Maine. See you there!

We'd like to note two corrections in recent issues:

A letter to the editor in the August issue praising Archie Trammell's "*The Long Tentacle of a Thunderstorm*" was inadvertently attributed to the wrong person. The correct author was Bill Cotton of Lakeway, Texas.

In the September issue on Page 34, those with sharp eyes may have noticed author Kevin Ware flying his R44 helicopter from the left seat. Actually, we inadvertently reversed the photo; Kevin was indeed in the right seat, which is the correct pilot position.

We apologize for the confusion.

Dianne

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Step Up to the HondaJet

For owner-pilots, this fast, roomy light jet delivers where it matters most: simplicity and lower workload.

by **Dianne White**

Photos by Glenn Watson

The story of HondaJet's architect Michimasa Fujino and his long journey from initial concept in the late 1980s to proof of concept in 2005 and finally certification is one of determination and patient perseverance. The founding CEO of Honda Aircraft Company (HACI), a subsidiary of Honda Motor Company, was given the reins to pursue a research project that led to the clean sheet design of a light business jet that employed an unconventional over-the-wing engine configuration and a composite fuselage.

While the certification program took longer than expected, the timing for a resurgence of interest in this remarkable light jet may be ideal, given the improved economy and steady upticks in aircraft market activity. Following certification in late 2015, 54 aircraft have been delivered. With an airframe that has had time to mature through a decade of development, certification and entry into service, the aircraft is truly finding its legs in the marketplace, especially among owner-operators.

With the HondaJet's OTWEM configuration, the pylon acts as an aerodynamic surface that achieves lower wave drag at higher transonic speeds.

When provided the opportunity to fly the HondaJet at this year's AirVenture Oshkosh, I approached it strictly from the perspective of a step-up owner-pilot who would be operating it single-pilot and with no prior jet experience. Honda Aircraft Company's Flight Operations Manager and Chief Test Pilot Warren Gould, who hosted me on this test flight, has been involved in the initial development and flight test of multiple jets in his career at other OEMs. He said he was impressed with HACI's approach to single-pilot ops.

"In the development phase, they built multiple mock-ups and spent a lot of time gathering pilot input. This is most pilot involvement I've ever seen on a development program," Gould said. "It is an extremely pilot-centric aircraft, with tremendous thought given to simplicity, workload and ergonomics."

The Walkaround

Before our flight, Gould took me on a detailed walkaround to point out the features that make the HondaJet a formidable light jet, as well as an ideal owner-pilot platform. The obvious one is the over-the-wing-mounted engines, or as HACI calls them, OTWEM. Initially conceived by Fujino, the company adopted the OTWEM for three primary reasons: First, mounting the engines on the wing provided more space in the fuselage by eliminating the carry-through structure that would normally be located in the rear part of the fuselage. Engine accessories are also encased in the pylon instead of the empennage. All of this translates into a roomier cabin, lavatory and aft baggage compartment.

Second, it contributes to the aerodynamic efficiency of the airframe because the pylon design itself acts as an aerodynamic surface that achieves lower wave drag at higher transonic speeds. Thus, high-altitude cruise efficiency is actually greater than that of a conventional rear-fuselage engine-nacelle configuration. Finally, engine noise and vibration in the cabin is reduced as the engines are now located further away from the cabin.

Another noticeable feature is the aircraft's super-smooth natural laminar flow wing. The wing is built from a single 2,000-pound piece of aluminum that is milled down to about 70 pounds. There are no rivets to interrupt flow, resulting in a low-drag, highly efficient airfoil. The tall winglets attached to fairly short wings add effective dihedral to provide lateral stability in addition to acting as a lifting surface to increase climb and cruise performance. The wet wing is connected to a bladder tank in the fuselage and all interconnected and automatically managed. Single-point refueling is accomplished through gravity fill rather than pressure.

The fuselage is all composite, giving it an extremely smooth, sleek appearance. The bulbous nose of the aircraft – which observers either love or hate – is an aerodynamic marvel as well. Using a natural laminar flow shape, the nose reduces drag and wing noise, as well as providing ample leg and elbow room in the cockpit.

Keeping with the theme of reducing pilot workload and increasing safety, the aircraft's de-ice systems are all managed and activated automatically with no

The speed brakes are located on the rear fuselage rather than the wings and are aerodynamically limited, meaning that at high speed they only deploy a small amount; at low speeds, they deploy fully. The result is that the pilot gets the same deceleration over the entire speed range, but without the rumble and buffeting that sometimes occurs with wing-mounted brakes.

proactive actions required of the pilot. Dual ice detectors feed information to the de-ice system, which then triggers bleed air on the wing and an electro-impulsive system for the tail. All external lights are LED and are handled automatically. That is, the plane knows what phase of flight it is in, as well as flight conditions, and selects the lights appropriately. For example, once you release the brake, the taxi light comes on. Once you go to takeoff thrust, the landing lights and strobes illuminate. As gear is retracted, the recognition lights come on; at FL180, the recogs and ice lights go off.

Similar to what is found on the much larger Gulfstream G650 or Dassault Falcon 7X, the aircraft is equipped with UTC Aerospace Systems SmartProbes that each have dedicated air data computers to provide airspeed, angle of attack and other flight data. There is no pneumatic tubing or pitot tubes that can potentially fail or get iced up. There is a third backup probe that feeds to a three-in-one Meggitt EFIS standby gauge. As the ultimate backup, this third probe can feed the PFD should the aircraft lose both primary air data probes or if both generators go offline.

The HondaJet's windscreen is electrically heated and automatically controlled. Gold filament is embedded

in the windshield with the terminating bars giving it the trademark "shark's teeth" look.

The aircraft is also equipped with short, beefy trailing link gear to deliver a smooth landing without excessive float. The speed brakes, located on the empennage rather than the wings, are aerodynamically limited, meaning that at high speed they only deploy a small amount; at low speeds, they deploy fully. The result is that the pilot gets the same deceleration over the entire speed range, but without the rumble and buffeting that sometimes occurs with wing-mounted brakes.

One thing that was noticeably absent from the walkaround was fluid checks. All consumables – oxygen, hydraulic, oil and fire bottle pressures – are monitored electronically, with no gauges to check. The preflight simply requires the pilot to look for leaks or damage.

Finally, we take a look at the nose and aft baggage compartments. The nose baggage holds 100 pounds and 9 cubic feet of space. The aft baggage holds 400 pounds and could easily accommodate six tour-size golf bags. The aft compartment isn't heated, but the outflow valves exhaust under the floor, keeping liquids from freezing.

The door is a true airstair, giving it the feel of a much bigger aircraft. Inside, it is obvious how Honda leveraged the extra space gained by the OTWEM. The club seating arrangement is modern and airy with ample seated shoulder and headroom. At the rear is a surprisingly roomy lavatory with the option to have a sink and externally serviced potty.

Let's Go Fly

Once buckled into the cockpit, it's apparent HACI had the single-pilot operator in mind. The Garmin G3000 flight deck, with its two touch controllers and large 14-inch PFD's and single MFD, provide an uncluttered cockpit. Every panel and pedestal items are elegantly and ergonomically designed. Other thoughtful touches included cup holders, side-panel storage cubbies and glareshield-mounted push-to-talk buttons.

Once the battery comes on, a quick sweep of the switches confirms everything is in the 12-o'clock position. From a single-pilot flow standpoint, the switch layout and access is simple and ergonomic. Once the avionics fire up, the Garmin G3000 brings up a status page where the pilot can confirm fluid levels, electrical status, door status and fuel status. As Gould said, "All green, all good." The HondaJet has a nice feature that allows you to click through checklist items using a small wheel on the yoke.

Today for this flight demonstration, we are moderately loaded with 2,200 pounds of fuel and an outside temperature of 17 Celsius. One feature that is still missing with this G3000 installation is the performance calculations for V speeds where the FMS automatically determines takeoff and landing performance data and transfers it to the PFD. Although not a time-consuming process, this is one capability HACI should add in the future.

The roomy cockpit of the HondaJet is equipped with the Garmin G3000, featuring three 14-inch displays and two touch controllers. Ergonomically, the cockpit layout philosophy embraces simplicity with multiple features that lower pilot workload.

Everything checks out, so we begin the engine start, get our clearance and taxi instructions. As we were parked on a tightly packed ramp at Appleton, Wisconsin, Gould demonstrated the aircraft's incredibly tight turning abilities. Hydraulically powered and electrically controlled, the nosewheel steering is smoothly controlled through the rudder pedals. It is speed sensitive, so there is more travel at low speed than at high speed. On the ramp, the aircraft turned 60 degrees, practically within its own wing area, allow us to maneuver around cones and other obstacles around us. Residual thrust is only 90 pounds, so the pilot is not having to ride the brakes during the taxi.

After a short delay, we are cleared onto KATW's Runway 30. Brakes are held while takeoff power is brought up and with brake release, the aircraft sprints down the runway. At 113 kts, we rotate and quickly accelerate as gear is brought up.

After a few turns and altitude holds for traffic avoidance, ATC sets us free to climb to our intended altitude of FL280. Hand-flying in the climb, the aircraft is easy to fly, a little heavy in roll (in part thanks to those large winglets) and responsive in pitch. Once I leveled off at FL280, the aircraft accelerated nicely to Mach 0.687 or about 413 kts. Honda publishes its max speed of 422 kts at FL310, although most would prefer to fly it closer to its maximum operating altitude of FL430 to get the best range out of the aircraft. Published long-range cruise at FL430 nets 1,200 nm (with NBAA reserves), a speed of 368 kts, burning about 607 lbs/hr total.

Trailing link gear deliver smooth landings while completely automatic lighting and de-ice systems lowers pilot workload.

I did a few steep turns to get the feel of the aircraft. In general, the aircraft felt true and predictable. After leveling and trimming for level flight, I give one rudder pedal a firm push to gauge lateral directional stability and how quickly the aircraft returned to balanced flight. The plane oscillated three to four times before settling down. Next, I reduced power the aircraft for slow flight. According to HACI's test data, the wing will stall first around 55 percent semi-span with the separation expanding inboard. At the stall angle of attack, the wing root between the fuselage and the nacelle does not stall and there is adequate stall margin over the outboard portion of the wing, making the aircraft controllable well into the stall. Test data also found the OTWEM has no effect on the stall characteristics of the wing.

As I found, the aircraft is docile and handles predictably in slow flight, with the aircraft's stick shaker giving me a wake-up call that a stall was imminent. A stick pusher prevents a full-out stall and keep pilots out of the low-speed danger zone.

PHOTO CREDIT: HONDA AIRCRAFT COMPANY

The HondaJet cabin is modern, comfortable and spacious. An externally serviceable lavatory with a running sink is located behind a sturdy privacy partition at the rear.

Next came the fun part of the demo: an emergency descent. Gould instructed me to pull back the throttles, deploy the speed brakes and point the nose downhill. The deployment is indiscernible, with no buffeting or obvious increase in noise, and as Gould promised, we were quickly doing 10,000 fpm.

As we leveled off and reoriented ourselves for the flight back to ATW, Gould pointed out another handy single-pilot feature. Placing the aircraft back on autopilot, he showed me how to dial a speed and watch the engines' FADEC choose a power setting to maintain that airspeed. You can see how this could be especially helpful when negotiating complicated arrivals and step-downs in busy airspace.

As we flew back into the beehive at KATW, the G3000 made easy work of loading the ILS to Runway 30. The system has a number of intuitive shortcuts that lessen the number of keystrokes and button pushes. The impressively large windscreens provide excellent visibility and were especially useful as we searched for traffic and maneuvered onto the final approach course. Before I knew it, the HondaJet was crossing the fence at 108 kts., and settling softly onto the pavement, requiring only about a 3-degree nose-up attitude.

Make Friends With the HondaJet

As the newest kid on the block, the HondaJet is eager to make friends with those interested in moving up to an entry-level jet. For the owner-pilot segment, the HondaJet offers a number of compelling single-pilot features that contribute to lower workload, simplicity of operation and of course, safety. In the back, passengers will not be disappointed, with a spacious, comfortable cabin and a private aft lavatory as a bonus.

HACI has been patient in its development of the HondaJet, as they care about getting it right. In my opinion, they succeeded. Keeping true Fujino's original intent, the aircraft achieves a good balance of efficiency, performance and payload/range. In fact, the final performance numbers didn't creep significantly from the initial concept introduction more than a decade ago.

With one of the biggest companies in the world to back it up, the HondaJet isn't going anywhere. Honda has made a sizable investment in its Greensboro, North Carolina production facility and has built out a strong network of dealers and service infrastructure inside and outside the company. And while there are more established light jet brands in the marketplace, the HondaJet has an opportunity to grow its foothold in the light jet arena, specifically with the owner-flown segment. This summer, the company announced they delivered two dozen aircraft the first half of 2017, more than any other jet in its category.

Anyone considering a step-up to a turbofan should fly the sleek, striking light jet that turns heads everywhere it goes. While its ramp presence may be unconventional by legacy jet standards, what truly makes the jet remarkable is what it can achieve where it matters most: in the air. T&T

Honda Aircraft Company HondaJet Specifications

Price (typically equipped with options)	$5.4 million
Powerplants	2 GE Honda Aero HF120, 2,095 lbsf derated to 2,050 lbsf
TBO	5,000 hr
Length	42.6 ft
Height	14.9 ft
Wingspan	39.7 ft
Seats	1 + 5/6
Cabin Length	17.8 ft
Cabin Width	5 ft
Cabin Height	4.83 in
Baggage Capacity, Nose	100 lb, 9 cu ft
Baggage Capacity, Aft	400 lb, 57 cu ft
Weights	
Empty Weight (with options)	7,381 lb
Maximum Ramp Weight	10,680 lb
Maximum Takeoff Weight	10,600 lb
Useful Load	3,299 lb
Payload w/Max Fuel	455 lb
Maximum Landing Weight	9,860 lb
Fuel Capacity	2,850 lb, 425 gal
Performance	
High-speed cruise, FL310	422 KTAS
Long-range cruise, FL430	368 KTAS/607 lb/hour total
Range (1 pilot + 3 pax, NBAA IFR reserves)	1,223 nm
Maximum operating altitude	43,000 ft
Takeoff Distance	<4,000 ft
Landing distance	3,050 ft
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More akin to larger class jets, the HondaJet's sturdy airstair makes a strong first impression.

PHOTO CREDIT: LAURIE GOOSSENS

EAA AirVenture 2017

A look back at the world's greatest air show

by **Rebecca Groom Jacobs**

If one event could be a direct testament to the health of general aviation, AirVenture 2017 demonstrated the industry is alive and well.

The show took place July 24-30 and saw record attendance with around 590,000 attendees, a five percent increase over last year. Throughout the week, more than 10,000 aircraft arrived at Wittman Regional Airport in Oshkosh and surrounding area airports. Aircraft parking and campgrounds (more than 11,000 sites) either reached or were pushing capacity for the majority of the week.

Nevertheless, the 5,000 EAA volunteers rose to the challenge and ultimately put on a well-commended event. In a statement following the event, EAA Chairman, Jack Pelton claimed it was possibly the best AirVenture week he had ever seen.

"What in incredible year it was at Oshkosh...the combination of our features and attractions, along with great weather six of the seven days, made for an excellent week," said Pelton. "It was a week filled with only-at-Oshkosh moments."

Those moments included an Apollo reunion, historic bomber flights, WWII reenactments, Blue Angel performances and numerous product announcements (largely electronics-based).

Only at Oshkosh

One of the main events at AirVenture this year was the 50th anniversary celebration and reunion of the Apollo Program. Seven astronauts including Buzz Aldrin and Jim Lovell were in attendance along with other Apollo program affiliates from mission control and engineering. The audience heard firsthand stories and experiences, both good and bad, during

their missions including Apollo 8, 11 and 17. This was the first time in 25 years that this number of astronauts from the Apollo era were under the same roof. A video of the full program can be found on the EAA's YouTube channel.

Just prior to the Apollo program, the famous Blue Angels splashed the scene with a special appearance and insiders' look into their spectacular demonstrations. This was the first year in AirVenture history where the Blue Angels performed full demonstrations. This is primarily due to the fact that substantial preparation goes into hosting such an act. The airport's neighboring houses and businesses were required to evacuate for several hours during the performances.

Earlier in the week, show activities commemorated the people and aircraft involved in the Doolittle Raid in honor of the 75th anniversary. More than a dozen B-25 bombers transfixed the crowds in a reenactment of the raid. Dick Cole, the last remaining veteran of the famed Doolittle Raiders, was also honored.


PHOTO CREDIT: AMY GESCH

Famed astronaut Buzz Aldrin at the Apollo Reunion event.

Continuing the theme of WWII bombers, the fully restored B-29 Superfortress named "Doc" made its much-anticipated AirVenture debut. Later joined by fellow B-29, "FiFi," the pair flew its first (breathtaking) formation flight. It is estimated no one in 60 years has seen two B-29s fly in formation, let alone share a ramp.

At the conclusion of AirVenture, B-29 Doc and Doc's Friends were recognized by EAA with two Lindy Awards in the warbirds category: the "Best Bomber Award" and the "Phoenix Award." The Phoenix Award is given to recognize the "highest achievement in craftsmanship and dedication in the preservation of aviation history accomplished in restoration."

Seen only at Oshkosh: For the first time in 60 years, two B-29s flew together in formation.

"Being recognized by the EAA at Oshkosh is humbling and celebrates the true dedication and heroism of our volunteers," said Jim Murphy, Doc's Friends program director in a release.

What's New

The electronics sector stole the show in terms of news at this year's AirVenture. Especially popular topics were cost-effective autopilots and cockpits, ADS-B solutions, flight app upgrades and connectivity.

Garmin released several new products including two new retrofit autopilots (GFC 500 and GFC 600), two portable weather receivers, a new low-cost ADS-B Out solution and its latest aviator watch, the D2 Charlie.

The GFC 600 is built upon the popular GFC 700 autopilot and is intended for high performance piston single/twin-engine and turbine aircraft. The standalone autopilot includes safety-enhancing technologies like ESP, flight director and level mode. The STC has already been completed in the A36 Bonanza and B55 Baron, with the B58 Baron and turbine aircraft in progress.

Dynon announced it is moving to get its flagship SkyView HDX touchscreen avionics suites into a wide range of FAA-certified aircraft models. The company seeks to install its system in aircraft ranging from single-engine piston trainers to high-performance twins.

"For years, thousands of light sport and amateur-built aircraft pilots have benefited from Dynon's intuitive, affordable, and safety enhancing integrated avionics systems," said Dynon Founder John Torode in a release. "We're ready to bring the Dynon approach to the rest of the GA fleet."

On the aircraft OEM side, Textron Aviation announced momentum on its Cessna Denali program. The Denali is a clean-sheet single-engine turboprop that will be powered by GE's new FADEC-equipped turboprop engine. Manufacturing on the first full airframe has begun with first flight expected in 2018.

Raisebeck Engineering and Hartzell have teamed up to produce a five-blade propeller for the King Air 350. It is said the carbon fiber propellers improve single-engine climb performance between five and seven percent.

Blackhawk Modifications also has its sights on upgrading used King Air 350s. The company announced its upgrade package that entails larger PT6A-67A engines and new composite propellers by MT Propellers. Historically, the Texas company has specialized in upgrading King Air 90 and 200 models. The Blackhawk website lists the upgraded King Air produces 1,050 SHP up to 25,000 feet, while stock King Air 350 engines begin losing horsepower at 15,000 feet.

"The King Air 350 is a natural progression for us," said Bob Kromer, vice president of flight test. "The new engine and prop combination provides the largest performance increase we've ever seen."

AirVenture 2018

We say it every year: how is EAA going to top this? AirVenture 2017 was, without a doubt, a standout show.

"We're already talking to people about the possibilities for 2018 in all areas, from aircraft anniversaries to new technology and innovations," said Pelton in his closing remarks. "We saw new programs, such as the Twilight Flight Fest following the afternoon air show, attract big crowds and show a bright future. We'll be announcing these features and attractions as they are finalized. We're excited for the future and what's ahead for next year!" T&T

Jacobs is a private pilot and general aviation enthusiast. In 2012, she earned her business degree in marketing from Oklahoma State University. Since then, she has specialized in aviation-specific marketing, working first for Piper Aircraft, and then as an aviation marketing specialist at Sullivan Higdon & Sink. Jacobs is now serving as the Director of Communications at the consulting firm Groom Aviation. You can contact Rebecca at rebecca@groomaviation.com.


PHOTO CREDIT: JIM RAEDER

Business Aviation Lands in Las Vegas

Preview of the 2017 NBAA-BACE Convention & Exhibition

by **Dianne White**

In a few short days, the 2017 NBAA Business Aviation Convention & Exhibition (NBAA-BACE) will get underway. The event, which celebrates NBAA's 70th anniversary, will be held Oct. 10-12 at the Las Vegas Convention Center in Las Vegas, Nevada. In addition to a wide selection of topical and timely education sessions, the event will feature compelling keynote speakers and a vast array of products and aircraft on display in the exhibit and static display spaces.

Headlining this year's convention will be American astronauts Mark and Scott Kelly. The identical twin brothers are former Navy aviators before joining NASA where they each flew into orbit four times. Scott Kelly holds the distinction of spending a combined 520 days in orbit. His final stay spanned from March 2015 to March 2016, during which time he participated in NASA's Twins Study to measure the physiological effects of weightlessness during long-duration spaceflights. Scientists compared Scott's in-orbit test results with those from his brother, who served as a ground-based control subject during the study

NBAA said it is taking great pains to ensure that its sessions do not contain the exact same content as past years, with a new emphasis on interactivity between presenter and attendee. Using the NBAA mobile app, presenters can ask advance questions of the audience to gauge their level of knowledge of the topic and modify the presentation real-time based on that feedback. Additionally, NBAA has added a capability of questions-and-answers to the app so people can ask questions during a presentation, and don't have to wait until the end for

a formal Q&A. Attendees also can view questions as they pop up on the app and can "vote up" a question to give it a higher priority for the presenter. NBAA also is sponsoring a greater number of roundtable discussions where industry attendees can help solve industry challenges, such as workforce development.

Another popular event is the Single Pilot Safety Standdown Oct. 9, which will focus on building a safety culture in a small or single-pilot organization.

For more information about the convention, go to nbaa.org. T&T

NBAA-BACE Exhibit Hours

Exhibit Halls and Indoor Static Display of Aircraft

Tuesday, Oct. 10
10 a.m. – 6 p.m.

Wednesday, Oct. 11
9 a.m. – 5 p.m.

Thursday, Oct. 12
9 a.m. – 4 p.m.

Static Display of Aircraft at Henderson Executive Airport

Tuesday, Oct. 10
9 a.m. – 6 p.m.

Wednesday, Oct. 11
9 a.m. – 5 p.m.

Thursday, Oct. 12
9 a.m. – 3 p.m.

Standing Up to BizAv's Biggest Threat

A conversation with NBAA's Ed Bolen

by **Dianne White**

As NBAA and the business aviation industry readies for the kick-off of the 2017 NBAA-BACE Convention & Exhibition, the industry is faced with unprecedented challenges. On the flipside, new training approaches, technology, avionics, and products are making aviation safer, more efficient and more rewarding than ever. All of this will be at the forefront at the upcoming convention scheduled for Oct. 10-12 in Las Vegas.

Last month, *Twin & Turbine* caught up with NBAA President and CEO Ed Bolen to discuss the biggest issue facing business aviation – ATC privatization – as well as what we can expect at this year's convention.

T&T: ATC privatization is the biggest threat facing our industry right now. With the fall Congressional session in full swing, what is the strategy to keep the heat on this important issue? What can owner-operators do ensure the voice of general aviation is heard?

Bolen: The ATC privatization plan fixes a problem that doesn't exist, as we have one of the safest, most effective ATC systems in the world. However, we are up against a very well-organized and well-funded airline lobby that is trying to seize control of the air traffic system. The result of that would be very devastating to the general aviation community. At its most basic level, this is an attempted power grab by the airlines. The Congressional Research Service, which is a Congressionally funded think-tank, said in July it is likely unconstitutional.

The Congressional Budget Office came forward in August and said it would cost the American taxpayers $100 billion to do this. Nevertheless, we see an effort to put this measure on the House floor soon and we are very concerned about it. It's a long-held goal of the airlines to run the system for their benefit, and they have put a lot of time and money into this fight.

This is not a fight that is going to be won with a handful of people from NBAA or an advertisement or a computer program. This is going to be won by individuals in the aviation community talking to their elected representatives. At NBAA and throughout the industry we are asking everyone to do their part, to take responsibility for the future of our industry and to make phone calls and write letters to their members of Congress. It must be done – It's that critical. We tried to make it easy by setting up 800 numbers and websites so that our community can make their voices heard. It's never been easier, and it's never been more urgent and critical.

We are thankful we are not fighting this fight alone. We have several influential voices, including Capt. "Sully" Sullenberger who has been very outspoken on this. In addition, astronauts Jim Lovell, Hoot Gibson, Thomas Stafford and others have come forward to express their concerns. We've seen many consumer groups, small-town mayors, and business leaders who also happen to be pilots speak up. We've had over 100 CEOs – at least one from every state who also happen to be pilots – go on record to say this would be devastating. Never has it more crucial for members of our community to speak up.

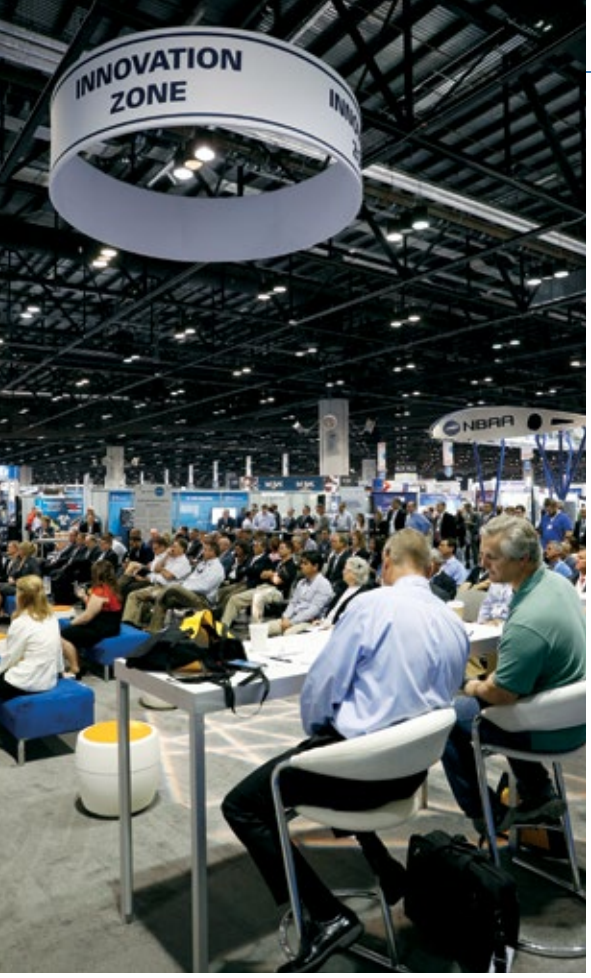
T&T: With the economy making positive strides and the future of business aviation looking brighter, what are your expectations for 2017 NBAA-BACE in terms of attendance and activity?

Bolen: NBAA-BACE is shaping up to be an outstanding event. We will have more than 1,100 exhibitors and the largest indoor static display on record. The static display is completely full and has been for some time. We have strong opening sessions and educational sessions. Our expectations are that NBAA-BACE will be a very good show for both exhibitors and attendees alike.

We continue to evolve the show every year and that will be reflected in the experience those in attendance will have. The opening general sessions will both be timely and reflective, plus the technologies being used and the ease of navigation should be strong. NBAA is celebrating its 70th anniversary, so it will be a celebration of where we've come but also very forward-looking about where our industry can go.

T&T: For owner-pilots or small fleet operators, why is NBAA a worthwhile three days?

Bolen: There are a number of things that are significant. One is our single-pilot safety standdown, which is highly anticipated event in the owner-operator community. Educational sessions, aircraft, products and technology on display all speak to the owner-operator. The owner-pilot is certainly a big part of NBAA, and reflective on our board of directors and on a lot of the committees and activities. We are honored and privileged to represent this important segment of the business aviation community.



T&T: The GA community is playing a tremendous role during the recovery efforts of the recent hurricanes. How do you see the role of business aviation in supporting charitable and disaster relief activities?

Bolen: Humanitarian outreach efforts are core to the business aviation community. Business aviation is enormously helpful with our country's humanitarian efforts on a day-to-day basis. Every day in the United States, business aviation is flying cancer patients to treatment centers, helping combat veterans reunite with their families or taking them to treatment. Every day we are flying vital organs to transplant recipients.

While we pursue humanitarian efforts daily, the community really comes together on an epic scale in times of natural disasters. What we saw with Hurricane Katrina, for example, was a utilization of general

aviation airports at a time when the Louis Armstrong airport was closed. We have seen that similar response with Hurricane Harvey in the Houston area as Hobby Airport has been underwater. These general aviation airports, which day in and day out help create economic development in communities and do other things that facilitate trade and commerce, quickly become emergency relief centers and key transportation hubs.

In the United States, we are fortunate to have a strong general aviation industry, airport system and a community of people who are very caring and action oriented. You put all of that together and you really see a national treasure and asset that is there in times of greatest need. It is a part of who we are. Our community does it with asking very little in return. They are not necessarily looking for headlines or attention. We are there for each other in good times, bad times and particularly in times of crisis. T&T

FIVE on the FLY

Shelly deZevallos (far left) with volunteer pilots who flew relief missions following Hurricane Harvey.

by **Rebecca Groom Jacobs**

WHO:
Dr. Shelly deZevallos

WHERE:
Houston, Texas

POSITION:
President of West Houston Airport

Principal at Independent Mortgage Company

CAREER HIGHLIGHTS:
NBAA Board Member / Founding Member and President of Texans for General Aviation

Ratings: Glider, SEL, MEL, IFR, Commercial

Hours: 4,000+

1. As a third-generation pilot, aviation is in your blood. How does aviation play a role in your life today?

I have this theory in life that there are two things you can never replace – people and time. Our airplane saves us *so much* time. We own a Beechcraft Baron B58 and it enables us to be more efficient and effective, both professionally and personally. At least every other week, my husband and I use it for business-related trips, which are often last minute. We also regularly fly with our children. We are a family of four, so traveling commercial can quickly get expensive and time-consuming whereas the Baron allows for quicker, more enjoyable travel. The airplane fits us perfectly.

2. How great of a presence does the West Houston Airport have in the aviation infrastructure of Houston?

West Houston Airport is the closest general aviation airport to downtown Houston and the Energy Corridor. So, airplanes typically choose to land here for its convenience as well as fast turnaround service and amenities such as conference rooms or maintenance facilities. In all, the airport generates a local economic impact of over $25 million to the community. We also are host to several community groups including the 99's, EAA, FAA FAST meetings and others.

3. As a founder of Texans for General Aviation, what is the primary mission of the organization and what do you consider its greatest achievement thus far?

Texans for General Aviation came about when several of us in the business aviation industry realized the Texas Legislature and local officials were not being informed about the impact general aviation has on the state. We wanted to assist policy makers in recognizing its importance so we formed the organization and helped initiate the Texas Legislative General Aviation Caucus, made up of legislators and their staff. And it's just taken off. We have some wonderful leaders like Representative John Cyrier. The caucus is now a great resource for policy makers in Texas regarding general and business aviation.

Shelly deZevallos, her husband and children with their family aircraft, a Beechcraft Baron B58.

4. As a member of the NBAA Board, what do you hope to contribute to business aviation's leading organization?

I was elected to the Board last November, which is an absolute honor. Being a pilot and small-business owner in both aviation and a non-aviation industry, I see firsthand what's going on at our country's airports. I think that experience, combined with my policy and educational background, allows me to bring a different perspective to an already-diverse Board. In addition to aviation, I love policy. It has worked out really well bringing those two passions together.

5. In late August, the entire country watched in horror the devastation of Hurricane Harvey on the city of Houston. How did the hurricane affect the West Houston Airport and how did the aviation community come together to aid the city?

When Hurricane Harvey hit, it rained for almost six days. But what hurt us at the airport specifically was not the wind or rain, but the floodwaters from the reservoir and diversion afterward. We had been hoping to assist with relief efforts right away, but were unable due to the high water being slow to recede. Finally, on Sunday (Sept. 3), airplanes delivering supplies were able to make their way in.

We have had dozens and dozens of pilots fly into our airport from all over the country – Michigan, Florida, California…I think I've seen every make or model of airplane fly in here. They're doing what they love while helping others at the same time. Those of us affected by the storm have assuredly experienced a grieving period, yet the comradery that has surfaced is unlike anything I've ever seen. For example, the Sky Hope Network in Georgetown, Texas, and Operation Air Drop from Dallas, Texas, we could not have delivered the relief supplies if it weren't for these organizations and people like Robin Eissler and Stephen Langley getting these air lifts started. It's truly been awe-inspiring. T&T

Among the organizations who leaped to action following Hurricane Harvey were Sky Hope Network, which arranged for volunteer pilots and their aircraft to fly much-needed items to the hardest hit areas near Houston. West Houston Airport served as one of the key airports during the crucial first days.

Exit Strategy

When to set the brakes for the last time.

It was on the 10th day of May – 1884 – that I confessed to age by mounting spectacles for the first time, and in the same hour I renewed my youth, to outward appearance, by mounting a bicycle for the first time. The spectacles stayed on.

– Mark Twain

As John Glenn prepared for STS-95 at the age of 77, a cartoon appeared in the papers. The space shuttle was depicted in orbit with a turn signal blinking, presumably since launch. The condition being a reference to the quintessential indicator of forgetfulness due to aging.

We've all seen the turn-signal phenomenon in parents, siblings, friends and perhaps ourselves. At some point, our mental and physical dexterity declines, effective sleep cycles are elusive and the calendar becomes populated with reactive, rather than proactive, doctor appointments. When the forgetful old geezer we're describing is ourselves, should we bail out the first time we miss a radio call, checklist item or a step-down fix, try to ignore the effects of aging, or modify our behavior and downsize as needed?

The Hubris of the Young

Age and treachery will always beat youth and exuberance.

– David Mamet

As I struggled through a passionate debate on the AirFacts Journal website about older pilots (*www.airfactsjournal.com*), the hubris of the young was frustrating, even infuriating. My frustration was compounded because the younger participants reminded me of the arrogance I displayed myself as a long-haired punk learning to fly in the 1970s (See *The Van Ride*, T&T March 2014). Their position on senior pilots centered on the age-old debate over age and reaction time versus experience. It was the same argument I had with my driver's ed teacher in high school. Because of my youth, and therefore Bruce Lee-like reaction speed, I tried to convince my instructor that I could out-drive him despite his years of experience; just as the young pilot-participants on the website suggested of themselves versus old pilots. To paraphrase Secretary of Defense Rumsfeld: the youngsters didn't know what they didn't know, especially this one.

With low experience, as in youth, many difficulties are unrecognized, so we may react with lightning quick, but boiler-plate and incomplete solutions. The result is the need to apply several additional or alternate solutions, time permitting. As we gain experience (and thus, age), we often recognize difficulties, compare and contrast the situation to previous encounters and apply a solution. Described by neurologists as "crystallized intelligence," this process is derived from a base of specialized knowledge that supports attention to the relationships between items of information, the anticipation of events, and coordination of physical movements in order to respond faster and more accurately.

As we gain experience (and thus, age), we often recognize difficulties, compare and contrast the situation to previous encounters and apply a solution.

The above discussion and high-brow neurology explanation may be a fine comparison and analysis, until, that is, the older contestant becomes slow in remembering, or is unable to remember at all, the aforementioned lessons learned while attempting to engage their magical crystallized-intelligence drive. And don't even try to rationalize these esoteric facts to a fast-moving, technologically savvy, teenage mutant pilot as they out-remember and out-fly your saggy derrière.

Wrong Patient, Wrong Approach

I've been corresponding with a non-aviation writer about the aging doctor debate, no segue to the above sagginess inferred. You know, should an 80-year-old physician be performing surgery. Age presents similar challenges to everyone's performance; doctors and pilots included. The main concern isn't that the doctors will fall asleep on their feet, remove the wrong organ or engage the wrong patient. It's that older doctors, according to my fellow writer, typically aren't up to speed on the new stuff. Or they're set in their ways, reluctant to use new techniques and procedures that have been proven to be more successful.

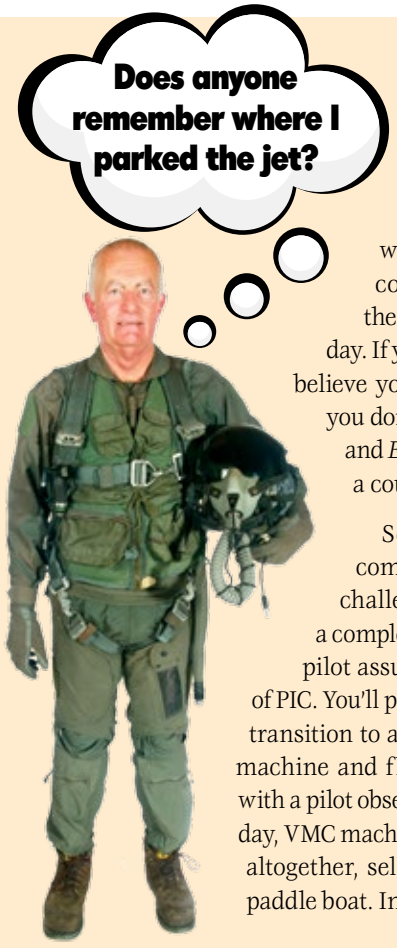
It was curious that forgetfulness was not on the forefront of their debate. Perhaps it's the very fact of being set in their ways, and proficient in the surgical procedures that they've used for many years that memory is less of an issue for a senior surgeon. Once we have found our groove, after having learned what works and what doesn't, change can feel like an unwarranted gamble. My experiences during the merger of several airlines, changing to a paperless flight deck and the transition to a next generation airliner, have all highlighted

my discomfort with change. The process is fatiguing and promotes confusability in those with a saggy derrière.

Our airplanes, avionics, the airspace system in which we operate and a myriad of corporate and governmental regulations are constantly changing every 28 days at a minimum. Pilots must recognize, remember and comply with changes to equipment and procedures. Resistance is futile and a head-in-the-sand approach will bite us in that saggy place every time. Should an 80-year-old pilot fly single-pilot in a high-performance airplane or in difficult conditions such as low IMC amongst all these changes?

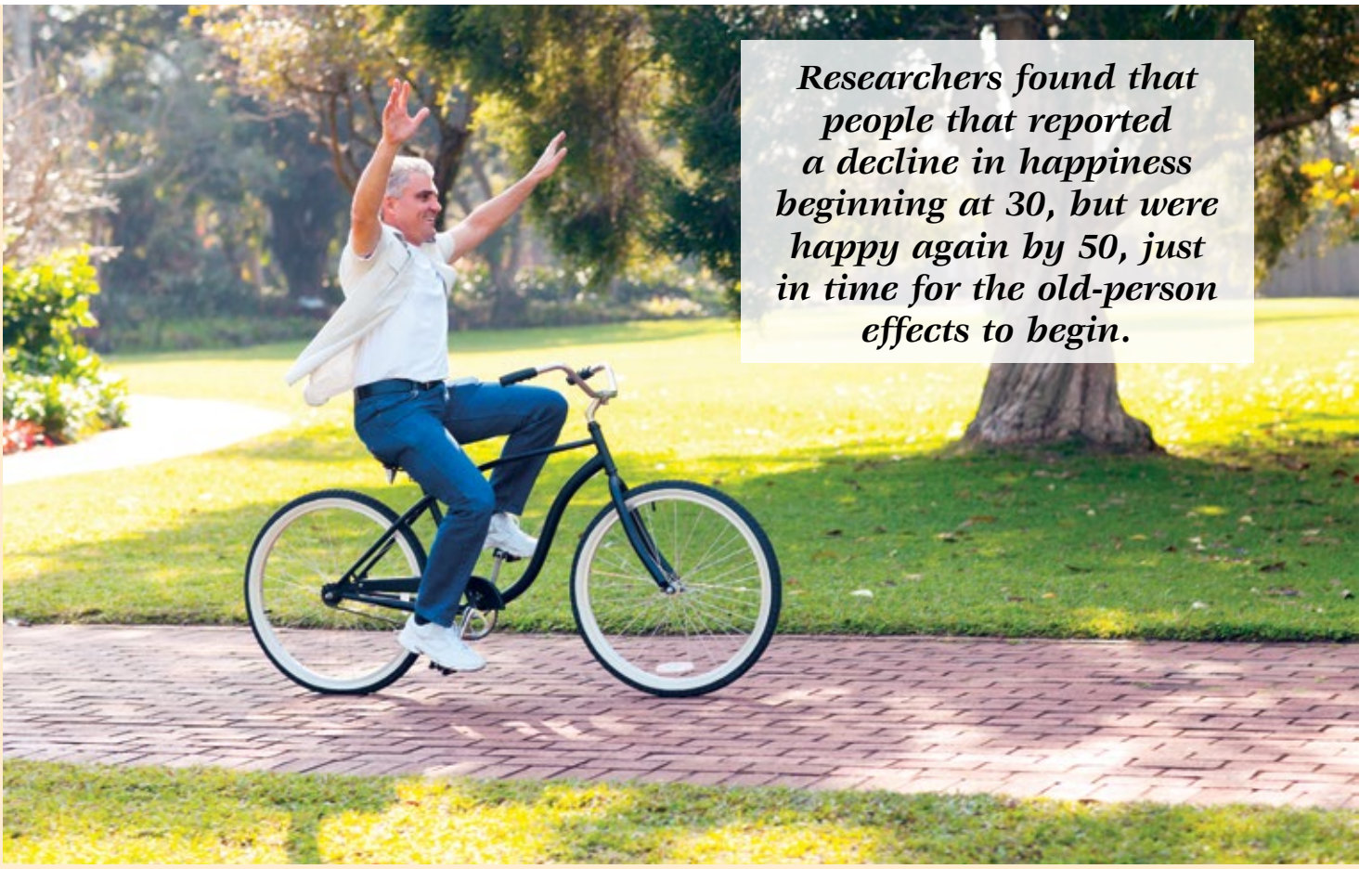
Where'd We Park?

We certainly don't want to be seen at cruise altitude with our turn-signal blinking or caught dawdling up to the plane on a scooter, especially if we're the PIC. Hanging up the flying spurs is a painful move, but no one wants their age to be a "contributing factor" in an NTSB report. Giving up the crown by voluntarily stashing our pilot's license next to the Hai Karate (or *Evening in Paris*) is an eventuality we all will face. I have friends and acquaintances that could no longer afford to fly, those that lost their medicals, and some that encountered an unaffordable or unjustifiable maintenance expense. Some lost their desire to fly due to an insurance claim or unmanageable terms and some were directed by their family to quit. You don't usually hear a pilot admit poor memory as the reason that they stopped flying, but it would be a hilarious excuse: "I landed somewhere and can't remember where I parked the damned airplane, so I just stopped looking."



That excuse wouldn't work during AirVenture of course; nobody can find their airplane after opening day. If you don't think people will believe your lost airplane story, or you don't know what Hai Karate and *Evening in Paris* are, there's a couple of alternate plans.

Several solutions are common: continue flying in challenging conditions aboard a complex airplane while another pilot assumes the responsibilities of PIC. You'll probably need to pay them; transition to a much less sophisticated machine and fly only in day, VMC; fly with a pilot observer or instructor in your day, VMC machine; or you can stop flying altogether, sell the airplane and buy a paddle boat. In order to empathize with



the enormity of the decision, especially after considering the blinding speed of a self-propelled paddle boat or the cost to hire a teenage mutant pilot as PIC, imagine the consequences of a serious mental or physical condition developing suddenly while single-pilot in a high-workload situation. Or conversely, picture hanging up the chocks before their time and losing the convenience, camaraderie and joy of flying.

If you are younger than 40, you're probably full up in the areas discussed in this article and wondering what all the fuss is about. As you reach 50 and beyond, age-related challenges are likely to develop and you will slowly become enlightened about the fuss. Many of the physical and mental changes will mirror those of being over-tired. And a cantankerous demeanor should not be minimized either as it may be a heads-up of things to come, trust me. But ponder this prospect: in a survey of 1.3 million people across 51 countries, researchers found that people that reported a decline in happiness beginning at 30, but were happy again by 50, just in time for the old-person effects to begin. In any case, diminishing performance is not a pleasant prospect to ponder for us perpetually positive pilots.

Montgomery Scott

When I fly for WOM (Wings of Mercy) and at my airline, it's a two-pilot operation. It's easy to recognize the eventuality of forgetfulness in ourselves when operating with another crewmember by the frequency in which they point out things we performed early, late, out of sequence

or skipped altogether. When single-pilot, we must make that assessment honestly, and on our own. The deliberation and decision should focus on our ability to perform all tasks throughout the flight. If we're fortunate, our crystallized intelligence will work as well as engineer Scott's crystals did for his flying machine. As an over-60 pilot, I don't think I'm making more errors, but I acknowledge that the day is coming They say I've shown a sliver of that cantankerousness. And Mark Twain's philosophy "if the spectacles don't fall off when you mount the machine" is probably not a stringent enough test.

If you decide to keep flying, when you reach cruise don't forget to check the turn signal.

For further discussions and information on this topic, contact or join the United Flying Octogenarians (*www.unitedflyingoctogenarians.org*). T&T

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 major, he flew the F-16 and later performed as an 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.

Daher-sponsored Parasol Replica Joins EAA Aviation Museum

If you attended AirVenture 2017, you may have admired a full-sized Morane-Saulnier Type L "Parasol" airplane on display in the Daher/Socata exhibit area. Daher has announced that this hand-built aircraft will join the EAA Aviation Museum collection in Oshkosh, Wisconsin.

The flightworthy replica aircraft originally was planned for a return to France. However, the company honored EAA's request that the Parasol be permanently displayed at the museum. It will be located near the facility's entrance between the historic reproductions of the Wright brothers' Wright Flyer and Charles Lindbergh's *Spirit of St. Louis*.

The six-year construction effort for the Type L Parasol was managed by the Association Héritage Avions Morane-Saulnier, whose volunteers – both retired and current workers of Daher and predecessor companies (including some Morane-Saulnier veterans in their mid-80s) – contributed their skills, energy and passion. Daher supported the project by providing workspace, tooling and expertise.

The replica retains the Type L Parasol's original wooden structure configuration, along with its wing-warping system and the aircraft's all-flying rudder and stabilator controls.

"The Parasol was an extremely important aircraft to the Allied powers of World War I and an important symbol of the friendship between France and the United States during the war," said Bob Campbell, director of the EAA Aviation Museum. "We are most honored and proud to accept this replica in the same spirit shared between our two great nations during that conflict."

"The response to the Type L's presence from EAA AirVenture Oshkosh attendees, including members of our global TBM community, was impressive," said Nicolas Chabbert, senior vice president of Daher Airplane Business Unit. "When the opportunity came to include this element of aviation history in the EAA Aviation Museum, we were pleased that the Association Héritage Avions Morane-Saulnier agreed – and Daher fully supports the decision."

As a result of the donation, Daher has offered to sponsor the construction of a second flightworthy Type L replica, which will be produced and based in France.

"Our team of dedicated volunteers are extremely proud to have the Parasol included in the EAA Aviation Museum," commented Daniel Bacou, President of the Association Héritage Avions Morane-Saulnier. "Of course, it was difficult to part ways with the aircraft after six years of hard work, but we thank Daher for the very generous offer that enables us to embark on a new exciting project for the second reproduction. T&T

From left to right: Daniel Bacou, president of Heritage Avions Morane-Saulnier, Patrick Daher, chairman of Daher group, with members of the construction team, Claude Canerie, Gérard Frances, Mickael Brahier and Jean-Claude Arne.

FDS Avionics Intros Interactive 2D and 3D Maps for BizAv Passengers

In-flight entertainment and cabin management systems manufacturer FDS Avionics Corp., has rolled out two new moving maps for business and private aviation.

The *do 3D Moving Map* provides an intensely detailed three-dimensional moving map experience. The 3D map can be configured to show different views and levels of detail up to 15 square meters, per pixel, on a bulkhead display. The *do 2D Moving Map* delivers high-resolution satellite imagery up to 20 square meters, per pixel. Passengers can view the map on a bulkhead display or, with the wireless upgrade, interactively explore surroundings using their mobile device. With the wireless upgrade, passengers can explore surrounding areas interactively on mobile devices, changing the view angle with a finger swipe.

The maps also provide flight data such as speed, altitude and ETA via an aircraft's onboard avionics system.

For more information, go to *www.fdsavionics.com*. T&T

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When the Lights Went Out

"Want to fly with me to see the total eclipse?"

The text from friend and M2 owner Larry King seemed simple enough. Since the viewing percentage in the Dallas area would be only 70 percent, why not take the airplane to a location where we could experience what many had not seen for nearly 100 years?

"Larry, are you sure we can't just pull the plane out of the hangar, climb in the cockpit, and tell our pilot friends we saw the total eclipse?" I asked. "No, he texted back. I want to see this for myself."

As Aug. 21 approached, we checked the weather and cloud cover forecasts daily. Finally, on the 20th, the decision was to go to the Nashville area and KMQY (Smyrna, Tennessee). An 0800 departure would allow adequate time to get a good parking place at Contour FBO. After calling ahead to secure a spot, off we went.

At FL390 truing 394 knots in ISA +2 temperatures and burning 390 pounds per side, all was relatively quiet. During the descent, however, the MFD began to fill with numerous targets. A lot of folks were headed to Tennessee.

"Nashville approach, November-9-2-1-X-ray-Tango would like the ILS to 32," I requested. "Negative X-ray-Tango, expect the visual. I don't have time for anything else. We've got 100 airplanes inbound in the next hour," replied a harried controller.

The ramp was bustling, but Contour was fast and efficient. We were fueled and towed next to a Premier within minutes. The entire scene was like an aviation Woodstock. Two elderly women were wearing identical "I did the 2017 Total Eclipse" silk blouses. The pilot of a Citation CJ deplaned with a welder's mask around his head. The FBO waiting area reminded me of the pilot's lounge at a NASCAR event. People gathered everywhere. Under the giant wing of a Falcon 2000, pampered passengers sat in folding chairs around catered platters of shrimp and chardonnay. Larry's son Taylor called Uber to get some fast food.

Apparently, the King congregation was on a budget.

I donned my special glasses as totality neared. "Those are cool specs," a wily corporate pilot commented. He had no glasses but within two minutes had convinced Judy King to give him a pair. Later, he conned another lady out of half her club sandwich.

Corporate pilots are industrious.

Eight Air Force jocks flying two Beechjet trainers decided to land and watch the festivities. Now we had a party. Two slightly intoxicated ladies asked the pilots if the eclipse would affect their instruments. "Do you remember the film *Airplane*," someone asked. Everyone began to giggle as they pictured the movie's cockpit scenes. "I hear you weigh less during an eclipse too," laughed one woman. She looked pleased to think she was about to become lighter.

Soon, hundreds gathered on the ramp with cameras ready as we counted down the seconds to totality. The temperature dropped more 10 degrees. As the last sliver of light slipped away, you could hear a gasp then cheers from the crowd. It was eerily dark. Landing lights from the runways were clearly visible. For the first time in my life, I could look directly at the sun. And for one minute and 58 seconds, we stood in awe of nature.

Fly safe.

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

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