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How **bizav has changed** over the past decade and a half—and what the future might hold. **Page 36**

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Chester Weber at the CAI Beekbergen competition at Riant Equestrian Centre in the Netherlands. Photo by Amy Mundell

Coming Soon in BJT

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▶ Leonardo AW109 Trekker

▶ Fly-in resorts

8th ANNUAL Readers' Choice Survey results

Nearly 1,500 **subscribers weigh in** on aircraft models and manufacturers, service providers, and more. **Page 26**

LEGACY® 500
BY EMBRAER



The game-changing Legacy 500, with its exclusive full fly-by-wire controls – previously available only in modern airliners and much larger business jets – is the benchmark for the future in performance, comfort and passenger experience. On the flight deck, the advanced Rockwell Collins Pro Line Fusion™ platform puts pilots in complete control in a cockpit environment that provides superior ergonomics. With seating for up to 12 passengers, the Legacy 500 features a spacious stand-up cabin with a flat floor, fully equipped galley, state-of-the-art in-flight entertainment system, elegant seating that converts into fully flat berths and the lowest cabin altitude of any medium-cabin aircraft. Its extensive main baggage compartment is complemented by a generous in-flight-accessible cabin stowage space. Boasting enviable speed, the clean-sheet design Legacy 500 delivers a high-speed cruise of Mach 0.82 and excellent runway performance.



LEGACY 500: A DOUBLY SATISFYING EXPERIENCE

“Through our management and charter services, Centreline has been serving business aviation customers for nearly 30 years. To succeed, we quickly embraced the fact that our customers are quite unique in their preferences, and we are very proud of our heritage in finding the perfect aircraft to meet their needs.

In 2016, Centreline brought the first UK-registered Legacy 500 and with that, we launched the aircraft’s operation in Europe. The Embraer team worked closely with our engineers, compliance team and aircrew to make the delivery and entry-into-service extremely smooth and enjoyable. Today, we operate three Legacy 500s, making Centreline the largest Legacy 500 operator in Europe.

The Legacy 500 certainly makes our mission easier to provide Centreline’s customers with an exceptional experience. Our flight crews simply love showing off the aircraft to new charter clients, and they always receive great feedback. With the Legacy 500 being so popular, we also create good revenues for the aircraft owners, which is doubly satisfying.

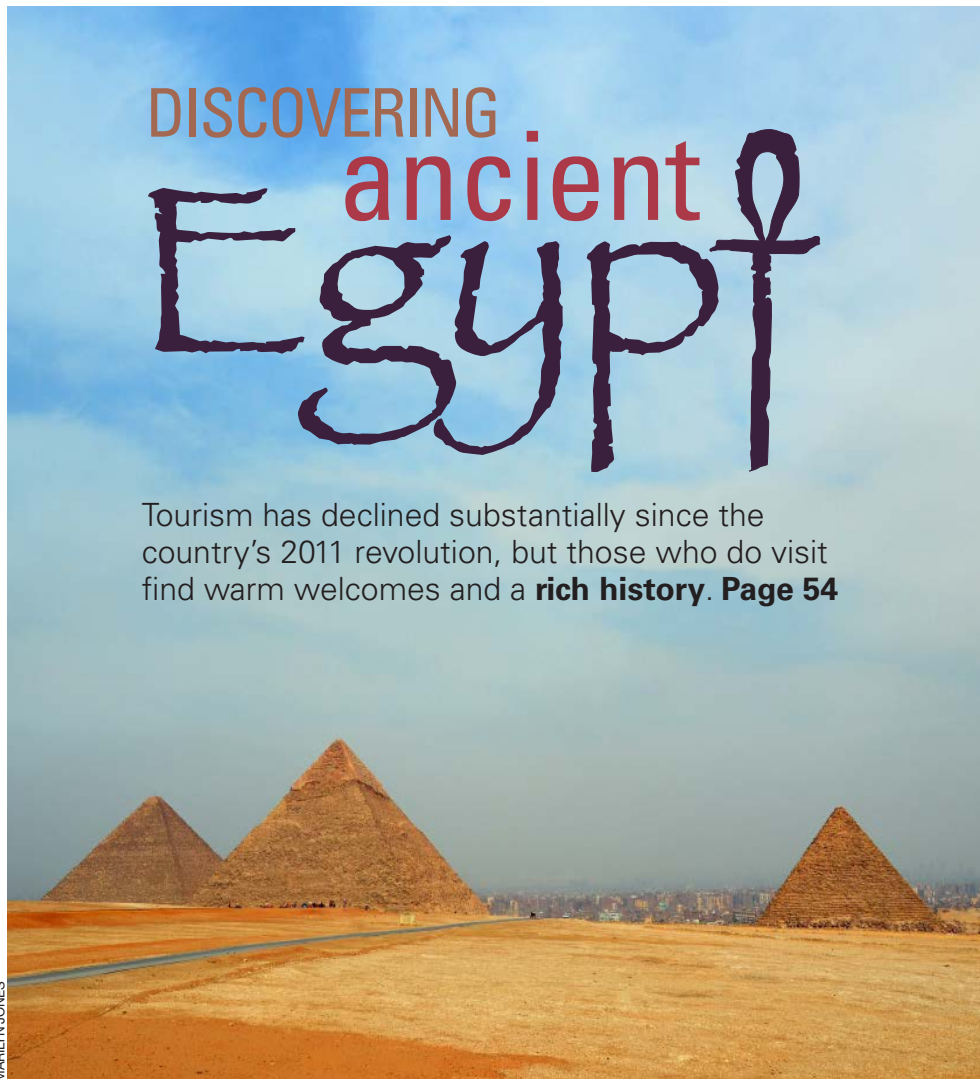
While the interior design of the Legacy 500 is certainly wowing our aircraft owners and charterers, the state-of-the-art avionics and fly-by-wire technology are a real bonus for the flight crew. As a convenience tool, the Legacy 500’s astounding runway performance gets our passengers closer to their final destinations in an incredibly quiet cabin.”



- Tanya Raynes, CEO, Centreline
Watch Tanya’s story and request more information at
executive.embraer.com/tanya



CHALLENGE.
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DISCOVERING ancient Egypt

Tourism has declined substantially since the country's 2011 revolution, but those who do visit find warm welcomes and a **rich history**. **Page 54**

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16 CHESTER WEBER

He enjoys driving as fast as possible in vehicles propelled by a mere **four horsepower**. But to cover long distances quickly, he opts for business jets.

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FEATURED CONTRIBUTOR

MARILYN JONES

Jones—whose article on Egypt begins on page 54—is a Texas-based travel and feature writer who has previously written for **BJT** about UNESCO World Heritage Sites in Germany and Cambodia.

During her 40-year freelance career, her work has appeared in such newspapers and magazines as the *Philadelphia Inquirer*, the *Dallas Morning News*, the *Chicago Sun-Times*, the *Baltimore Sun*, the *Boston Herald*, *Southern Living*, *TripAdvisor*, and *Cruise Critic*. She was also a writer/editor for the U.S. Postal Service for more than 20 years.

Jones has three grown children and a three-year-old granddaughter. Her website is TravelWithMarilyn.com.



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BOEING BUSINESS JETS

Up Front

According to John McCarthy, the idea for **Business Jet Traveler** came to him at least 19 years before he helped to launch the publication in 2003. While working as the advertising manager for Piper Aircraft, he recognized the need for a passenger-focused business aviation magazine. John served as publisher of **BJT** from its inception until his retirement in 2013, and we work hard every day to deliver on his original goal for the publication: to maximize your investment in private air travel.

This 15th anniversary issue includes an article about some of our most memorable stories and accomplishments (*see page 40*), and the piece prompted me to reflect on the diversity of our cover subjects. They have included TV and movie stars, athletes, entrepreneurs, politicians, CEOs, magicians, vintners, and musicians—not to mention a chef, a lifestyle coach, an architect, a film director, and an astronaut. What this motley group has in common is an appreciation for the ways that flying privately can save time and money, enriching businesses and enhancing lives.

Sir Richard Branson has attested to those benefits in our pages, as has *Shark Tank*'s Mark Cuban, who famously bought a Gulfstream V online back in 2010. So have Kurt Listug and Bob Taylor, the founders of Taylor Guitars, who employ their jet to visit distributors as well as their mill in the African nation of Cameroon,

where they grow the ebony trees used to make guitar fingerboards. And I'll never forget my interview with television pioneer Sheila Johnson, who overcame the challenges of a childhood in the segregated southern U.S., helped build the first black-controlled corporation to be listed on the New York Stock Exchange, and has since used private aviation both in her businesses and for philanthropic work in Africa and South America.

We hope Q&A subjects like these inspire you as much as the support of our subscribers inspires us. Thank you for your readership, words of encouragement, and constructive criticism. Thanks, too, for participating in record numbers in this year's Readers' Choice Survey (*see page 26*). The results of that poll will help you and your fellow travelers make more informed decisions about bizav—just another way we're delivering on John McCarthy's goal.




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Taylor Guitars founders 2016



Sheila Johnson 2014



Mark Cuban 2010

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BROKER ETHICS

I read your article on broker ethics [*Preowned*] in the April/May issue with some interest. Then I laughed. Having been in the aircraft sales and brokerage business for about 40 years I can tell you that no code of ethics is going to prevent bad behavior. Over the years I've found that ethics is like intelligence. You either have it or you don't. Hiding behind the banner of a holier-than-thou organization or, worse yet, suggesting government oversight of our industry doesn't change that fact.

Rick Davenport
Owner

Executive Aviation Consulting, LLC
Evansville, Indiana

KUDOS

Just a quick note to compliment you and your team on the always-creative Book of Lists [*June/July 2018*]. Each year it goes right in my desk drawer and is consulted with frequency throughout the year. It is fantastic, informative, and entertaining.

Nicholas Parmelee
Quincy, Massachusetts

As I paged through the June/July *BJT*, I found so much to compliment you on. I loved the issue. I really think the Book of Lists is the best ever. Also, tell Margie Goldsmith that I had the Winston Churchill Suite at Reid's Hotel in Madeira. I'm a pilot, and the approach into Funchal Airport there stands out as one of the most interesting ever.

Nick Caporella
Fort Lauderdale



ALTERNATIVE FUELS

I am in complete agreement regarding a "skeptical view" of alternative fuels in the sidebar with "Bizav's Climate-Change Response Gets Back on Track" [*August/September 2018*].

I remain to be persuaded that all the safety issues have been addressed. I have been a closet critic of the FAA Fuels Office: although I believe Peter White, Monica Merit, Karen Lucke, and Mark Rumizen are good engineers, they perhaps have a first-world view and not the big picture. I know that the Fuels Office is being pushed very hard by the FAA Office of Environmental Policy, which is the EPA surrogate for noise (Part 36) and emissions (Part 34). My concern is that new fuels were never tested at the aircraft level (i.e., Part 23/25/27/29).

David Downey
President
Downey Aviation Services
Southlake, Texas

BOEING BUSINESS JETS

There never was a 10th aux fuel tank on the BBJ [*Used Aircraft Review, June/July 2018*]. That was a very early Boeing study that never materialized. Nine was the max tank configuration, although few ever actually did that. Far more common were six- and seven-tank configurations.

The original price for the earliest buyers of the BBJ was \$30.5 million. This then went to \$34.5 million. After that it went to \$36 million when the thrust upgrade, HUD, and winglets became standard equipment. The final price was \$67 million. All these prices are for the green aircraft.

The given number for outfitting prices in 1998 is an incomplete picture. There were contracts in the \$7 million range to near \$20 million, even for the early aircraft.

It would be unfair to claim that Boeing "didn't initially play nice with technical data sharing." There was a process that the outfitting facilities had available to them and it was up to them how they used that.

The list of 19 seats as the maximum is erroneous. That's the maximum if someone is going to have the aircraft on a Part 135 charter certificate. Otherwise, there is no number until one gets to the 737-700 max certification. Many BBJs have greater than 19 in full VIP layouts; it just depends on the owner's preference.

Jeff Kennedy
via email



Mark Huber says that he worked for the company that made the tanks and that buyers could indeed opt for 10. No one did, he adds, though "plenty opted for nine." The price was what was initially announced by Boeing; any special prices given to individual customers would not be public knowledge. As for data sharing, says Huber, his comment reflected what he was told not only by completion centers but by a past president of Boeing Business Jets. The 19-passenger capacity represents data from Conklin & de Decker and its assessment of what constitutes a comfortable load in VIP configuration.—Ed.

Your comments are welcome. Please e-mail letters to editor@bjtonline.com. Include your name, address, and a daytime telephone number. Letters are subject to editing and are presumed to be for publication unless the writer specifies otherwise.

CORRECTION: The Aircraft Directory in our 2018 Buyers' Guide listed incorrect production numbers for several Robinson helicopters. The correct figures: R22, 2,200; R44 Cadet, 32; R44 Raven I, 2,400; R44 Raven II, 4,150; R66 Turbine, 842.



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Can't afford a private jet but want people to think otherwise? One option: head for Moscow (on an airliner, of course) and book time at that city's Private Jet Studio, a grounded Gulfstream G650 that's available for photo or video sessions. (The studio—which is reportedly used for commercials and as a film set as well as by posers—will even help with hair styling and makeup.) Then just post your pictures or video online and, voila (or *Здесь!*), you're a jet-setter—or at least you look like one. A two-hour session reportedly costs 11,000 rubles (about \$189) or 14,000 rubles (about \$240), if the studio supplies a photographer.

—Jeff Burger

A fast track to life in the fast lane

Want a taste of the pulse-pounding speed and adrenaline rush that race-car drivers relish? That's what three members of my family enjoyed during a recent session at Porsche's Experience Center.

Porsche is just one of several manufacturers of high-performance autos to offer programs aimed at driver development and having some fun on the racetrack. From multi-day schools to shorter sessions geared for drivers of all ability levels, opportunities abound to practice skills and experience speed. Many of these facilities also provide amenities for non-driver guests, including viewing areas, exhibitions, simulator labs, dining, and accommodations.

Here are a few options to consider:

Porsche. With the opening of state-of-the-art Experience Centers in Atlanta and Los Angeles in 2015, Porsche initiated a program for car enthusiasts to test the capabilities of various models on purpose-built tracks. You select a car to drive for 90 minutes, work one-on-one with a coach, and experience diverse track surfaces. Prices begin at \$350, depending on the model you choose. For more in-depth training, Porsche offers one- and two-day courses at its Sport Driving School in Birmingham, Alabama.

BMW. You can get behind the wheel of select models at BMW Performance Centers in Greer, South Carolina, and Thermal, California. The Performance Drive is instructor-led (by radio) and includes exercises in stability control, braking, and other accident-avoidance techniques. Prices for the two-hour Performance Drive and one-hour M Track Drive begin at \$299.

Additionally, BMW hosts the Ultimate Driving Experience in different cities each year. These events feature clinics in teen, autocross, drag-strip, and street driving, and are generally free. (One exception is a full-day M-Car Clinic, which costs \$750.)

Mercedes-Benz. Along with specialized courses, such as ice and snow driving in northern Sweden, Mercedes-AMG Academy offers one- to three-day programs at four renowned U.S. tracks: Road Atlanta, Circuit of the Americas in Texas, Laguna Seca Raceway in California, and Lime Rock Park in Connecticut. The one-day programs, offered in performance and drift technique, take drivers through customized exercises that focus on vehicle dynamics and controlled maneuvers. Prices begin at \$1,195.

—Ann Yungmeyer

QUOTE UNQUOTE

“For the longer haul, we will have hypersonic suborbital flight that will shrink distances between continents considerably, like, let's say Europe to Australia, in under an hour.”

—François Chopard, founder of Starburst, an aviation consultancy and investment fund, on air travel 50 years from now

Source: CNN



DAVID STEWART



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St. Louis's Museum at the Gateway



Originally opened in 1976, the Museum at the Gateway Arch in St. Louis has just undergone a three-year, \$176 million renovation. Commemorating the role that the city played in the westward expansion of the U.S., it has added 46,000 square feet and six exhibits that trace St. Louis's history, starting with the French Colonial period in the 1600s.

The exhibits don't sugarcoat the past. For example, one devoted to Manifest Destiny makes clear that the land Thomas Jefferson wanted to take over was already populated by Native Americans.

A 100-foot-wide video wall presents films about westward expansion and the building of the Gateway Arch. You can view architect Eero Saarinen's original model for that iconic structure, as well as live webcam feeds from its observation deck. —*Margie Goldsmith*



PHOTOS: GATEWAY ARCH PARK FOUNDATION



Giving Back



The Conservation Fund

To make Charity Navigator's list of 10 of the best large, well-known charities, an organization must rank highly for financial performance, transparency, and accountability. The Conservation Fund earned its place on this list through efficiencies that allow 98 percent of the money it takes in to go directly toward its mission—creating partnerships with people, government, business, and colleague organizations to protect natural resources and deliver economic vitality.

American conservationist Patrick Noonan founded the fund in 1985 as a nimble, entrepreneurial, nonprofit organization. Over the last decade, it has placed more than 500,000 acres under conservation management through a program whose goal is to purchase and permanently protect five million acres of working forests.

Most recently, this program acquired 32,598 acres of sustainable timberland surrounding Johnsonburg, Pennsylvania. Under the fund's temporary ownership, this land will continue to be sustainably managed as a working forest, maintaining its role as a steady source of timber for local mills and jobs for timber crews. This purchase will maintain clean water and productive fishing streams, securing 100 miles of high-quality cold-water fisheries. —*Lysbeth McAleer*

BJT readers—who represent one of the highest-net-worth magazine audiences anywhere—clearly have the means to contribute to a better world. To help you do that, we spotlight deserving organizations in every issue. All of them have received a four-star overall rating from Charity Navigator (charitynavigator.org), which evaluates philanthropic institutions based on their finances, accountability, and transparency.



HUSK

37 Rutledge St., Nashville, Tennessee
(615) 256-6565, husknashville.com

Husk is a hidden oasis just a few blocks from the historic "Music City" scene in downtown Nashville. It occupies an 1890s mansion on Rutledge Hill at the corner of Southern charm and Tennessee elegance.

Chef Sean Brock, a James Beard award winner, has also won praise from *Bon Appétit*, *Esquire*, and





GQ. He digs deep into his Southern roots to celebrate the region's food, using seasonal seed preservation and heirloom ingredients. Products from local farms, vendors, and purveyors fill Husk's kitchen.

The restaurant's frequently changing menu elevates down-home Southern cuisine to a more sophisticated level. From the appetizer list, I enjoyed Smoked Trout Deviled Eggs, a creamy and briny dish with a hint of vinegar. For my entrée, I opted for Country Fried Steak with Black Pepper Gravy, which was layered in flavor overnight before being served alongside expertly roasted potatoes and onions. Brown Butter Soft Serve—a dessert that blends caramel, smoked cocoa nibs, and embered pecan panforte—provided the perfect end to my meal. I'll be back for the famous burger!

Husk serves local beer and organic wines, but try a cocktail from the apothecary bar, which features fresh herbs from the restaurant's garden. The Fennel Fantasy—with fennel, apples, aquavit, cider, and coriander—is very refreshing.

The restaurant has two dining spaces upstairs in what were once sitting rooms. Downstairs, there's a modern room with vaulted ceilings and windows overlooking the picturesque garden and a carriage house used for private parties. —*Melissa Falk*

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Dining deliberations

Our columnist recalls a memorable encounter with a badly burned lobster and explains why he trusts positive restaurant reviews less than negative ones.

by Joe Sharkey

One summer in the 1970s, when I was a columnist with a Philadelphia newspaper, an editor—evidently abandoning his struggle against temporary insanity—asked me to write weekly reviews of restaurants on the Jersey Shore.

I can't remember the name of the crowded seafood place or even which town it was in, but a wisecrack I made in one review stays with me. As I recall, I wrote that my badly charred "grilled" lobster—giddily described on the menu as "Just Arrived From Maine!"—evidently had "hitchhiked down the coast but had a hard time getting a ride because of its appearance."

That snarky line got quoted appreciatively along with a few of my other zingers over the summer, and I was rather pleased with my wit for a while. But the reason I recall this today is my realization that I was really just a 25-year-old snotnose who didn't know a canapé from a cantaloupe, an amuse-bouche from an amusement park, so I really had no business reviewing restaurants, even if it was just for a summer.

On the other hand, that poor lobster was burnt almost to a degree where the fire inspector could have been summoned. Plus, the restaurant was overpriced and overcrowded and smelled of sweat, grease, and Coppertone. So even

though I had no food-writer credentials, I don't think I misled anyone with that review.

Today, I leave the restaurant reviewing to others and rely on the abundance of credible critiques in big newspapers and magazines and online, on Open Table, TripAdvisor, Yelp, Zagat, Zomato (formerly



FOTOLIA

Urbanspoon), and the like. I also benefit from that trusty, age-old technique, word of mouth.

I'm pretty good at aggregating and evaluating all this information, but I'm also busy and not inclined to wander afar. A poll last year by Statistical Surveys showed that most business travelers feel similarly: over 90 percent say that when they're choosing a hotel, proximity to good restaurants is very important (57 percent) or somewhat important (37 percent).

Sometimes, even down the block isn't enough proximity for me: I've written here previously about my own occasional barbarisms in dining when on the road, including my decision after a hectic day some years ago to buy a canned ham and rolls at a Walgreen's and retreat to my hotel

rie Village, Kansas, stacks up well against Bouley in TriBeca. *Guardian* critic Jay Rayner, meanwhile, makes a strong case that quality at the widely acclaimed Le Cinq at the George V in Paris has plummeted. Who's right?

My favorite and most-trusted food writer is the late Anthony Bourdain, a celebrity chef who referred to himself simply as a "cook" and maintained modestly that cooking is simply a matter of "applying heat to protein." I especially value his advice not to dunk your nigiri in soy sauce and "if the rice is good, complement your sushi chef."

Besides listening to Bourdain, I sometimes consult reviews, and when I do, I tend to give the most weight to the bad ones, which I find generally more reliable than the often overly excited good ones. Last year, in an annual collection of "Bad Restaurant Reviews," Vox Media's Eater.com cited a review of a trendy, very chichi Italian restaurant in Philadelphia that said the food resembled "casino cooking" and the place smelled of "body sweat, cleaning fluid, and strong cologne."

The writer was Craig LaBan, the award-winning and highly credentialed food critic of the *Philadelphia Inquirer*. My old paper. **BJT**

Joe Sharkey (jsharkey@bjtonline.com), the author of six books and a longtime BJT contributor, wrote a weekly business travel column for the *New York Times* for 16 years.



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CHESTER WEBER

He enjoys driving as fast as possible in vehicles propelled by a mere four horsepower. But to cover long distances quickly, he opts for business jets.

by Margie Goldsmith

Chester Weber, America's most celebrated combined driving athlete, has garnered many awards for his international equestrian accomplishments. He has twice won a category of England's Royal Windsor Horse Show and has taken home three World Equestrian Games silver medals and a record 15 U.S. Equestrian Federation (USEF) Four-in-Hand national championships. He has also been number one in the FEI (Federation Equestre International) world rankings.

The Ocala, Florida native is the youngest son of billionaire Charlotte Colket Weber, whose grandfather, John T. Dorrance, invented the process of condensing soup and founded the Campbell Soup

Company. Raised on his family's 5,000-acre thoroughbred breeding farm in Ocala, Live Oak Plantation, young Chester wanted to be a jockey; however, at six-foot-two and 200 pounds (jockeys typically weigh about 120), he took up driving Clydesdales instead.

Next, he tackled the top discipline of combined driving: four-in-hand, which requires handling four horses by holding all the reins in one hand. At age 18, he was the youngest driver to be named to the U.S. Equestrian Team (USET) for the World Pairs Driving Championships in the Netherlands. After advancing to the Four-in-Hand Division in 1999, he earned 12 consecutive wins.

Weber promotes combined driving and serves on the USET board of trustees, the USEF High Performance Driving Committee, and five other equestrian committees. He has twice been named a USEF Equestrian of Honor, but he insists on sharing the spotlight with his horses, especially one named Jamaica, who has been honored as USEF Horse of the Year and inducted into the EQUUS Foundation Hall of Fame.

Weber travels frequently for competitions and pleasure, often by private jet. He lives with his wife and two young sons at Live Oak Plantation, which is where we caught up with him.

PHOTOS: ERIN GILMORE PHOTOGRAPHY
EXCEPT AS NOTED.



Engineering Luxury

How Comlux raises the bar for VIP interiors

When Comlux set out to add completion services to its portfolio, it committed to establishing new standards for quality, luxury, and performance. Carefully selecting a location known for its access to superior engineering talent, a tradition of craftsmanship, and a history of technical innovation, the Swiss company designed and created one of the most advanced completion centers on the planet. Today, Comlux Completion in Indianapolis, Indiana, is preparing to induct the world's first BBJ Max 8 and second ACJ320 Neo for their completions, a ringing endorsement of the company's "engineering luxury" philosophy, and its choice of location.

"We know that most of our clients don't have Indianapolis on their bucket list of places to visit, but there's a reason we're here," said Scott Meyer, Comlux Completion CEO.

That reason extends beyond the city's proximity to universities offering the finest aeronautical engineering programs in the U.S. and the region's leading role in the development and refinement of American manufacturing.

"Once our clients come to Indianapolis and have the customer experience we uniquely provide, they appreciate the many conveniences our partnership offers," Meyer said.

Indeed, with more than two dozen VIP cabin completions and major refurbishments projects delivered—with unprecedented schedule and budget performance, while never compromising on interior weight and sound level requirements—this center of excellence is poised to become the facility of choice for next-generation VIP completions, validating Comlux's credo and trust of its customers.



comlux

Setting new standards for next-generation narrowbody corporate airliners



With brand new hangar facilities opened in 2012 and expanded to accommodate wide-body aircraft in 2015 (an ACJ330 completion is under way), the facility is purpose-built for VIP aircraft completions, designed to maximize production efficiency and customers' access to their aircraft and the Comlux completion team.

Technicians use iPads and other mobile devices in the subdued and focused paperless environment, and digital tools underlie all design and production processes.

"We're modeled as an innovation company," said Meyer, a completions-industry veteran and experienced engineer. "Every project a customer brings to us is a challenge in a constantly changing environment of technology."

He noted that given clients' ambitious plans, completion facilities often explain why something can't be done due to regulatory, cost, downtime, or other operational considerations. Not Comlux.

"We'd rather tell you how to do it, not why

you can't, and how we can partner to meet the objective," said Meyer.

That goes from finding a way to certify a glass table that conventionally is known not to pass impact test requirements to creating a one-of-a-kind slab stone shower when a stone faux or emulated surface just won't do for the client.

"We are focused on finding ways to meet the client's vision and developing innovative solutions to achieve it," said Meyer. "That is what engineering luxury is all about."

Customer at Heart, Performance in Mind

Quickly accessible from either U.S. coast and located at Indiana's largest airport, 10 minutes from downtown Indianapolis, Comlux Completion is in a modern, vibrant city that's easy and safe to navigate, in a state whose legislature has adapted tax laws to support its business.

Three flags fly over the entrance to the low-slung, modern complex: the Stars and Stripes



and the Indiana state pennant, flanked by the national flag of any client visiting the complex.

"It's a way of welcoming our international customers and letting them know this is their facility," said chief operating officer Daron Dryer.

It's easy to see how a client could feel ownership of the facility, particularly given the oft-heard and -seen Comlux Completion mantra: "Customer at heart, performance in mind." A corollary of the Engineering Luxury philosophy, it means embracing each client's unique goals as the company's own, and harnessing all means necessary to achieve them. That principle touches all facets of the Comlux customer experience.

Unlike completion facilities where hangars and shops are spread over acres, Meyer noted, "we have everything under one roof: upholstery, cabinetry, finish, sheet metal, mechanical systems, avionics, program offices, engineering, certification, burn labs and interior-design showroom.

"The whole facility ergonomics are based on our completion model," he continued. "We focus our highly skilled technicians on the aircraft instead of chasing material, tools and engineering support or going off-site to see an element of the build. Our labor expenditures are more efficient because of the materials and workflow designed into this facility."

Shops are positioned in relation to material flow requirements defined by the unique order of operations that is a VIP prototype cabin completion. Few items ever have to move more than 20 yards at a time during the production process. Going forward, Comlux plans no more than four narrowbody completions per year, inducted on a staggered schedule that maximizes manpower efficiency. The Comlux Interior Design team can either provide a turnkey interior-design package or liaise with the client's designer, said Meyer.

Client offices are adjacent to their aircraft, making it easy to keep tabs on every aspect of the completion and full visibility to all works on their aircraft.

"There are going to be build elements you want to



touch," said Dryer. "We can give you touch points to your project every day, and you don't have to travel to a different facility. The power of your time on site is fully leveraged."

Comlux Completion also boasts a physician- and nurse-staffed clinic, so if client representatives should have any illness or medical need they can be seen without having to find a local doctor or pharmacy. The Comlux medical clinic is also available to all Comlux employees. It offers incentivized wellness programs and the convenience of seeing a doctor while employees are at work, thus avoiding making appointments and waiting rooms. Ready access to this care allows health problems to be addressed sooner and before they become major issues. A prayer room is also available to ensure clients can meet their spiritual needs, at their own convenience.

Research & Innovation Center

The ability to deliver a unique collaborative and welcoming customer experience is rooted in the demand for technical innovations to achieve the client's vision. This is made possible by the facility's Research & Innovation Center. The innovations engineered here include proprietary ultra-quiet and lighter-weight air conditioning systems; soft-touch slow-close systems; dual pocketing French-style doors; thermal acoustic insulation systems (TAIS); and more.

"We have a mission to leverage new opportunities for interior completions to keep our process and product as modern and efficient as possible," said Dryer. The company's goal is to introduce at least three in-

"We're modeled as an innovation company. Every project a customer brings to us is a challenge in a constantly changing environment of technology."



"There's nothing more motivating than earning somebody's trust. It is a very significant decision which further inspires our commitment to deliver and allows us to build a new relationship throughout our Comlux Group."

novative solutions or process improvements in every completion.


That mission is exemplified in the Comlux 3.0 Initiative now under way, migrating all operations and processes to a digital environment. The digital tools are already transforming the way the interiors on incoming Max 8s and Neos are designed. Thanks to the digital solutions, the customers can better visualize their cabin down to the finest detail, enhancing their experience and the efficiency of the completion process.

"You don't engage customers today the way you did it 10 years ago or truly even last year," said Dryer. "Virtual tools and digital development elements give customers a much better sense of the finished interior than line drawings." He added, "We're asking customers to make decisions 12 months before the aircraft induction. These tools improve their confidence in decision making all along the way to the final build, and allow us to have a completion downtime of 10 months or less, optimizing the overall aircraft planning."

When asked why the buyers of Max and neo jets—models that no completion facility has worked on before—choose Comlux, Meyer said,

"Their decision process is as unique as their vision for their own VIP cabin. We have succeeded to build a trustful relationship with them, understanding their vision and presenting a solution exceeding their expectations. Our unique experience as an owner and operator of ACJ and BBJ aircraft, as well as our strong relationship with the OEMs must as well have a positive impact in their selection of Comlux as their completion center for their future VIP aircraft.

"Comlux is a group specialized in business aviation, transaction and completion services," he added. "We can acquire your aircraft, complete your aircraft, manage and operate your aircraft, and maintain your aircraft in the group. We can be with you for the full life cycle of ownership of your VIP aircraft.

"When we are awarded a Max or neo program, it's truly humbling," Meyer concluded. "Now we're aligned with this customer, and they believe in us. There's nothing more motivating than earning somebody's trust. It is a very significant decision which further inspires our commitment to deliver and allows us to build a new relationship throughout our Comlux Group." 



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Can you explain four-in-hand?

If you compare it to car racing, it is the Formula 1 of carriage driving, the most intense part of carriage driving.

Can you control each horse individually?

Yes, it's sort of like playing a piano. There's a lot going on—adjusting reins, changing the pressure of your hands, and moving them. It's really an art form.

Why do you think you've been successful?

I try to be humble and credit my horses for a lot of my success. We train horses six days a week, working on building fundamentals to come up with the best team. And like any sports franchise, we have a farm-team operation, which helps produce horses for tomorrow and other horses that aren't in our top group, but we're supporting them. I am a strategic thinker and a planner. I am able to make a training schedule for the horses,

which includes short- and long-term fitness and performance goals, and then set them up at major events and championships to be in their best form.

So do the Clydesdales in the Budweiser ads come from your farm?

I've actually sold some horses to them.

Did your mother race?

She has raised horses, but never rode race-horses.

Your father was a professor at New York Hospital-Cornell Medical Center [now Weill-Cornell Medical Center]. Did he also have a passion for horses?

Yes, when I was growing up, he was involved in the horse operation.

What was it like to grow up as an heir of the Campbell's Soup family?

Hard work and humility were always important when we were growing up. My parents

made sure that we had a balanced childhood. We always had to work summers.

How did they teach you humility?

Horses do a great job at keeping you humble. Horses don't know what they're worth or what you're worth. That's a blessing because they judge you just for who you are and how you are to them.

When you went to college, what did you plan to do?

I studied at Cornell University's School of Hotel Administration and made the U.S. Equestrian Team at 18. After I graduated, I went to work in the horse nutrition business and did that for several years until my equestrian pursuits took over, at which point I began to focus on that exclusively.

How do you keep in shape for competitions?

I run 10K probably once a week and run a couple of miles every day as a warmup. And I lift weights six days a week.

CHESTER WEBER

Is winning the result of having the fastest horses or is it all finesse?

One thing that's interesting about four-in-hand driving is you have to get four horses to work in harmony. If I were to conduct an orchestra, I would have no idea how to conduct them so I'd make a mess of it. Now, that wouldn't say anything about the orchestra's ability. I am sure there are conductors who do a fantastic job getting the most out of an orchestra. It's similar in four-in-hand driving. You're really managing each horse, their character, their abilities, and trying to make them fit together in a harmonious way.

When you travel, do you take extra horses in case one gets sick or breaks a leg?

Right now, I work with a string of horses in my stable—about eight or nine on a daily basis—to make up that group in case there's an injury. I take five or six with me when I'm traveling domestically.

What's left for you to accomplish in the equestrian world?

I would love to be a world champion. I've won quite a few silver medals, but I'd like to win a gold. I work hard at it every day. We try and set goals, and we are forever trying to improve our horsemanship.

How often do you travel?

I am probably on the road 40 percent of the year.

Do you bring your family?

Yes, they travel often with me. I think it will change as the boys get a little older. Maybe it'll get a little easier.

When you fly privately, do you charter or do you have a jet share or card or a club membership?

I charter, and my family also owns some shares with NetJets and PlaneSense.

What's your favorite business jet?

Well, it would be great to have a Gulfstream G650 because I travel to Europe often. If you are taking a short flight—when it's one passenger on the plane—something like a Pilatus is appropriate. If I am going to New York or someplace like that, perhaps a Citation Excel would be appropriate. I think that there are different tools for different trips.

Why do you fly privately?

A private jet is the closest thing to a time machine you could have. In life, all we have really is time. Having a private aircraft just helps you be more efficient with your time. It gives me a chance to think and reflect and to catch up on work.

"It's sort of like playing a piano. There's a lot going on—adjusting reins, changing the pressure of your hands....It's really an art form."

FASTFACTS

- ▶ **NAME:** Chester C. Weber
- ▶ **BORN:** June 3, 1975 (age 43), Ocala, Florida
- ▶ **EDUCATION:** B.S., Cornell College, 1997
- ▶ **CAREER:** Equestrian athlete who at 18 became youngest person ever to represent U.S. Equestrian Team. Fifteen-time U.S. Equestrian Federation Four-in-Hand National Champion, three-time Silver Medalist in Combined Driving at World Equestrian Games.
- ▶ **CHARITIES:** Ocala Community Foundation, U.S. Equestrian Team Foundation
- ▶ **PERSONAL:** Lives in Ocala, Florida with wife Elisabeth and sons Douglas, 4, and Hugo, 1. Enjoys cooking, skiing, waterskiing, and running.





“Horses keep you humble. They don’t know what they’re worth or what you’re worth. They judge you just for who you are.”



Do you remember your first private jet ride?

Not the first, but I remember riding, probably on a Learjet 31, from New York to Florida, maybe on fall break from school. It was with EJA [Executive Jet Aviation], which was a predecessor to NetJets. There was some concern, as the light hadn’t gone off for the landing gear to go down so they diverted the plane for a little bit. When we did land, I remember the plane being met by firefighters. I asked my mom if we were on the moon and she said, “Yes, we are.” That sounded like a good thing to tell a little kid to keep him calm.

When I went back to school, I recorded that experience in my journal of what I had done over vacation. My teacher called my parents into school saying, “Your son has a very good imagination. He said he went to the moon on his fall break.”

What does leadership mean to you?

I think it’s guiding—whether it’s a team of horses or an organization—to get the most out of the group of horses or the group of individuals that you are working with and really helping to bring out their individual strengths.

What’s a typical day for you?

I wake up around 5 a.m. I am in the gym by 6 and in the stable by 7:45. I am out of the stable around noon and doing office-oriented stuff in the afternoon. I usually cook dinner in the evening—I really enjoy cooking—and then I am off to bed.

Do you have any regrets about your life?

No. I think we all make choices about how we want our life to be. I think if you regret things, you are going down the wrong track.

What do you want your legacy to be as an athlete?

I have always wanted to be called a horseman. And people often say, “Well, you’re clearly a wonderful horseman.” To me, horsemen and women are people in their sixties who can think exactly like a horse and understand them quite well. And I hope it’s going to be like that for me. It’s really magical to work with these majestic animals that, frankly, allow us to work with them. I mean, they are 1,200 pounds. There’s no forcing a horse to do anything.

Do you believe in horse whisperers?

Yes, I do. And I know several of them. When I have challenges with horses, I often try to reach out to people who have expertise in behavioral issues with horses. It’s not unlike if you had behavioral issues with a person. I might reach out to a psychologist or somebody like that to try to gain some insight.

Are you involved with Campbell Soup Company?

Other than being a shareholder, no. Until recently, my mom was a director. There’s a nepotism clause: if you are a director, your children can’t work there, and my mom worked there until the mandatory retirement age from the board of 73.

I am very proud of Campbell Soup, but that’s not my existence. It has afforded me some wonderful opportunities. But regardless of one’s heritage, one has to make the most of one’s life, and I feel blessed to have been able to do what I am passionate about every day. **EJTB**

Frequent contributor **Margie Goldsmith** (mgoldsmith@bjtonline.com) wrote about Madeira for our June/July issue. This interview has been edited and condensed.

FACTORY-NEW
AIRCRAFT



BOMBARDIER

Global 5500 *and* 6500

These new models combine a time-tested fuselage with features that will help the airframer compete in the traditional large-cabin market.

by Mark Huber

No one knows how to recycle a fuselage design quite like Bombardier. Since 1978, the company has used its Challenger 600 series' basic fuselage cross-section to build 1,100 of those business jets plus 1,843 CRJ regional jets and more than 750 large-cabin, long-range Global Express business jets. That part of the design, as accountants like to say, is fully amortized.

For some time, we've known that Bombardier intended to challenge Gulfstream in the ultra-long-range, large-cabin space with an aircraft now called the Global 7500. First announced in 2010, that \$72.8 million, 7,700-nautical-mile-range uber jet should begin to be delivered later this year. And yes, it uses the same fuselage cross-section as its progenitors. What we didn't know is how Bombardier intended to

compete in the traditional large-cabin market, where Gulfstream has entered the new G500 and G600 and Dassault offers the legacy Falcon 7X and the newer 8X.

Now we do.

In May, Bombardier took the wraps off the new Global 5500 and 6500. The models are fresh takes on the legacy Global 5000 and 6000, and they indeed use those aircraft's





fuselage cross-sections as well. But they feature new engines, wings, interiors, and avionics, and offer reduced fuel burn and emissions, as well as increased range and passenger comfort.

Slated for delivery starting in 2019, the new Globals are the launch vehicles for the Rolls-Royce Pearl 15 engine (15,125 pounds of thrust), which discharges 48 percent less smoke and 20 percent less nitrous oxide, is two decibels quieter, burns 7 percent less fuel, and has 9 percent more thrust than the BR710 engines on the old Globals. The improved performance is the product of Rolls-Royce's Advance2 engine-technology demonstrator program. The revised engines feature a new core with new high-pressure compressor, along with an advanced engine health and usage-monitoring system (aka HUMS), a low-emissions combustor, a two-stage, shroudless high-pressure turbine, and lightweight materials that can withstand higher temperatures.

HUMS monitors thousands of engine parameters and sends information to the ground in real time, so trends and problems can be spotted long before they might come to the attention of the flight crew. As a result, parts and technicians can be positioned to get the aircraft back in the air fast, and overall maintenance costs should decline.

The latest Globals feature a "re-profiled" wing and other aerodynamic cleanups that Bombardier says will combine with the new engines to boost fuel efficiency by up to 13 percent compared with the legacy Globals. In addition, maximum cruise speed will increase from Mach 0.89 to Mach 0.9 and the airplanes will have longer legs than their predecessors: maximum range on the Global 5500 is 5,700 nautical miles (500 more than on the Global 5000) and 6,600 nautical miles on the Global 6500 (600 more than on the Global 6000). However, range improves even more under high/hot conditions: for a flight that takes off from Mexico's Toluca, for example, range increases 1,300 nautical miles for both aircraft.



The performance boost is attributable to the new engines' increased thrust, which allows the aircraft to use shorter runways and carry more fuel. The range improvements enable nonstop flights between Moscow and Los Angeles on the 5500 and Hong Kong and London on the 6500.

The new airplanes will feature Rockwell Collins's Venue cabin-management and entertainment system, upgraded with the ability to distribute ultra-high-definition 4K content throughout the cabin, a first for business jets. Ka-band satellite connectivity enables worldwide seamless Wi-Fi coverage. The cabins can be configured to typically seat 12 to 17 and are available with many custom options, including steam ovens in the galley, newly styled cabinets and countertops, and a stand-up shower in the aft lav.

The cabins in both aircraft will feature the "Nuage" (French for cloud) seat that Bombardier developed for the larger Global 7500. It offers a variety of comfort features, including a tilting seat pan and headrest, the

Global 5500 and 6500 at a Glance

	Global 5500	Global 6500
Price	\$46 million	\$54 million
Crew	2-4	2-4
Passengers	12-17	12-17
Cabin	Width	7 ft, 11 in
	Length	40 ft, 9 in
	Height	6 ft, 2 in
Top speed	Mach 0.9	Mach 0.9
Typical cruise speed	Mach 0.85	Mach 0.85
Max altitude	51,000 ft	51,000 ft
Range*	5,700 nm	6,600 nm
Takeoff distance**	5,490 ft	6,370 ft

*8 pax, 3 crew (5500) or 4 crew (6500), NBAA reserves
 **at maximum takeoff weight
 Source: Bombardier

FACTORY-NEW AIRCRAFT



option of a deeper seat pan for larger passengers, a “floating base” that keeps the center of gravity over the swivel mechanism, sculpted foam, tight stitch lines, and hard-shell backs; there’s also built-in storage for personal items such as books, magazines, and tablet computers.

The conference/dining areas in both airplanes will be fitted with a related new seat design called the “Nuage Chaise,” which allows for the appropriate posture for dining/business meetings but can convert into a lounge chair for reclining. The environmental system features 100 percent fresh air, and “turbo” heating and cooling to quickly bring the cabin to a comfortable temperature. The pressurized baggage hold is accessible in flight.

Compared with the cabins of the new G500 and G600 Gulfstreams, the latest Globals are shorter in height and length but curiously have exactly the same width—just an inch short of eight feet. Both the Global 5500 and 6500 have cabin heights of six feet, two inches while the Gulfstreams offer an additional two inches. The Gulfstream G500 has a cabin length of 41 feet, nine inches, while the Global 5500 offers a foot



less; the Gulfstream G600 has a cabin length of 45 feet, two inches, while the Global 6500 has 43 feet, three inches.

In the cockpit, the new Globals feature the Rockwell Collins combined vision system, which merges infrared enhanced vision and synthetic vision system imagery into a single conformal view—a fancy way of saying you can take off and land in just about any visibility. Other safety capabilities of the avionics system include advanced weather radar that can predict deadly wind shear,

airport moving maps, real-time traffic, and an improved terrain database.

Initially at least, the new Globals will sell for \$4 million and \$6 million less, respectively, than their legacy siblings, the \$50.4 million Global 5000 and \$62.3 million 6000 models which, for now, Bombardier plans to keep producing. **BJT**

Mark Huber (mhuber@bjtonline.com), an aviation industry veteran, has reviewed aircraft for **BJT** since 2005.



The latest Globals feature new engines, wings, interiors, and avionics, and offer reduced fuel burn and emissions as well as increased range and passenger comfort.



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Should business jet operators worry about drones?

FAA tests and regulations should diminish concerns but won't eliminate them.

by Jeff Wicand

Outer space was once the new frontier. Today, the frontier is arguably much closer to home and involves unmanned aircraft systems, commonly known as drones.

In the wrong hands, drones could be the most irritating aircraft of all time. In 2011, the FAA penalized Raphael Pirker \$10,000 for employing his RiteWing Zephyr II drone to careen around the University of Virginia's campus. Pirker had been engaged to take aerial photos of the campus, but like a sociable dog on the beach, his Zephyr reportedly flew through a tunnel with moving vehicles, ducked under a crane, made several excursions under an elevated pedestrian walkway, sailed to an altitude of 1,500 feet, hovered near an active heliport, and generally gave a good demonstration of a drone's capacity for mischief. At one point, the Zephyr apparently charged a pedestrian on a sidewalk, "causing the individual to take immediate evasive maneuvers so as to avoid being struck."

Pirker demanded and got his day in court, and he was successful at first in putting up a viable defense. After his hearing, the administrative law judge of the National Transportation Safety Board dismissed the FAA's complaint against Pirker, concluding that the Zephyr was a model aircraft, not a real one, and thus not technically subject to regulation by the agency. But the FAA, which if

nothing else knows an aircraft when it sees one, appealed the decision to the NTSB. The NTSB's unanimous decision in November 2014 determined that the Zephyr fit the definition of an aircraft, even though it was unmanned. The FAA was apparently pleased with the result, for it agreed to reduce Pirker's penalty to \$1,100.

Drones, of course, are capable of creating embarrassing situations and showing up at inappropriate

skyscrapers to dropping water balloons on a high school event.

But intentionally or not, drones can damage traditional aircraft just by being in the wrong place at the wrong time. The airlines are reporting hundreds of drone sightings annually—and some of these reports involve more than just sightings. In October 2017, a drone collided with a King Air 100 that was landing at Quebec City, and the

out. It funded research based on computer models buttressed by tests with actual impacts, including collision scenarios involving a business jet. The results, available in 2017, somewhat allayed concerns, especially for fast-moving jets, that drones powered by lithium batteries would pose a major danger for aircraft by exploding and catching fire on impact; instead, the tested drones basically dissolved before they could blow up.

On the other hand, drones were sometimes found to be capable of penetrating an aircraft's skin upon impact and reaching the underlying primary structure. According to the research, fixed-wing drones (as opposed to so-called quadcopters) had the greatest potential for causing deep damage on impact, and modeling showed that fixed-wing drones (unlike quadcopters) could penetrate a business jet's windshield. The research suggests that drone design regulations could materially lessen aircraft damage from drone impacts. Studies are ongoing.

Meanwhile, the FAA's confusing regulatory history drones on. Sixty years ago, when Congress passed the Federal Aviation Act, it wisely defined "aircraft" to include "any airborne contrivance now known or hereafter invented, used, or designed for navigation or for flight in the air." Nothing in the definition requires that the aircraft carry people or cargo. But Congress muddied the waters in 2012 when it enacted the so-called



locations; one famously landed on the White House lawn. Non-military weaponized drones have starred in popular YouTube videos—shooting guns, throwing flames, and the like—though a video showing a drone slicing off the winglet of a Southwest Airlines jet has been branded a hoax. Reported drone incidents have concerned everything from flying into

following month, a drone struck a U.S. Army Black Hawk helicopter over New York City. A 2018 helicopter crash landing in South Carolina was blamed on the need for drone-avoidance maneuvers.

Drones pose a serious threat to commercial and business aviation? The FAA decided to find

FAA Modernization and Reform Act, which prohibited the agency from promulgating “any rule or regulation regarding a model aircraft,” provided certain statutory limitations are followed. “Model aircraft” are defined as unmanned aircraft that are (among other things) “flown for hobby or recreational purposes.”

Historically, the FAA provided model aircraft enthusiasts only with suggestions like those found in its Advisory Circular 91-57 (1981); compliance by hobbyists was merely voluntary. In 2015, however, the agency issued regulations requiring all small drones to be registered with the FAA beginning in January 2016. Drone hobbyist John Taylor challenged that requirement, arguing that the 2012 Act prohibited it, and in 2017 a federal appeals court struck down the rule as it applied to hobby drones (but not drones engaged in commercial operations, like the Zephyr in the Pirker case).

Reported drone incidents have concerned everything from flying into skyscrapers to dropping water balloons on a high school event.

Taylor sued the FAA again after Congress extended the registration requirements to model aircraft last December as well, but that round was won by the FAA.

In 2016, the FAA issued final operational regulations (FAR Part 107). This was no simple task; the agency’s notice ran to 624 pages, some of which involved dealing with the 2,850 comments received on the “model aircraft” issue alone. This time, the FAA acknowledged that its hands were tied from making operational rules regulating hobby drones per se, so the new rules basically apply only to commercially employed drones. But the FAA pointed out

that Congress still gave it authority to pursue enforcement actions “against persons operating model aircraft who endanger the safety of the National Airspace System.” Accordingly, as the use of hobby drones increases, the FAA will rely on its enforcement authority under FAR Part 13 to protect other users of airspace from rogue drones.

The new regulations contain many sensible provisions. Drones must weigh less than 55 pounds and must be operated by pilots certificated under Part 107. When flying drones, you must have them

in your (or your observer’s) line of sight at all times, and you and your observer can operate only one drone at a time. As you might guess, flying in the dark of night is not permitted. Neither is flying over people who aren’t directly participating in the drone’s operation. There are limitations on altitude, speed, and carriage of cargo. Manned aircraft have the right-of-way, so if a business jet comes along, the drone must move over. Operations in everything except Class G airspace require permission from air traffic control. Many of the limitations may be waived by the FAA for operators who demonstrate that they can fly safely without endangering people or property.

Only time will tell whether it was wise to exclude hobby drones from these regulations. **BJT**

Jeff Wieand (jwieand@bjtonline.com) is a senior vice president at Boston JetSearch and a member of the National Business Aviation Association’s Tax Committee.

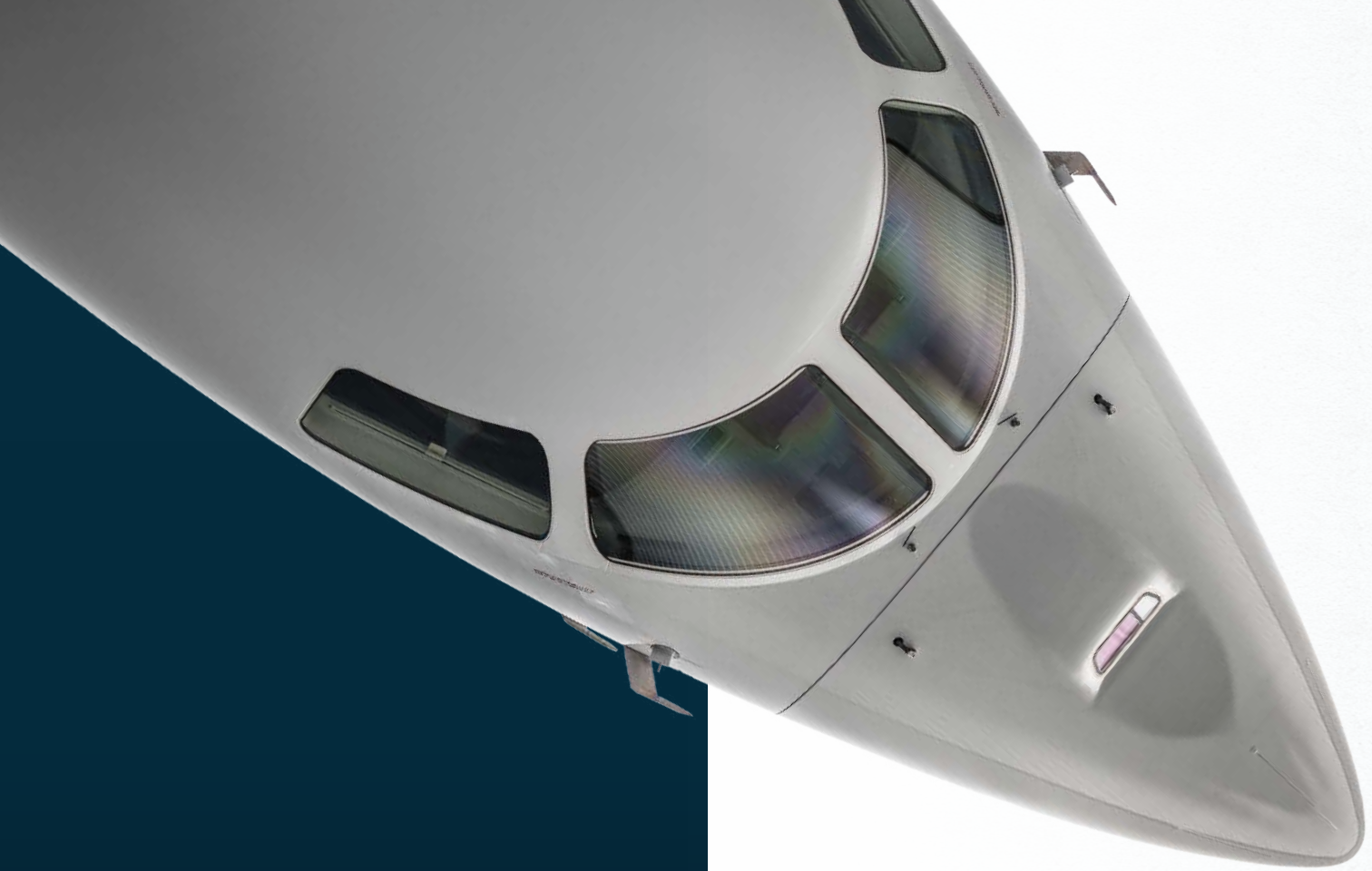
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**BUSINESS JET TRAVELER'S
8th ANNUAL**

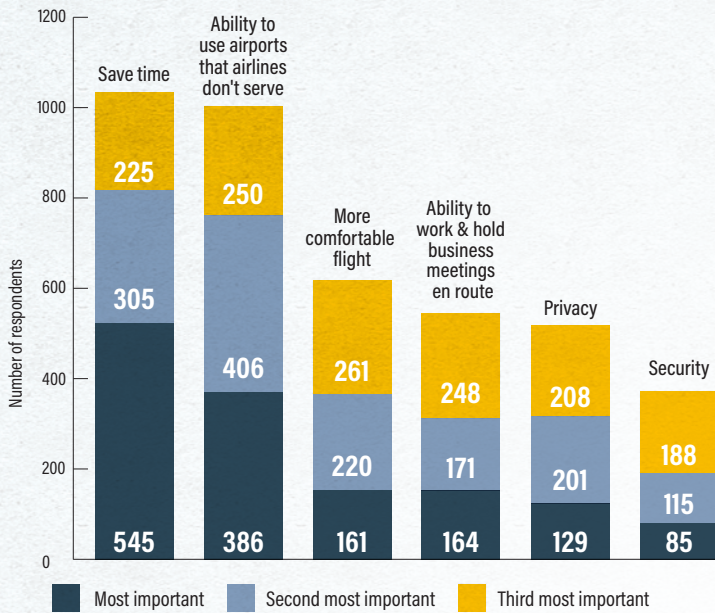
Readers' Choice Survey

Here are the results of our 2018 Readers' Choice Survey, which attracted 1,487 respondents, a record number and a 24 percent increase from last year's total of 1,182. As promised, we have made a contribution for every completed survey to Corporate Angel Network, which arranges flights on business aircraft to treatment centers for cancer patients.

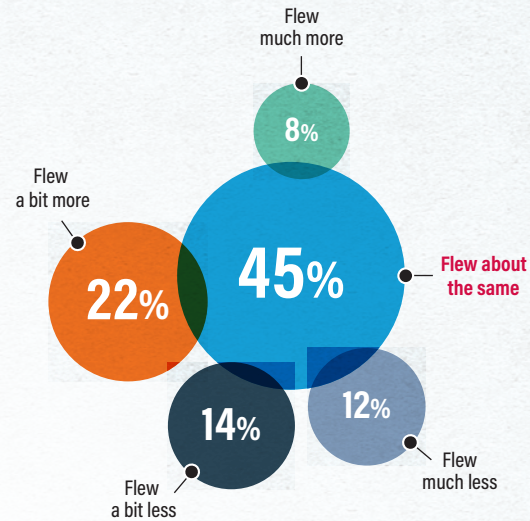
Note: Percentages don't always total 100 due to rounding.

Flying Privately

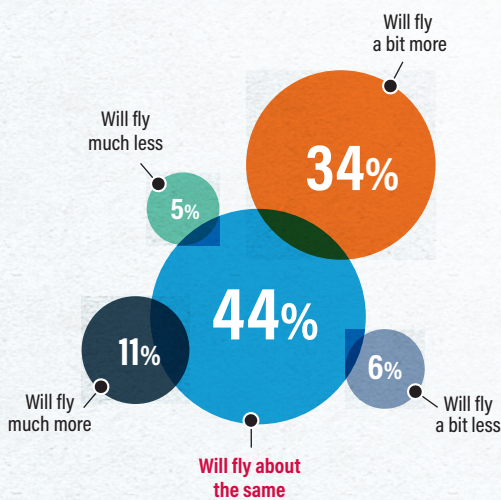
What are the three most important reasons you fly privately?



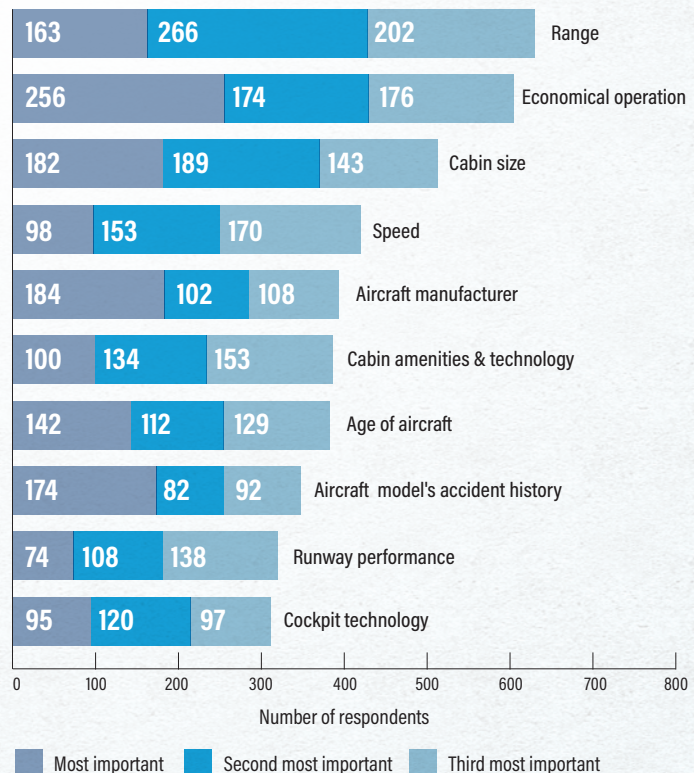
How has your private flying changed in the past year, compared with the year before?



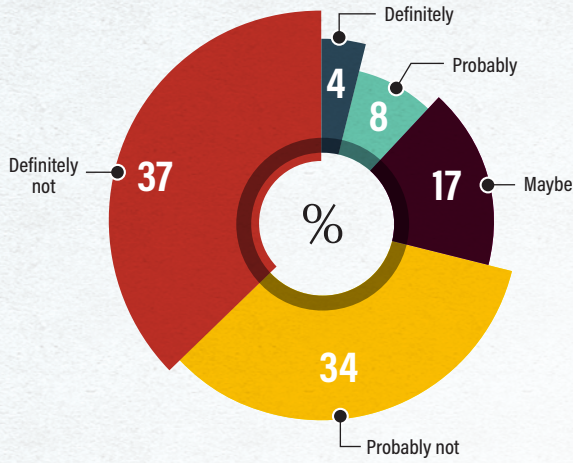
How do you expect your flying to change in the year ahead?



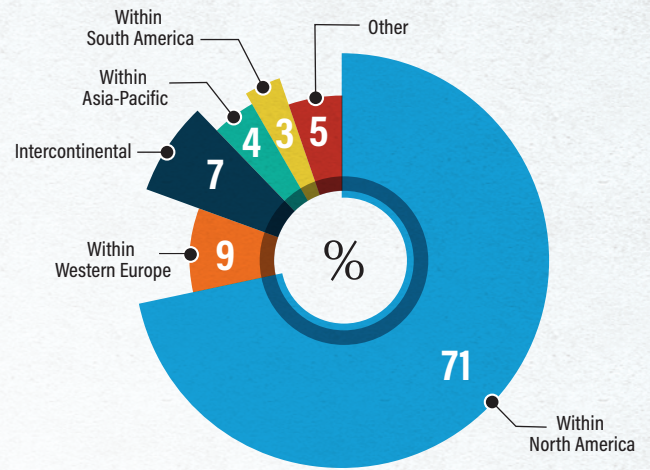
Which three of these aircraft features are most important to you?



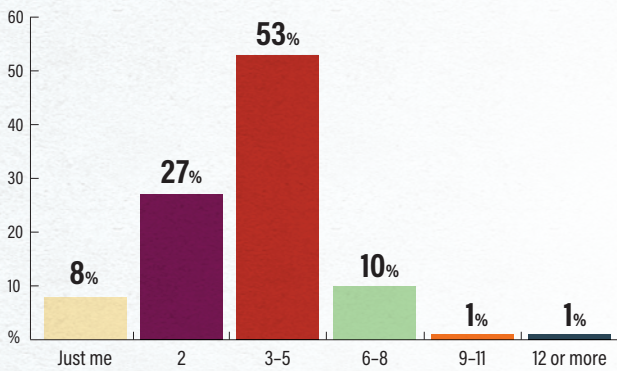
Might you ever be willing to fly on a pilotless aircraft?



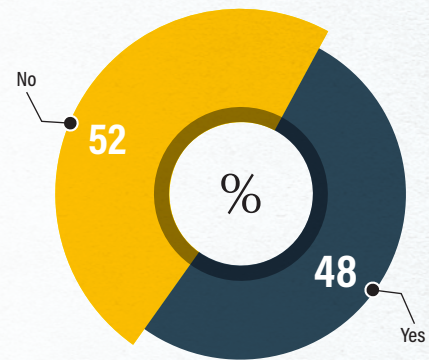
Where is your typical flight?



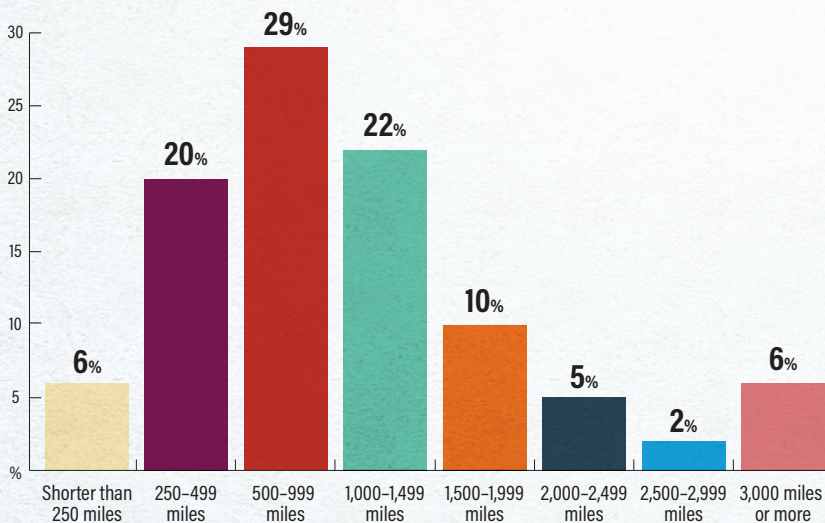
How many passengers does your typical trip involve?



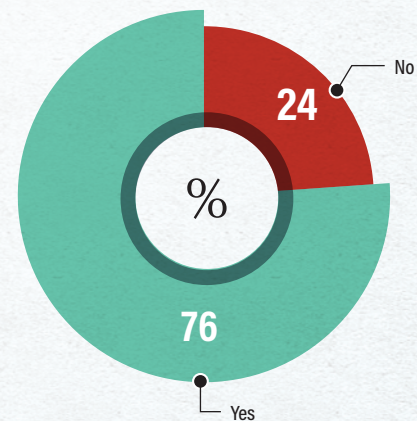
Do you have catering on your typical flight?



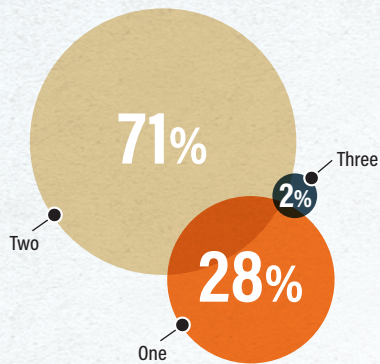
How long is your typical flight?



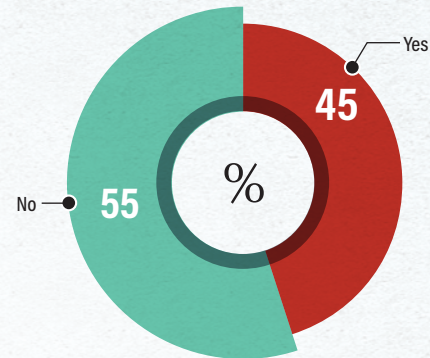
Do you have a flight attendant on your typical flight?



How many pilots are on your typical flight?



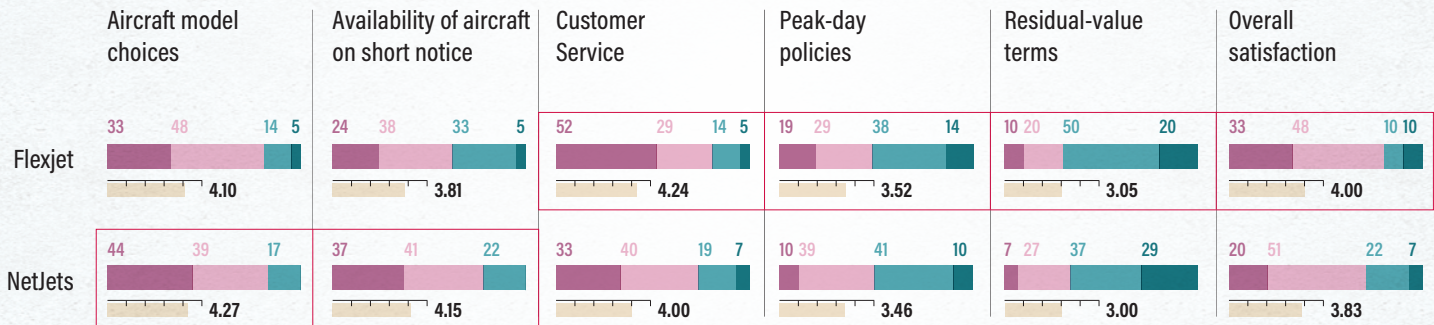
Are you typically the pilot or one of the pilots?



Fractional-Share Providers

Please rate the fractional aircraft provider you've used the most on each of these factors*:

% Excellent % Very Good
% Average % Fair or Poor % Weighted Average**



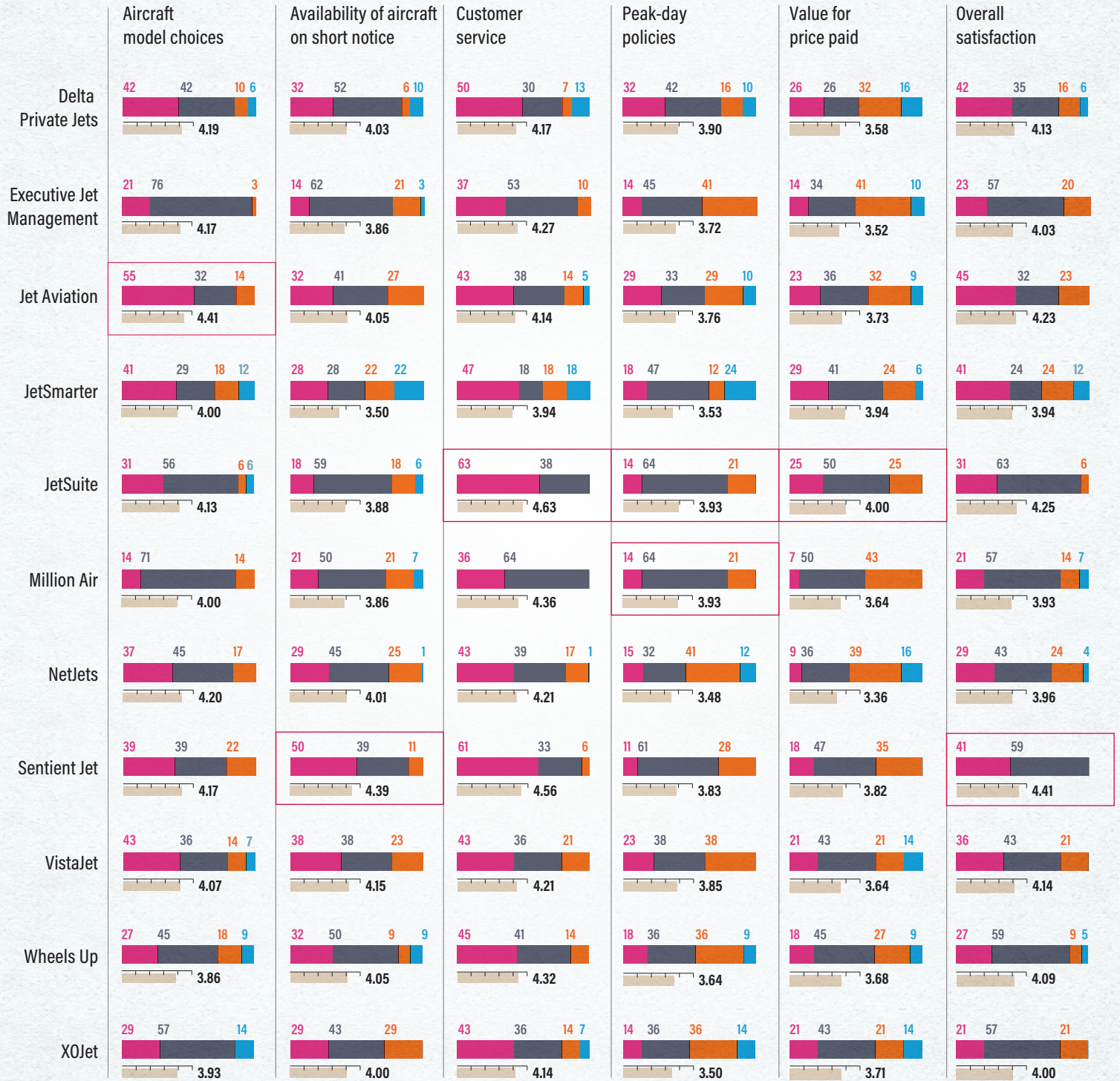
* Asked of respondents who owned a fractional share in the past three years. Companies listed are the ones for which we received sufficient response to allow for meaningful results.
 ** Weighted averages were determined by assigning points to ratings: Excellent (5), Very Good (4), Average (3), Fair (2), Poor (1)



Charter and Jet Card Providers and Membership Clubs

Please rate your most recent experience with a charter, jet card, or membership club on each of these factors*:

% Excellent
 % Very Good
 % Average
 % Fair or Poor
 % Weighted Average **

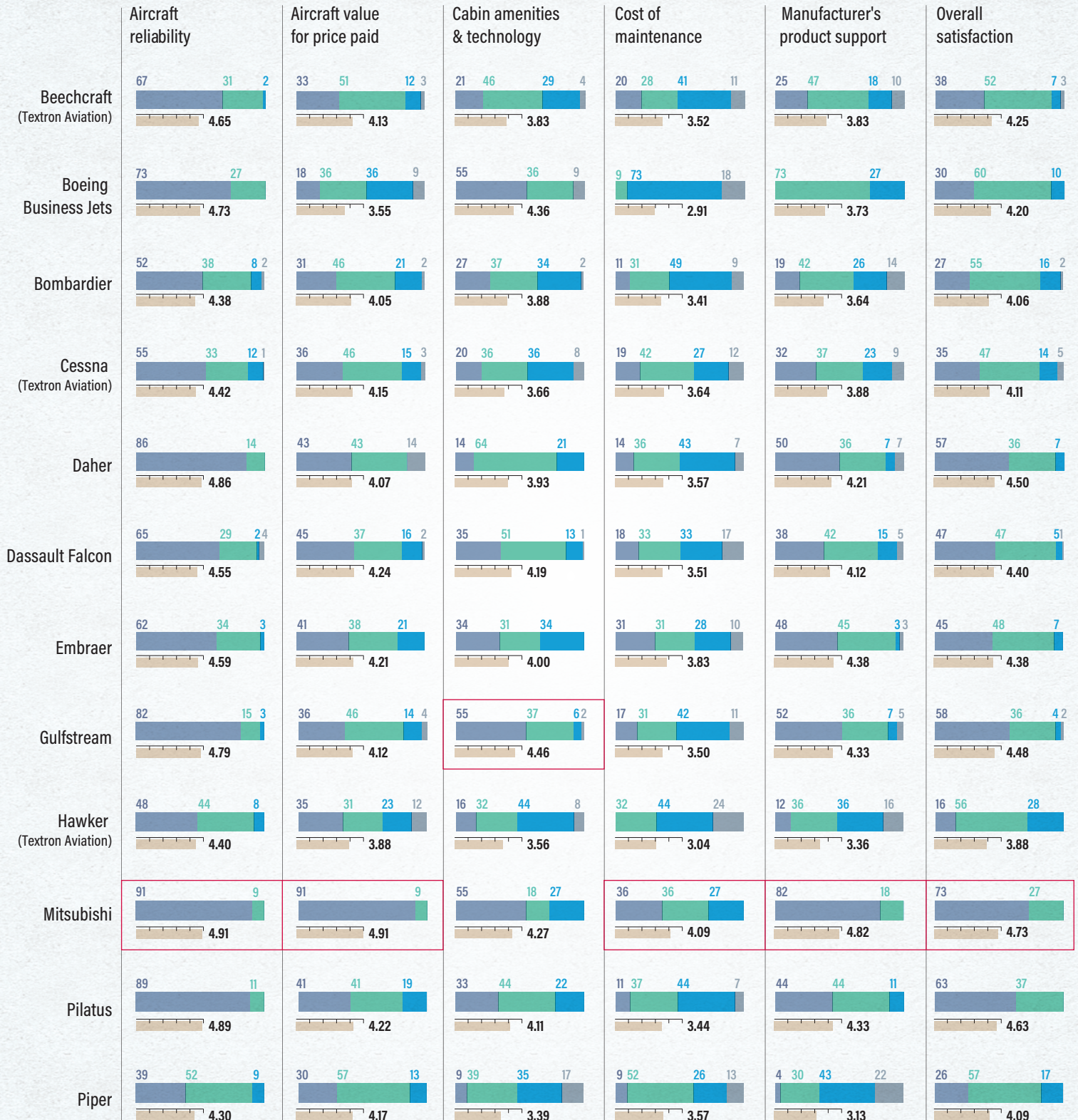


* Asked of respondents who used a charter operator, jet card, or membership club in the past three years. Companies listed are the ones for which we received sufficient response to allow for meaningful results.
 ** Weighted averages were determined by assigning points to ratings: Excellent (5), Very Good (4), Average (3), Fair (2), Poor (1)

Owned Airplanes

% Excellent % Very Good
% Average % Fair or Poor % Weighted Average**

Please rate the owned airplane you use the most on each of these factors*:



* Asked of respondents who said that they or their companies have owned an airplane in the past three years. Companies listed are the ones for which we received sufficient response to allow for meaningful results.

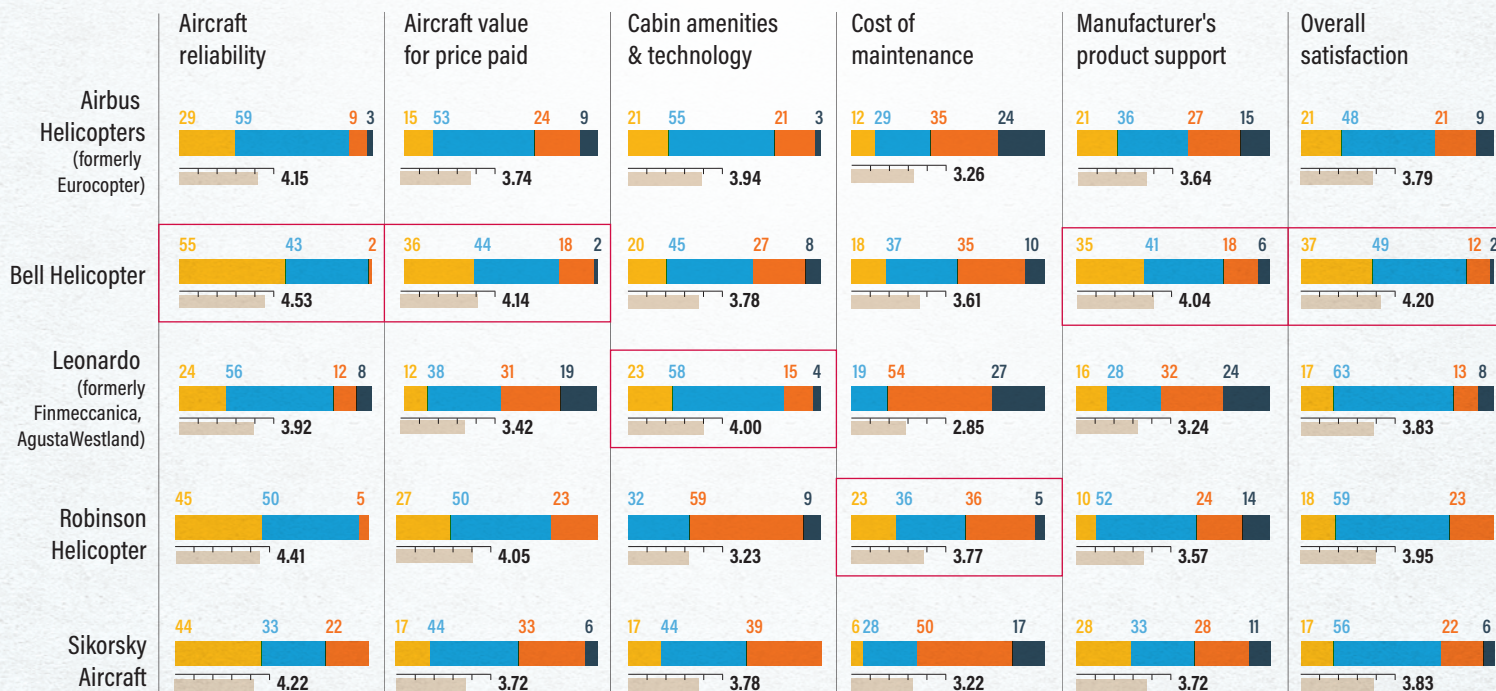
** Weighted averages were determined by assigning points to ratings: Excellent (5), Very Good (4), Average (3), Fair (2), Poor (1)



Owned Helicopters

Please rate the owned helicopter you use the most on each of these factors*:

% Excellent % Very Good
% Average % Fair or Poor % Weighted Average**



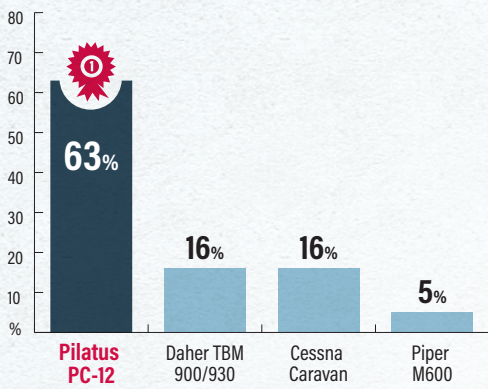
* Asked of respondents who said that they or their companies have owned a helicopter in the past three years. Companies listed are the ones for which we received sufficient response to allow for meaningful results.

** Weighted averages were determined by assigning points to ratings: Excellent (5), Very Good (4), Average (3), Fair (2), Poor (1)

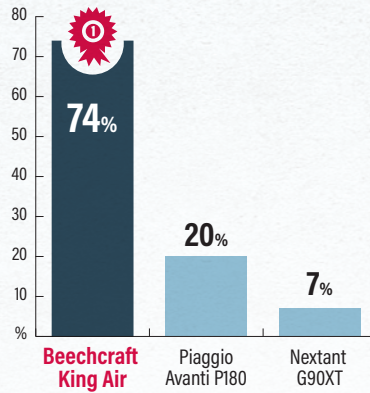
Preferred Aircraft

If you could regularly fly on any of these aircraft, which would you choose in each category?

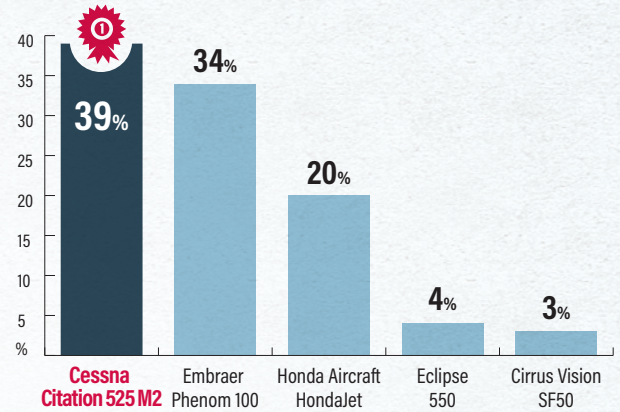
Single-engine turboprops



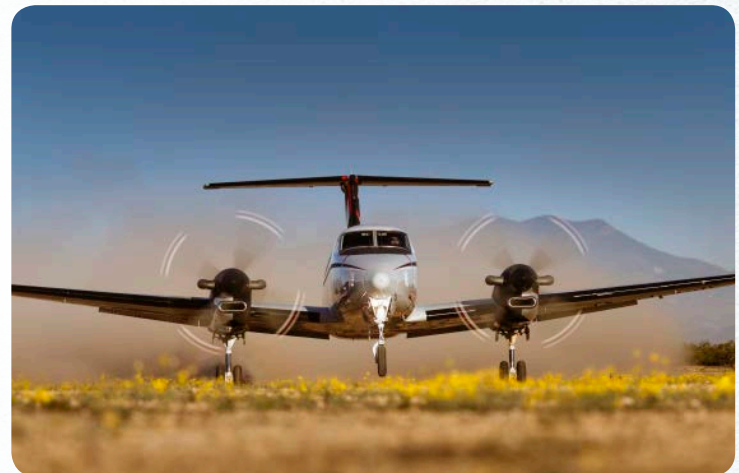
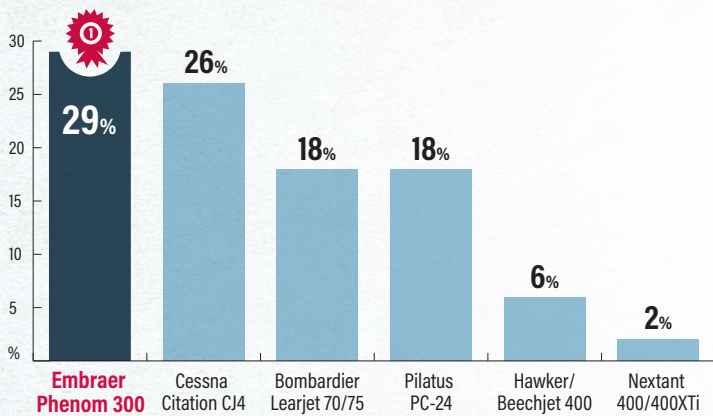
Twin turboprops



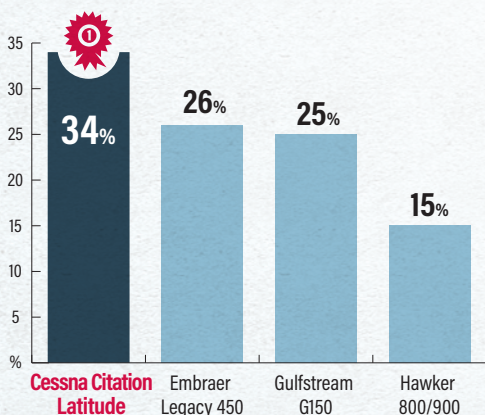
Very light jets (VLJs)



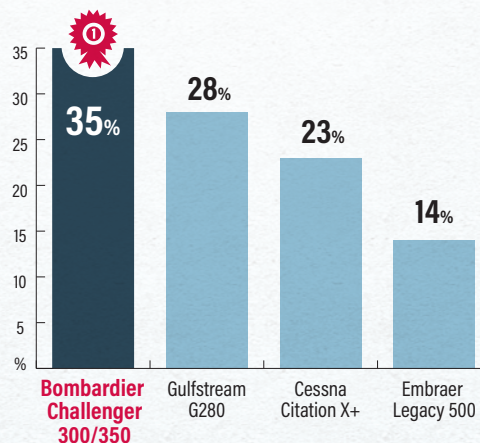
Small-cabin/light jets



Midsized-cabin jets

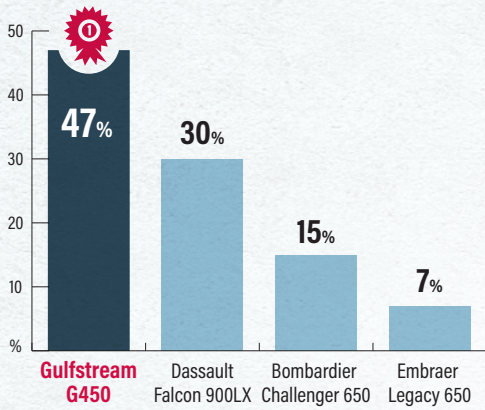


Super-midsized-cabin jets

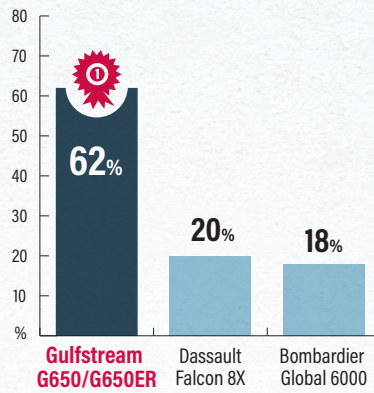


Preferred Aircraft

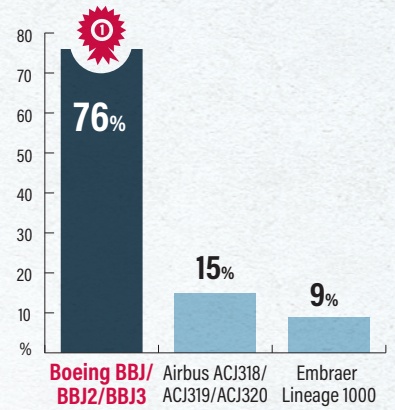
Large-cabin jets



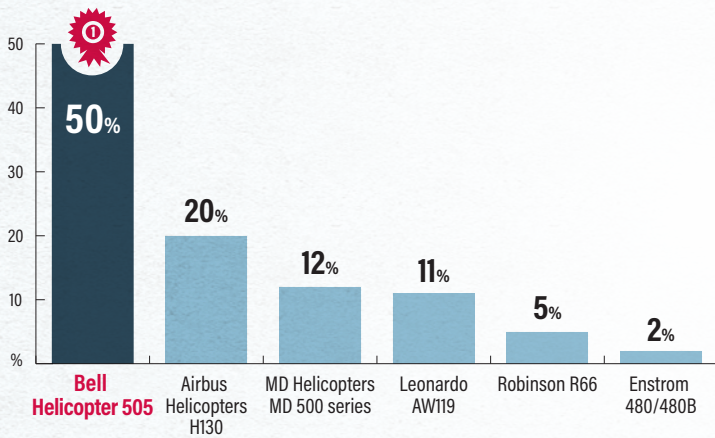
Ultra-long-range/heavy jets



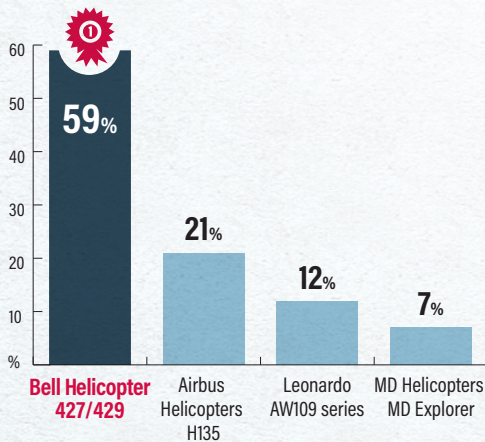
Bizliners



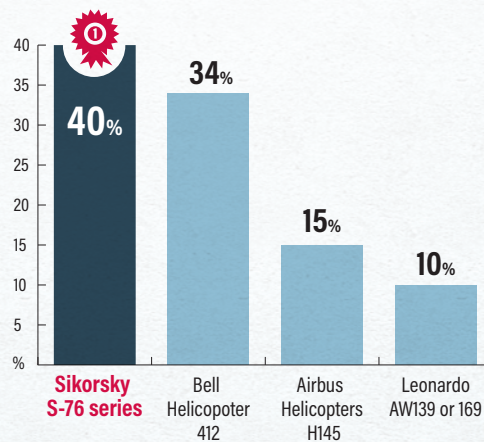
Light single-turbine helicopters



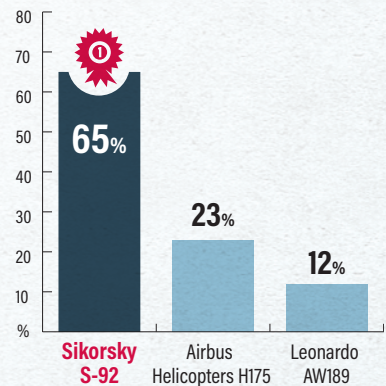
Light twin-turbine helicopters



Medium twin-turbine helicopters



Large twin-turbine helicopters





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Bizav's flight path: Where we've been, where we're headed

by Samantha Cartaino

Business aviation has experienced remarkable changes in the 15 years since BJT began publishing in October 2003. Here's a look at some of the most memorable developments we've witnessed—and at the trends we think might characterize the next 15 years.

THE LAST 15 YEARS

The industry nosedived but eventually recovered.

Prospects looked excellent for the business aviation field when BJT debuted, but everything changed in the wake of the global financial crisis that developed in 2007 and 2008. There was a sharp drop in aircraft delivery numbers from which the industry still has not completely recovered, and many people lost their jobs.

For years, analysts kept predicting an imminent turnaround, but it remained elusive. Now, however, the industry really does seem to be making a comeback. Business aviation flight hours in the second quarter of 2018 reached the highest level since 2008, according to Jet Support Services. In Europe, meanwhile, bizav flight-departure numbers recently flirted with the peak achieved in 2008, reports Germany-based WingX Advance. Some manufacturers are recording sales increases, and the preowned market has been heating up as well.

Some fliers started thinking small.

While long-range aircraft remain in demand, light and very light jets (VLJs) have energized the other end of the market. They became more popular after the 2001 terrorist attacks in New York and Washington because they require less-intense security measures than larger aircraft. Passengers also like their low operating costs and ability to operate on short runways.

Some of the lighter aircraft that were introduced in recent years, such as the Citation Mustang VLJ, had impactful but short runs. Others, though, are

thriving, including Embraer's Phenom 100, which has a range of 915 nautical miles and a maximum cruise speed of 390 kts.

The HondaJet, meanwhile, has helped Honda Aircraft to break into new markets. The model, which received FAA and EASA certifications in 2015 and 2016, has led to programs such as FlightJoy, a China-based charter operation. This year, the company announced and delivered HondaJet Elite, which incorporates cabin updates and improvements to the aircraft's Garmin G3000-based flight deck.

One of the newest very light jets is the Cirrus Vision SF50. Priced at \$2 million and offering a range of more than 1,000 nautical miles, it received FAA and EASA certification in 2016 and 2017. The first European delivery took place in 2017, the year the company increased production to one per week.

Connectivity became a must.

"Flying was once a time for executives to disconnect because they didn't have a choice," says John

Peterson, senior director of connectivity services at Honeywell Aerospace. "Best-case scenario was you'd plug in your laptop, but you couldn't be interactive with your staff." In-flight entertainment consisted of magazines, CDs, VHS tapes, DVDs, and other hard-copy material.

When BlackBerry introduced its first email-equipped mobile phone in 2002, however, executives became invested in the feature and wanted to be able to use it in flight. And Apple's iPhone, which debuted in 2007, led to a demand for technology that could handle in-flight downloading of apps and streaming of entertainment.

By 2008, Inmarsat had introduced Swift-Broadband and, by 2009, Gogo was offering air-to-ground connectivity that utilized North America's 3G ground network. ViaSat unveiled



Yonder, which employed the Global Ku system. Since then, we've seen the debut of technology such as Ka-band Satcom, that has allowed for increasingly high-speed and seamless onboard connectivity. And while such connectivity was initially possible only in larger aircraft, smaller antennas and more affordable systems have in recent years opened the market to a range of other models.

We witnessed some spectacular business flameouts.

While many charter companies have weathered the economy's ups and downs over the last 15 years, a handful of operators have gone out of business. Singapore-based Zetta Jet, for example, failed just two years after its 2015 launch. Filing a lawsuit in a U.S. district court, the company charged ousted managing director Geoffery Cassidy with misappropriation of funds as well as fraud. The lawsuit was later dismissed because the court said it lacked jurisdiction; after being denied Chapter 11 bankruptcy protection, meanwhile, Zetta Jet was forced into liquidation in 2017.

Another flameout was Virgin Charter, which was part of Sir Richard Branson's Virgin USA division. In 2008, the company stood out from other charter operators because it allowed customers to book flights online. Profits were supposed to come from a 5 percent fee tacked onto the price of each charter trip, but at its peak Virgin Charter was reportedly spending up to \$750,000 a month with little revenue coming in. A company statement cited "severe decline in corporate travel" and the inability "to generate sufficient sales to underpin its business plan" as factors that led to the end of operations in 2009.

DayJet, which launched in 2002, ran into financial problems by 2008. The per-seat, on-demand VLJ air-taxi firm announced that it could not acquire an additional \$40 million of operating capital, which caused it to ground 16 aircraft and terminate 100 employees. DayJet ceased operations in September 2008 and filed for bankruptcy two months later.

Fractional provider Avantair was founded in 2003 and offered time-card options for its Piaggio P.180 Avantis. The company grounded its fleet in 2012 in the wake of allegations that it wasn't properly tracking time-controlled parts on the aircraft. Meanwhile, Avantair was seeking financial arrangements to keep the company afloat while also facing a customer class-action lawsuit regarding the breaching of a lease agreement for six airplanes. After filing for Chapter 7 bankruptcy, Avantair ceased operations in 2013.



Flight clubs and per-seat charter gained popularity.

While jet cards and fractional ownership have continued to attract interest, the most notable recently introduced access methods have been flight clubs and per-seat charter.

More than a few industry observers expressed skepticism about per-seat charter because they believed passengers would not want to share an airplane with strangers. However, many business travelers have seemed more interested in savings than in having the cabin to themselves.

California-based all-you-can-fly service Surf Air expanded its U.S. and European footprint earlier this year. Although Surf Air is trying to grow in new regions in the U.S. and Europe, it is also facing financial and legal problems. JetSmarter, which launched in 2012, has also made strides with its shared charter and shuttle flights, and now operates throughout the U.S. and in Europe and the Middle East.

Kenny Dichter, CEO and cofounder of Wheels Up, says his membership operation works well in North America and Europe because a majority of intracontinental flights in these regions are under two hours. When Wheels Up began in 2013, it purchased a fleet of Beechcraft King Air 350is to address two-hour-flight needs in North America. Today, Wheels Up, which also offers Citation Excels and Citation Xs, arranges flights on nearly 100 aircraft and has approximately 5,000 active members. (Wheels Up does not operate its aircraft; other companies do so on its behalf.)

"I think that we're in a membership economy," Dichter says. "I always said that Wheels Up wants to be more Netflix than NetJets. Ownership had its day in the aviation pyramid, but I think that consumers today would rather be members and not have to own an asset if they or their business can get access to that asset on a 24/7/365 basis."



New markets opened.

Though North America remains the leading business aviation market, the industry over the past 15 years has become increasingly global, a trend that provided some buffer for manufacturers during the prolonged economic downturn that began in 2008. Two of the markets that have developed the most are Southeast Asia and Europe, according to the General Aviation Manufacturers Association (GAMA).

One reason for growth in the latter area: the annual European Business Aviation Convention and Exhibition (EBACE), which has helped to popularize private flying on the Continent. This year's show featured more than 100 new exhibitors and a sold-out static display. The region recently witnessed 16 consecutive months of growth in business aviation traffic, according to European Business Aviation Association chairman Juergen Weiss.



DAVID MCGINTOSH

Europe has accounted for 15 to 20 percent of business aircraft sales in the past decade, according to Jens Hennig, vice president of operations at GAMA. A shift began in 2007 and 2008, when the Continent represented about a quarter of the market.

In China, meanwhile, bizav took off in recent years. (BJT took off with it, launching the annual China edition of our Buyers' Guide in 2012). Last year, general aviation flight hours in the country reached 735,000. The Asian Business Aviation Conference & Exhibition, which has been held annually in Shanghai since 2012, attracted more than 170 exhibitors in 2018

THE NEXT 15 YEARS

Next-gen supersonics will likely debut.

At the end of May, the FAA announced two rule-makings that it said would aid development of civil supersonic aircraft: proposed noise certification for such aircraft and clarifications of practices required to obtain authorization to flight-test them in the U.S. According to the organization, Part 136 noise-certification regulations, which apply only to subsonic aircraft, are required to establish the technological and economic basis for noise levels appropriate for supersonic models such as Aerion's AS2, which is expected to hit the market by 2023.

That aircraft, which benefits from Lockheed Martin's engineering support, will be able to fly at Mach 1.5 and reach London from New York in just a few hours. In June, Aerion senior vice president and COO Ernest Edwards told BJT sister publication *Aviation International News* that the company hopes to sell 600 of the aircraft over 20 years, each costing \$120 million.

The AS2 isn't the only supersonic in the works. NASA, for example, recently awarded a contract to Lockheed to design, build, and test a supersonic model known as an X-plane that reduces a sonic boom to a sound no louder than that of a car door closing.



Other advanced aircraft will become available.

For those content to fly at just a bit below the speed of sound, several new alternatives are on the horizon. Among them are Bombardier's Global 5500 and 6500, which were announced this year at EBACE and are set to enter service by 2019. Rolls-Royce's Pearl engines power the aircraft, which feature a wing with a reprofiled trailing edge for better aerodynamics that allow for a top speed of Mach 0.90. Additional range enables the Global 5500 to connect Moscow and Los Angeles; the 6500 can connect Hong Kong with London.

Meanwhile, Dassault recently introduced the 6X, which replaces the 5X and is slated to enter service in 2022. Its 5,500-nautical-mile range represents a 300-nautical-mile increase from what the 5X would have offered, and the 6X cabin is 20 inches longer, which allows for a larger aft lounge, a larger forward galley, or a crew rest area.

The new Pilatus PC-24, Pilatus's first jet, continues to increase its deliveries. At EBACE this year, the company announced that it plans to deliver 23 or 24 aircraft in 2018, 40 in 2019, and 50 in 2020. While the first one went to fractional-share operator PlaneSense in February, the order book has been closed since 2014. The company intends to reopen it in 2019 and may then take orders for an improved version of the aircraft. The current model offers a range of 2,035 nautical miles with four passengers.

The industry is also heading toward electric vertical takeoff and landing (eVTOL) aircraft. Featuring electric and hybrid-electric sources, these aircraft offer pilotless operations that are ideal for shorter flights. Companies such as Airbus, Boeing, Bell, Embraer, Intel, Amazon, Rolls-Royce, Honda, Toyota, and Uber have all invested in eVTOL.



Aurora Flight Sciences is working on a fully electric eVTOL model that aims to cut long commutes caused by heavy traffic in thickly populated areas. Aurora, which will initially employ safety pilots and transition to pilotless aircraft, expects test flights to begin in 2020 throughout the U.S. and in Dubai, UAE.

Pilotless aircraft continue to be on the horizon. A 2017 report by Swiss analyst UBS suggests that they could annually save the air-transportation industry \$35 billion. The report, titled "Flying solo—how far are we down the path towards pilotless planes?," anticipates that these aircraft could be ready for commercial operation by 2025. Today, Boeing, Airbus, and NASA are among those working on concepts for pilotless aircraft.

New markets will become viable.

Business aviation is attempting to find its footing in regions such as Latin America, Africa, and the Middle East. For Latin America, economic and political strains previously suggested that business aviation might have an unsteady future in the region. However, in Brazil—whose economy has been unstable before and since the 2016 impeachment of President Dilma Rousseff—the business aviation landscape has been improving.

The first half of 2017 was better than 2016 for business aviation but it was "still not where the country would be in a normal year," noted Brazilian Association for General Aviation chairman Leonardo Fiuza at last year's Latin American Business Aviation Conference and Exhibition. The show featured 50 fixed-wing aircraft on the static display, which was a record number for LABACE.

“There’s a lack of infrastructure, especially on the ATC [air traffic control] side, but as that grows I think that’s going to be a fantastic market for us as well,” says GAMA’s Hennig.

Companies like Pilatus have been able to increase their sales in Latin America. Synerjet, the Pilatus sales agent for South and Central America, confirmed last year that it was able to improve sales in Latin America in 2016 and 2017 after expanding beyond Brazil. Bell (formerly Bell Helicopter) saw a bit of recovery in Latin America in 2017, according to Jay Ortiz, the company’s vice president of Latin American sales.

Parts of Africa and the Middle East are also ripe for expansion. Events like the Middle East and North Africa Business Aviation Association show (MEBAA) and the Dubai Airshow are helping to popularize private air travel in the region. Organizers of this year’s MEBAA show—the third-largest event of its kind after the EBACE and NBAA conventions—expect it to attract 10,000 visitors and 500 exhibitors.

The African Business Aviation Association (AfBAA) has focused on engaging with regulators and politicians in areas such as Ethiopia and Nigeria and has opened local chapters. Last year’s African Business Aviation Conference (AfBAC) in Johannesburg, South Africa attracted 170 delegates and served as a way for attendees to share information as well as spread the word about business aviation opportunities.

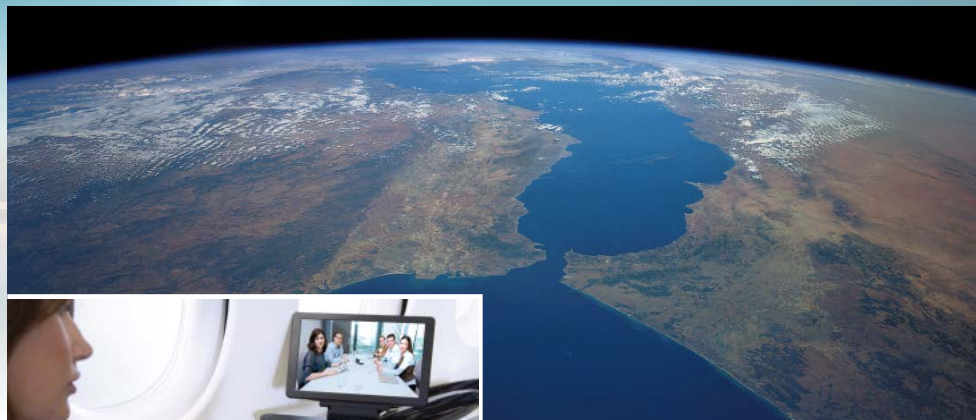
“Key parts of the African continent have started investing in our industry,” Hennig says. “It’s going to be exciting to watch how that develops.”

While the Southeast Asian market has expanded, it has further to go. In 2017, Asian Sky Group reported that more growth can be expected in the region than in markets such as mainland China and India. Singapore’s Seletar Aerospace Park has continued to add facilities, and Hawker Pacific plans to double its footprint.

Your connection to the ground will be even better.

Today, being accessible during a flight to family, friends, and colleagues isn’t a luxury; it’s a necessity. Given the popularity of technology like Skype and Apple’s FaceTime, people may soon feel the same about onboard videoconferencing.

“Fifteen years from now, you’re going to be on airplanes talking to your family [on the ground], looking at them,” Honeywell’s Peterson says. “That’s still kind of hard to do today, even with the [Ka-band] JetConnex system at 15 megabits per second.”



You can expect improvements, too, in flight-related communications on the ground. A company called Flight Key, for example, already allows users to compile the details of their flights and invite participants to follow along on a Web-based platform. These participants can include the operator, ground-transportation provider, caterer, executive assistants, charter brokers, and passengers. Users can communicate through a live-chat feature on the platform and can assign tasks that everyone can track. For example, a user can assign the caterer to order food. Once that has been done, the caterer can note the job’s completion on the platform.

Climate change will greatly impact business aviation.

The International Civil Aviation Organization (ICAO) Council recently expanded its efforts for the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). CORSIA, which was agreed upon by ICAO’s 192 member states in 2016, will be mandatory for operators in these states by 2027. The emissions-offsetting scheme has three goals: improve fuel efficiency by an average of 1.5 percent per year from 2009 to 2020; cap CO₂ emissions from international flights at 2020 levels; and reduce net aviation CO₂ emissions by 50 percent by 2050 so they are close to 2005 levels.

This June, ICAO adopted an agreement that allows states and airlines to implement CORSIA. Most business aviation operators and smaller aircraft are exempt from CORSIA because their fleets don’t reach the 10,000-metric-ton maximum for CO₂ emissions. However, business aviation operators who do qualify for the

program will have to start measuring CO₂ emissions from all international flights they operate beginning January 1. The CO₂ data from 2019 and 2020 will be used to determine the reference baseline against which future growth in carbon emissions in international flying will be compared and offset. [For more on this, see “Bizav’s Climate-Change Response Gets Back on Track,” in our previous issue. —Ed.]

Flying privately will become more affordable.

While some business jet travelers continue to buy large jets and spend thousands of dollars per flight hour to own and operate them, the trend toward more affordable options seems to be accelerating.

A variety of factors are driving down costs. For example, web technology is allowing operators to tap the revenue potential of so-called deadheads—the trips required to return an aircraft to its base that customarily carries no passengers. As noted earlier, meanwhile, operators like Surf Air are starting to offer low-cost all-you-can-fly options while others, such as JetSmarter, are touting deeply discounted flights. JetSuite, which operates in California and Nevada, sells seats on scheduled flights that it bills as “semi-private” for eye-popping prices—as low as \$129 between Orange County, California and Las Vegas, for example.

At that rate, who knows how inexpensive private flying will be by the time **BJT** publishes its 30th anniversary issue 15 years from now. Perhaps by then, you’ll be able to fly privately from New York to L.A. for the amount you now pay to take a taxi across town.

Okay, maybe not. But we can dream. **BJT**

Samantha Cartaino (scartaino@bjtonline.com) is a former associate editor at **Business Jet Traveler** sister publication *Aviation International News*.



A Look Back at BJT's

| 2003 |

BJT publishes its first issue in October. The 48-page magazine, which measures 14½ by 11 inches, features a text-heavy front cover that touts 11 stories, includes the first paragraphs of three of them, and looks nothing like today's editions. However, the masthead lists the names of several staffers who will still be on our team 15 years later; the cover sports the tagline we will still use in 2018 ("maximizing your investment in private air transport"); and the issue contains an article coauthored by Jeff Wieand, whose byline will appear in all but one of the editions we will publish over the next decade and a half.



Sir Richard Branson, who appeared on our cover in 2008 and 2014

back [to flying commercially]." Other cover subjects include Sir Richard Branson, who recounts his first experience with private aviation, as well as former New York mayor Rudy Giuliani and businessman T. Boone Pickens. Our first annual **Buyers' Guide** appears in July, and we win two awards from ASBPE.

| 2009 |

"Defending Your Jet," a February/March cover story, addresses the controversy that ensued when three Detroit auto CEOs flew privately to Washington to ask Congress for bailouts. **BJT** takes home two more ASBPE awards, including one for Best Buyers' Guide, as well as an Aerospace Journalist of the Year award and our first Gold Wing Award from the National Business Aviation Association, for the story on the automaker CEOs.

F. Lee Bailey discusses the large but little-known role that business aviation has played in his life, as well as his legal work in the cases of Sam Shepard, Patty Hearst, and O.J. Simpson, whose innocence he still proclaims. Other interviewees include financial adviser Suze Orman, golf champion Gary Player, and actor Morgan Freeman.

| 2010 |

Golf great Arnold Palmer, billionaire Mark Cuban, and jazz star Herbie Hancock are

| 2005 |

We win our first journalism prize, a second-place award for Best Transportation/Travel Magazine in the Folio: Eddies competition. **BJT** begins to attract attention for its interviews with business jet travelers, including one this year with attorney Willie Gary, who recalls a childhood in which he worked dawn to dusk in farm fields under a blazing sun—and the day he first flew over those same fields in his own Boeing 737.

| 2007 |

BJT wins two more journalism awards, from Folio: and the American Society of Business Publication Editors (ASBPE). In an article in the August/September issue, **BJT** suggests ways that business jet travelers can fight global warming.

| 2008 |

We introduce our first comprehensive redesign, reduce page size again, and begin devoting our covers entirely to photos of prominent business jet fliers who grant exclusive interviews to **BJT**. Among those featured are James Carville, who tells the magazine, "Once you have sipped the sweet nectar of freedom, you don't go

| 2006 |

Writer Joe Sharkey, on assignment for our magazine, flies over Brazil in a business jet that collides in midair with a Brazilian airliner; all 154 people on the airliner die but all seven occupants of Sharkey's jet survive. He writes about the horrific experience for a front-page *New York Times* story and our December/January edition. **BJT** debuts a slightly smaller page size and starts allotting nearly all of the front cover to a photo.



BJT's first issue in October 2003

| 2004 |

The magazine's cover now devotes more space to photography, and in the August/September issue, we prominently feature people there for the first time. The subjects: John Kerry, George W. Bush, and their use of *Air Force One* and a business jet to campaign for president.



Near right: **BJT's** Joe Sharkey, with the business jet that collided with a Brazilian airliner. Far right: Editorial director Jennifer Leach English and video producer Ian Whelan at a National Business Aviation Association convention.



First 15 Years



Arnold Palmer, a 2010 interviewee

among **BJT**'s cover subjects in a year when we introduce more design improvements and win three awards, including ones for Best Transportation/Travel Magazine (Folio:) and Best Annual Buyers' Guide (ASBPE). For the April/May edition, we visit Haiti to see how business aviation is aiding earthquake relief efforts; and in October/November, we publish "The Bizav Advantage," a 10-article special section that makes the case for flying privately.

2011

Our annual Readers' Choice Survey debuts in a year in which we win four more editorial awards, including a national prize for general excellence from ASBPE and a Gold Wing from the NBAA for "The Bizav Advantage." We interview Donald Trump, who tells us that he puts his name on all his buildings because "branding is a very effective business tool [but] I also enjoy the spotlight." He hints at running for president in 2012 and says, "You will be surprised at what my announcement is."

2012

In our February/March edition, we offer a three-part report on the rapid growth of the business aviation field in China; then, in April, we launch our first annual **China Buyers' Guide**, which we publish in Shanghai in Chinese and English. Also in 2012, we introduce our first Book of Lists, which will become one of the magazine's most popular annual features. **BJT** wins three more

editorial awards and prints interviews with astronaut Buzz Aldrin, actor William Shatner, and tennis star Novak Djokovic. Pop singer Lady Gaga posts a video of herself reading **BJT**'s **Buyers' Guide** at what appears to be Otopeni Airport in Bucharest, Romania.

2013

BJT collects two more editorial prizes from ASBPE, including another national award for general excellence. Interviewees include *Shark Tank*'s Daymond John, who tells us his rags-to-riches story, and Penn and Teller, who recount their first private jet flight and first magic trick.

2014

Sir Richard Branson becomes the first person to grace our cover twice, this time with a Q&A that we conducted on his Caribbean island. Other interviewees include singer and actor Harry Connick, Jr. and magician David Copperfield. **BJT** takes home four more editorial awards, including one from Folio: for Best Full Issue of a Travel/Transportation Consumer Magazine.



Lady Gaga reads **BJT**

2015

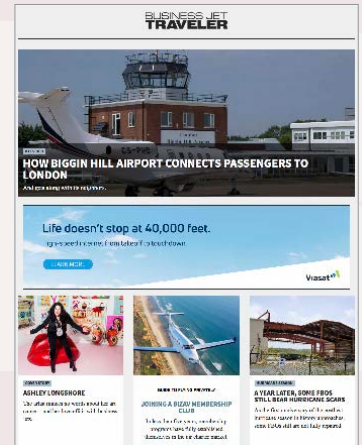
BJT begins the year by debuting its current design and page size in an issue that includes an interview with film director Francis Ford Coppola. Joe Sharkey, who wrote a weekly business feature for the *New York Times* for 16 years, becomes a regular columnist for **BJT**. The magazine wins 11 editorial awards, including three from Folio, five from ASBPE, one from the NBAA, and two from the Aerospace Media Awards.

2016

James Carville returns to our pages, this time alongside his wife Mary Matalin, who suggests that Trump will win the upcoming presidential election. (Carville believes Clinton will prevail.) Other cover subjects include lifestyle guru Tony Robbins and Iron Maiden rock star Bruce Dickinson, who pilots his band's bizliners. In our annual **Buyers' Guide**, we introduce a Yellow Pages directory of business aviation manufacturers and service providers. The magazine wins 12 editorial prizes, including a Lifetime Achievement Award for publisher Wilson Leach and runner-up for Magazine of the Year from ASBPE.

2017

We introduce a revamped website, with an interactive Aircraft Directory and searchable Yellow Pages. **BJT** receives nine editorial awards, among them Best International Publication (Aerospace Media Awards) and Best Full Issue of a Consumer Travel



BJTonline.com

Magazine (Folio:). Interviewees include NFL star Larry Fitzgerald Jr. and Argentine billionaire Alejandro Bulgheroni.

2018

Kiss's Paul Stanley and artist Ashley Longshore are among the cover subjects in our 15th anniversary year. By the time this issue went to press, we had won 11 editorial prizes in 2018, including a Magazine of the Year Top 10 Award for General Excellence from ASBPE, bringing the total number of awards that the magazine has won since its inception to 68. In addition, **BJT** had been named a finalist in the 2018 Folio: awards in three categories: Best Feature Design in a Consumer Magazine, Best Single Article in a Consumer Travel Magazine, and Best Full Issue of a Consumer Travel Magazine. Winners of these awards will be announced at a banquet in New York on October 9. **BJT**



Paul Stanley, cofounder of the rock band Kiss and a 2018 interviewee

Market changes are in the air

Statistics suggest that sales activity has finally heated up significantly. Still, it may be a bit soon to start celebrating.

by James Wynbrandt

A decade after going into free fall, the preowned market finally seems to be holding altitude and perhaps even finding lift, with transaction reports and spreadsheets heralding a shift in advantage from buyers to sellers. While the aircraft and deal numbers vary among market tracking services, a couple of facts seem indisputable: inventory of business aircraft on the preowned market has declined quarter by quarter for the past two years, falling to levels not seen since the last decade; and finding high-quality inventory has suddenly grown challenging, to the point that bidding wars for aircraft have been reported.

After dropping 14.6 percent from September 2017 through August 2018 (from 2,244 to 1,958), the percentage of business jets on the market now stands at 9.2 percent, according to JetNet, below the 10 percent availability level long considered the benchmark of a balanced market. (The total

fleet grew 1.6 percent during the period.) Inventory in the recently robust turboprop market fell 10.9 percent over the year (from 1,144 to 1,032), leaving only 6.7 percent of the fleet for sale.

Yet the year-over-year increases in jet and turboprop sales in the first half of 2018 were “modest,” says Amstat, though specific categories—particularly late-model, large-cabin jets—are selling strongly. A full 5 percent of the heavy-jet fleet turned over in the first six months of this

year, the market tracker reports, the best performance for the category since 2007. Heavy-jet inventory now stands at just 6.8 percent of the fleet, according to Amstat, the lowest percentage since 1998.

Meanwhile, average ask price is increasing and the ask vs. transaction value differential is narrowing, Asset Insight’s second-quarter report says, signaling a move toward a “neutral” to “sellers” market for young, lower-time aircraft. Ask prices for heavy jets were up 17.7 percent year-over-year and turboprops posted a 1.2 percent boost, though ask prices for medium and small jets dropped 15.9 and 3.6 percent, respectively. Yet the spread between ask and sale prices tightened in all four aircraft categories.

Asset Insights’ data on rising ask prices parallels Amstat’s mid-year report, which found that the 17.7 percent increase in heavy jets’ price tags brought the value of a late-model aircraft to an average of \$26.5 million. But before assuming

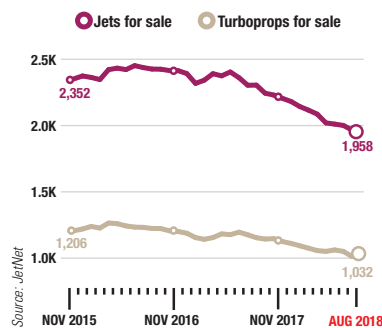
this represents a true market turn, remember that this is a small market where one or two transactions can skew numbers dramatically. In the case of the rise in heavy-jet asking prices, Amstat notes that the recent addition of some high-priced heavy metal—including a G650 and G650ER, a Falcon 8X, and a Boeing Business Jet—is the reason for the dramatic uptick.

In fact, of the 57 current-generation business jet models that AircraftPost tracks, “only nine makes and models have shown slight year-over-year gains in selling prices,” says founder and president Dennis Rousseau. The average sale price of GIV-SPs has risen from \$4 million a year ago to \$4.25 million today. Meanwhile, despite the reported clamor for late-model jets, the largest value increase among the aircraft AircraftPost tracks was on the GIV, oldest of the large-cabin Gulfstreams it follows. The GIV rose from an average of \$1.9 million to \$2.4 million.

“The remaining 48 models are either flatlining or continue to decline,” says Rousseau.

He believes the days of steep drops in residual values may not be over. “Based on 2017/2018 preowned sales for the G650ER [an aircraft that has traditionally held its value well], year-over-year market depreciation stands at 14 percent.”

BUSINESS AIRCRAFT FOR SALE: 2015–2018



SOME POPULAR PREOWNED MODELS

	CITATION CJ4	LEAR 45XR	CITATION X	CHALLENGER 350	FALCON 900B	GLOBAL 5000	
Number in Service	271	206	313	245	178	224	
On the Market	Number for sale	10	15	28	5	9	14
	Avg. days on market	255	110	321	70	172	251
	Avg. model year	2012	2008	2002	2016	1991	2009
	Avg. asking price (millions)	\$6.50	\$3.79	\$3.61	\$17.17	\$4.18	\$18.13
2018 Sales	Number of aircraft sold	5	11	12	0	16	7
	Avg. days on market	82	102	476	N/A	417	514
	Avg. model year	2014	2008	2002	N/A	1991	2009
	Avg. sale price (millions)	\$6.37	\$3.47	\$3.31	N/A	\$3.08	\$18.16

Data as of Aug. 8, 2018. Source: AircraftPost.com

James Wynbrandt (jwynbrandt@bjtonline.com), a multi-engine instrument-rated pilot and regular BJT contributor, has written for the *New York Times*, *Forbes*, and *Barron's*.



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Hawker 850XP

This midsize bizjet is the second-to-last edition of a model that benefited from a series of improvements during a 51-year production run that ended in 2013. It remains popular for multiple reasons.

by Mark Huber

Much of post-colonial Africa was a dangerous and confusing place in the 1980s, and nowhere were conditions more perilous and chaotic than in Angola, where 15 countries and groups took sides with competing factions in a protracted civil war. In the midst of this mess, culling friend from foe was not always easy.

Case in point: what happened on Aug. 7, 1988, when a Botswanan government Hawker 800A midsize business jet was en route from that country's capital, Gaborone, to the Angolan capital of Luanda. Botswanan President J.K. Quett Masire was aboard, along with seven top aides, destined for a meeting of regional African leaders. Because the 27,000-pound airplane was a new delivery, British Aerospace Hawker demonstration

pilot Arthur Ricketts was in the right seat, flying copilot.

The Botswanan aircraft was an hour from its destination and cruising at 35,000 feet when an Angolan Air Force Soviet MiG fighter mistook it for an enemy airplane and began firing at it. A missile from the MiG sheared the starboard engine off the Hawker, damaged the wing and flaps, punched a substantial hole in the fuel tank, caused the aircraft to decompress, and incapacitated the pilot. A second missile lanced the separated engine as it fell.

Despite all this, Ricketts got the airplane safely to the ground. Not only did everybody survive but the aircraft was rebuilt and returned to service.

This is the sole known incident of a business jet surviving a direct hit from an air-to-air missile,

and it further cemented the Hawker's reputation as a "flying tank." The aircraft, which ended its 51-year production run in 2013, remains popular today and is the only midsize bizjet currently approved to land on gravel and grass.

The Hawker has been through many corporate masters—de Havilland, Hawker-Siddeley, British Aerospace, Hawker Beechcraft, and Textron—and been fitted with a variety of avionics, airfoils, and engines, some better and more efficient than others. This is the flying equivalent of the journeyman quarterback who steps in to save the season without drama or fanfare. A Hawker will never win any aerodynamic beauty contests, certainly not for the first two decades of production (through model designations 700), which featured exterior styling that



Specifications & Performance

Range*	2,615 nm
Max cruise speed	430 ktas
Cabin Dimensions	Height: 5.75 ft
	Width: 6 ft
	Length: 21.3 ft
Volume: 551 cu ft	
Baggage (internal)	50 cu ft

*with four passengers (200 lb each, including baggage), IFR NBAA 200nm reserve

Economics

Total variable flight cost/hour	\$2,859
Total fixed cost/year	\$474,198
Total cost/year**	\$1,700,821

**Includes variable and fixed costs plus market depreciation and assumes usage of 175,000 nautical miles and 429 flight hours.
Source: Conklin & de Decker

Visit BJTonline.com for a searchable aircraft guide that contains detailed performance, specifications, and expense data for this and all other popular business aircraft.

one jet broker described to me as something “only a mother could love.”

Even in later years, when a more tapered nose, more swept windshield, and winglets were added, there was no getting past the Hawker’s inherent squatness, and that translated into a long day for transcontinental trips. The aircraft topped out at 442 knots and usually flew slower—faster than the family sedan, but pokier than the airlines much of the time. Put a Hawker up against a Cessna Citation X on a trip from Florida to California and, by the time the Hawker reaches its destination, the Citation’s passengers will have not only arrived but finished drinks and dinner and gone dancing.

And then there’s the cabin. Be mindful that the Hawker was designed at a time when the average American male executive weighed about 170 pounds, stood five-foot-nine, and lived on ciga-

rettes and martinis. Waistlines in the western world are a bit wider now and the Hawker’s 551-cubic-foot cabin seems a little cramped—especially when you jam eight or nine passengers into it—compared with the likes of a Cessna Citation Sovereign (620 cubic feet) or a new Embraer Legacy 450 (919 cubic feet). But stacked up against the contemporaries of its day, such as a Learjet 60 (453 cubic feet) or a Gulfstream G150 (465 cubic feet) a Hawker cabin compares favorably; and if you’re upgrading from a King Air, it can feel big indeed.

True, Hawker cabins have evolved over the years—but only to a point, as the basic fuselage has remained remarkably unchanged. The Hawker 800 first flew in 1983 and featured major performance improvements over previous models. Between 1983 and 1995, the company produced 275 Model 800s.

Although comparatively slow, the Hawker packs a lot of utility. Operators rarely have to choose between full seats and full fuel.



Hawker 850XP compared with Gulfstream G150

Model	First year produced	Variable cost/hour	Seats exec/max	Range (nm)	Normal cruise (kt)	Max takeoff weight (lb)
Hawker 850XP	2006	\$2,859	8/15	2,615	430	28,000
Gulfstream G150	2006	\$2,428	7/8	3,018	459	26,100

Assumptions: Aircraft are 2008 models. Jet fuel \$4.48/gal; variable cost: fuel plus maintenance reserves; four passengers; NBAA IFR 200 nm reserve fuel; passenger weight 200 lb includes baggage.

Sources: Conklin & de Decker Life Cycle Cost Performance and Aircraft Performance Comparator

You can load an 850XP with full fuel and nine 200-pound passengers on a relatively warm day and still use 5,000-foot runways.

Deliveries of the Hawker 800XP began in 1995 and a major change occurred on the model in 1999, when oval window frames, sidewall lighting, redesigned sidewall table access, and restyled seats were added to the cabin. These changes resulted in a brighter, softer, more flowing look and were an immediate hit with customers.

The cabin of the Hawker 850XP (2006–2009 model years, \$13.65 million new) features five single executive seats and one three-place divan with a curved, trenched center aisle traversing the middle. The belted potty in the lavatory, though a legal seat, is best reserved for emergencies, the very diminutive, or the hapless passenger who draws the short straw. The single seats slide and swivel and have limited recline. In-cabin stowage is modest with a forward closet opposite the entry door. There’s another wardrobe in the aft lav. They combine for a modest 50 cubic feet of luggage space.

The Hawker 850XP is indistinguishable from its Model 800 predecessor, save for the addition of factory winglets, which boost range by 100 nautical miles, and an upgrade to the very capable Rockwell Collins Pro Line 21 four-screen digital avionics suite in the cockpit.

Over the years, Hawkers have received significant upgrades in airfoils, engines, and systems. One of the most important changes came during the 1970s with the advent of more efficient engines. During the late 1960s, Garrett (now Honeywell) developed the TFE731 turbofan engine and that company continues to support it well, especially with its MSP hourly maintenance program. The engine—which enabled a slew of midsize corporate jets to come to the market in the 1970s and early 1980s—represented a quantum leap in efficiency and meets Stage III anti-noise requirements. The aircraft also feature simple mechanical systems that stand up to ham-handed pilots and heavy use.

Although comparatively slow, the Hawker packs a lot of utility. Operators rarely have to

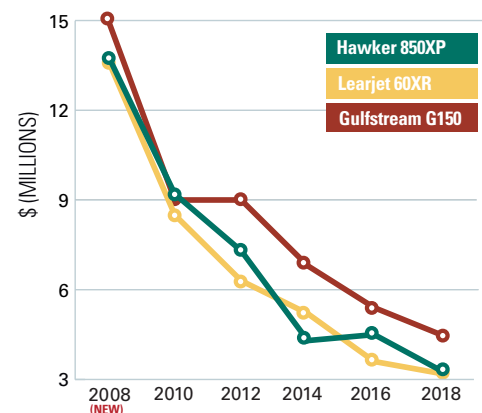


choose between full seats and full fuel. You can load an 850XP with full fuel and nine 200-pound passengers on a relatively warm day and still use 5,000-foot runways. This durability and utility helped to make Hawkers a mainstay in several charter fleets as well as in the formative years of fractional providers NetJets and Flight Options.

Today, a 10-year-old Hawker 850XP goes for around \$3 million, and it’s hard to find anything else for around that price that offers its range and payload numbers, not to mention the peace of mind you get from flying in a jet that can land on grass or gravel—or survive a shooting war. **BJT**

Mark Huber (mhuber@bjtonline.com), an aviation industry veteran, has reviewed aircraft for **BJT** since 2005.

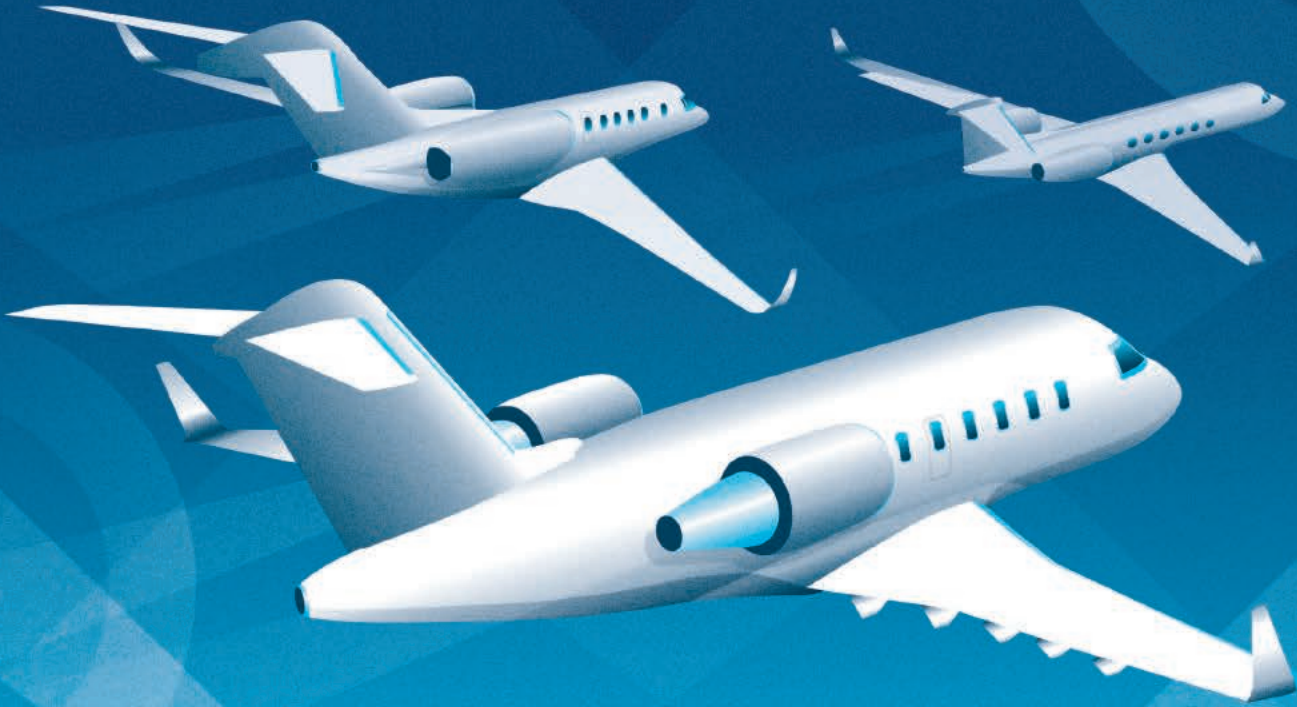
FAIR MARKET VALUE
price comparison of competitive aircraft



Source: Vref Publications (vrefonline.com)

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Invest in **hot** startups without getting **burned**

Venture-capital funds can provide you with excellent returns, but only if you're careful—and lucky.

by Chana R. Schoenberger

With unicorns—private startup companies worth north of \$1 billion, like Uber, Airbnb, and WeWork—thundering past, you may be wondering whether you ought to get in on the venture-capital boom. You can if you're an accredited investor, meaning you have \$200,000 in annual income (\$300,000 for a couple) in each of the past two years or a net worth of more than \$1 million. Returns can be excellent, but it's important to do your research before backing a venture-capital fund that invests in young companies.

Money is pouring into startups from these funds, which provided them with \$84 billion in 2017, more than in any year since the first internet wave crested in 2000, according to the National Venture Capital Association. The investors behind

the funds include university endowments, foundations, and other institutions as well as individuals and family offices. They are seeking returns that beat the S&P 500 index, which historically has yielded 9.8 percent annually. Even after the steep fees that venture-capital funds charge, they could double that figure for you—but only if you're lucky.

“Historically, [venture capital] has had better performance than the public markets, especially if you're with the right managers,” says Michael Chimento, a senior research manager at Ballentine Partners, a Massachusetts-based wealth-management firm.

Picking venture-capital managers carefully can mean a huge difference in performance. Because fees and transaction costs are so high, the returns won't justify the expenses unless you choose a

top-ranked manager, says Carol Schleif, deputy chief investment officer at Abbot Downing, a wealth-management division of Wells Fargo.

Financial advisers typically perform due diligence before offering their funds to clients. Choosing a fund on your own “might limit your sphere to an industry you know well,” Schleif says.

To check managers' track records, look at their historical performance with several funds, not just the one they've most recently overseen, suggests Matt Krna, managing partner of the San Francisco venture-capital firm Princeville Global. Performance figures can be hard to decipher during the life of the fund, while companies are in various stages of investment and sale.

Some fund managers start raising capital

for their next fund in the first few years of their current fund's life. At that point, Krna says, a lot of funds look quite good, "but at the end of their seven- to 10-year tenure, they might look much different."

To help clients minimize risk, some financial advisers point them to funds of funds. These come with extra fees—often an additional percent of the assets invested, plus 5 to 10 percent of the profits earned above 5 or 6 percent—but they give you diversification across a variety of venture-capital funds, Chimento says.

"We don't take extra layers of fees lightly, but in this asset class we feel it's worth it for the access," he says.

Direct investors in venture-capital funds pay a standard fee of 2 percent of the amount invested, plus 20 percent of the profits. Fund managers occasionally give large shareholders a break on this "2-and-20" structure. A fund can have a 10-year lifespan, with the first three to five years for investing the money and the back half for selling or merging companies, Schleif says.

You won't have access to your money until the fund finishes selling off its stakes. Because these funds are usually set up as limited partnerships, at the end of their life the managers will return the capital and profits to investors. "If there's any chance you will need the money before the life of the investment is up, it's not the right investment for you," Schleif says.

The minimum amount you can invest depends on the fund's size. A fund that makes relatively small seed financings might accept

\$500,000 to \$1 million, while a more established fund making larger and later-stage investments might require \$10 million commitments, Krna says.

To determine how much of your portfolio you should allocate to venture capital, first decide how much of your equity holdings you wish to put into private investments, which include funds specializing in private equity and buyouts as well as venture, Chimento says. That range could be from 0 to 40 percent of the equities you hold, he notes, depending on your risk tolerance.

Within your venture-capital allocation, it's important to diversify. Make sure the funds where you put your money invest in different industries and geographical regions, as well as different stages of a business's lifecycle, from new startups to companies about to go public.

Managers of funds that invest in startups are gambling that just one or two of many investments will boost overall returns. If one proves as successful as Facebook, the rest can go out of business, and the fund's performance could still be excellent.

One stumbling block: usually only well-connected investors are allowed to invest in the top early-stage funds, Krna says. "If you don't have a strong set of personal relationships, it's hard to get access to the best early-stage funds," he explains.

"If you choose to invest in smaller funds, you may be able to foster a closer relationship with the general partners who manage them," Krna adds. "Because they know a specific industry well, they can offer advice much as a consultant would." **BJT**

Chana R. Schoenberger (cschoenberger@bjtonline.com) has been an editor at *Forbes*, a reporter for Dow Jones and the *Wall Street Journal*, and a news editor at Bloomberg News.

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This recurring editorial feature spotlights aircraft that are for sale at press time. In this issue, we focus on ones that are available for less than \$5 million. **BJT**'s editorial department selects aircraft for

inclusion and the magazine receives no compensation in exchange for coverage. Brokers wishing to have their inventory considered for this department should email readyfortakeoff@bjtonline.com. —Ed.

Aircraft selling for less than \$5 million



← 2016 Pilatus PC-12NG

This single-engine turboprop looks brand new and almost is: it has only 49 hours of flight time and is under factory warranty. It features an executive 6+2-seat interior and is equipped with Primus Apex, Synthetic Vision, ADS-B Out, Dual SBAS GPS, Dual ChartView, the WX-500 Stormscope lightning sensor system, and Wireless eConnect Entertainment.

Asking price: \$4.425 million

Broker: Mesinger Jet Sales

↓ 2016 Quest Kodiak

Four-place club seating, color weather radar, Aerocet amphibious floats, a Garmin G1000 avionics suite, and the TKS Anti-Ice System are among the features of this factory-new, single-engine turboprop.

Asking price: \$2.5 million

Broker: Banyan Air Service



↑ 1981 Dassault Falcon 50

This 10-passenger (plus forward jump seat) jet has 11,200 flight hours. The engines are enrolled in MSP Gold and the airplane, which has always been hangared, is in excellent condition.

Asking price: \$995,000

Broker: General Aviation Services

2000 Citation Excel →

The engines on this Wi-Fi-equipped jet are enrolled in the ESP Silver Lite maintenance program and the APU is enrolled in MSP. The aircraft features a seven-passenger executive interior and has 13,418 hours of total time.

Asking price: \$2.595 million

Broker: QS Partners



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Is your charter deal too good to be true?

Illegal operations are on the rise. Here's how they could hurt passengers and what the industry is doing to stop them.

by James Wynbrandt

With the charter world awash in new membership plans, shared shuttle services, and other innovative access models, you can likely find more than a few flight deals that seem too good to be true. Unfortunately, many of them are indeed not legitimate Part 135, or Part 380 per-seat operations, say industry authorities, who've now launched an intercontinental campaign against illegal—aka gray-market or Part 134½—charter.

“When people book a charter flight and see a price that's unbelievably low, that should raise a red flag,” says John McGraw, director of regulatory affairs at the National Air Transportation Association (NATA), the business aviation trade group leading the effort in the U.S.

No one knows the exact extent of the illegal activity or its economic impact, but the consensus is that it's increasing, spurred by the burgeoning variety of access schemes and lack of regulatory enforcement.

We'll get to what this means for you, the consumer—or sometimes the inadvertent supplier, in the case of aircraft owners—but first the backstory.

At its ongoing town hall-style meetings in recent months, NATA has heard growing

complaints from charter providers about illegal activity. After discussions with the FAA on “ways we can help [the agency] be more effective in taking action when someone is not following regulations,” McGraw says, the association formed its Illegal Charter Task Force in May. Europe's BACA—the Air Charter

such flights represent to customers, but this time the charter industry's economic survival is front and center. Complying with Part 135's operational, crewing, maintenance, and other regulatory requirements is much more costly than ignoring them, giving an unfair pricing advantage to rule breakers.

resources create tough challenges to the initiatives. Encouraging more industry reporting is a linchpin of the campaigns.

The Air Charter Safety Foundation has for years maintained an illegal charter hotline (888-759-3581) for reporting suspicious activity, but previously “there hasn't been any feedback loop” enabling whistleblowers to learn the disposition of their reports, which dampens enthusiasm for calling, McGraw says. Under the current effort, the FAA will provide more information on the status of reports and investigations, which it hopes will stimulate call volume. BACA, meanwhile, is encouraging “members to engage with us and provide information.”

Education is part of the campaigns. Providers and consumers of illegal charter fall into three categories—“the careless, the clueless, and the criminal”—and most are in the first two groups, McGraw says. “We think customers are not sure what requirements [charter providers] are meeting or ignoring,” he adds. As for providers, “The majority...aren't completely aware of the requirements and don't dig in [to the regulations] as far as they should.”

The expanding range of access



FOTOLIA/MONTAGE JOHN A. MANFREDO

Association (formerly the Baltic Air Charter Association) teamed with the European Business Aviation Association that same month in a complementary initiative.

This isn't the bizav community's first battle against illegal operations, which on the PR side typically focuses on the safety threat

“If we're just going to accept this is allowed to happen, what's the point of having AOCs [Aircraft Operator Certificates]?” asks Dave Edwards, BACA's CEO. “There isn't any benefit if people are just able to get away with” operating illegally.

But lack of actionable intelligence and thinning enforcement

models presents another hurdle: even professionals “can’t always tell” whether a novel low-cost offering is legal, McGraw notes. “It’s complicated.”

Says Edwards: “This is why we call it gray-market charter. Sometimes there isn’t a clear description [of the questionable activity] for regulators” to determine their legality or to investigate.

While the forms it takes may be novel, illegal charter’s threat to you as a customer is the same as ever: you risk putting yourself in the hands of an operator that doesn’t use qualified crews or properly maintain aircraft, among other possible lapses. In a realm where safety experts routinely recommend flying with providers that meet third-party standards (Argus, Wyvern et al.) in addition to the FAA’s, saving money by booking

charter with a company that ignorantly or willfully ignores even federal regulations is not the sign of a wise consumer.

Yet performing due diligence—or simply verifying an operator’s credentials—can be a challenge. The FAA’s list of Part 135 operators is “in a relatively outdated database format” and inaccessible to the public, McGraw says. And if the experts can’t always tell what’s legal, how can you? To help provide answers, NATA is updating and relaunching its Chartering an Aircraft, A Consumer Guide, and Risks of Illegal Charter publications.

If you own an aircraft and lease or otherwise make it available to a third party that uses it for illegal charters—a not uncommon source of such lift, according to authorities—you could face financial and other penalties. NATA notes that shady operators might not collect

Long term, the safety of the entire industry could go into a downward spiral, impacting you and every other charter consumer.

or pay required Federal Excise Tax, and depending on the way the lease is written, you could be on the hook for any unpaid taxes—and for liabilities in the event of an accident.

Long term, if operators can’t compete with a rising tide of low-cost illicit lift, or determine that compliance isn’t worth the cost, the safety of the entire industry could go into a downward spiral, impacting you and every other charter consumer.

In a sign that the FAA is ready to take stronger action, in July the agency accused the Hinman

Company, a Michigan-based real estate firm, of “conducting hundreds of commercial aircraft operations in violation of the Federal Aviation Regulations” by “failing to hold the required operator certificate for the flights being performed.” Hinman operated a Beechjet 400A and Hawker 900XP under a Part 91 time-share arrangement, charging passengers “more than the expenses allowed under Part 91,” the agency alleges; it hit the company with a proposed \$3.3 million civil penalty in response. **BJT**

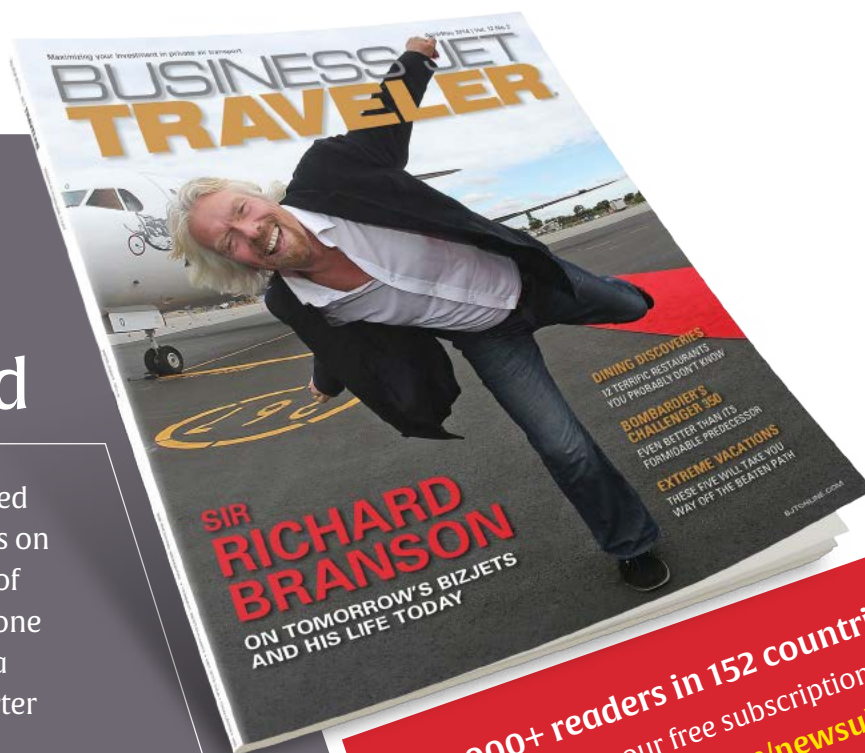
James Wynbrandt (jwynbrandt@bjtonline.com), a multi-engine instrument-rated pilot and regular **BJT** contributor, has written for the *New York Times*, *Forbes*, and *Barron’s*.

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DISCOVERING ancient Egypt

Tourism has declined substantially since the country's 2011 revolution, but those who do visit find warm welcomes and a rich history.

by Marilyn Jones



Bent at the waist, head down, step by step, I climb. It's hot, and every few seconds I stop to allow someone coming down to pass. I try not to think about what I'm doing or the solid rock surrounding me because I'm claustrophobic. Instead, I concentrate on the goal: King Khufu's tomb, deep inside Cairo's Great Pyramid of Giza.

The largest of the three pyramids on the outskirts of the city, it is the oldest of the Seven Wonders of the Ancient World. Egyptologists believe that the pyramid was built over a 10- to 20-year period around 2560 B.C. What I find is a large burial chamber and the king's sarcophagus.

This is my first glimpse of ancient Egypt—a world of pyramids, temples, tombs, gods, goddesses, kings, and queens. For 12 days, I will travel with a group of like-minded tourists and an expert guide and Egyptologist, Mohammed Bayoumy, exploring and learning.

Cairo, a city of 20 million, is in perpetual motion. Men and women dressed in galabiyas—loose-fitting, ankle-length robes—shop at roadside markets and dart across four lanes of traffic to catch one of the white van taxis that are common here. Donkeys pull carts filled with produce alongside cars in traffic. This is a city of contrasts, color, grit—and friendliness. As I walk to a market, I receive warm greetings in English and helpful comments from stall owners.

At Cairo's Egyptian Museum, Bayoumy uses the chronologically organized first floor to introduce our group to Egypt's complex history. Explaining the statues as we pass, he describes treasures that date back as far as 5500 B.C.

He tells us that cartouches—hieroglyphic names carved in the art—identify the statues and reliefs. This collection came together to protect Egypt's artifacts, treasures, and heritage. First housed in a palace annex beginning in 1858, it was moved to its present location in downtown Cairo in 1900.

On the second floor of the museum, we find relics from King Tutankhamun's tomb. The boy king's tomb was left virtually undisturbed for more than 3,000 years until it was discovered in 1922 by British archaeologist and Egyptologist Howard Carter. The Royal Mummy Room houses the remains of many of Egypt's ancient kings. I am fascinated and uneasy as I peer at their glass coffins, many with faces, hands, and feet showing.

Alexandria (named for Alexander the Great in 332 B.C.) is a bustling metropolis with too much traffic and too few traffic lights. The second-largest city after Cairo, it is on the Mediterranean Sea and is a favorite vacation destination for Egyptians. Nightclubs, restaurants, and vendors line its streets.

Pompey's Pillar is an 88-foot-tall monolithic Roman pillar. It is the only relic remaining from a massive temple dedicated to Serapis, a god introduced in the third century A.D. to unite Greeks and Egyptians.

The entire structure, with the exception of this pillar, was destroyed during the fourth century by Coptic Christians attempting to eradicate paganism from the city. This will become a theme throughout Egypt as I travel south: many of the temples were defaced by Coptic Christians.

The pillar is one of the biggest ancient monoliths still in existence, and historians believe that it is also one of the largest monolithic pillars ever erected. Unlike many similar pillars that were composed of drums, this one was carved out of a single block of red Aswan granite. It is estimated to weigh around 285 tons.

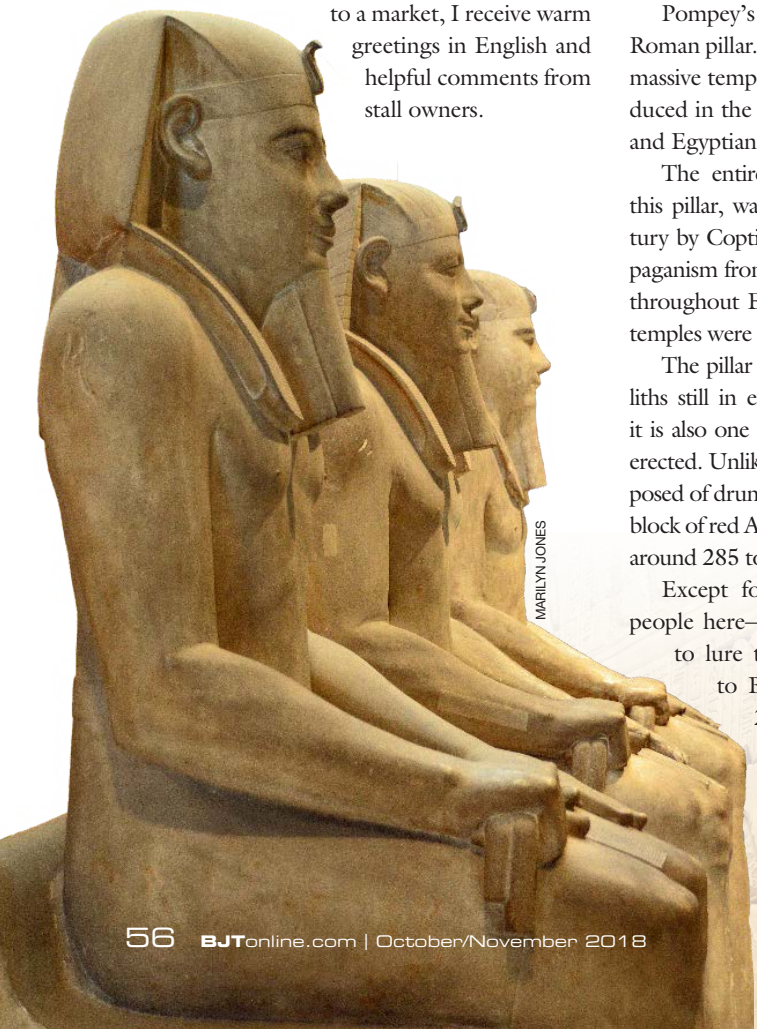
Except for my tour group, there are few people here—a sign of the continuing struggle to lure tourists back to Egypt. According to Bayoumy, before the revolution in 2011, more than 14 million tourists visited the country every year. The number fell to 1 million after 2011 and has slowly climbed back to 4 million.



The Catacombs of Kom El Shoqafa, one of the Seven Wonders of the Medieval World, is in Alexandria. Descending a spiral staircase carved in the bedrock, we find etchings and carvings exhibiting a union of Greek, Roman, and Egyptian cultures. From the first to fourth centuries A.D., the tombs here served as the final resting place for as many as 300 mummies. Visitors are free to explore the top two levels, which are dominated by a large funeral banquet hall and rock-carved alcoves, each big enough to hold three mummies.

After exploring Egypt's past, we get a taste of the future with a visit to the ultra-modern Bibliotheca Alexandrina, also known as the New Library of Alexandria. Second in size among libraries only to America's Library of Congress, it can hold around eight million books. On the lower level are several art galleries and a museum devoted to Anwar Sadat, the country's president from 1970 until his assassination in 1981.

In the evening, after dinner at a seafood restaurant on the Mediterranean, I walk along the boardwalk, enjoying the sea air and local color. Men and women, young and old, ask where I am from. I feel welcome. Countless times I am approached and addressed with "You are welcome" and "Welcome to Egypt." With no hijab covering my blond hair it's obvious I am a visitor. I always feel safe.





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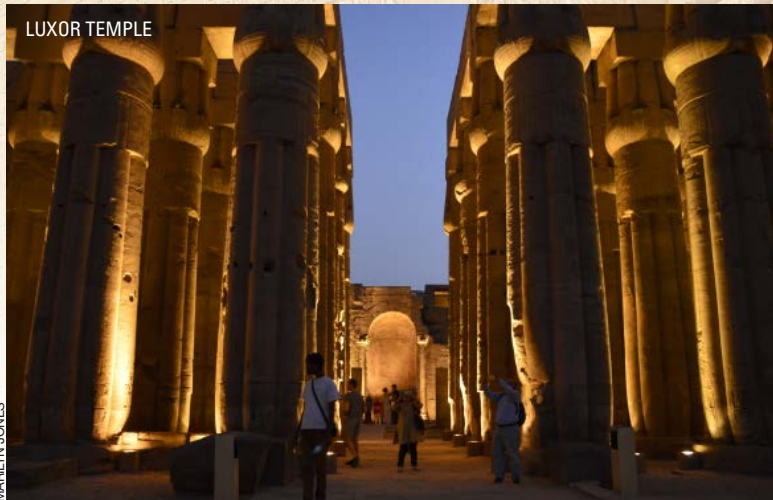
Hotel Mercure Cairo Le Sphinx (B-) offers a beautiful lobby and several rooms that have a view of the pyramids. **Cherry Maryski Hotel** (C) in Alexandria is near the Mediterranean Sea and local shopping areas, but needs updating. **Helnan Aswan Hotel** (A+) is a lovely property on the Nile River with beautifully appointed rooms. **Mercure Luxor Karnak** (B) is on the Nile and features nicely landscaped grounds, a large swimming pool, and a rooftop bar.

FOOD:

Kadoura (A) is an exceptional seafood restaurant in Alexandria offering fresh fish from the Mediterranean Sea. **Zizo Koshary** (A) in Cairo features koshary, one of the most famous dishes in Egypt, which consists of rice, spaghetti, macaroni, black lentils, chick peas, and garlic topped with a spicy tomato sauce and fried onions. **Al Sahaby Lane Restaurant and Café** (A) in Luxor offers terrace seating overlooking the Nile. On the menu are Hamam Mahshi—made by stuffing rice, wheat, and herbs into a pigeon that is grilled or roasted—and other traditional Middle Eastern and Western dishes.

ACTIVITIES (A+):

There are seven UNESCO World Heritage sites in Egypt; most cover broad areas instead of specific attractions, so much of the country is under the UNESCO umbrella. There's a lot to explore: deserts and oases, additional tombs at Valley of the Kings, and forts and citadels. Also, the Grand Egyptian Museum, near the pyramids, is under construction and scheduled to partially open later this year. Note that tourist sites are usually not handicap accessible and, because they have been preserved intact, they often contain pathways made of uneven stones that can make walking a bit difficult.



MARILYN JONES



MONA L. BROWN

Because the Nile flows from south to north, the southern part of the country is known as Upper Egypt. Here, the cities of Aswan and Luxor bookend the route of many cruise ships and frame an entirely new area of exploration.

Aswan is a busy market and tourist center with a population of 300,000. Located just north of the Aswan Dam, which formed Lake Nasser, it is home to several ancient treasures that would be underwater if not for their rescue by the international community.

One of these is Philae Temple, built in the first century B.C. to honor Isis, goddess of beauty and love, the wife of Osiris,

god of heavens and the lord of the underground world, and mother of Horus. The falcon-headed Horus was originally the sky god, whose eyes were the sun and moon. He was later assimilated into the popular myth of Isis and Osiris as the divine couple's child. The three characters dominate ancient Egyptian culture.

Another impressive accomplishment was the relocation of the Great Temple of Ramesses II. The impressive Abu Simbel temples to the king and his queen Nefertari are 175 miles south of Aswan. Four 65-foot statues of the king front his

temple. Thirty-eight-foot-tall statues of the king and queen face Nefertari's temple. Originally constructed in the 13th century B.C., these structures each contain a maze of rooms decorated with statues and wall carvings depicting the king and gods and goddesses.

After the drive back to Aswan from Abu Simbel, we board the Princess Sarah for a three-day cruise—a relaxing way to travel between sites. Along our route, we visit Kom Ombo, a temple dedicated to the Egyptian deity Horus and to Sobek, the crocodile god. In addition to hearing a fascinating



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PHOTOS: MARILYN JONES



TOMB OF RAMESSES IV



history of the temple, we visit a museum preserving the mummified remains of crocodiles dating to the first century B.C.

Edfu, a temple dedicated to Horus, is another destination along the Nile. Located in a tiny village, it is the most complete temple in Egypt. We take a caleche (horse-drawn buggy) through the village to the temple built during the Ptolemaic era in the first century B.C.

It is dusk when I walk from the ship to Luxor Temple, near the Nile. The temple was built and added to by four kings—Amenhotep III, Tutankhamun, Horemheb, and Ramesses II—between 1390 and 1213 B.C. Lights illuminate the great pillars, sculptures, and etchings of the temple, which is dedicated to Amon, king of the gods, his consort Mut, and their son Khons. Toward the rear is a granite

shrine dedicated to Alexander the Great.

As I begin to walk back to the ship, I see before me part of the Avenue of the Sphinxes illuminated against a sapphire sky. Originally more than a mile and a half long, the road was used once a year during the Opet festival when the Egyptians paraded along it, carrying the statues of Amun and Mut in a symbolic reenactment of their marriage. The avenue was finished during the 30th Dynasty rule of Nectanebo I in the first century B.C.

The avenue connected with the Great Temple of Amon at Kamak, the largest religious complex ever made. Covering about 200 acres, Kamak was also dedicated to Amun, Mut, and Khons. Construction began the same year as Luxor Temple and was completed in 1353 B.C.

“Valley of the Kings is a burial ground for pharaohs, queens, high priests, and others chosen for the honor,” Bayoumy says, as he passes out our entrance tickets to this site. These tombs are extravagantly decorated with scenes of what the Egyptians thought would take place in the afterlife.

Constructed during Egypt’s New Kingdom (1539–1075 B.C.), these tombs have had most of their contents removed by robbers, treasure hunters, and archaeologists over several centuries. “The contents would have included clothing, food and wine, mummified pets, sacred objects, and riches,” says Bayoumy.

It was in 1922, when many experts believed all the tombs had

been located, that Howard Carter discovered the resting place of King Tutankhamun. In 2005, another tomb was discovered about 50 feet from King Tutankhamun’s. Although it contained no mummy, it held objects including pottery, linens, and flowers. Archaeologists are still working to solve its mysteries.

Back on the bus, we head to Luxor. The next day we will fly to Cairo and I will return home. When I planned this trip, I thought I knew what to expect. I was wrong. The mysteries, culture, history, and beauty of Egypt are richer and more memorable than I could have imagined.



Marilyn Jones (mjones@bjtonline.com) wrote about Thailand’s Angkor Archeological Park for **BJT’s** December 2017/January 2018 issue. Airfare, accommodations, and other services for this article were provided by Turkish Airlines and G Adventures.

Traveler Fast Facts

WHAT IT IS:

Egypt is located where Africa meets the Middle East. Bordered by Libya, Sudan, Israel, and Jordan, at the Gulf of Aqaba, it has a population of more than 90 million. Because of its predominantly barren ecosystem, 99 percent of the country’s population lives on 5 percent of its land. Their lifeline is the Nile, the world’s longest river.

CLIMATE:

Egypt is typically hot and sunny throughout the year with little rain south of Cairo. The best time to visit is from October to April when it isn’t so hot. For this reason, December and January are peak tourist months and attractions can become crowded. If you visit Luxor or Aswan between May and September, tour sites in the early morning or late afternoon to avoid the intense heat.

GETTING THERE:

About 25 international airports in Egypt welcome private jets. To visit the locations discussed in this article, consider Cairo International Airport, Borg El Arab International Airport (Alexandria), Luxor International Airport, Aswan International Airport, and Abu Simbel Airport. Airlines that serve Cairo International Airport with direct flights from Canada, Europe, the Middle East, and Asia include Turkish Airlines, Air Canada, and EgyptAir.

WHAT TO KNOW BEFORE YOU GO:

Americans should bring U.S. currency in small bills. Many vendors will quote prices in dollars. These vendors are often aggressive, so if you aren’t interested, don’t stop to browse. If you are considering a purchase, on the other hand, note that vendors will often accept 50 to 60 percent less than their asking prices.

Because of the current political climate, you should check conditions before traveling to Egypt. (The U.S. State Department’s website has a travel-advisory section that contains up-to-date information.) The safest way to visit is on an organized tour. Police monitor all tour-group movements and are present at every major attraction.



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




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All	All	All	All
MINIMUM PRICE	MAXIMUM PRICE	RANGE	SEATING
All	All	All	All


All aircraft data provided by Cirium & de Decker


MODEL #	MANUFACTURER	CABIN SIZE	RANGE	PRICE NEW	PRICE USED	Options
 3000	Twin Commander	233 cu ft	1,210 nm	\$1.9M	\$262K - \$1.1M	LOG IN TO COMPARE
 206AL	Bell	208 cu ft	206 nm	\$960K	\$1.6M - \$2.0M	
 206B3	Bell	54 cu ft	270 nm	\$1.4M	\$322K - \$1.1M	
 206BR	Bell	54 cu ft	270 nm	\$1.5M	\$326K - \$1.1M	
 206L1	Bell	73 cu ft	240 nm	\$560K	\$460K	
 206L3	Bell	73 cu ft	210 nm	\$1.0M		
 206L4	Bell	73 cu ft	253 nm	\$2.3M		
 206L7	Bell	73 cu ft	106 nm			
 208 Caravan	Cessna	271 cu ft	315 nm			
 208 Caravan/Cargo Pod	Cessna	271 cu ft				
 208 Grand Caravan/Carg Pod	Cessna	352 cu ft				
 208 Grand Caravan	Cessna					
 208 Grand Caravan EX	Cessna					
 208 Grand Caravan EX/Carg Pod	Cessna					
 212						
 214E						
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Price Used (Min)	\$18M	Year Ended	In Production	Total Fixed Cost/Hour	\$1,915
Price Used (Max)	\$19M			Total Fixed Cost/Unit Distance	\$4/rev
				Total Misc Cost/Hour	\$136,962
				Total Misc Cost/Year	\$544
				Total Crew Cost/Year	\$45,130
				Total Fuel Cost/Year	\$1,557
				Total Mo Cost/Year	\$870
				Total Variable Cost/Year	\$1,190,368
				Total Variable Cost/Hour	\$2,963
				Total Variable Cost/Unit Distance	\$6/rev

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TRAVELER CALENDAR

Now through November 4

FRIDA KAHLO: MAKING HER SELF UP

London. Never before exhibited outside Mexico and locked away for 50 years after the death of iconic Mexican artist Frida Kahlo, this extraordinary collection of her artifacts and clothing is at the Victoria & Albert Museum. **Info:** vam.ac.uk

Now through November 5

MARC CHAGALL. THE LOVERS

Moscow. The intimate atmosphere of Chagall's studio inspired the setting, in Altmans Gallery Moscow, for a romantic exhibition dedicated to love, tenderness, and fidelity. **Info:** altmansgallery.com/en

October 2 (previews), October 21 (opens)

THE FERRYMAN

New York. Following a record-breaking run in London, this play about a sprawling family in rural Northern Ireland, directed by Sam Mendes, promises to be an instant classic in the Big Apple. **Info:** theferrymanbroadway.com



The Ferryman

October 5–7, 12–14

AUSTIN CITY LIMITS

Austin, Texas. Get your hands on some BBQ and drift from stage to stage for performances by the likes of Paul McCartney, Metallica, and Arctic Monkeys. **Info:** acfestival.com

October 16–18

NATIONAL BUSINESS AVIATION ASSOCIATION CONVENTION & EXHIBITION

Orlando, Florida. This annual event—which is expected to attract more than 25,000 attendees this year—will feature over 1,100 exhibitors and 100 aircraft on static display. **Info:** nbaa.org

October 20–27

INVICTUS GAMES

Sydney, Australia. Five hundred competitors from 18 nations compete in 11 adaptive sports and show the resilience of the human spirit. **Info:** invictusgames2018.org

November 3–4

WINE & FOOD AFFAIR

Northern Sonoma County, California. Delight in a weekend of wine and food pairings in the Alexander, Dry Creek, and Russian River valleys. **Info:** wineroad.com

November 3–10

MELBOURNE CARNIVAL

Melbourne, Australia. Experience a spectacular display of fashion, first-class thoroughbred racing, and celebrations, and find out why this is “the race that stops a nation.” **Info:** flemington.com.au



Iceland Airwaves



New York City Public Library

November 5

NEW YORK PUBLIC LIBRARY'S LIBRARY LIONS

New York. This annual gala recognizes achievements in art, culture, scholarship, and letters. Last year's honorees included Tom Brokaw and Michael Chabon. **Info:** nypl.org

November 7–10

ICELAND AIRWAVES

Reykjavik, Iceland. What started in an airplane hangar in 1999 has evolved into an eclectic mix of musical acts playing at an equally diverse assortment of intimate venues. Be sure to make time for a dip in the Blue Lagoon. **Info:** icelandairwaves.is

November 29–December 2

LONGINES MASTER OF PARIS

Paris. This is the European leg of a three-continent Grand Slam of indoor show jumping, where movers and shakers gather (and sometimes ride!). **Info:** longinesmasters.com

December 4–5

CONKLIN & DE DECKER AIRCRAFT ACQUISITION PLANNING SEMINAR

Scottsdale, Arizona. Aircraft buyers, owners, and aviation professionals will learn how to make more informed decisions when buying and owning aircraft. **Info:** conklindd.com

December 6–9

ART BASEL MIAMI BEACH

Miami. Leading international contemporary art galleries display paintings, sculptures, installations, photography, film, video, and digital works by over 4,000 artists. Grab your editioned piece by a young artist or a museum-caliber masterpiece, and head to the parties. **Info:** artbasel.com

A Middle East showcase for bizav

The biennial Middle East and North Africa Business Aviation Association conference—commonly known as the MEBAA show—will be held December 10 to 12 in Dubai, UAE. The event will include panel discussions and presentations on business aviation trends and regulations in the region, insurance, blockchain, cybersecurity, finance, and innovation, among other topics. New this year are a product-demonstration theater and an executive lounge dedicated to meetings and networking. **Info:** mebaa.com —Lysbeth McAleer

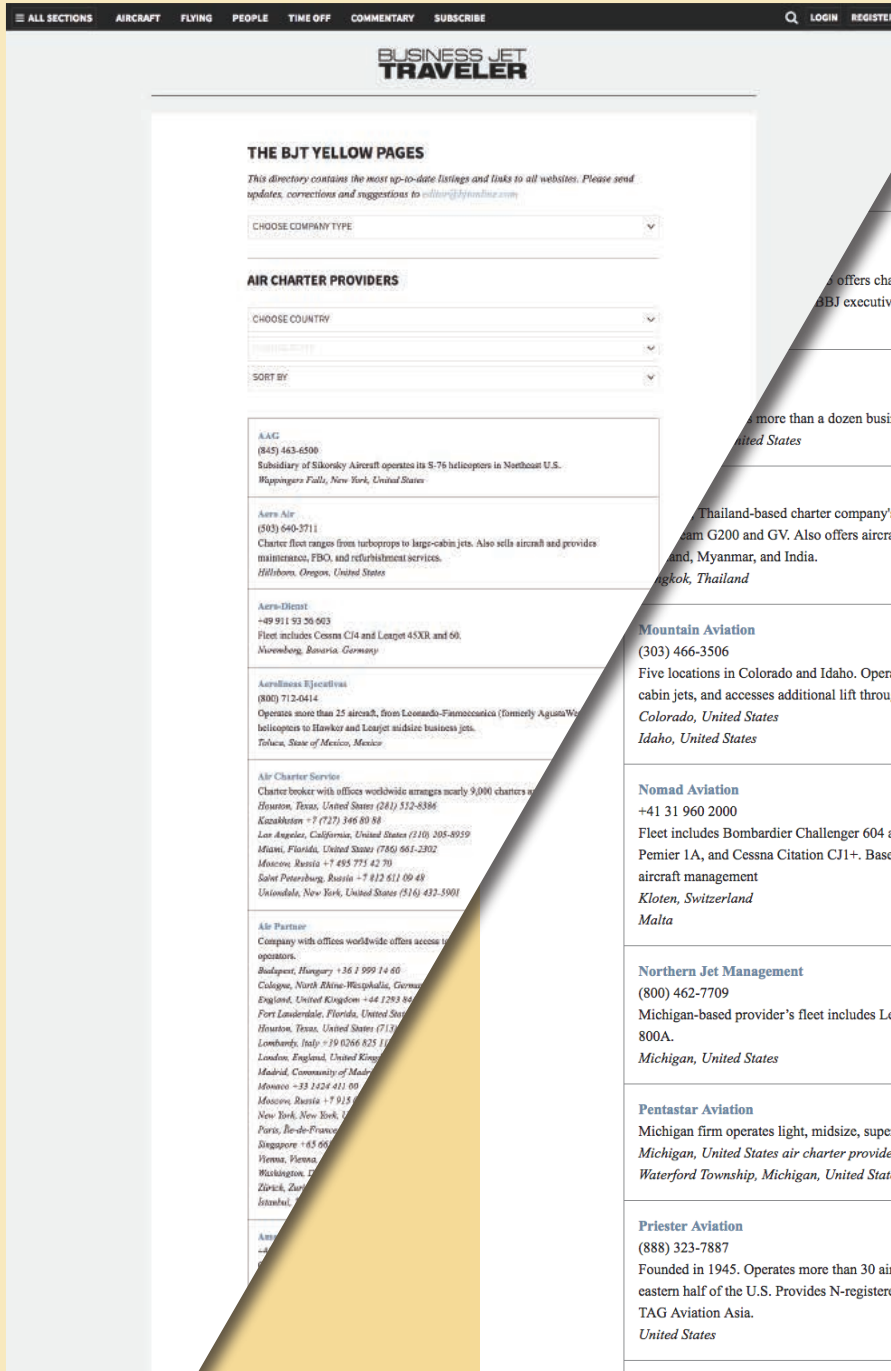


DAVID McINTOSH

For a long-range events calendar, please visit bjtonline.com/calendar.

BJT YELLOW PAGES

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VLJs and one that guarantees access from aircraft size and lowered

and Hayward, California operates a score of select vetted aircraft.

offers charter and block charter on Gulfstream GV ultra-long-BBJ executive airliner.

more than a dozen business jets, ranging from Citation CJ3 to Gulfstream 650. United States

Thailand-based charter company's fleet includes Cessna Citation Bravo and X; and team G200 and GV. Also offers aircraft management and maintenance and FBO services in and, Myanmar, and India. Bangkok, Thailand

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Northern Jet Management
(800) 462-7709
Michigan-based provider's fleet includes Learjet 40XR, 45XR, and 70; Citation Bravo; and Hawker 800A.
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Breathe easy

Thanks to pressurization, you can safely and comfortably fly through “thin air.”

by Mark Phelps

The outside atmosphere doesn't appear particularly scary from the window of a jet airplane. Clouds look puffy and sun-dappled in daytime, while stars above and glistening cities below fill the night sky with twinkling jewels of light. But the air we fly through way up there is as hostile as the ocean's deepest depths. Not only is the average temperature 70 degrees below zero at 38,000 feet, but there isn't nearly enough oxygen to sustain fragile human life.

For some context on just how fragile we humans are, consider that the entire atmosphere surrounding Earth is only about 300 miles thick. For perspective, if our planet were the size of an apple, the atmosphere would be about the thickness of that apple's skin. And it's only at the lowest 1 percent of that thin membrane where we oxygen breathers can survive comfortably.

That's because the 300-mile-thick atmosphere has significant heft and at ground level, squeezes the air to a consistency we can breathe, compressing the gases so that there's enough oxygen to sustain us. Above 15,000 feet, however, air is thin enough that the concentration of life-sustaining oxygen in each lungful is much lower than at the surface.

Just as submarines are safe havens for their occupants, our airplanes are our life-sustaining “vessels” on high. One big difference is that submarines must bring their own air with them

when they submerge (though I understand they can chemically extract some oxygen from the ocean waters—kind of like a fish's gills). Our airplanes are surrounded by the stuff, but we need to artificially pressurize and warm the thin, frozen air to create our life-sustaining cocoon.

Early airplanes didn't fly high enough to need pressurization. But with the advent of the jet age, pressurization became a necessity. Drawing power from the engines, pressurization systems “inflate” the inside of a pressurized airplane, forcing in enough air for passengers to be comfortable. Relief valves open and close to regulate pressure levels. The fuselage must not only be sealed to hold in the air, but also be strong and flexible enough to withstand the strain of being inflated and deflated with every flight—not an inconsequential design limit.

And the engine power it takes to pump up the cabin comes at the cost of performance—sapping a small amount of speed and range, and burning that much more fuel. In fact, the air pumped in by engine power is called “bleed air.” So, ever-cost-conscious airlines have traditionally been stingy with pressurization requirements for the airplanes they buy.

The way to measure how pressurized an airplane gets is to calculate “cabin altitude.” That is the equivalent height above sea level that the outside air would be. For example, if the cabin

altitude is 5,000 feet, that means the air density (and oxygen level) inside it is similar to what you would experience in Denver. Until recently, airliners typically had cabin altitudes equivalent to around 8,000 feet or more when flying at their 30,000-plus-foot cruising altitudes. While that is certainly a safe environment, it can be physically taxing—especially on flights that can last up to 17 hours. This can lead to fatigue and headaches for some passengers.

In the competition to sell airliners, passenger comfort levels are finally being addressed, thanks in part to new technology. The long-range Boeing 787 Dreamliner, for example, has maximum cabin altitudes closer to 6,000 feet. That's possible partly due to the Dreamliner's mostly composite construction, which allows for a stronger but not heavier aircraft. The Dreamliner's popularity has led Boeing to re-engineer and adopt the 6,000-foot maximum cabin altitude for its newer 777 aluminum models, as well.

For private fliers, though, such levels are nothing new: most business jets have long had robust pressurization systems that make long flights relatively comfortable. So as you look out the window on your next flight, take a deep breath and appreciate the view—as well as your hospitable cabin. **EJT**

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